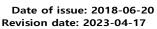
# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING 1.1. Product identifier : MGI- D.GREEN Trade 1.2. Relevant identified uses of the substance or mixture and uses advised against 1.2.1. Relevant identified uses - Water-soluble stationary ink 1.2.2. Uses advised against - Not available 1.3. Details of the supplier of the safety data sheet Manufacturer/Supplier : YOU&I COPORATION Address : 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118 Telephone : 82-31-494-2030 Email : tech@youicolor.com 1.4. Emergency telephone number 82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area. **SECTION 2: HAZARD IDENTIFICATION** 2.1. Classification of the substance/mixture 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2 2.2. Label elements 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP] \* Hazard Pictogram(s) ¥ \* Signal word : Warning \* Hazard statement(s) H411: Toxic to aquatic life with long-lasting effects \* Precautionary statement(s) 1) Prevention P273: Avoid release to the environment. 2) Response P391: Collect spillage. 3) Storage Not applicable 4) Disposal P501: Disposal contents/ container to in accordance with local national regulation. 2.3. Other hazards - Not available Page 1 of 189 Item Numbers: 21739-1009

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

### 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373
C.I. PIGMENT YELLOW 83	5567-15-7	226-939-8	0~5	Aquatic Chronic 3, H412
C.I. PIGMENT BLUE 15:3	147-14-8	205-685-1	0~5	Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

#### 4.1. Description of first aid measures

#### General

- No general information.

#### Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

#### Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

#### 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

#### 5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

#### 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

# 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

#### 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

# 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

# 6.3.3. Other information

- Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

- See Section 13 for information on disposal.

# SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

#### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

#### 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available

### European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Skin

- Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

# 8.2. Exposure controls

# 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

# Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

# - Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

# Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

1. Information on basic physical and chemical properties		
Appearance(State)	Liquid	
Appearance(Color)	GREEN	
Odor	Odorless	
Odor threshold	Not available	
рН	8.0 ± 1.0	
Melting point/Freezing point	Not available	
Initial boiling point and boiling range	> 100 °C	
Flash point	300 ℃	
Evaporation rate	Not available	
Flammability(solid, gas)	Not applicable	
Upper/Lower Flammability or explosive	Not available	
Vapour pressure	Not available	
Vapour density	Not available	
Relative density	1.1 ± 0.05 g/cm3	
Solubility	Fully miscible	
Partition coefficient of n-octanol/water	Not available	
Autoignition temperature	No self-igniting	
Decomposition temperature	Not available	
Viscosity	750 ± 150 Cps	
Explosive properties	Not explosive	
Oxidizing properties	Not available	

#### 9.2. Other information

- Not available

### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

#### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

#### 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

#### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

#### - Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/l 4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

#### 11.4. Respiratory sensitization

- Not available

### 11.5. Skin sensitization

- Not available

#### 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
- Not available
- OSHA
- Not available
- ACGIH - [ALUMINIUM POWDER] : A4
- NTP
  - Not available
- EU CLP
- Not available

#### 11.8. Reproductive toxicity

- Not available

### 11.9. Specific target organ toxicity(single exposure):

- Not available

#### 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

#### 11.11. Aspiration hazard

- Not available

# SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity
  - 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)

#### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)

- [ALUMINIUM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)

#### 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)

#### 12.2. Persistence and degradability

### 12.2.1. Persistence

- Not available

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

### 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

#### 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste

recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

#### 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN)

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3082
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**14.1.2. UN No. (IMDG CODE/IATA DGR)** 3082

**14.1.3. UN No. (ICAO)** 3082

### 14.2. UN proper shipping name

- Not applicable

14.3. Transport hazard class(es)

# 14.3.1. ADR/RID/ADN Class

- Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

# 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

# 14.4.1. ADR/RID/ADN Packing group

- Not applicable

#### 14.4.2. IMDG Packing group

- Not applicable

#### 14.4.3. ICAO Packing group

- Not applicable

### 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

# SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

#### 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- **15.1.1.4 Europe PBT** - Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
  - Not applicable

# 15.2. Chemical Safety Assessment

Not conducted

# SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

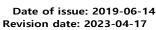
#### · Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material. 

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade

# : MGI- D.GOLD

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

- Water-soluble stationary ink

# 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	: YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

#### 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

#### SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance/mixture

#### 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2

#### 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)



- \* Signal word : Warning
- \* Hazard statement(s)
  - H411: Toxic to aquatic life with long-lasting effects
- \* Precautionary statement(s)
  - 1) Prevention
    - P273: Avoid release to the environment.
  - 2) Response
    - P391: Collect spillage.
  - 3) Storage
    - Not applicable
  - 4) Disposal

P501: Disposal contents/ container to in accordance with local national regulation.

### 2.3. Other hazards

- Not available

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

### 3.2. Mixtures

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C.I. PIGMENT BLACK 7	1333-86-4	215-609-9	0~5	Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
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#### General

- No general information.

# Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

#### Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

#### 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

#### 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

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#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

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- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

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- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

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- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

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- Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

- See Section 13 for information on disposal.

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#### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

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- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

#### 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available
- European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
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#### 8.1.3. DNEL/PNEC - Values

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# 8.2.1. Appropriate engineering controls

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# Hand protection

- Wear appropriate glove.

# Eye protection

Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.Provide an emergency eye wash station and quick drench shower in the immediate work area.

# Respiratory Protection

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.1. Information on basic physical and chemical properties		
Appearance(State)	Liquid	
Appearance(Color)	GOLD	
Odor	Odorless	
Odor threshold	Not available	
рН	8.0 ± 1.0	
Melting point/Freezing point	Not available	
Initial boiling point and boiling range	> 100 °C	
Flash point	300 °C	
Evaporation rate	Not available	
Flammability(solid, gas)	Not applicable	
Upper/Lower Flammability or explosive	Not available	
Vapour pressure	Not available	
Vapour density	Not available	
Relative density	1.1 ± 0.05 g/cm3	
Solubility	Fully miscible	
Partition coefficient of n-octanol/water	Not available	
Autoignition temperature	No self-igniting	
Decomposition temperature	Not available	
Viscosity	750 ± 150 Cps	
Explosive properties	Not explosive	
Oxidizing properties	Not available	

#### 9.2. Other information

- Not available

#### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

#### 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

#### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

#### - Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/l 4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

#### 11.4. Respiratory sensitization

- Not available

### 11.5. Skin sensitization

- Not available

#### 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
- Not available
- OSHA
- Not available
- ACGIH - [ALUMINIUM POWDER] : A4
- NTP
  - Not available
- EU CLP
- Not available

#### 11.8. Reproductive toxicity

- Not available

### 11.9. Specific target organ toxicity(single exposure):

- Not available

#### 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

#### 11.11. Aspiration hazard

- Not available

# SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity
  - 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)

- [C.I. PIGMENT YELLOW 83] : LC50 45 mg/l 48 hr Oncorhynchus mykiss (ECOTOX)

### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/ł 48 hr Daphnia magna (ECHA)

- [ALUMINIUM POWDER] : NOEC > 100 mg/{ 48 hr Daphnia magna (IUCLID)

#### 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)

#### 12.2. Persistence and degradability

#### 12.2.1. Persistence

- [C.I. PIGMENT YELLOW 83] : 7.54 log Kow (IUCLID)

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

# 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

- [C.I. PIGMENT YELLOW 83] : 10 (QSAR)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

- [C.I. PIGMENT YELLOW 83] : 6 (%) 28 days (NITE)

# 12.4. Mobility in soil

- Not available

#### 12.5. Results of PBT and vPvB assessment

- Not available

### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

#### SECTION 14: TRANSPORT INFORMATION

# 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN)

3082

**14.1.2. UN No. (IMDG CODE/IATA DGR)** 3082

#### 14.1.3. UN No. (ICAO) 3082

### 14.2. UN proper shipping name

- Not applicable

14.3. Transport hazard class(es)

# 14.3.1. ADR/RID/ADN Class

- Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

# 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

# 14.4.1. ADR/RID/ADN Packing group

- Not applicable

#### 14.4.2. IMDG Packing group

- Not applicable

#### 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

#### 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
  - Not applicable
- **15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List** - Not applicable

#### 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

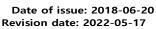
#### · Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material. 

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier Trade

: MGI- B. ROSE

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

- Water-soluble stationary ink

### 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	· : YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

#### 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

#### SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance/mixture

#### 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP]

- Not applicable

### 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)
    - Not applicable
  - \* Signal word : Not applicable
  - \* Hazard statement(s)
  - Not applicable
  - \* Precautionary statement(s)
    - 1) Prevention
      - Not applicable
    - 2) Response
    - Not applicable
    - 3) Storage
    - Not applicable
    - 4) Disposal - Not applicable
- 2.3. Other hazards
  - Not available

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

#### - Not applicable

#### 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Water-react 2, H261 Pyr. Liq. 1, H250 Flam. Solid 1, H228
C.I. PIGMENT VIOLET 23	6358-30-1	228-767-9	0~5	Not classified
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 3, H412 Eye Irrit. 2, H319 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

#### 4.1. Description of first aid measures

#### General

- No general information.

- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
  - Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

#### Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

#### 4.2. Most important symptoms and effects, both acute and delayed

#### - Not available

### 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

# Suitable extinguishing media

# - Water, form, CO2, NaHCO3

# Unsuitable extinguishing media

- Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

- Hazardous combustion products
- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.

- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

# 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- 6.3.3. Other information
  - Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

# SECTION 7: HANDLING AND STORAGE

# 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

# 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.

- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

#### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs)
    - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

# Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

# - Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on basic physical and chemical properties

# MSDS for #21739 - DECOGEL METALLIC

Appearance(State)	Liquid
Appearance(Color)	B. ROSE
Odor	Odorless
Odor threshold	Not available
рН	9.0 ± 1.0
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 ℃
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

# 9.2. Other information

- Not available

### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

# 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

#### 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- Dermal
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/ $\ell$  4 hr Rat (ECHA)

# 11.2. Skin corrosion/irritation

- Not available

#### 11.3. Serious eye damage/irritation

- Not available

# 11.4. Respiratory sensitization

- Not available

# 11.5. Skin sensitization

- Not available

# 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
  - Not available
- OSHA - Not available
- ACGIH
  - [ALUMINIUM POWDER] : A4
- NTP
  - Not available
- EU CLP
- Not available

# 11.8. Reproductive toxicity

- Not available

### 11.9. Specific target organ toxicity(single exposure):

- Not available

### 11.10. Specific target organ toxicity(repeated exposure):

- Not available

#### 11.11. Aspiration hazard

- Not available

# SECTION 12: ECOLOGICAL INFORMATION

# 12.1. Toxicity

- 12.1.1. Fish
  - [GLYCERINE] : LC50 >11 mg/ $\ell$  96 hr Cyprinodon variegatus (ECHA)

# 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)

### 12.1.3. Algae

- Not available

# 12.2. Persistence and degradability

- 12.2.1. Persistence
  - Not available

# 12.2.2. Degradability

- Not available

# 12.3. Bioaccumulative potential

# 12.3.1. Bioaccumulation

#### - Not available

#### 12.3.2. Biodegradability

- [GLYCERINE] : Biodegradability = 63 (%) 14 day (OECD TG 301C, OECD SIDS, OECD TG 301D, IUCLIDE), 94 % 24hr (TOC removal)(ECHA)

#### 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

# 12.6. Other adverse effects

- Not available

### SECTION 13: DISPOSAL CONSIDERATIONS

# 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste

- recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

#### SECTION 14: TRANSPORT INFORMATION

#### 14.1. UN No.

# 14.1.1. UN No. (ADR/RID/ADN)

- Not applicable

# 14.1.2. UN No. (IMDG CODE/IATA DGR)

- Not applicable

# 14.1.3. UN No. (ICAO)

- Not applicable

#### 14.2. UN proper shipping name

- Not applicable

#### 14.3. Transport hazard class(es)

#### 14.3.1. ADR/RID/ADN Class

- Not applicable

### 14.3.2. ADR/RID/ADN Class

# - Not applicable

# 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

# 14.3.5. ICAO Class/Division

- Not applicable

# 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

- 14.4.1. ADR/RID/ADN Packing group
  - Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

**14.5. Environmental hazards** - Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

#### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
  - Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
  - Not applicable
- 15.1.1.3 REACH SVHC
  - Not applicable
- **15.1.1.4 Europe PBT** - Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List - Not applicable

### 15.2. Chemical Safety Assessment

- Not conducted

#### **SECTION 16: OTHER INFORMATION**

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

# 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

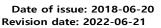
# · Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

: MGI- GRAY

#### 1.2.1. Relevant identified uses

- Water-soluble stationary ink

#### 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	: YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

#### 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

#### **SECTION 2: HAZARD IDENTIFICATION**

2.1. Classification of the substance/mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP]

#### 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)



- : Warning \* Signal word
- \* Hazard statement(s)
  - H411: Toxic to aquatic life with long-lasting effects
- \* Precautionary statement(s)
  - 1) Prevention
  - P273: Avoid release to the environment.
  - 2) Response
    - P391: Collect spillage.
  - 3) Storage
    - Not applicable
  - 4) Disposal

P501: Disposal contents/ container to in accordance with local national regulation.

# 2.3. Other hazards

- Not available

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

### 3.2. Mixtures

				Classification
Name	CAS No.	EINECS NO.	% [weight]	[1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4. H302
C.I. PIGMENT BLACK 7	1333-86-4	215-609-9	0~5	Not classified
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skip Irrit. 2, H315

#### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of first aid measures

#### General

- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
  - Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

#### Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

#### 4.2. Most important symptoms and effects, both acute and delayed

- Not available

#### 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

#### 5.1. Extinguishing media

- Suitable extinguishing media
- Water, form, CO2, NaHCO3

#### Unsuitable extinguishing media

- Avoid use of water jet for extinguishing

#### 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, protective equipment and emergency procedures

- 6.1.1. For non-emergency personnel
  - Protective equipment: Wear proper protective equipment.
  - Emergency procedures: Not applicable
  - If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.
  - Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

# 8.1.3. DNEL/PNEC - Values

- Not available

# 8.2. Exposure controls

# 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

# Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.1. Information on basic physical and chemical properties		
Appearance(State)	Liquid	
Appearance(Color)	BLACK	
Odor	Odorless	
Odor threshold	Not available	
рН	8.0 ± 1.0	
Melting point/Freezing point	Not available	
Initial boiling point and boiling range	> 100 °C	
Flash point	300 ℃	
Evaporation rate	Not available	
Flammability(solid, gas)	Not applicable	
Upper/Lower Flammability or explosive	Not available	
Vapour pressure	Not available	
Vapour density	Not available	
Relative density	1.1 ± 0.05 g/cm3	
Solubility	Fully miscible	
Partition coefficient of n-octanol/water	Not available	
Autoignition temperature	No self-igniting	
Decomposition temperature	Not available	
Viscosity	750 ± 150 Cps	
Explosive properties	Not explosive	
Oxidizing properties	Not available	

#### 9.2. Other information

- Not available

### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

#### 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

#### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

#### - Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/l 4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

#### 11.4. Respiratory sensitization

- Not available

### 11.5. Skin sensitization

- Not available

#### 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
  - Not available
- OSHA
- Not available
- ACGIH
  - [ALUMINIUM POWDER] : A4 (KOHSA)
- NTP
  - Not available
- EU CLP
- Not available

#### 11.8. Reproductive toxicity

- Not available

### 11.9. Specific target organ toxicity(single exposure):

- Not available

# 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

# 11.11. Aspiration hazard

- Not available

# SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity
  - 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)

#### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)

- [ALUMINIUM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)

#### 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)

#### 12.2. Persistence and degradability

# 12.2.1. Persistence

- Not available

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

# 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

#### 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste

recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

#### SECTION 14: TRANSPORT INFORMATION

#### 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN)

```
3082
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**14.1.2. UN No. (IMDG CODE/IATA DGR)** 3082

**14.1.3. UN No. (ICAO)** 3082

### 14.2. UN proper shipping name

- Not applicable

14.3. Transport hazard class(es)

# 14.3.1. ADR/RID/ADN Class

- Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

# 14.3.3. ADR Label No.

- Not applicable

# 14.3.4. IMDG Class

- Not applicable

# 14.3.5. ICAO Class/Division

- Not applicable

# 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

# 14.4.1. ADR/RID/ADN Packing group

- Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

# 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

# SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- **15.1.1.4 Europe PBT** - Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
  - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

# 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

# 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

# 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

# 16.5. Training advice

Not applicable

# 16.6. Further information

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# 21739-6510

According to R	egulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No 2015/830)
Date of issue: 2018-06-20	
Revision date: 2022-06-21	
	OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1. Product identifier Trade name/designation	: MGI- VIOLET
1.2. Relevant identified use 1.2.1. Relevant identified	es of the substance or mixture and uses advised against
- Water-soluble station	
1.2.2. Uses advised again	nst
- Not available	
1.3. Details of the supplier	of the safety data sheet
Manufacturer/Supplier	: YOU&I COPORATION
Address Telephone	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118 : 82-31-494-2030
Email	: tech@youicolor.com
1.4. Emergency telephone	
	number is serviced during office hours only.)
EU-wide emergency nu	
	e list of telephone number of poison centers in the European Economic Area.
See section 16.6 for the	e list of telephone number of poison centers in the European Economic Area.
See section 16.6 for the	
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CTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification accord H411-Aquatic Chronic 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning
CTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification accor H411-Aquatic Chronic 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard statement(s)	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning
CTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification account H411-Aquatic Chronic 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard statement(s)	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects
CTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification account H411-Aquatic Chronic 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard statement(s) H411: Toxic to aqua * Precautionary statement 1) Prevention	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects ment(s)
CTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification account H411-Aquatic Chronic 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard statement(s) H411: Toxic to aqua * Precautionary statement 1) Prevention P273: Avoid release	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects
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CTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification according H411-Aquatic Chronic 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard statement(s) H411: Toxic to aqua * Precautionary statem 1) Prevention P273: Avoid release P391: Collect spilla 3) Storage - Not applicable 4) Disposal	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects ment(s) se to the environment. age.
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3.2. Mixtures

2/9

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT VIOLET 23	6358-30-1	228-767-9	0~5	Specific target organ toxicity (single), H335
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

- General
  - No general information.
- Inhalation
- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

- 5.1. Extinguishing media
  - Suitable extinguishing media
  - Water, form, CO2, NaHCO3
  - Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products - Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, protective equipment and emergency procedures

# 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

# 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

# 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.

- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

### 6.3.3. Other information

- Slippery when spilt.

### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

### SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

# 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

# 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

# 8.1.3. DNEL/PNEC - Values

Not available

## 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits.
 Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

### 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

# Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

1. Information on basic physical and chemi	
Appearance(State)	Liquid
Appearance(Color)	VIOLET
Odor	Odorless
Odor threshold	Not available
рН	8.0 ± 1.0
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive

# 9.2. Other information

- Not available

### SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

- Not available

# 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

	- Product (ATEmix) : >5000mg/kg
	- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
	- Inhalation
	- Product (ATEmix) : Not available - [GLYCERINE] : LC50 >2.75 mg/ℓ 4 hr Rat (ECHA)
1	1.2. Skin corrosion/irritation
	- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
1	1.3. Serious eye damage/irritation
	- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
1	1.4. Respiratory sensitization
	- Not available
1	1.5. Skin sensitization
	- Not available
1	1.6. Germ cell mutagenicity
	- Not available
1	17 Carcinogonicity
1	1.7. Carcinogenicity - IARC
	- Not available
	- OSHA
	- Not available
	- ACGIH
	- [ALUMINIUM POWDER] : A4 (KOHSA)
	- NTP
	- Not available
	- EU CLP
	- Not available
1	1.8. Reproductive toxicity
	- Not available
1	1.9. Specific target organ toxicity(single exposure):
	- [C.I. PIGMENT VIOLET 23] : Classified as Category 3 (Respiratory irritation) (KOSHA)
1	1.10. Specific target organ toxicity(repeated exposure):
-	- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)
1	1.11. Aspiration hazard
-	- Not available
c	TION 12: ECOLOGICAL INFORMATION
	2.1. Toxicity
	12.1.1. Fish
	- [GLYCERINE] : LC50 >11 mg/e 96 hr Cyprinodon variegatus (ECHA)
	12.1.2. Invertebrate
	- [GLYCERINE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)
	- [ALUMINIUM POWDER] : NOEC > 100 mg/0 48 hr Daphnia magna (IUCLID)
	12.1.3. Algae
	<ul> <li>- [ALUMINIUM POWDER] : NOEC &gt; 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)</li> </ul>
1	2.2. Persistence and degradability
1	12.2.1. Persistence

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

# 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

# 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

# SECTION 13: DISPOSAL CONSIDERATIONS

# 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and
- dispose, person who establish and operate waste disposal facilities.Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

### 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN) 3082

**14.1.2. UN No. (IMDG CODE/IATA DGR)** 3082

**14.1.3. UN No. (ICAO)** 3082

# 14.2. UN proper shipping name

- Not applicable

# 14.3. Transport hazard class(es)

- 14.3.1. ADR/RID/ADN Class
  - Not applicable

### 14.3.2. ADR/RID/ADN Class - Not applicable

14.3.3. ADR Label No. - Not applicable

14.3.4. IMDG Class - Not applicable

14.3.5. ICAO Class/Division
- Not applicable

# 14.3.6. Transport Labels

# - Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group - Not applicable

**14.4.2. IMDG Packing group** - Not applicable

#### Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

### 14.5. Environmental hazards

Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable

15.1.1.2 REACH Substances subject to authorization under REACH

Not applicable

15.1.1.3 REACH SVHC

- Not applicable
- 15.1.1.4 Europe PBT

- Not applicable

15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road - Dangerous Goods List - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

# 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

# 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5. Training advice	
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- Not applicable

# 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

#### · Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

	egulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No 2015/830)
Date of issue: 2019-06-14 Revision date: 2022-06-21	
	F THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1. Product identifier Trade name/designation	: MGI- SILVER
1.2. Relevant identified use 1.2.1. Relevant identified	s of the substance or mixture and uses advised against
- Water-soluble stationa	
<b>1.2.2. Uses advised again</b> - Not available	st
L.3. Details of the supplier of	of the safety data sheet
Manufacturer/Supplier	: YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone Email	: 82-31-494-2030 : tech@youicolor.com
1.4. Emergency telephone n 82-31-494-2030 (This n	umber umber is serviced during office hours only.)
EU-wide emergency nui See section 16.6 for the	
See section 16.6 for the	list of telephone number of poison centers in the European Economic Area.
See section 16.6 for the CTION 2: HAZARD IDENTIFIC 2.1. Classification of the sub	list of telephone number of poison centers in the European Economic Area. ATION Istance/mixture
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See section 16.6 for the CTION 2: HAZARD IDENTIFIC 2.1. Classification of the sub 2.1.1. Classification according 4.1.1-Aquatic Chronic 2 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard Statement(s) H411: Toxic to aquat * Precautionary statem 1) Prevention P273: Avoid release 2) Response P391: Collect spilla 3) Storage - Not applicable 4) Disposal P501: Disposal con 2.3. Other hazards	Iist of telephone number of poison centers in the European Economic Area.  ATION  Instance/mixture  ding to Regulation (EC) No 1272/2008 [CLP]  to Regulation (EC) No 1272/2008 [CLP]  : Warning ic life with long-lasting effects  tent(s) e to the environment.  ge.
See section 16.6 for the CTION 2: HAZARD IDENTIFIC 2.1.1. Classification of the sub 2.1.1. Classification accord H411-Aquatic Chronic 2 2.2. Label elements 2.2.1. Labelling according * Hazard Pictogram(s) * Signal word * Hazard statement(s) H411: Toxic to aquat * Precautionary statem 1) Prevention P273: Avoid releas: 2) Response P391: Collect spilla 3) Storage - Not applicable 4) Disposal P501: Disposal con	Iist of telephone number of poison centers in the European Economic Area.  ATION  Instance/mixture  ding to Regulation (EC) No 1272/2008 [CLP]  to Regulation (EC) No 1272/2008 [CLP]  : Warning ic life with long-lasting effects  tent(s) e to the environment.  ge.

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3.2. Mixtures

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Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

### General

- No general information.

- Inhalation
- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

# Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

Suitable extinguishing media - Water, form, CO2, NaHCO3 Unsuitable extinguishing media - Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

# 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

### SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.

- Do not inhale the steam prolonged or repeated.

## 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs)
     Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

### 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.4. Information on basis abusised and abouting measurements

Liquid
Liquid
SILVER
Odorless
Not available
$8.0 \pm 1.0$
Not available
> 100 °C
300 °C
Not available
Not applicable
Not available
Not available
Not available
1.1 ± 0.05 g/cm3
Fully miscible
Not available
No self-igniting
Not available
750 ± 150 Cps
Not explosive
Not available

### 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

# 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

# 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.

- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)

- Inhalation

- Product (ATEmix) : Not available
- [GLYCERINE] : LC50 >2.75 mg/& 4 hr Rat (ECHA)

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- [2-AMINO	rosion/irritation
	-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
1.3. Serious	eye damage/irritation
- [2-AMINO	-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
1.4. Respirat	ory sensitization
- Not availa	ble
1.5. Skin sen	sitization
- Not availa	ble
1.6. Germ ce	Il mutagenicity
- Not availa	
1.7. Carcinog	enicity
- IARC	
- Not ava	lable
- OSHA	
- Not ava	ilable
- ACGIH	
	NIUM POWDER] : A4
- NTP	
- Not ava	ilable
- EU CLP	
- Not ava	lable
1.8. Reprodu	ictive toxicity
- Not availa	
1.9. Specific	target organ toxicity(single exposure):
- Not availa	
i tot avana	
1.10. Specific	c target organ toxicity(repeated exposure):
	JM POWDER] : Classified as Category 2 (KOSHA)
[ALONININ	Swit Owser() - classified as category 2 (Kosink)
1.11. Aspirat	ion hazard
- Not availa	ble
- Not availa	
- Not availa	
- Not availa TION 12: ECC 2.1. Toxicity	DLOGICAL INFORMATION
- Not availa TION 12: ECC 2.1. Toxicity 12.1.1. Fish	DLOGICAL INFORMATION
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF	DLOGICAL INFORMATION RINE] : LC50 >11 mg/& 96 hr Cyprinodon variegatus (ECHA)
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve	DLOGICAL INFORMATION RINE] : LC50 >11 mg/& 96 hr Cyprinodon variegatus (ECHA)
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF	DLOGICAL INFORMATION RINE] : LC50 >11 mg/& 96 hr Cyprinodon variegatus (ECHA) r <b>tebrate</b> RINE] : LC50 1955 mg/& 48 hr Daphnia magna (ECHA)
- Not availal 	DLOGICAL INFORMATION RINE] : LC50 >11 mg/0 96 hr Cyprinodon variegatus (ECHA) r <b>tebrate</b> RINE] : LC50 1955 mg/0 48 hr Daphnia magna (ECHA) UM POWDER] : NOEC > 100 mg/0 48 hr Daphnia magna (IUCLID)
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [ALUMINI 12.1.3. Alga	DLOGICAL INFORMATION RINE] : LC50 >11 mg/0 96 hr Cyprinodon variegatus (ECHA) r <b>tebrate</b> RINE] : LC50 1955 mg/0 48 hr Daphnia magna (ECHA) UM POWDER] : NOEC > 100 mg/0 48 hr Daphnia magna (IUCLID)
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [ALUMINI 12.1.3. Alga - [ALUMINI	DLOGICAL INFORMATION RINE] : LC50 >11 mg/ê 96 hr Cyprinodon variegatus (ECHA) r <b>tebrate</b> RINE] : LC50 1955 mg/ê 48 hr Daphnia magna (ECHA) UM POWDER] : NOEC > 100 mg/ê 48 hr Daphnia magna (IUCLID) re
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [ALUMINI 12.1.3. Alga - [ALUMINI	DLOGICAL INFORMATION RINE] : LC50 >11 mg/& 96 hr Cyprinodon variegatus (ECHA) rtebrate RINE] : LC50 1955 mg/& 48 hr Daphnia magna (ECHA) UM POWDER] : NOEC > 100 mg/& 48 hr Daphnia magna (IUCLID) re NIUM POWDER] : NOEC > 0.052 mg/& 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA) nce and degradability
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [ALUMINI 12.1.3. Alga - [ALUMINI 2.2. Persister	DLOGICAL INFORMATION RINE] : LC50 >11 mg/ê 96 hr Cyprinodon variegatus (ECHA) rtebrate RINE] : LC50 1955 mg/ê 48 hr Daphnia magna (ECHA) UM POWDER] : NOEC > 100 mg/ê 48 hr Daphnia magna (IUCLID) re NIUM POWDER] : NOEC > 0.052 mg/ê 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA) nce and degradability sistence
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [ALUMINI 12.1.3. Alga - [ALUMINI 12.2. Persister 12.2.1. Pers - Not ava	DLOGICAL INFORMATION         RINE] : LC50 >11 mg/0 96 hr Cyprinodon variegatus (ECHA)         Intebrate         RINE] : LC50 1955 mg/0 48 hr Daphnia magna (ECHA)         UM POWDER] : NOEC > 100 mg/0 48 hr Daphnia magna (IUCLID)         Ime         NIUM POWDER] : NOEC > 0.052 mg/0 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)         Ince and degradability         istence         ilable
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [GLYCEF - [ALUMINI 12.1.3. Alga - [ALUMINI 12.2.1. Persister 12.2.1. Pers - Not ava 12.2.2. Deg	DLOGICAL INFORMATION         RINE] : LC50 >11 mg/0 96 hr Cyprinodon variegatus (ECHA)         Intebrate         RINE] : LC50 1955 mg/0 48 hr Daphnia magna (ECHA)         UM POWDER] : NOEC > 100 mg/0 48 hr Daphnia magna (IUCLID)         Ime         NIUM POWDER] : NOEC > 0.052 mg/0 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)         Ince and degradability         istence         ilable
- Not availal TION 12: ECC 2.1. Toxicity 12.1.1. Fish - [GLYCEF 12.1.2. Inve - [GLYCEF - [ALUMIII 12.1.3. Alga - [ALUMIII 2.2. Persister 12.2.1. Pers - Not ava 12.2.2. Deg - [2-AMIIN	DLOGICAL INFORMATION RINE] : LC50 >11 mg/& 96 hr Cyprinodon variegatus (ECHA) rtebrate RINE] : LC50 1955 mg/& 48 hr Daphnia magna (ECHA) UM POWDER] : NOEC > 100 mg/& 48 hr Daphnia magna (IUCLID) re NIUM POWDER] : NOEC > 0.052 mg/& 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA) nce and degradability ristence liable radability

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

# 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

# 12.6. Other adverse effects

- Not available

# SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or

- stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

14.1. UN No.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and
- dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

SECTION 14: TRANSPORT INFORMATION

# 14.1.1. UN No. (ADR/RID/ADN) 3082 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082 14.1.3. UN No. (ICAO) 3082 14.2. UN proper shipping name - Not applicable 14.3. Transport hazard class(es) 14.3.1. ADR/RID/ADN Class - Not applicable 14.3.2. ADR/RID/ADN Class - Not applicable 14.3.3. ADR Label No. - Not applicable 14.3.4. IMDG Class Not applicable 14.3.5. ICAO Class/Division - Not applicable 14.3.6. Transport Labels - Not applicable 14.4. Packing group 14.4.1. ADR/RID/ADN Packing group

#### Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

### 14.4.3. ICAO Packing group

Not applicable

# 14.5. Environmental hazards

Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

# SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
  - Not applicable

15.2. Chemical Safety Assessment

- Not conducted

### SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

# 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

# 16.5. Training advice

# - Not applicable

# 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

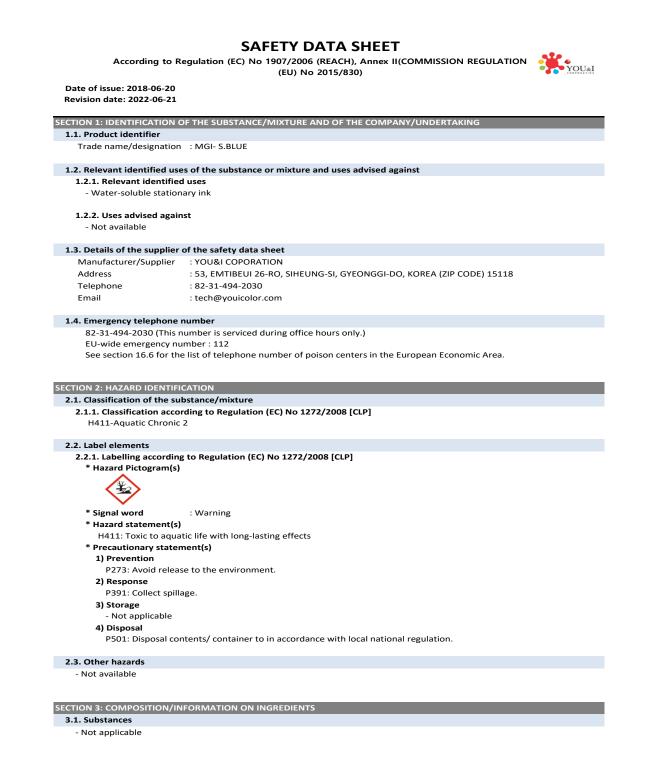
- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

### Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

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Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
				۵۰ 📀 😒
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	'Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT BLUE 15:3	147-14-8	205-685-1	0~5	Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

### SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

### General

- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
  - Take specific treatment if needed.
- Skin contact
  - Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
  - Do not rub your eyes.
  - Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
  - Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- 4.2. Most important symptoms and effects, both acute and delayed

# - Not available

### 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES 5.1. Extinguishing media

- Suitable extinguishing media
  - Water, form, CO2, NaHCO3 Unsuitable extinguishing media
- Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

# 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

# SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.

- Do not inhale the steam prolonged or repeated.

# 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs)
     Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

### 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.4. Information on basis abusised and abouting measurements

9.1. Information on basic physical and chemic	
Appearance(State)	Liquid
Appearance(Color)	S.BLUE
Odor	Odorless
Odor threshold	Not available
рН	$8.0 \pm 1.0$
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

### 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

# 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

# 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.

- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)

- Inhalation

- Product (ATEmix) : Not available
- [GLYCERINE] : LC50 >2.75 mg/& 4 hr Rat (ECHA)

1.2. Skin corros	sion/irritation
- [2-AMINO-2-	METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
1.3. Serious ev	e damage/irritation
	METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
1.4. Respirator	v sensitization
- Not available	•
1.5. Skin sensit	ization
- Not available	
1.6. Germ cell I	nutagenicity
- Not available	
11.7. Carcinoger - IARC	ncity
- Not availa	bla
- NOL availa	
- OSHA - Not availa	ble
- ACGIH	
	JM POWDER] : A4
- NTP	
- Not availa	ble
- EU CLP	
- Not availa	ble
1.8. Reproduct	
- Not available	•
1 <b>.9. Specific ta</b> - Not available	rget organ toxicity(single exposure):
- Not available	
- Not available L <b>1.10. Specific t</b> - [ALUMINIUN	a <mark>rget organ toxicity(repeated exposure):</mark> 1 POWDER] : Classified as Category 2 (KOSHA)
- Not available 11.10. Specific t - [ALUMINIUM 11.11. Aspiratio	a <mark>rget organ toxicity(repeated exposure):</mark> 1 POWDER] : Classified as Category 2 (KOSHA) n <b>hazard</b>
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#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

# 12.4. Mobility in soil

# - Not available

## 12.5. Results of PBT and vPvB assessment

# - Not available

# 12.6. Other adverse effects

- Not available

# SECTION 13: DISPOSAL CONSIDERATIONS

# 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

14.1. UN No. 14.1.1. UN No. (ADR/RID/ADN) 3082

# 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

**14.1.3. UN No. (ICAO)** 3082

# 14.2. UN proper shipping name

- Not applicable

# 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class

# - Not applicable

14.3.2. ADR/RID/ADN Class - Not applicable

# 14.3.3. ADR Label No.

Not applicable

# 14.3.4. IMDG Class

- Not applicable

# 14.3.5. ICAO Class/Division

Not applicable

### 14.3.6. Transport Labels - Not applicable

## 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group - Not applicable

# 14.4.2. IMDG Packing group

# Not applicable

# 14.4.3. ICAO Packing group

Not applicable

# 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

#### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

#### 15.1.1. Europe regulatory

15.1.1.1 REACH Restricted substance under REACH

- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable 5.1.1.5 European L - Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List

# 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

# 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

# 16.5. Training advice

- Not applicable

# 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

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This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

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SAFETY DATA SHEET According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION YOU&I (EU) No 2015/830) Date of issue: 2018-06-20 Revision date: 2022-06-21 SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKIN 1.1. Product identifier Trade name/designation : MGI- RED 1.2. Relevant identified uses of the substance or mixture and uses advised against 1.2.1. Relevant identified uses - Water-soluble stationary ink 1.2.2. Uses advised against - Not available 1.3. Details of the supplier of the safety data sheet Manufacturer/Supplier : YOU&I COPORATION : 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118 Address : 82-31-494-2030 Telephone Email : tech@youicolor.com 1.4. Emergency telephone number 82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area. SECTION 2: HAZARD IDENTIFICATION 2.1. Classification of the substance/mixture 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2 2.2. Label elements 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP] \* Hazard Pictogram(s) \* Signal word : Warning \* Hazard statement(s) H411: Toxic to aquatic life with long-lasting effects \* Precautionary statement(s) 1) Prevention P273: Avoid release to the environment. 2) Response P391: Collect spillage. 3) Storage - Not applicable 4) Disposal P501: Disposal contents/ container to in accordance with local national regulation. 2.3. Other hazards Not available SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS 3.1. Substances - Not applicable

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Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
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ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H440 (M-factor: 1)
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Aquatic Chronic 4, H413
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

- General
- No general information.
- Inhalation
- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
  - Do not rub your eyes.
  - Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
  - Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- 4.2. Most important symptoms and effects, both acute and delayed

- Not available

4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES 5.1. Extinguishing media Suitable extinguishing media - Water, form, CO2, NaHCO3 Unsuitable extinguishing media

Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

# 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

### SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.

- Do not inhale the steam prolonged or repeated.

## 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

### 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.4. Information on basis abusised and abouting measurements

1.1. Information on basic physical and chemic	
Appearance(State)	Liquid
Appearance(Color)	RED
Odor	Odorless
Odor threshold	Not available
рН	$8.0 \pm 1.0$
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

### 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

# 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.

- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)

- Inhalation

- Product (ATEmix) : Not available
- [GLYCERINE] : LC50 >2.75 mg/& 4 hr Rat (ECHA)

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1.2. Chin annualis (* *	
1.2. Skin corrosion/irri	tation L-1-PROPANOL] : Classified as Category 2 (KOSHA)
- [2-AMINO-2-METH	L-1-FROFANOLJ . Classified as Categoly 2 (ROSHA)
1.3. Serious eye dama	ge/irritation
- [2-AMINO-2-METHY	L-1-PROPANOL] : Classified as Category 1 (KOSHA)
1.4. Respiratory sensit	ization
- Not available	
1.5. Skin sensitization	
- Not available	
1.6. Germ cell mutage	nicity
- Not available	
1.7. Carcinogenicity	
- IARC	
- Not available	
- OSHA - Not available	
- Not available	
- [ALUMINIUM POV	VDER] : A4
- NTP	
- Not available	
- EU CLP	
- Not available	
1.8. Reproductive toxi	city
<ul> <li>Not available</li> </ul>	
	an toxicity(single exposure).
	an toxicity(single exposure):
1.9. Specific target org	an toxicity(single exposure):
<ul> <li>1.9. Specific target org</li> <li>Not available</li> </ul>	an toxicity(single exposure): gan toxicity(repeated exposure):
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<ul> <li>1.9. Specific target org</li> <li>Not available</li> <li>1.10. Specific target or</li> <li>[ALUMINIUM POWE</li> <li>1.11. Aspiration hazarr</li> <li>Not available</li> <li>TION 12: ECOLOGICAL</li> <li>2.1. Toxicity</li> <li>12.1.1. Fish <ul> <li>[GLYCERINE] : LCS</li> <li>[C.I. PIGMENT RED :</li> </ul> </li> </ul>	rgan toxicity(repeated exposure): DER] : Classified as Category 2 (KOSHA) d INFORMATION
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<ul> <li>1.9. Specific target org <ul> <li>Not available</li> </ul> </li> <li>1.10. Specific target or <ul> <li>[ALUMINIUM POWE</li> </ul> </li> <li>1.11. Aspiration hazar <ul> <li>Not available</li> </ul> </li> <li>TION 12: ECOLOGICAL</li> <li>2.1. Toxicity</li> <li>12.1.1. Fish <ul> <li>[GLYCERINE] : LC5</li> <li>[C.I. PIGMENT RED :</li> </ul> </li> <li>12.1.2. Invertebrate <ul> <li>[GLYCERINE] : LC5</li> <li>[ALUMINIUM POWE</li> <li>[C.I. PIGMENT RED :</li> </ul> </li> <li>12.1.3. Algae <ul> <li>[ALUMINIUM POWE</li> <li>[C.I. PIGMENT RED :</li> </ul> </li> <li>12.1.9 LOWER AND :</li> <li>2.2. Persistence and di <ul> <li>12.2.1. PIGMENT RED :</li> </ul> </li> </ul>	rgan toxicity(repeated exposure): JER] : Classified as Category 2 (KOSHA) d INFORMATION 0 >11 mg/& 96 hr Cyprinodon variegatus (ECHA) 170] : LC50 >0.217 mg/& 96 hr (ECOSAR) 0 1955 mg/& 48 hr Daphnia magna (ECHA) DER] : NOEC > 100 mg/& 48 hr Daphnia magna (IUCLID) 170] : LC50 0.545 mg/& 48 hr GEOSHA) VDER] : NOEC > 0.052 mg/& 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA) 170] : EC50 0.06 mg/& 96 hr (ECOSHA) Egradability

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# 12.3.1. Bioaccumulation - [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA) - [C.I. PIGMENT RED 170] : 10 (QSAR) 12.3.2. Biodegradability - [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA) 12.4. Mobility in soil - Not available 12.5. Results of PBT and vPvB assessment - Not available 12.6. Other adverse effects - Not available SECTION 13: DISPOSAL CONSIDERATIONS 13.1. Waste treatment methods - Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process. - If water separation is possible, pre-process with Water separation process. - Dispose by incineration. - The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities. - Dispose of waste in accordance with all applicable laws and regulations. SECTION 14: TRANSPORT INFORMATION 14.1. UN No. 14.1.1. UN No. (ADR/RID/ADN) 3082 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082 14.1.3. UN No. (ICAO) 3082 14.2. UN proper shipping name - Not applicable 14.3. Transport hazard class(es) 14.3.1. ADR/RID/ADN Class - Not applicable 14.3.2. ADR/RID/ADN Class - Not applicable 14.3.3. ADR Label No. - Not applicable 14.3.4. IMDG Class - Not applicable 14.3.5. ICAO Class/Division - Not applicable 14.3.6. Transport Labels - Not applicable 14.4. Packing group Item Numbers: 21739-1009

# 14.4.1. ADR/RID/ADN Packing group

Not applicable

14.4.2. IMDG Packing group - Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

### 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

#### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable

15.1.1.2 REACH Substances subject to authorization under REACH

- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

# 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5.	Training	a	dvice	

- Not applicable

# 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

#### · Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

21739-3060

SAFETY DATA SHEET YOU&I According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No 2015/830) Date of issue: 2018-06-20 Revision date: 2022-06-21 SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKIN 1.1. Product identifier Trade name/designation : MGI- PINK 1.2. Relevant identified uses of the substance or mixture and uses advised against 1.2.1. Relevant identified uses - Water-soluble stationary ink 1.2.2. Uses advised against - Not available 1.3. Details of the supplier of the safety data sheet Manufacturer/Supplier : YOU&I COPORATION : 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118 Address : 82-31-494-2030 Telephone Email : tech@youicolor.com 1.4. Emergency telephone number 82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area. SECTION 2: HAZARD IDENTIFICATION 2.1. Classification of the substance/mixture 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2 2.2. Label elements 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP] \* Hazard Pictogram(s) \* Signal word : Warning \* Hazard statement(s) H411: Toxic to aquatic life with long-lasting effects \* Precautionary statement(s) 1) Prevention P273: Avoid release to the environment. 2) Response P391: Collect spillage. 3) Storage - Not applicable 4) Disposal P501: Disposal contents/ container to in accordance with local national regulation. 2.3. Other hazards - Not available SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS 3.1. Substances Not applicable

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Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT RED 122	980-26-7	213-561-3	0~5	Acute toxicity (Inhalation) 4, H332
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

SECTION 4: FIRST AID MEASURES

- 4.1. Description of first aid measures
  - General

- No general information.

- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
  - Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
  - Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
  - Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

SECTION 5: FIREFIGHTING MEASURES

- 5.1. Extinguishing media
  - Suitable extinguishing media

- Water, form, CO2, NaHCO3

- Unsuitable extinguishing media
- Avoid use of water jet for extinguishing

### 5.2. Special hazards arising from the substance or mixture Hazardous combustion products

- Not available

### 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, protective equipment and emergency procedures

# 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

# 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.

- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### 8.1.1. Occupational exposure limits

European Union (EU) Commission Directive 2006/15/EC (IOELVs)

- Not available
- European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
- Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits.
 Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

#### Hand protection

Wear appropriate glove.

# Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

#### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

### Skin protection

- Wear appropriate clothing.

# 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

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9.2. Other information

- Not available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

- Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

# 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

#### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

- Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

- Product (ATEmix) : >5000mg/kg

YCERINE] : LD50 > 10000 mg/kg Rat (ChemiDplus) ntion duct (ATEmix) : Not available YCERINE] : LC50 > 2.75 mg/& 4 hr Rat (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) 'IGMENT RED 122] : LC0 = 3.055 mg/& 4hr Rat (Chan Handree
duct (ATEmix) : Not available YCERINE] : LCSO >2.75 mg/& 4 hr Rat (ECHA) INO-21 MED 122] : LCO = 3.055 mg/& 4hr Rat (OECD TG 403, GLP) (ECHA) corrosion/irritation INO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA) ous eye damage/irritation INO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA) piratory sensitization vailable sensitization vailable corresting
YCERINE] : LC50 >2.75 mg/ê 4 hr Rat (ECHA) IGMENT RED 122] : LC0 = 3.055 mg/ê 4 hr Rat (OECD TG 403, GLP) (ECHA) orrosion/irritation IINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA) ous eye damage/irritation IINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA) piratory sensitization vailable a sensitization m cell mutagenicity vailable inogenicity : available : available : available
IIGMENT RED 122] : LC0 = 3.055 mg/ê 4hr Rat (OECD TG 403, GLP) (ECHA) corrosion/irritation IINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA) ous eye damage/irritation IINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA) piratory sensitization vailable a sensitization vailable m cell mutagenicity vailable : available : available : available
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piration hazard <sub>/ailable</sub>
: ECOLOGICAL INFORMATION
icity
Fish
YCERINE] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA)
Invertebrate
VCERINE] : LC50 1955 mg/& 48 hr Daphnia magna (ECHA)
VINIUM POWDER] : NOEC > 100 mg/& 48 hr Daphnia magna (IUCLID)
Algae
UMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)
sistence and degradability
Persistence
available

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

### 12.3. Bioaccumulative potential

# 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

# 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

### 12.4. Mobility in soil

- Not available

#### 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or
- stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and
- dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

# 14.1.1. UN No. (ADR/RID/ADN) 3082 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

14.1.3. UN No. (ICAO) 3082

#### 5002

14.1. UN No.

14.2. UN proper shipping name - Not applicable

# 14.3. Transport hazard class(es)

- 14.3.1. ADR/RID/ADN Class
- Not applicable

### 14.3.2. ADR/RID/ADN Class

- Not applicable

#### 14.3.3. ADR Label No. - Not applicable

**14.3.4. IMDG Class** - Not applicable

#### 14.3.5. ICAO Class/Division - Not applicable

14.3.6. Transport Labels

#### - Not applicable

#### 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

# Not applicable

14.4.2. IMDG Packing group

Not applicable

14.4.3. ICAO Packing group

Not applicable

#### 14.5. Environmental hazards

- Not applicable

### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
  - Not applicable

15.1.1.2 REACH Substances subject to authorization under REACH

- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List - Not applicable

#### 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5. Training advice	
-----------------------	--

- Not applicable

### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

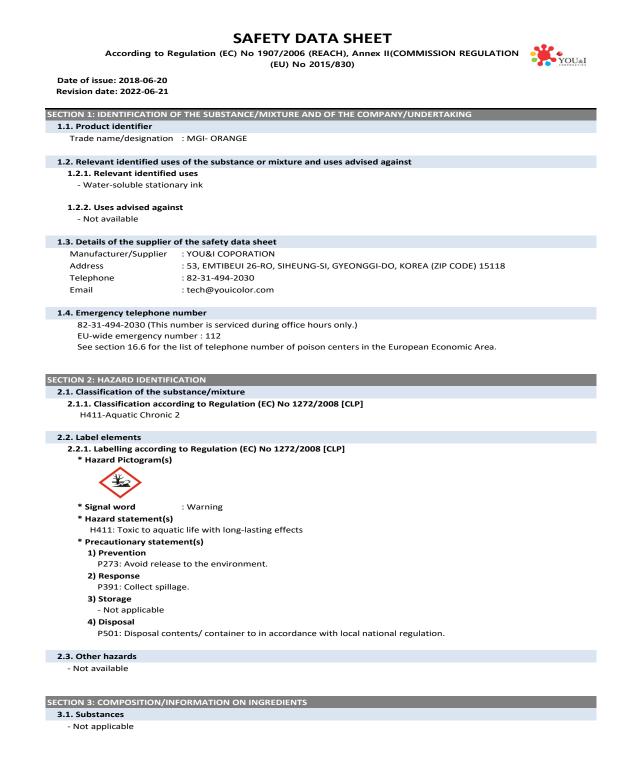
- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

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# 21739-4

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
				۵ 📀 🖄
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228
				Pyr. Liq. 1, H250
				Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373
				Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Aquatic Chronic 4, H413
C.I. PIGMENT YELLOW 83	5567-15-7	226-939-8	0~5	Aquatic Chronic 3, H412
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	
				Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

- General
- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

4.2. Most important symptoms and effects, both acute and delayed

- Not available

#### 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

### SECTION 5: FIREFIGHTING MEASURES 5.1. Extinguishing media

- - Suitable extinguishing media
  - Water, form, CO2, NaHCO3
  - Unsuitable extinguishing media
    - Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

### - Not available

#### 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, protective equipment and emergency procedures

- 6.1.1. For non-emergency personnel
  - Protective equipment: Wear proper protective equipment.
  - Emergency procedures: Not applicable
  - If required, notify relevant authorities according to all applicable regulations.

# 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

# 6.3. Methods and material for containment and cleaning up

# 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.

- Do not handle until all safety precautions have been read and understood.

- Do not inhale the steam prolonged or repeated.

# 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

8.1.1. Occupational exposure limits

European Union (EU) Commission Directive 2006/15/EC (IOELVs)

- Not available

European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Skin - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

# 8.2.2. Individual protection measures, such as personal protective equipment

#### Hand protection

Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

#### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

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<ol> <li>Information on basic physical and chemi</li> </ol>	
Appearance(State)	Liquid
Appearance(Color)	ORANGE
Odor	Odorless
Odor threshold	Not available
рН	$8.0 \pm 1.0$
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

# 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

# 10.1. Reactivity

- Not available

# 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

# 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

- Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)
- Dermal
  - Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation

11.	2. Skin corrosion/irritation
	[2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
11	3. Serious eye damage/irritation
	[2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
	1. Respiratory sensitization
-	Not available
11.	5. Skin sensitization
-	Not available
11.	5. Germ cell mutagenicity
	Not available
11	7. Carcinogenicity
	IARC
	- Not available
-	OSHA - Not available
-	
	- [ALUMINIUM POWDER] : A4
-	NTP
	- Not available
-	EU CLP - Not available
11.	3. Reproductive toxicity
-	Not available
11.	9. Specific target organ toxicity(single exposure):
-	Not available
11.	LO. Specific target organ toxicity(repeated exposure):
	[ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)
11	1 Accimation bound
	L1. Aspiration hazard Not available
_	DN 12: ECOLOGICAL INFORMATION L. Toxicity
	2.1.1. Fish
	- [GLYCERINE] : LC50 >11 mg/& 96 hr Cyprinodon variegatus (ECHA)
	[C.I. PIGMENT RED 170] : LC50 >0.217 mg/ℓ 96 hr (ECOSAR)
	[C.I. PIGMENT YELLOW 83] : LC50 45 mg/ℓ 48 hr Oncorhynchus mykiss (ECOTOX) <b>2.1.2. Invertebrate</b>
-	- [GLYCERINE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)
-	[ALUMINIUM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)
	[C.I. PIGMENT RED 170] : LC50 0.545 mg/ℓ 48 hr (ECOSHA)
1	2.1.3. Algae - [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)
-	- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ $\ell$ 48 nr Selenastrum capricornutum (M = 1) (OECD 1G 201, GLP) (ECHA) [C.I. PIGMENT RED 170] : EC50 0.06 mg/ $\ell$ 96 hr (ECOSHA)
	2. Persistence and degradability
	2.2.1. Persistence

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

### 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)
- [C.I. PIGMENT RED 170] : 10 (QSAR)
- [C.I. PIGMENT YELLOW 83] : 10 (QSAR)

# 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)
- [C.I. PIGMENT YELLOW 83] : 6 (%) 28 days (NITE)
- 12.4. Mobility in soil
  - Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

# SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1. Waste treatment methods
  - Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
  - If water separation is possible, pre-process with Water separation process.
  - Dispose by incineration.
  - The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and
  - dispose, person who establish and operate waste disposal facilities.Dispose of waste in accordance with all applicable laws and regulations.

SECTION 14: TRANSPORT INFORMATION

#### 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN) 3082

14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

14.1.3. UN No. (ICAO) 3082

# 14.2. UN proper shipping name

- Not applicable

### 14.3. Transport hazard class(es)

- 14.3.1. ADR/RID/ADN Class
  - Not applicable

14.3.2. ADR/RID/ADN Class - Not applicable

14.3.3. ADR Label No. - Not applicable

14.3.4. IMDG Class - Not applicable

14.3.5. ICAO Class/Division - Not applicable

# 14.3.6. Transport Labels

# - Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group - Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

#### ..

# 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

#### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

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- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable

15.1.1.2 REACH Substances subject to authorization under REACH

- Not applicable

15.1.1.3 REACH SVHC

- Not applicable
- 15.1.1.4 Europe PBT

- Not applicable

15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road - Dangerous Goods List - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

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#### 16.3. Key literature references and sources for data

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- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5. Training advice	
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- Not applicable

### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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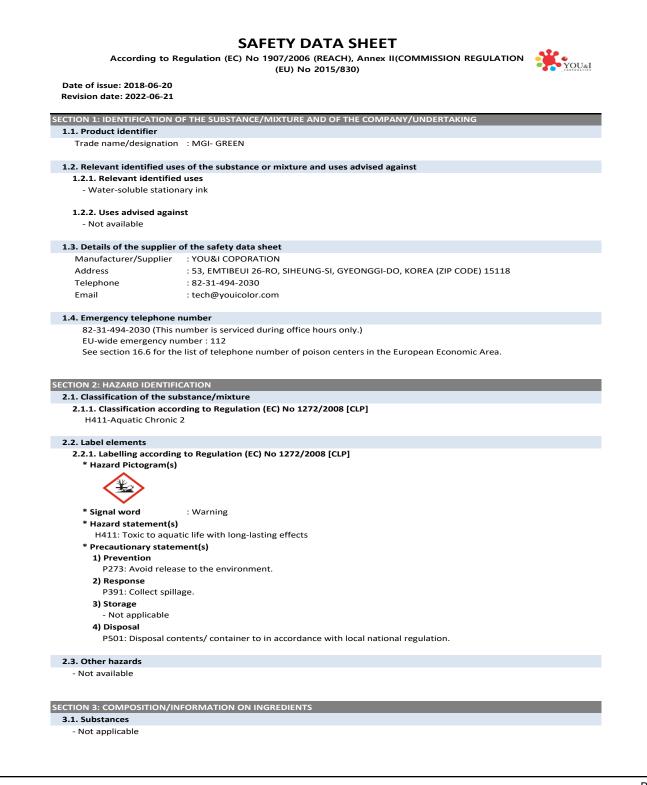
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Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
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GLYCERINE	56-81-5	200-289-5	15~20	Not classified
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ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250
				Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373
C.I. PIGMENT GREEN 7	1328-53-6	215-524-7	0~5	Aquatic Chronic 1: H410 (M-factor: 1) Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

- General
- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
  - Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
  - Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

- 5.1. Extinguishing media
  - Suitable extinguishing media
  - Water, form, CO2, NaHCO3
  - Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

#### 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products - Not available

### 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.

- Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs)
     Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

#### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.4. Information on basis abusised and abouting measurements

.1. Information on basic physical and chemical properties			
Appearance(State)	Liquid		
Appearance(Color)	GREEN		
Odor	Odorless		
Odor threshold	Not available		
рН	$8.0 \pm 1.0$		
Melting point/Freezing point	Not available		
Initial boiling point and boiling range	> 100 °C		
Flash point	300 °C		
Evaporation rate	Not available		
Flammability(solid, gas)	Not applicable		
Upper/Lower Flammability or explosive	Not available		
Vapour pressure	Not available		
Vapour density	Not available		
Relative density	1.1 ± 0.05 g/cm3		
Solubility	Fully miscible		
Partition coefficient of n-octanol/water	Not available		
Autoignition temperature	No self-igniting		
Decomposition temperature	Not available		
Viscosity	750 ± 150 Cps		
Explosive properties	Not explosive		
Oxidizing properties	Not available		

#### 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

# 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.

- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)

- Inhalation

- Product (ATEmix) : Not available
- [GLYCERINE] : LC50 >2.75 mg/& 4 hr Rat (ECHA)

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- [2-AMINO-2	osion/irritation
	2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
1.3. Serious e	ye damage/irritation
	2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
1.4 Respirato	pry sensitization
- Not availab	
1.5. Skin sens	
- Not availab	le
	mutagenicity
- Not availab	le
1.7. Carcinoge	enicity
- IARC	
- Not avail	able
- OSHA	
- Not avail	able
- ACGIH	
	IUM POWDER] : A4
- NTP	
- Not avail	able
- EU CLP	
- Not avail	able
1.8. Reproduc	tive toxicity
- Not availab	le
1.9. Specific ta	arget organ toxicity(single exposure):
- Not availab	le
1.10. Specific	target organ toxicity(repeated exposure):
	target organ toxicity(repeated exposure): M POWDER] : Classified as Category 2 (KOSHA)
- [ALUMINIU	M POWDER] : Classified as Category 2 (KOSHA)
- [ALUMINIU	M POWDER] : Classified as Category 2 (KOSHA) on hazard
- [ALUMINIU	M POWDER] : Classified as Category 2 (KOSHA) on hazard
- [ALUMINIU <b>1.11. Aspirati</b> o - Not availab	M POWDER] : Classified as Category 2 (KOSHA) on hazard le
- [ALUMINIU 1.11. Aspiration - Not availab TION 12: ECO	M POWDER] : Classified as Category 2 (KOSHA) on hazard
- [ALUMINIU 1.11. Aspiratio - Not availab TION 12: ECO 2.1. Toxicity	M POWDER] : Classified as Category 2 (KOSHA) on hazard le
- [ALUMINIU 1.11. Aspiratio - Not availab TION 12: ECO 2.1. Toxicity 12.1.1. Fish	M POWDER] : Classified as Category 2 (KOSHA) on hazard le
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- [ALUMINIU .1.11. Aspiratii - Not availab 	M POWDER] : Classified as Category 2 (KOSHA) on hazard le LOGICAL INFORMATION NE] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA) tebrate NE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA) IM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)
- [ALUMINIU 1.11. Aspiratii - Not availab TION 12: ECO 2.1. Toxicity 12.1.1. Fish - [GLYCERI 12.1.2. Inver - [GLYCERI - [ALUMINIU 12.1.3. Algae	M POWDER] : Classified as Category 2 (KOSHA) on hazard le LOGICAL INFORMATION NE] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA) tebrate NE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA) IM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)
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- [ALUMINIU 1.11. Aspiration - Not availab TION 12: ECO 2.1. Toxicity 12.1.1. Fish - [GLYCERI 12.1.2. Inver - [GLYCERI - [ALUMINIU 12.1.3. Algae - [ALUMIN	M POWDER] : Classified as Category 2 (KOSHA) on hazard le LOGICAL INFORMATION NE] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA) tebrate NE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA) IM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID) e IUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA) ce and degradability
<ul> <li>- [ALUMINIU</li> <li>1.11. Aspiration</li> <li>- Not availab</li> <li>TION 12: ECO</li> <li>2.1. Toxicity</li> <li>12.1.1. Fish <ul> <li>- [GLYCERI</li> </ul> </li> <li>12.1.2. Inver <ul> <li>- [GLYCERI</li> </ul> </li> <li>12.1.3. Algae <ul> <li>- [ALUMINIU</li> </ul> </li> <li>12.1.3. Algae <ul> <li>- [ALUMINININI</li> </ul> </li> <li>2.2. Persisten</li> </ul>	M POWDER] : Classified as Category 2 (KOSHA) on hazard le LOGICAL INFORMATION NE] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA) tebrate NE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA) IM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID) HUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA) te and degradability stence
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- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

# 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

### 12.6. Other adverse effects

- Not available

# SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or

- stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

14.1. UN No.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and
- dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

SECTION 14: TRANSPORT INFORMATION

# 14.1.1. UN No. (ADR/RID/ADN) 3082 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082 14.1.3. UN No. (ICAO) 3082 14.2. UN proper shipping name - Not applicable 14.3. Transport hazard class(es) 14.3.1. ADR/RID/ADN Class - Not applicable 14.3.2. ADR/RID/ADN Class - Not applicable 14.3.3. ADR Label No. - Not applicable 14.3.4. IMDG Class Not applicable 14.3.5. ICAO Class/Division - Not applicable 14.3.6. Transport Labels - Not applicable 14.4. Packing group 14.4.1. ADR/RID/ADN Packing group

#### - Not applicable

### 14.4.2. IMDG Packing group

- Not applicable

#### 14.4.3. ICAO Packing group

Not applicable

### 14.5. Environmental hazards

Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

# SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
  - Not applicable

15.2. Chemical Safety Assessment

- Not conducted

#### SECTION 16: OTHER INFORMATION

### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

# 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

# 16.5. Training advice

# - Not applicable

# 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

#### Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# 21739-9010

1/9

Date of issue: 2019-06-14		
Revision date: 2022-06-21		
ECTION 1: IDENTIFICATION C	DF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING	
1.1. Product identifier		
Trade name/designation	: MGI- GOLD	
1.2. Relevant identified use	es of the substance or mixture and uses advised against	
1.2.1. Relevant identified	-	
- Water-soluble station	ary ink	
1.2.2. Uses advised again - Not available	ist	
- Not available		
1.3. Details of the supplier	of the safety data sheet	
Manufacturer/Supplier	: YOU&I COPORATION	
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118	
Telephone	: 82-31-494-2030	
Email	: tech@youicolor.com	
1.4. Emergency telephone	number	
	number is serviced during office hours only.)	
EU-wide emergency nu		
See section 16.6 for the	e list of telephone number of poison centers in the European Economic Area.	
ECTION 2: HAZARD IDENTIFIC 2.1. Classification of the sul		
2.1. Classification of the su		
2.1. Classification of the su	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP]	
2.1. Classification of the sul 2.1.1. Classification accord H411-Aquatic Chronic	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP]	
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<ul> <li>2.1. Classification of the suitable sui</li></ul>	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning	
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<ul> <li>2.1. Classification of the suitable set of the suitab</li></ul>	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects	
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MSDS for #21739 - DECOGEL METALLIC

3.2. Mixtures				
Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
				۵۰ 📀 🏵
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT YELLOW 83	5567-15-7	226-939-8	0~5	Aquatic Chronic 3, H412
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

### SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

# General

- No general information.

#### Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
  - Do not rub your eyes.
  - Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- 4.2. Most important symptoms and effects, both acute and delayed

# - Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES 5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3 Unsuitable extinguishing media

# - Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

- Not available

### 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, protective equipment and emergency procedures

### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.

- Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs)
     Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

#### **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.4. Information on basis abusised and abouting measurements

9.1. Information on basic physical and chemi	ical properties
Appearance(State)	Liquid
Appearance(Color)	GOLD
Odor	Odorless
Odor threshold	Not available
рН	$8.0 \pm 1.0$
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

#### 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

# 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.

- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

# 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)

- Inhalation

- Product (ATEmix) : Not available
- [GLYCERINE] : LC50 >2.75 mg/& 4 hr Rat (ECHA)

5/9

- 17-AN/INO. 7	ion/irritation METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
- [2-AIVIIINO-2-	WETTTETT NOT ANOLJ . Classified as Calegoly 2 (NOSTA)
1.3. Serious eye	admage/irritation
- [2-AMINO-2-	METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
1.4. Respiratory	y sensitization
- Not available	
<b>1.5. Skin sensiti</b> - Not available	
Not available	
1.6. Germ cell n	nutagenicity
- Not available	
.1.7. Carcinogen	icity
- IARC	
- Not availat	le
- OSHA	
- Not availat - ACGIH	
	IM POWDER] : A4
- NTP	
- Not availab	le
- EU CLP	
- Not availat	ble
1.8. Reproducti	ve tovicity
- Not available	
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12.3.2. Biodegradability

- [C.I. PIGMENT YELLOW 83] : 10 (QSAR)

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

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- [C.I. PIGMENT YELLOW 83] : 6 (%) 28 days (NITE) 12.4. Mobility in soil - Not available 12.5. Results of PBT and vPvB assessment - Not available 12.6. Other adverse effects - Not available SECTION 13: DISPOSAL CONSIDERATIONS 13.1. Waste treatment methods - Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process. - If water separation is possible, pre-process with Water separation process. - Dispose by incineration. - The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities. - Dispose of waste in accordance with all applicable laws and regulations.

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

SECTION 14: TRANSPORT INFORMATION



#### - Not applicable

## 14.4.2. IMDG Packing group

- Not applicable

## 14.4.3. ICAO Packing group

Not applicable

## 14.5. Environmental hazards

Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

# SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

## 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
  - Not applicable

15.2. Chemical Safety Assessment

- Not conducted

## SECTION 16: OTHER INFORMATION

## 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

## 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

# 16.5. Training advice

## - Not applicable

## 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

## Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

	egulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION
-	(EU) No 2015/830)
Date of issue: 2018-06-20	
Revision date: 2022-06-21	
ECTION 1: IDENTIFICATION C	OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1. Product identifier	
Trade name/designation	: MGI- BROWN
1.2. Relevant identified use	es of the substance or mixture and uses advised against
1.2.1. Relevant identified	
- Water-soluble station	ary ink
1.2.2. Uses advised again	st
- Not available	
1.3. Details of the supplier	of the safety data sheet
Manufacturer/Supplier	: YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com
1.4. Emergency telephone	number
	number is serviced during office hours only.)
EU-wide emergency nu	
See section 16.6 for the	e list of telephone number of poison centers in the European Economic Area.
ECTION 2: HAZARD IDENTIFI	CATION
ECTION 2: HAZARD IDENTIFI 2.1. Classification of the sul	
2.1. Classification of the sul	
2.1. Classification of the sul	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP]
2.1. Classification of the sul 2.1.1. Classification account	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP]
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<ul> <li>2.1. Classification of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.2.1. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> </ul>	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning
<ul> <li>2.1. Classification of the sull</li> <li>2.1.1. Classification account</li> <li>2.1.1. Classification account</li> <li>2.2.1. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> <li>H411: Toxic to aqua</li> </ul>	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 s to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects
<ul> <li>2.1. Classification of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.2.1. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> </ul>	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 s to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects
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<ul> <li>2.1. Classification of the suitable superior of the suitable set of the superior of t</li></ul>	bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 g to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) se to the environment.

2.3. Other hazards

- Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

## 3.1. Substances

- Not applicable

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3.2. Mixtures				
Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Lig. 1, H250
				Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Aquatic Chronic 4, H413
C.I. PIGMENT YELLOW 83	5567-15-7	226-939-8	0~5	Aquatic Chronic 3, H412
C.I. PIGMENT BLACK 7	1333-86-4	215-609-9	0~5	Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

## SECTION 4: FIRST AID MEASURES

## 4.1. Description of first aid measures

- General
  - No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

## 4.2. Most important symptoms and effects, both acute and delayed

- Not available

## 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

## SECTION 5: FIREFIGHTING MEASURES 5.1. Extinguishing media Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media
- Avoid use of water jet for extinguishing

5.2. Special hazards arising from the substance or mixture

#### Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

## 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

## 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

## 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

## 6.3.3. Other information

Slippery when spilt.

## 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

## SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.

- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

## 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

# 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

## 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

## 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits.
 Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

## Hand protection

Wear appropriate glove.

## Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

## **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

## Skin protection

Wear appropriate clothing.

## 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

ECTION 9: PHYSICAL AND CHEMICAL PROPERTIES		
9.1. Information on basic physical and chemica	al properties	
Appearance(State)	Liquid	
Appearance(Color)	BROWN	
Odor	Odorless	
Odor threshold	Not available	
рН	8.0 ± 1.0	
Melting point/Freezing point	Not available	
Initial boiling point and boiling range	> 100 °C	
Flash point	300 °C	
Evaporation rate	Not available	
Flammability(solid, gas)	Not applicable	
Upper/Lower Flammability or explosive	Not available	
Vapour pressure	Not available	
Vapour density	Not available	
Relative density	1.1 ± 0.05 g/cm3	
Solubility	Fully miscible	
Partition coefficient of n-octanol/water	Not available	
Autoignition temperature	No self-igniting	
Decomposition temperature	Not available	
Viscosity	750 ± 150 Cps	
Explosive properties	Not explosive	

Not available

# Oxidizing properties 9.2. Other information

- Not available

## SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

## - Not available

## 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

## 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

## 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.

- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

## 10.5. Incompatible materials

- Not available

## 10.6. Hazardous decomposition products

- Not available

## SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

- Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)
- Dermal

- Product (ATEmix) : >5000mg/kg

- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)

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	- Product (ATEmix) : Not available
	- [GLYCERINE] : LC50 >2.75 mg/& 4 hr Rat (ECHA)
11	2. Skin corrosion/irritation
	[2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)
11.3	3. Serious eye damage/irritation
-	[2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
11	
	4. Respiratory sensitization Not available
11.	5. Skin sensitization
-	Not available
11	6. Germ cell mutagenicity
	Not available
11.	7. Carcinogenicity
-	IARC
	- Not available
-	OSHA
	- Not available
-	
	- [ALUMINIUM POWDER] : A4 (KOSHA) NTP
-	- Not available
-	
	- Not available
11.8	8. Reproductive toxicity
-	Not available
11 (	9. Specific target organ toxicity(single exposure):
	Not available
11.:	10. Specific target organ toxicity(repeated exposure):
-	[ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)
	11. Aspiration hazard Not available
-	
СТІ	DN 12: ECOLOGICAL INFORMATION
	1. Toxicity
1	2.1.1. Fish
	- [GLYCERINE] : LC50 >11 mg/0 96 hr Cyprinodon variegatus (ECHA)
	[C.I. PIGMENT RED 170] : LC50 > 0.217 mg/l 96 hr (ECOSAR)
	[C.I. PIGMENT YELLOW 83]: LC50 45 mg/e 48 hr Oncorhynchus mykiss (ECOTOX) 2.1.2. Invertebrate
1	
_	<ul> <li>- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)</li> <li>[ALUMINIUM POWDER] : NOEC &gt; 100 mg/l 48 hr Daphnia magna (IUCLID)</li> </ul>
	[C.I. PIGMENT RED 170] : LC50 0.545 mg/& 48 hr (ECOSHA)
	2.1.3. Algae
	- [ALUMINIUM POWDER] : NOEC > 0.052 mg/l 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)
	[C.I. P[GMENT RED 170] : ECS0 0.06 mg/8 96 hr (ECOSHA)
1	
1	2. Persistence and degradability
1 - 12.2	

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

## 12.3. Bioaccumulative potential 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)
- [C.I. PIGMENT RED 170] : 10 (QSAR)
- [C.I. PIGMENT YELLOW 83] : 10 (QSAR)
- 12.3.2. Biodegradability
- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)
- [C.I. PIGMENT YELLOW 83] : 6 (%) 28 days (NITE)
- 12.4. Mobility in soil
  - Not available

## 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

## SECTION 13: DISPOSAL CONSIDERATIONS

## 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or
- stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and
- dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

## 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN) 3082

14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

14.1.3. UN No. (ICAO)

## 14.2. UN proper shipping name

- Not applicable

## 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class - Not applicable

## 14.3.2. ADR/RID/ADN Class

- Not applicable

## 14.3.3. ADR Label No. - Not applicable

## 14.3.4. IMDG Class - Not applicable

# 14.3.5. ICAO Class/Division

#### **14.3.6. Transport Labels** - Not applicable

## 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

Not applicable

## 14.4.2. IMDG Packing group

Not applicable

14.4.3. ICAO Packing group

# - Not applicable

#### 14.5. Environmental hazards

- Not applicable

## 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

## SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

## 15.1.1. Europe regulatory

15.1.1.1 REACH Restricted substance under REACH

- Not applicable

15.1.1.2 REACH Substances subject to authorization under REACH

- Not applicable 15.1.1.3 REACH SVHC

S.I.I.S REACH SVIIC

- Not applicable
- 15.1.1.4 Europe PBT - Not applicable
- 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
  - Not applicable

## 15.2. Chemical Safety Assessment

- Not conducted

## SECTION 16: OTHER INFORMATION

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

## 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.

- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

## 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

# 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

## 16.5. Training advice

- Not applicable

# 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

Data of issue: 2010 of 20		
Date of issue: 2018-06-20 Revision date: 2022-06-21		
	OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING	
1.1. Product identifier	FTHE SUBSTANCE/MILTURE AND OF THE COMPANY/ONDERTAKING	
Trade name/designation	: MGI- BLUE	
1.2. Relevant identified use	s of the substance or mixture and uses advised against	
1.2.1. Relevant identified	luses	
- Water-soluble station	ary ink	
1.2.2. Uses advised again	st	
- Not available		
1.3. Details of the supplier	of the safety data sheet	
Manufacturer/Supplier		
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118	
Telephone	: 82-31-494-2030	
Email	: tech@youicolor.com	
1.4. Emergency telephone	number	
	umber is serviced during office hours only.)	
EU-wide emergency nu		
	e list of telephone number of poison centers in the European Economic Area.	
ECTION 2: HAZARD IDENTIFI	CATION bstance/mixture	
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ECTION 2: HAZARD IDENTIFI 2.1. Classification of the sul 2.1.1. Classification account H411-Aquatic Chronic	CATION bstance/mixture ding to Regulation (EC) No 1272/2008 [CLP]	
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<ul> <li>ECTION 2: HAZARD IDENTIFIC</li> <li>2.1. Classification of the sul</li> <li>2.1.1. Classification according</li> <li>H411-Aquatic Chronic</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> </ul>	CATION bstance/mixture 'ding to Regulation (EC) No 1272/2008 [CLP] 2	
<ul> <li>Classification of the sul</li> <li>2.1. Classification account of the sul</li> <li>2.1.1. Classification account of the sul</li> <li>2.1.1. Classification account of the sul</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> </ul>	CATION bstance/mixture 'ding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning	
<ul> <li>Classification of the sul</li> <li>2.1. Classification account of the sul</li> <li>2.1.1. Classification account of the sul</li> <li>2.1.1. Classification account of the sul</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> </ul>	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects	
<ul> <li>Classification of the sull 2.1. Classification account of the sull 2.1.1. Classification account of the sull 2.1.1. Classification account of the sull 2.2. Label elements</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according * Hazard Pictogram(s)</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s) H411: Toxic to aqua</li> </ul>	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects	
<ul> <li>ECTION 2: HAZARD IDENTIFI</li> <li>2.1. Classification of the sul</li> <li>2.1. Classification account H411-Aquatic Chronic</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according * Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard statement(s) H411: Toxic to aqua</li> <li>* Precautionary statement(s) Direction</li> <li>P273: Avoid release</li> </ul>	CATION bstance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects	
<ul> <li>ECTION 2: HAZARD IDENTIFIC</li> <li>2.1. Classification of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> <li>H411: Toxic to aqua</li> <li>* Precautionary statement(s)</li> <li>Prevention</li> <li>P273: Avoid release</li> <li>2) Response</li> </ul>	CATION bostance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) set to the environment.	
<ul> <li>ECTION 2: HAZARD IDENTIFIC</li> <li>2.1. Classification of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> <li>H411: Toxic to aqua</li> <li>* Precautionary statem</li> <li>1) Prevention</li> <li>P273: Avoid release</li> <li>2) Response</li> <li>P391: Collect spilla</li> </ul>	CATION bostance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) set to the environment.	
<ul> <li>Classification of the sulling of the sulling according to the sulling according to</li></ul>	CATION bostance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) set to the environment.	
<ul> <li>Classification of the suit</li> <li>Classification account H411-Aquatic Chronic</li> <li>Label elements</li> <li>Label elements</li> <li>Label ling according * Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s) H411: Toxic to aqua</li> <li>* Precautionary statement 1) Prevention P273: Avoid release</li> <li>Response P391: Collect spillation</li> <li>Storage - Not applicable</li> </ul>	CATION bostance/mixture rding to Regulation (EC) No 1272/2008 [CLP] 2 to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) set to the environment.	
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<ul> <li>ECTION 2: HAZARD IDENTIFIE</li> <li>2.1. Classification of the suit</li> <li>2.1. Classification account H411-Aquatic Chronic</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according * Hazard Pictogram(s)</li> <li>* Bignal word</li> <li>* Hazard statement(s) H411: Toxic to aqua</li> <li>* Precautionary statement 1) Prevention P273: Avoid release</li> <li>2) Response P391: Collect spille</li> <li>3) Storage - Not applicable</li> <li>4) Disposal P501: Disposal cor</li> <li>2.3. Other hazards</li> </ul>	CATION bistance/mixture ding to Regulation (EC) No 1272/2008 [CLP] 2 ; to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) we to the environment. age.	
<ul> <li>ECTION 2: HAZARD IDENTIFIC</li> <li>2.1. Classification of the sull</li> <li>2.1.1. Classification account of the sull</li> <li>2.1. Classification account of the sull</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling according</li> <li>* Hazard Pictogram(s)</li> <li>* Hazard Pictogram(s)</li> <li>* Signal word</li> <li>* Hazard statement(s)</li> <li>H411: Toxic to aqua</li> <li>* Precautionary statement</li> <li>1) Prevention</li> <li>P273: Avoid release</li> <li>2) Response</li> <li>P391: Collect spille</li> <li>3) Storage</li> <li>- Not applicable</li> <li>4) Disposal</li> <li>P501: Disposal core</li> </ul>	CATION bistance/mixture ding to Regulation (EC) No 1272/2008 [CLP] 2 ; to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) we to the environment. age.	
<ul> <li>ECTION 2: HAZARD IDENTIFIC</li> <li>2.1. Classification of the sull 2.1.1. Classification according that the sull accord to the su</li></ul>	CATION bistance/mixture ding to Regulation (EC) No 1272/2008 [CLP] 2 ; to Regulation (EC) No 1272/2008 [CLP] : Warning tic life with long-lasting effects nent(s) we to the environment. age.	

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3.2. Mixtures

2/9

S.Z. WIXtures				
Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228
				Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT BLUE 15:3	147-14-8	205-685-1	0~5	Not classified
C.I. PIGMENT VIOLET 23	6358-30-1	228-767-9	0~5	Specific target organ toxicity (single), H335
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

## SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

- General
- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Skin contact
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Ingestion
  - Please be advised by doctor whether induction of vomit is demanded or not.
  - Rinse your mouth with water immediately.

## 4.2. Most important symptoms and effects, both acute and delayed

- Not available

- 4.3. Indication of any immediate medical attention and special treatment needed
  - Notify medical personnel of contaminated situations and have them take appropriate protective measures.

## SECTION 5: FIREFIGHTING MEASUR

- 5.1. Extinguishing media
  - Suitable extinguishing media
  - Water, form, CO2, NaHCO3
  - Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products
- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.

- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

## 6.1. Personal Precautions, protective equipment and emergency procedures

## 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

## 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

## 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.

- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

## 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

## 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

## SECTION 7: HANDLING AND STORAGE

## 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

## 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

## 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

## 8.1.3. DNEL/PNEC - Values

Not available

## 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits.
 Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

## 8.2.2. Individual protection measures, such as personal protective equipment

Hand protection

- Wear appropriate glove.

## Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

- Provide an emergency eye wash station and quick drench shower in the immediate work area.

## **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

## 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

<ol> <li>Information on basic physical and chemi Appearance(State)</li> </ol>	Liquid
Appearance(Color)	BLUE
Odor	Odorless
Odor threshold	Not available
рН	8.0 ± 1.0
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 °C
Flash point	300 °C
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

## 9.2. Other information

- Not available

## SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

- Not available

## 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

## 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

## 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

Not available

## 10.6. Hazardous decomposition products

- Not available

## SECTION 11: TOXICOLOGICAL INFORMATION

## 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

- Dermal

	- Product (ATEmix) : >5000mg/kg
	<ul> <li>- [GLYCERINE] : LD50 &gt; 10000 mg/kg Rat (ChemIDplus)</li> <li>- Inhalation</li> </ul>
	- Product (ATEmix) : Not available
	-[GLYCERINE]:LC50 >2.75 mg/0 4 hr Rat (ECHA)
	- [C.I. PIGMENT RED 122] : LCO = 3.055 mg/ℓ 4hr Rat (OECD TG 403, GLP) (ECHA)
	2. Skin corrosion/irritation
	<ul> <li>- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)</li> </ul>
11	.3. Serious eye damage/irritation
	- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
11	.4. Respiratory sensitization
	- Not available
11	.5. Skin sensitization
	- Not available
11	.6. Germ cell mutagenicity
	- Not available
11	.7. Carcinogenicity
	- IARC
	- Not available
	- OSHA
	- Not available - ACGIH
	- ALGIN - [ALUMINIUM POWDER] : A4 (KOHSA)
	- NTP
	- Not available
	- EU CLP
	- Not available
	. <b>8. Reproductive toxicity</b> - Not available
	.9. Specific target organ toxicity(single exposure):
	<ul> <li>- [C.I. PIGMENT VIOLET 23] : Classified as Category 3 (Respiratory irritation) (KOSHA)</li> </ul>
	.10. Specific target organ toxicity(repeated exposure):
	- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)
11	.11. Aspiration hazard
	- Not available
0.5.07	
	ION 12: ECOLOGICAL INFORMATION
	12.1.1. Fish
	- [GLYCERINE] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA)
	12.1.2. Invertebrate
	- [GLYCERINE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)
	- [ALUMINIUM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)
	12.1.3. Algae
	- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP) (ECHA)
12	2.2. Persistence and degradability
12	2. Persistence and degradability 12.2.1. Persistence

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

## 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

## 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

## 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

## SECTION 13: DISPOSAL CONSIDERATIONS

## 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

SECTION 14: TRANSPORT INFORMATION

# 14.1.1. UN No. (ADR/RID/ADN) 3082 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

**14.1.3. UN No. (ICAO)** 3082

## 14.2. UN proper shipping name

- Not applicable

14.1. UN No.

## 14.3. Transport hazard class(es)

- 14.3.1. ADR/RID/ADN Class
  - Not applicable

## 14.3.2. ADR/RID/ADN Class - Not applicable

14.3.3. ADR Label No.

- Not applicable

14.3.4. IMDG Class - Not applicable

**14.3.5. ICAO Class/Division** - Not applicable

# 14.3.6. Transport Labels

Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group - Not applicable

- **14.4.2. IMDG Packing group** - Not applicable
- not applicable

## 14.4.3. ICAO Packing group

- Not applicable

## 14.5. Environmental hazards

Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

## SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable

15.1.1.3 REACH SVHC

- Not applicable
- 15.1.1.4 Europe PBT

- Not applicable

15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road - Dangerous Goods List - Not applicable

## 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

# 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

## 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

## 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5. Training advice	
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- Not applicable

## 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

#### · Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



Date of issue: 2018-06-20 Revision date: 2023-04-17

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING 1.1. Product identifier : MGI- Y.ORANGE Trade

## 1.2. Relevant identified uses of the substance or mixture and uses advised against

## 1.2.1. Relevant identified uses

- Water-soluble stationary ink

# 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplie	r : YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

## 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

## SECTION 2: HAZARD IDENTIFICATION

## 2.1. Classification of the substance/mixture

## 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2

## 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)



- \* Signal word : Warning
- \* Hazard statement(s)
  - H411: Toxic to aquatic life with long-lasting effects
- \* Precautionary statement(s)

## 1) Prevention

- P273: Avoid release to the environment.
- 2) Response
  - P391: Collect spillage.
- 3) Storage
- Not applicable
- 4) Disposal

P501: Disposal contents/ container to in accordance with local national regulation.

# 2.3. Other hazards

- Not available

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

## 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Aquatic Chronic 4, H413
C.I. PIGMENT YELLOW 83	5567-15-7	226-939-8	0~5	Aquatic Chronic 3, H412
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skip Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

## 4.1. Description of first aid measures

- General
- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

## Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

## Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

## 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

## 6.1. Personal Precautions, protective equipment and emergency procedures

## 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

## 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

# 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

## 6.3. Methods and material for containment and cleaning up

## 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

## 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

## 6.3.3. Other information

- Slippery when spilt.

## 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

- See Section 13 for information on disposal.

# SECTION 7: HANDLING AND STORAGE

## 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

## 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

## 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1. Control parameters

## 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available

# European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Skin

- Not available

## 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

## 8.1.3. DNEL/PNEC - Values

- Not available

# 8.2. Exposure controls

# 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

## 8.2.2. Individual protection measures, such as personal protective equipment

# Hand protection

- Wear appropriate glove.

## Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

# - Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

# Skin protection

- Wear appropriate clothing.

## 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

0.1. Information on basic physical and che	
Appearance(State)	Liquid
Appearance(Color)	ORANGE
Odor	Odorless
Odor threshold	Not available
рН	8.0 ± 1.0
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 ℃
Flash point	300 ℃
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

## 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

## 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

## 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

## 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

## 10.6. Hazardous decomposition products

- Not available

# SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

# - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

## - Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/l 4 hr Rat (ECHA)

## 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

## 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

## 11.4. Respiratory sensitization

- Not available

# 11.5. Skin sensitization

- Not available

## 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
- Not available
- OSHA
- Not available
- ACGIH - [ALUMINIUM POWDER] : A4
- NTP
  - Not available
- EU CLP
- Not available

## 11.8. Reproductive toxicity

- Not available

# 11.9. Specific target organ toxicity(single exposure):

- Not available

# 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

# 11.11. Aspiration hazard

- Not available

# SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity
  - 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/ $\ell$  96 hr Cyprinodon variegatus (ECHA)
- [C.I. PIGMENT RED 170] : LC50 >0.217 mg/l 96 hr (ECOSAR)
- [C.I. PIGMENT YELLOW 83] : LC50 45 mg/l 48 hr Oncorhynchus mykiss (ECOTOX)

# 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)
- [ALUMINIUM POWDER] : NOEC > 100 mg/l 48 hr Daphnia magna (IUCLID)
- [C.I. PIGMENT RED 170] : LC50 0.545 mg/l 48 hr (ECOSHA)

# 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/Ł 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)
- [C.I. PIGMENT RED 170] : EC50 0.06 mg/l 96 hr (ECOSHA)

# 12.2. Persistence and degradability

## 12.2.1. Persistence

- [C.I. PIGMENT RED 170] : 6.04 log Kow (ECOSAR)
- [C.I. PIGMENT YELLOW 83] : 7.54 log Kow (IUCLID)

# 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)
- 12.3. Bioaccumulative potential

## 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)
- [C.I. PIGMENT RED 170] : 10 (QSAR)
- [C.I. PIGMENT YELLOW 83] : 10 (QSAR)

# 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)
- [C.I. PIGMENT YELLOW 83] : 6 (%) 28 days (NITE)
- 12.4. Mobility in soil
  - Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

## 12.6. Other adverse effects

- Not available

## SECTION 13: DISPOSAL CONSIDERATIONS

# 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

# 14.1. UN No.

**14.1.1. UN No. (ADR/RID/ADN)** 3082

## 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

**14.1.3. UN No. (ICAO)** 3082

14.2. UN proper shipping name

## - Not applicable

# 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class - Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

## 14.3.3. ADR Label No.

- Not applicable

# 14.3.4. IMDG Class

- Not applicable

# 14.3.5. ICAO Class/Division

- Not applicable

## 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

- Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

# 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

# SECTION 15: REGULATORY INFORMATION

## 15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

- 15.1.1. Europe regulatory
  - 15.1.1.1 REACH Restricted substance under REACH
  - Not applicable
  - 15.1.1.2 REACH Substances subject to authorization under REACH
  - Not applicable
  - 15.1.1.3 REACH SVHC
  - Not applicable
  - 15.1.1.4 Europe PBT
    - Not applicable
  - 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
    - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

## SECTION 16: OTHER INFORMATION

## 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

## 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.

- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

## 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

## 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

## 16.5. Training advice

- Not applicable

## 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

# Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



Date of issue: 2018-06-20 Revision date: 2023-04-17

1.1. Product identifier

: MGI- T.BLUE Trade 1.2. Relevant identified uses of the substance or mixture and uses advised against 1.2.1. Relevant identified uses

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- Water-soluble stationary ink

# 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplie	r : YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

## 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

## SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance/mixture

## 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2

## 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)



- : Warning \* Signal word
- \* Hazard statement(s)
  - H411: Toxic to aquatic life with long-lasting effects
- \* Precautionary statement(s)
  - 1) Prevention
    - P273: Avoid release to the environment.
  - 2) Response
  - P391: Collect spillage.
  - 3) Storage
  - Not applicable
  - 4) Disposal

P501: Disposal contents/ container to in accordance with local national regulation.

# 2.3. Other hazards

- Not available

# 3.1. Substances

- Not applicable

# 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification
WATER	7732-18-5	231-791-2	40~60	[1272/2008/EC] Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	'Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373
C.I. PIGMENT BLUE 15:3	147-14-8	205-685-1	0~5	Not classified
C.I. PIGMENT GREEN 7	1328-53-6	215-524-7	0~5	Not classified
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

## 4.1. Description of first aid measures

## General

- No general information.

# Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

## Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

# Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

## Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

## 4.2. Most important symptoms and effects, both acute and delayed

- Not available

## 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3

## Unsuitable extinguishing media

- Avoid use of water jet for extinguishing

## 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

# SECTION 6: ACCIDENTAL RELEASE MEASURES

# 6.1. Personal Precautions, protective equipment and emergency procedures

- 6.1.1. For non-emergency personnel
  - Protective equipment: Wear proper protective equipment.
  - Emergency procedures: Not applicable
  - If required, notify relevant authorities according to all applicable regulations.

## 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

## 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

## 6.3. Methods and material for containment and cleaning up

- 6.3.1. For containment
  - Clear spills immediately
  - Clean up all spills immediately.
  - Prevent, by any means available, spillage from entering drains or water course.

## 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

## 6.3.3. Other information

- Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

## SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.
  - Do not inhale the steam prolonged or repeated.

## 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

# 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

- 8.1.1. Occupational exposure limits
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Not available
  - European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

# 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

# 8.1.3. DNEL/PNEC - Values

- Not available

# 8.2. Exposure controls

# 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

## 8.2.2. Individual protection measures, such as personal protective equipment

# Hand protection

Wear appropriate glove.

## Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

## Skin protection

- Wear appropriate clothing.

## 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

.1. Information on basic physical and chemical properties				
Appearance(State)	Liquid			
Appearance(Color)	T.BLUE			
Odor	Odorless			
Odor threshold	Not available			
рН	8.0 ± 1.0			
Melting point/Freezing point	Not available			
Initial boiling point and boiling range	> 100 °C			
Flash point	300 °C			
Evaporation rate	Not available			
Flammability(solid, gas)	Not applicable			
Upper/Lower Flammability or explosive	Not available			
Vapour pressure	Not available			
Vapour density	Not available			
Relative density	1.1 ± 0.05 g/cm3			
Solubility	Fully miscible			
Partition coefficient of n-octanol/water	Not available			
Autoignition temperature	No self-igniting			
Decomposition temperature	Not available			
Viscosity	750 ± 150 Cps			
Explosive properties	Not explosive			
Oxidizing properties	Not available			

## 9.2. Other information

- Not available

# SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

## 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

## 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

## 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

## 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

#### - Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/ℓ 4 hr Rat (ECHA)

# 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

#### 11.4. Respiratory sensitization

- Not available

# 11.5. Skin sensitization

- Not available

### 11.6. Germ cell mutagenicity

- Not available

#### 11.7. Carcinogenicity

- IARC
  - Not available
- OSHA
  - Not available
- ACGIH
  - [ALUMINIUM POWDER] : A4
- NTP
- Not available
- EU CLP
  - Not available

# 11.8. Reproductive toxicity

- Not available

#### 11.9. Specific target organ toxicity(single exposure):

- Not available

# 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

#### 11.11. Aspiration hazard

- Not available

### SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

#### 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)

#### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)
- [ALUMINIUM POWDER] : NOEC > 100 mg/ℓ 48 hr Daphnia magna (IUCLID)

#### 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)

#### 12.2. Persistence and degradability

### 12.2.1. Persistence

- Not available

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

# 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

#### 12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste

recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

#### 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN)

```
3082
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**14.1.2. UN No. (IMDG CODE/IATA DGR)** 3082

**14.1.3. UN No. (ICAO)** 3082

### 14.2. UN proper shipping name

- Not applicable

14.3. Transport hazard class(es)

# 14.3.1. ADR/RID/ADN Class

- Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

# 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

### 14.4. Packing group

# 14.4.1. ADR/RID/ADN Packing group

- Not applicable

#### 14.4.2. IMDG Packing group

- Not applicable

#### 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

#### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

#### 15.1.1. Europe regulatory

- 15.1.1.1 REACH Restricted substance under REACH
- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
  - Not applicable
- **15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List** - Not applicable

#### 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

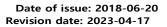
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# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade

: MGI- SCARLET

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

- Water-soluble stationary ink

#### 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	· : YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

#### 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

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### 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)



- \* Signal word : Warning
- \* Hazard statement(s)
  - H411: Toxic to aquatic life with long-lasting effects
- \* Precautionary statement(s)

#### 1) Prevention

- P273: Avoid release to the environment.
- 2) Response
  - P391: Collect spillage.
- 3) Storage
- Not applicable
- 4) Disposal

P501: Disposal contents/ container to in accordance with local national regulation.

#### 2.3. Other hazards

- Not available



# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

#### 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Aquatic Chronic 4, H413
C.I. PIGMENT YELLOW 83	5567-15-7	226-939-8	0~5	Aquatic Chronic 3, H412
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of first aid measures

- General
- No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

#### Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

# SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

#### 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

#### 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

#### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.

- See Section 13 for information on disposal.

# SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

#### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

#### 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available

### European Union (EU) Commission Directive 2006/15/EC (IOELVs) - Skin

- Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

# 8.2. Exposure controls

# 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

# Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

# - Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

#### 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties				
Appearance(State)	Liquid			
Appearance(Color)	RED			
Odor	Odorless			
Odor threshold	Not available			
рН	8.0 ± 1.0			
Melting point/Freezing point	Not available			
Initial boiling point and boiling range	> 100 °C			
Flash point	300 °C			
Evaporation rate	Not available			
Flammability(solid, gas)	Not applicable			
Upper/Lower Flammability or explosive	Not available			
Vapour pressure	Not available			
Vapour density	Not available			
Relative density	1.1 ± 0.05 g/cm3			
Solubility	Fully miscible			
Partition coefficient of n-octanol/water	Not available			
Autoignition temperature	No self-igniting			
Decomposition temperature	Not available			
Viscosity	750 ± 150 Cps			
Explosive properties	Not explosive			
Oxidizing properties	Not available			

#### 9.2. Other information

- Not available

#### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

#### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

#### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

# 10.5. Incompatible materials

- Not available

#### 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)

#### - Dermal

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/l 4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

#### 11.4. Respiratory sensitization

- Not available

# 11.5. Skin sensitization

- Not available

# 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
- Not available
- OSHA
- Not available
- ACGIH - [ALUMINIUM POWDER] : A4
- NTP
  - Not available
- EU CLP
- Not available

#### 11.8. Reproductive toxicity

- Not available

### 11.9. Specific target organ toxicity(single exposure):

- Not available

# 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

# 11.11. Aspiration hazard

- Not available

# SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity
  - 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/ $\ell$  96 hr Cyprinodon variegatus (ECHA)
- [C.I. PIGMENT RED 170] : LC50 >0.217 mg/l 96 hr (ECOSAR)
- [C.I. PIGMENT YELLOW 83] : LC50 45 mg/l 48 hr Oncorhynchus mykiss (ECOTOX)

# 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)
- [ALUMINIUM POWDER] : NOEC > 100 mg/l 48 hr Daphnia magna (IUCLID)
- [C.I. PIGMENT RED 170] : LC50 0.545 mg/l 48 hr (ECOSHA)

# 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/Ł 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)
- [C.I. PIGMENT RED 170] : EC50 0.06 mg/l 96 hr (ECOSHA)

#### 12.2. Persistence and degradability

#### 12.2.1. Persistence

- [C.I. PIGMENT RED 170] : 6.04 log Kow (ECOSAR)
- [C.I. PIGMENT YELLOW 83] : 7.54 log Kow (IUCLID)

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)
- 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)
- [C.I. PIGMENT RED 170] : 10 (QSAR)
- [C.I. PIGMENT YELLOW 83] : 10 (QSAR)

# 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)
- [C.I. PIGMENT YELLOW 83] : 6 (%) 28 days (NITE)
- 12.4. Mobility in soil
  - Not available

#### 12.5. Results of PBT and vPvB assessment

Not available

#### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

# 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

# 14.1. UN No.

**14.1.1. UN No. (ADR/RID/ADN)** 3082

#### 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

**14.1.3. UN No. (ICAO)** 3082

14.2. UN proper shipping name

#### - Not applicable

### 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class - Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

#### 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

- Not applicable

# 14.4.2. IMDG Packing group

Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

# SECTION 15: REGULATORY INFORMATION

#### 15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

- 15.1.1. Europe regulatory
  - 15.1.1.1 REACH Restricted substance under REACH
  - Not applicable
  - 15.1.1.2 REACH Substances subject to authorization under REACH
  - Not applicable
  - 15.1.1.3 REACH SVHC
  - Not applicable 15.1.1.4 Europe PBT
    - Not applicable
  - 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
    - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

#### SECTION 16: OTHER INFORMATION

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.

- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

# Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No 2015/830)



Date of issue: 2018-06-20 Revision date: 2023-04-17

	er
1.1. Product identifi Trade	: MGI- ROSE
	fied uses of the substance or mixture and uses advised against
1.2.1. Relevant ic	
- water-soluble	e stationary ink
1.2.2. Uses advis	
- Not available	
1.3. Details of the s	upplier of the safety data sheet
Manufacturer/Su	oplier : YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com
1.4. Emergency tele	phone number
	0 (This number is serviced during office hours only.)
	jency number : 112
See section 16	6 for the list of telephone number of poison centers in the European Economic Area.
CTION 2: HAZARD I	the substance/mixture
H411-Aquatic	on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2
H411-Aquatic 2.2. Label elements	Chronic 2
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
H411-Aquatic 2.2. Label elements	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto & * Signal word * Hazard state	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Hazard state H411: Toxid	Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s)
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Hazard state H411: Toxid	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s)
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventio	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s)
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventio	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on bid release to the environment.
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventio P273: Avo 2) Response	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on bid release to the environment.
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventio P273: Avo 2) Response	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on bid release to the environment. e
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Picto * Signal word * Signal word * Hazard state H411: Toxic * Precautionar 1) Prevention P273: Avid 2) Response P391: Co	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on bid release to the environment. e llect spillage.
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventi P273: Avv 2) Respons P391: Co 3) Storage - Not app 4) Disposal	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on oid release to the environment. e llect spillage. blicable
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventi P273: Avv 2) Respons P391: Co 3) Storage - Not app 4) Disposal	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP]  gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on bid release to the environment. e llect spillage.
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventi P273: Avi 2) Responsi P391: Co 3) Storage - Not app 4) Disposal P501: Dis	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on oid release to the environment. e llect spillage. blicable
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Signal word * Hazard state H411: Toxic * Precautionar 1) Preventi P273: Avv 2) Respons P391: Co 3) Storage - Not app 4) Disposal	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on oid release to the environment. e llect spillage. blicable
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Hazard state H411: Toxio * Precautionat 1) Preventi P273: Avi 2) Responsa P391: Co 3) Storage - Not ap 4) Disposal P501: Dis 2.3. Other hazards	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on oid release to the environment. e llect spillage. blicable
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Hazard state H411: Toxio * Precautionat 1) Preventi P273: Avi 2) Responsa P391: Co 3) Storage - Not ap 4) Disposal P501: Dis 2.3. Other hazards	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on oid release to the environment. e llect spillage. blicable
H411-Aquatic 2.2. Label elements 2.2.1. Labelling a * Hazard Pictor * Signal word * Hazard state H411: Toxio * Precautionat 1) Preventi P273: Avi 2) Responsa P391: Co 3) Storage - Not ap 4) Disposal P501: Dis 2.3. Other hazards	Chronic 2  ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)  : Warning ment(s) : to aquatic life with long-lasting effects y statement(s) on oid release to the environment. e llect spillage. blicable

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

### 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373
C.I. PIGMENT RED 170	2786-76-7	220-509-3	0~5	Aquatic Chronic 4, H413
C.I. PIGMENT RED 122	980-26-7	213-561-3	0~5	Acute toxicity (Inhalation) 4, H332
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

# SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

- General
  - No general information.
- Inhalation
  - When exposed to large amounts of steam and mist, move to fresh air.
  - Take specific treatment if needed.
- Skin contact
  - Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

- Laundering enough contaminated clothing before reuse.

- Eye contact
  - Do not rub your eyes.
  - Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

- Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

### SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media

- Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

#### 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

# 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

### 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available
- European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

# 8.2.2. Individual protection measures, such as personal protective equipment

#### Hand protection

- Wear appropriate glove.

#### Eye protection

Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

# 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AN	ND CHEMICAL PROPERTIES
------------------------	------------------------

9.1. Information on basic physical and chemical properties				
Appearance(State)	Liquid			
Appearance(Color)	RED			
Odor	Odorless			
Odor threshold	Not available			
рН	8.0 ± 1.0			
Melting point/Freezing point	Not available			
Initial boiling point and boiling range	> 100 ℃			
Flash point	300 °C			
Evaporation rate	Not available			
Flammability(solid, gas)	Not applicable			
Upper/Lower Flammability or explosive	Not available			
Vapour pressure	Not available			
Vapour density	Not available			
Relative density	1.1 ± 0.05 g/cm3			
Solubility	Fully miscible			
Partition coefficient of n-octanol/water	Not available			
Autoignition temperature	No self-igniting			
Decomposition temperature	Not available			
Viscosity	750 ± 150 Cps			
Explosive properties	Not explosive			
Oxidizing properties	Not available			

# 9.2. Other information

- Not available

### SECTION 10: STABILITY AND REACTIVITY

# 10.1. Reactivity

- Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

#### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

#### 10.5. Incompatible materials

# - Not available

#### 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

#### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)
- Dermal
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/ $\ell$  4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

# 11.4. Respiratory sensitization

Net weilele

# - Not available

# 11.5. Skin sensitization

- Not available

#### 11.6. Germ cell mutagenicity

- Not available

# 11.7. Carcinogenicity

- IARC
  - Not available
- OSHA
- Not available
- ACGIH
  - [ALUMINIUM POWDER] : A4
- NTP
  - Not available
- EU CLP
  - Not available

# 11.8. Reproductive toxicity

- Not available

#### 11.9. Specific target organ toxicity(single exposure):

- Not available

#### 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

#### 11.11. Aspiration hazard

- Not available

### SECTION 12: ECOLOGICAL INFORMATION

# 12.1. Toxicity

# 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)
- [C.I. PIGMENT RED 170] : LC50 >0.217 mg/l 96 hr (ECOSAR)

#### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)
- [ALUMINIUM POWDER] : NOEC > 100 mg/l 48 hr Daphnia magna (IUCLID)
- [C.I. PIGMENT RED 170] : LC50 0.545 mg/l 48 hr (ECOSHA)

# 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ℓ 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)
- [C.I. PIGMENT RED 170] : EC50 0.06 mg/ℓ 96 hr (ECOSHA)

# 12.2. Persistence and degradability

12.2.1. Persistence

- [C.I. PIGMENT RED 170] : 6.04 log Kow (ECOSAR)

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

#### 12.3. Bioaccumulative potential

# 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)
- [C.I. PIGMENT RED 170] : 10 (QSAR)
- 12.3.2. Biodegradability
  - [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

### 12.4. Mobility in soil

- Not available

#### 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

# SECTION 13: DISPOSAL CONSIDERATIONS

# 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste
- recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

14.1. UN No.

# 14.1.1. UN No. (ADR/RID/ADN)

3082

#### **14.1.2. UN No. (IMDG CODE/IATA DGR)** 3082

**14.1.3. UN No. (ICAO)** 3082

# 14.2. UN proper shipping name

- Not applicable

# 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class

# - Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

# 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

- Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

- Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

#### SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

# 15.1.1. Europe regulatory

15.1.1.1 REACH Restricted substance under REACH

- Not applicable
- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable
- 15.1.1.3 REACH SVHC
- Not applicable
- 15.1.1.4 Europe PBT
- Not applicable
- **15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List** - Not applicable

#### 15.2. Chemical Safety Assessment

- Not conducted

# SECTION 16: OTHER INFORMATION

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

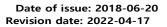
#### Disclaimer of Liability

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No

2015/830)



SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade

: MGI- L.VIOLET

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses

- Water-soluble stationary ink

### 1.2.2. Uses advised against

- Not available

# 1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	: YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com

#### 1.4. Emergency telephone number

82-31-494-2030 (This number is serviced during office hours only.) EU-wide emergency number : 112 See section 16.6 for the list of telephone number of poison centers in the European Economic Area.

#### SECTION 2: HAZARD IDENTIFICATION

#### 2.1. Classification of the substance/mixture

#### 2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] H411-Aquatic Chronic 2

### 2.2. Label elements

- 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]
  - \* Hazard Pictogram(s)



- \* Signal word : Warning
- \* Hazard statement(s)
  - H411: Toxic to aquatic life with long-lasting effects
- \* Precautionary statement(s)
  - 1) Prevention
    - P273: Avoid release to the environment.
  - 2) Response
    - P391: Collect spillage.
  - 3) Storage
  - Not applicable
  - 4) Disposal

P501: Disposal contents/ container to in accordance with local national regulation.

# 2.3. Other hazards

- Not available

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

#### 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification
WATER	7732-18-5	231-791-2	40~60	[1272/2008/EC] Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373
C.I. PIGMENT RED 122	980-26-7	213-561-3	0~5	Aquatic Chronic 1: H410 (M-factor: 1)
C.I. PIGMENT VIOLET 23	6358-30-1	228-767-9	0~5	Specific target organ toxicity (single), H335
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

#### SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

#### General

- No general information.

# Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

#### Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

# Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

#### - Not available

### 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

SECTION 5: FIREFIGHTING MEASURES

#### 5.1. Extinguishing media

# Suitable extinguishing media

- Water, form, CO2, NaHCO3

- Unsuitable extinguishing media
  - Avoid use of water jet for extinguishing

#### 5.2. Special hazards arising from the substance or mixture

- Hazardous combustion products
- Not available

# 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

# 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

#### 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

# 6.3.3. Other information

- Slippery when spilt.

### 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

# SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling
  - Avoid direct physical contact.
  - Get the manual before use.
  - Refer to Engineering controls and personal protective equipment.
  - Do not handle until all safety precautions have been read and understood.
  - Do not inhale the steam prolonged or repeated.

### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

#### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

# 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available
- European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
- Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

# 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

#### 8.2.2. Individual protection measures, such as personal protective equipment

#### Hand protection

- Wear appropriate glove.

#### Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

# 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

CTION 9: PHYSICAL AND CHEMICAL PROPERTIES					
9.1. Information on basic physical and che	9.1. Information on basic physical and chemical properties				
Appearance(State)	Liquid				
Appearance(Color)	VIOLET				
Odor	Odorless				
Odor threshold	Not available				
рН	8.0 ± 1.0				
Melting point/Freezing point	Not available				
Initial boiling point and boiling range	> 100 °C				
Flash point	300 ℃				
Evaporation rate	Not available				
Flammability(solid, gas)	Not applicable				
Upper/Lower Flammability or explosive	Not available				
Vapour pressure	Not available				
Vapour density	Not available				
Relative density	1.1 ± 0.05 g/cm3				
Solubility	Fully miscible				
Partition coefficient of n-octanol/water	Not available				
Autoignition temperature	No self-igniting				
Decomposition temperature	Not available				
Viscosity	750 ± 150 Cps				
Explosive properties	Not explosive				
Oxidizing properties	Not available				

#### 9.2. Other information

- Not available

#### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity
  - Not available

### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

# 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

#### 10.5. Incompatible materials

- Not available

### 10.6. Hazardous decomposition products

- Not available

#### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

- Oral
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)
- Dermal
  - Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/ℓ 4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)

#### 11.4. Respiratory sensitization

- Not available

# 11.5. Skin sensitization

- Not available

#### 11.6. Germ cell mutagenicity

- Not available

#### 11.7. Carcinogenicity

- IARC
  - Not available
- OSHA
  - Not available
- ACGIH
- [ALUMINIUM POWDER] : A4 (KOHSA)
- NTP
  - Not available
- EU CLP
  - Not available

# 11.8. Reproductive toxicity

- Not available

# 11.9. Specific target organ toxicity(single exposure):

- [C.I. PIGMENT VIOLET 23] : Classified as Category 3 (Respiratory irritation) (KOSHA)

# 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

# 11.11. Aspiration hazard

- Not available

SECTION 12: ECOLOGICAL INFORMATION

# 12.1. Toxicity

#### 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)

#### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)

- [ALUMINIUM POWDER] : NOEC > 100 mg/l 48 hr Daphnia magna (IUCLID)

#### 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/l 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)

#### 12.2. Persistence and degradability

#### 12.2.1. Persistence

- Not available

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

# 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

12.4. Mobility in soil

- Not available

# 12.5. Results of PBT and vPvB assessment

- Not available

#### 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.
- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Tecycle and dispose, person who establish and operate waste disposal identite
- Dispose of waste in accordance with all applicable laws and regulations.

### SECTION 14: TRANSPORT INFORMATION

# 14.1. UN No.

# 14.1.1. UN No. (ADR/RID/ADN)

3082

# 14.1.2. UN No. (IMDG CODE/IATA DGR)

3082

# 14.1.3. UN No. (ICAO)

3082

#### 14.2. UN proper shipping name

- Not applicable

#### 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class

# - Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

#### 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

#### 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

# - Not applicable

# 14.4.2. IMDG Packing group

- Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

- Not applicable

# 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

# SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

15.1.1. Europe regulatory

#### 15.1.1.1 REACH Restricted substance under REACH

- Not applicable

- 15.1.1.2 REACH Substances subject to authorization under REACH
- Not applicable

#### 15.1.1.3 REACH SVHC

Not applicable

# 15.1.1.4 Europe PBT

# - Not applicable

**15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road** - Dangerous Goods List - Not applicable

#### 15.2. Chemical Safety Assessment

- Not conducted

### SECTION 16: OTHER INFORMATION

# 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.
- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

# · Disclaimer of Liability

This information is based on our present state of knowledge.

It should not therefore be construed as guaranteeing specific properties of the products Described or their suitability for a particular application. YOU&I Corporation assumes no responsibility for personal injury or property damage caused by the material. Users assume all risks associated with the use of the material.

# SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH), Annex II(COMMISSION REGULATION (EU) No 2015/830)



CTION 1: IDENTIFICA	TION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1. Product identifie	
Trade	: MGI- D.VIOLET
1.2. Relevant identifi	ied uses of the substance or mixture and uses advised against
1.2.1. Relevant ide	entified uses
- Water-soluble	stationary ink
<b>1.2.2. Uses advise</b> - Not available	d against
	upplier of the safety data sheet
Manufacturer/Sup	plier : YOU&I COPORATION
Address	: 53, EMTIBEUI 26-RO, SIHEUNG-SI, GYEONGGI-DO, KOREA (ZIP CODE) 15118
Telephone	: 82-31-494-2030
Email	: tech@youicolor.com
1.4. Emergency telep	phone number
	) (This number is serviced during office hours only.)
•	ency number : 112
See section 16.6	6 for the list of telephone number of poison centers in the European Economic Area.
	ΔΕΝΤΙΕΙCΑΤΙΩΝ
CTION 2: HAZARD ID 2.1. Classification of	DENTIFICATION the substance/mixture
2.1. Classification of	the substance/mixture
2.1. Classification of	the substance/mixture n according to Regulation (EC) No 1272/2008 [CLP]
2.1. Classification of 2.1.1. Classificatio	the substance/mixture n according to Regulation (EC) No 1272/2008 [CLP]
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classificatio</li> <li>H411-Aquatic (</li> <li>2.2. Label elements</li> </ul>	<b>the substance/mixture</b> on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classificatio</li> <li>H411-Aquatic (</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac</li> </ul>	the substance/mixture on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classificatio</li> <li>H411-Aquatic (</li> <li>2.2. Label elements</li> </ul>	the substance/mixture on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classificatio</li> <li>H411-Aquatic (</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac</li> </ul>	the substance/mixture on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classificatio</li> <li>H411-Aquatic (</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac</li> </ul>	the substance/mixture on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP]
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classificatio</li> <li>H411-Aquatic (</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac</li> <li>* Hazard Pictor</li> </ul>	the substance/mixture on according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s)
<ul> <li>2.1. Classification of</li> <li>2.1.1. Classification</li> <li>H411-Aquatic (2006)</li> <li>2.2.1. Label elements</li> <li>2.2.1. Labelling according to the second seco</li></ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning
<ul> <li>2.1. Classification of 2.1.1. Classificatio H411-Aquatic (</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Hazard stater</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s)
<ul> <li>2.1. Classification of 2.1.1. Classificatio H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects
<ul> <li>2.1. Classification of 2.1.1. Classificatio H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s)
<ul> <li>2.1. Classification of 2.1.1. Classificatio H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary 1) Preventio</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s)
<ul> <li>2.1. Classification of 2.1.1. Classificatio H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary 1) Preventio</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in bid release to the environment.
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in iid release to the environment.
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 ccording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in bid release to the environment.
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling ac * Hazard Pictor</li> <li>* Signal word</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment.
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictog</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action (2)</li> <li>* Hazard Pictor (2)</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary 1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment.
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic C</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictor</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal P501: Disp</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic (2)</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictog</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic C</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictog</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal P501: Disp</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic C</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictog</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal P501: Disp</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic C</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictog</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal P501: Disp</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable
<ul> <li>2.1. Classification of 2.1.1. Classification H411-Aquatic C</li> <li>2.2. Label elements</li> <li>2.2.1. Labelling action * Hazard Pictog</li> <li>* Signal word</li> <li>* Hazard stater H411: Toxic</li> <li>* Precautionary</li> <li>1) Preventio P273: Avo</li> <li>2) Response P391: Coll</li> <li>3) Storage - Not app</li> <li>4) Disposal P501: Disp</li> </ul>	the substance/mixture in according to Regulation (EC) No 1272/2008 [CLP] Chronic 2 coording to Regulation (EC) No 1272/2008 [CLP] gram(s) : Warning ment(s) to aquatic life with long-lasting effects / statement(s) in id release to the environment. lect spillage. licable

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

# 3.1. Substances

# - Not applicable

#### 3.2. Mixtures

Name	CAS No.	EINECS NO.	% [weight]	Classification [1272/2008/EC]
WATER	7732-18-5	231-791-2	40~60	Not classified
GLYCERINE	56-81-5	200-289-5	15~20	Not classified
ALUMINIUM POWDER	7429-90-5	231-072-3	3~7	Flam. Solid 1, H228 Pyr. Liq. 1, H250 Water-react 2, H261 Specific target organ toxicity (repeated) 2, H373 Aquatic Chronic 1: H410 (M-factor; 1)
C.I. PIGMENT BLUE 15:3	147-14-8	205-685-1	0~5	Not classified
C.I. PIGMENT VIOLET 23	6358-30-1	228-767-9	0~5	Specific target organ toxicity (single), H335
POLY ETHYLENE GLYCOL	25322-68-3	500-038-2	10~15	Acute toxicity (Oral) 4, H302
2-AMINO-2-METHYL-1- PROPANOL	124-68-5	204-709-8	0~1	Aquatic Chronic 4, H413 Eye Irrit. 1, H318 Skin Irrit. 2, H315

### SECTION 4: FIRST AID MEASURES

# 4.1. Description of first aid measures

#### General

- No general information.

#### Inhalation

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

# Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.

# Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

#### Ingestion

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

# 4.2. Most important symptoms and effects, both acute and delayed

#### - Not available

# 4.3. Indication of any immediate medical attention and special treatment needed

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

### SECTION 5: FIREFIGHTING MEASURES

# 5.1. Extinguishing media

Suitable extinguishing media

- Water, form, CO2, NaHCO3
- Unsuitable extinguishing media

- Avoid use of water jet for extinguishing

# 5.2. Special hazards arising from the substance or mixture

# Hazardous combustion products

- Not available

#### 5.3. Advice for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Use fire fighting procedures suitable for surrounding area.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

#### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal Precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment: Wear proper protective equipment.
- Emergency procedures: Not applicable
- If required, notify relevant authorities according to all applicable regulations.

#### 6.1.2. For emergency responders

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Do not direct water at spill or source of leak.

#### 6.2. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.
- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise

#### 6.3. Methods and material for containment and cleaning up

# 6.3.1. For containment

- Clear spills immediately
- Clean up all spills immediately.
- Prevent, by any means available, spillage from entering drains or water course.

#### 6.3.2. For cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.

#### 6.3.3. Other information

- Slippery when spilt.

# 6.4. Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for information on disposal.

#### SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

- Avoid direct physical contact.
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Do not inhale the steam prolonged or repeated.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Check regularly for leaks.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.

#### 7.3. Specific end use(s)

- See Section 1 for information on 1.2 Relevant identified uses.

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

# 8.1. Control parameters

# 8.1.1. Occupational exposure limits

- European Union (EU) Commission Directive 2006/15/EC (IOELVs)
  - Not available
- European Union (EU) Commission Directive 2006/15/EC (IOELVs) Skin
  - Not available

#### 8.1.2. Recommended Monitoring Procedures

- Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

#### 8.1.3. DNEL/PNEC - Values

- Not available

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

# 8.2.2. Individual protection measures, such as personal protective equipment

#### Hand protection

- Wear appropriate glove.

#### Eye protection

Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
Provide an emergency eye wash station and quick drench shower in the immediate work area.

# **Respiratory Protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full face piece and organic vapor cartridge(s).
- Any air-purifying respirator with a full face piece and an organic vapor canister.

- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full face piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

#### Skin protection

- Wear appropriate clothing.

# 8.2.3 Environmental exposure controls

- Do not let product enter drains. For ecological information refer to section 12.

SECTION 9: PHYSICAL AN	ND CHEMICAL PROPERTIES
------------------------	------------------------

9.1. Information on basic physical and chemical properties	
Appearance(State)	Liquid
Appearance(Color)	VIOLET
Odor	Odorless
Odor threshold	Not available
рН	8.0 ± 1.0
Melting point/Freezing point	Not available
Initial boiling point and boiling range	> 100 ℃
Flash point	300 ℃
Evaporation rate	Not available
Flammability(solid, gas)	Not applicable
Upper/Lower Flammability or explosive	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1.1 ± 0.05 g/cm3
Solubility	Fully miscible
Partition coefficient of n-octanol/water	Not available
Autoignition temperature	No self-igniting
Decomposition temperature	Not available
Viscosity	750 ± 150 Cps
Explosive properties	Not explosive
Oxidizing properties	Not available

# 9.2. Other information

- Not available

### SECTION 10: STABILITY AND REACTIVITY

# 10.1. Reactivity

- Not available

#### 10.2. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

#### 10.4. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

#### 10.5. Incompatible materials

# - Not available

#### 10.6. Hazardous decomposition products

- Not available

### SECTION 11: TOXICOLOGICAL INFORMATION

# 11.1. Acute toxicity

#### - Oral

- Product (ATEmix) : >5000mg/kg
- [GLYCERINE] : LD50 = 12600 mg/kg Rat (ChemIDplus)
- [POLY ETHYLENE GLYCOL] : LD50 = 600 mg/kg Rat (KOSHA)
- Dermal
  - Product (ATEmix) : >5000mg/kg
  - [GLYCERINE] : LD50 > 10000 mg/kg Rat (ChemIDplus)
- Inhalation
  - Product (ATEmix) : Not available
  - [GLYCERINE] : LC50 >2.75 mg/ $\ell$  4 hr Rat (ECHA)

#### 11.2. Skin corrosion/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 2 (KOSHA)

#### 11.3. Serious eye damage/irritation

- [2-AMINO-2-METHYL-1-PROPANOL] : Classified as Category 1 (KOSHA)
- 11.4. Respiratory sensitization

#### Not available

- Not available

# 11.5. Skin sensitization

- Not available

#### 11.6. Germ cell mutagenicity

- Not available

#### 11.7. Carcinogenicity

- IARC
  - Not available
- OSHA
- Not available
- ACGIH
  - [ALUMINIUM POWDER] : A4 (KOHSA)
- NTP
  - Not available
- EU CLP
  - Not available

# 11.8. Reproductive toxicity

- Not available

#### 11.9. Specific target organ toxicity(single exposure):

- [C.I. PIGMENT VIOLET 23] : Classified as Category 3 (Respiratory irritation) (KOSHA)

#### 11.10. Specific target organ toxicity(repeated exposure):

- [ALUMINIUM POWDER] : Classified as Category 2 (KOSHA)

#### 11.11. Aspiration hazard

- Not available

### SECTION 12: ECOLOGICAL INFORMATION

#### 12.1. Toxicity 12.1.1. Fish

- [GLYCERINE] : LC50 >11 mg/l 96 hr Cyprinodon variegatus (ECHA)

#### 12.1.2. Invertebrate

- [GLYCERINE] : LC50 1955 mg/l 48 hr Daphnia magna (ECHA)

- [ALUMINIUM POWDER] : NOEC > 100 mg/l 48 hr Daphnia magna (IUCLID)

#### 12.1.3. Algae

- [ALUMINIUM POWDER] : NOEC > 0.052 mg/ł 48 hr Selenastrum capricornutum (M = 1) (OECD TG 201, GLP)

#### 12.2. Persistence and degradability

#### 12.2.1. Persistence

- Not available

#### 12.2.2. Degradability

- [2-AMINO-2-METHYL-1-PROPANOL] : BOD5/COD 0.005 (KOSHA)

#### 12.3. Bioaccumulative potential

#### 12.3.1. Bioaccumulation

- [2-AMINO-2-METHYL-1-PROPANOL] : 1.3 BSAF (Leuciscus idus(Fish, fresh water), 50ug/) (KOSHA)

#### 12.3.2. Biodegradability

- [2-AMINO-2-METHYL-1-PROPANOL] : 40 (%) 28 days (KOSHA)

#### 12.4. Mobility in soil

- Not available

#### 12.5. Results of PBT and vPvB assessment

- Not available

# 12.6. Other adverse effects

- Not available

#### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.

- If water separation is possible, pre-process with Water separation process.

- Dispose by incineration.

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

- Dispose of waste in accordance with all applicable laws and regulations.

# SECTION 14: TRANSPORT INFORMATION

# 14.1. UN No.

14.1.1. UN No. (ADR/RID/ADN) 3082

# 14.1.2. UN No. (IMDG CODE/IATA DGR) 3082

**14.1.3. UN No. (ICAO)** 3082

14.2. UN proper shipping name

#### - Not applicable

### 14.3. Transport hazard class(es)

14.3.1. ADR/RID/ADN Class - Not applicable

# 14.3.2. ADR/RID/ADN Class

- Not applicable

#### 14.3.3. ADR Label No.

- Not applicable

#### 14.3.4. IMDG Class

- Not applicable

#### 14.3.5. ICAO Class/Division

- Not applicable

#### 14.3.6. Transport Labels

- Not applicable

# 14.4. Packing group

14.4.1. ADR/RID/ADN Packing group

- Not applicable

# 14.4.2. IMDG Packing group

Not applicable

# 14.4.3. ICAO Packing group

- Not applicable

#### 14.5. Environmental hazards

- Not applicable

#### 14.6. Special precautions for user

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency
- EmS FIRE SCHEDULE : Not applicable
- EmS SPILLAGE SCHEDULE : Not applicable
- Air transport(IATA): Not subject to IATA regulations.

# 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable

# SECTION 15: REGULATORY INFORMATION

#### 15.1. Safety, health and environmental regulation / legislation specific for the substance or mixture

- 15.1.1. Europe regulatory
  - 15.1.1.1 REACH Restricted substance under REACH
  - Not applicable
  - 15.1.1.2 REACH Substances subject to authorization under REACH
  - Not applicable
  - 15.1.1.3 REACH SVHC
  - Not applicable
  - 15.1.1.4 Europe PBT
    - Not applicable
  - 15.1.1.5 European Union (EU) Transport of Dangerous Goods by Road Dangerous Goods List
    - Not applicable

# 15.2. Chemical Safety Assessment

- Not conducted

#### SECTION 16: OTHER INFORMATION

#### 16.1. Indication of changes

- The Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EC) No. 1907/2006

#### 16.2. Abbreviations and acronyms

- 1272/2008 CLP : Classification, Labelling and Packaging regulation.

- REACH : Registration, Evaluation and authorization of chemical substances.
- DNEL : Derive no effects level
- PNEC : Predicted no effect concentration

#### 16.3. Key literature references and sources for data

- This Safety Data Sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB

#### 16.4. Classification procedure

- The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) No 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

#### 16.5. Training advice

- Not applicable

#### 16.6. Further information

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

- It should not therefore be construed as guaranteeing any specific property of the product.

- Contact a poison control centre, List of Telephone Numbers : AUSTRIA (Vienna Wien) +43 1 406 43 43; BELGIUM (Brussels Bruxelles) +32 70 245 245; BULGARIA (Sofia) +359 2 9154 409; CZECH REPUBLIC (Prague Praha) +420 224 919 293; DENMARK (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; FINLAND (Helsinki) +358 9 471 977; FRANCE (Paris) +33 1 40 0548 48; GERMANY (Berlin) +49 30 19240; GREECE (Athens Athinai) +30 10 779 3777; HUNGARY (Budapest) 06 80 20 11 99; ICELAND (Reykjavik) +354 525 111, +354 543 2222; IRELAND (Dublin) +353 1 8379964; ITALY (Rome) +39 06 305 4343; LATVIA (Riga) +371 704 2468; LITHUANIA (Vilnius) +370 5 236 20 52 or +370 687 53378; MALTA (Valletta) 2425 0000; NETHERLANDS (Bilthoven) +31 30 274 88 88; NORWAY (Oslo) 22 591300; POLAND (Gdansk) +48 58301 65 16 or +48 58 349 2831; PORTUGAL (Lisbon Lisboa) 808 250 143; ROMANIA (Bucharest) +40 21 3183606 SLOVAKIA (Bratislava) +421 2 54 77 4166; SLOVENIA (Ljubljana) + 386 41 650 500; SPAIN (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; SWEDEN (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); UNITED KINGDOM (London) 112 or 0845 4647 (NHS Direct).

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