



# Material Safety Data Sheet

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : **ORIMEMO BASE FB-32**

Use of the substance/preparation : **HIGHLIGHTER MAKER INK**

Brand : **ORIENT CHEMICAL**

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

Identified uses :

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

Company : **ORIENT CHEMICAL (KOREA), LTD.**  
142, Sandan-ro 35 beon-gil,  
Ansan-si, Gyeonggi-do, KOREA

Telephone : **+82 - 31-491-2114~5**

Fax : **+82 - 31-491-3405**

E-mail address : [orient@orient-chemical.com](mailto:orient@orient-chemical.com)

### 1.4 Emergency telephone number

Emergency Phone # : **+82 - 31-493-6166~8**

## SECTION 2 : Hazards identification

### 2.1 Classification

#### Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

For the Full text of the H-Statements mentioned in the Section, see Section 16.

#### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful if swallowed. R22

For the Full text of the H-Statements mentioned in the Section, see Section 16.

### 2.2 Label elements

#### Labeling according to Regulation (EC) No 1272/2008

Pictogram



Signal word : **Warning**

Hazard statement(s)  
H302 : **Harmful if swallowed.**

Precautionary statement(s)

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P301+P310 IF SWALLOWED : immediately call a POISON CENTER or doctor/physician.  
P330 Rinse mouth.  
P501 Dispose of contents/ container to in accordance with local regulation.

Supplemental Hazard Statements none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrase(s)  
R22 Harmful if swallowed.

S-phrase(s)  
S2 Keep out of reach of children.  
S20 When using do not eat or drink.  
S29 Do not empty into drains.  
S46 If swallowed, seek medical advice immediately and show this container or label.  
S64 If swallowed, rinse mouth with water (only if the person is conscious).

## 2.3 Other Hazards – none

## SECTION 3 : Composition / information on ingredients

Ingredient name	CAS-No.	EC-No.	%	Classification
STYRENE ACRYLONITRILE	9003-54-7	-	60 ~ 70	-
EDIBLE ANTISEPTIC	-	-	0.1 ~ 0.2	-
GLYCEROL	56-81-5	200-289-5	1 ~ 5	-
WATER	7732-18-5	-	30 ~ 40	-
BASIC RED 1	989-38-8	213-584-9	0.1 ~ 0.2	-

## SECTION 4 : First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

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**SECTION 5 : Fire-fighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available.

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**SECTION 6 : Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal according to local regulations.

**6.4 Reference to other sections**

For disposal see section 13.

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**SECTION 7 : Handling and storage**

**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

no data available.

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**SECTION 8 : Exposure controls / personal protection**

**8.1 Control parameters**

## Components with workplace control parameters

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

For nuisance exposure use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

## SECTION 9 : Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form : liquid
b) Odour	Colour : pink
c) Odour Threshold	polymer-like
d) pH	no data available
e) Melting point/freezing point	4.5 ~ 7.0
f) Initial boiling point and boiling range	no data available
g) Flash point	95 - 100 °C
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	-
	Upper explosion limit: no data available
	Lower explosion limit: no data available
k) Vapour pressure	40 ~ 60 hPa at 20,0 °C
l) Vapour density	no data available
m) Relative density	1.04 ~ 1.05
n) Water solubility	no data available
o) Partition coefficient: n- octanol/water	no data available
p) Auto-ignition temperature	no data available

- |                              |                         |
|------------------------------|-------------------------|
| q) Decomposition temperature | no data available       |
| r) Viscosity                 | 3.0 ~ 15.0 cps at 25 °C |
| s) Explosive properties      | no data available       |
| t) Oxidizing properties      | no data available       |

**9.2 Other safety information**  
no data available

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**SECTION 10 : Stability and reactivity**

- 10.1 Reactivity**  
no data available
- 10.2 Chemical stability**  
no data available
- 10.3 Possibility of hazardous reactions**  
no data available
- 10.4 Conditions to avoid**  
no data available.
- 10.5 Incompatible materials**  
Strong oxidizing agents
- 10.6 Hazardous decomposition products**  
Other decomposition products - no data available

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**SECTION 11 : Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

LD50 Oral - mouse - 1420 mg/kg

**Skin corrosion/irritation**

May cause only minimal skin irritation.

Basic red 1 : skin irritation.

**Serious eye damage/eye irritation**

May cause slight transient eye irritation.

Basic red 1 : middle of irritation to eye damage of rabbit.

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available.

**Carcinogenicity**

IARC: Basic red 1 is carcinogenic in rats after its subcutaneous injection. it produces sarcomas. It has been inadequately tested in mice by oral administration. No case reports or epidemiological studies were available to Human. (Group 3)

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

Basic red 1 : irritation to the airway.

**Specific target organ toxicity - repeated exposure**

no data available.

**Aspiration hazard**

no data available

**Additional Information**


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**SECTION 12 : Ecological information**
**12.1 Toxicity**

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

no data available

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**SECTION 13 : Disposal considerations**
**13.1 Waste treatment methods**
**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**SECTION 14 : Transport information**
**14.1 UN number**

ADR/RID: -

IMDG: -

IATA: -

**14.2 UN proper shipping name**

ADR/RID: not dangerous goods

IMDG: not dangerous goods

IATA: not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: -

IMDG: -

IATA: -

**14.4 Packaging group**

ADR/RID: -

IMDG: -

IATA: -

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

no data available

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**SECTION 15 : Regulatory information**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) 1272/2008.

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

no data available

## **15.2 Chemical Safety Assessment**

no data available.

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### **SECTION 16 : Other information**

#### **Full text of H-Statements referred to under sections 2 and 3.**

H302 Harmful if swallowed.

#### **Full text of R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.

#### **Further information**

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#### **Sources of key data used to compile the data sheet:**

EC Directive 67/548/EC resp. 99/45/EC as amended in each case.

Regulation (EC) No 1907/2006 (REACH) as amended in each case.

EC Directives 2000/39/EC, 2006/15/EC as amended in each case.

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

Institute for Health and Consumer Protection (IHCP).

European Chemicals Agency (ECHA).

ChemIDplus Lite.

Chemicals Information System (NCiS).

U.S. Environmental Protection Agency.

United States National Library of Medicine (NLM).

International Agency for Research on Cancer (IARC).

Incorporated Administrative Agency National Institute of Technology and Evaluation. (NITE).

MSDS ( that was written from the raw material manufacturers.)

#### **Issuing date**

16. April. 2008

#### **Date of Revisions**

31. May. 2013.

#### **Revision version**

No.3

# Material Safety Data Sheet

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : **ORIMEMO BASE FB-72**

Use of the substance/preparation : **HIGHLIGHTER MAKER INK**

Brand : ORIENT CHEMICAL

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

Identified uses :

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

Company : ORIENT CHEMICAL (KOREA), LTD.  
142, Sandan-ro 35 beon-gil,  
Ansan-si, Gyeonggi-do, KOREA

Telephone : +82 - 31-491-2114~5

Fax : +82 - 31-491-3405

E-mail address : [orient@orient-chemical.com](mailto:orient@orient-chemical.com)

### 1.4 Emergency telephone number

Emergency Phone # : +82 - 31-493-6166~8

## SECTION 2 : Hazards identification

### 2.1 Classification

#### Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

For the Full text of the H-Statements mentioned in the Section, see Section 16.

#### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful if swallowed. R22

For the Full text of the H-Statements mentioned in the Section, see Section 16.

### 2.2 Label elements

#### Labeling according to Regulation (EC) No 1272/2008

Pictogram



Signal word Warning

Hazard statement(s)  
H302 Harmful if swallowed.

Precautionary statement(s)



P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P301+P310 IF SWALLOWED : immediately call a POISON CENTER or doctor/physician.  
P330 Rinse mouth.  
P501 Dispose of contents/ container to in accordance with local regulation.

Supplemental Hazard Statements none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrase(s)  
R22 Harmful if swallowed.

S-phrase(s)  
S2 Keep out of reach of children.  
S20 When using do not eat or drink.  
S29 Do not empty into drains.  
S46 If swallowed, seek medical advice immediately and show this container or label.  
S64 If swallowed, rinse mouth with water (only if the person is conscious).

## 2.3 Other Hazards – none

## SECTION 3 : Composition / information on ingredients

Ingredient name	CAS-No.	EC-No.	%	Classification
STYRENE ACRYLONITRILE	9003-54-7	-	60 ~ 70	-
EDIBLE ANTISEPTIC	-	-	0.1 ~ 0.2	-
GLYCEROL	56-81-5	200-289-5	1 ~ 5	-
WATER	7732-18-5	-	30 ~ 40	-
BASIC VIOLET 10	81-88-9	210-383-9	0.1 ~ 0.5	-

## SECTION 4 : First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

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**SECTION 5 : Fire-fighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available.

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**SECTION 6 : Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal according to local regulations.

**6.4 Reference to other sections**

For disposal see section 13.

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**SECTION 7 : Handling and storage**

**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

no data available.

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**SECTION 8 : Exposure controls / personal protection**

**8.1 Control parameters**

## Components with workplace control parameters

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

For nuisance exposure use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

## SECTION 9 : Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form : liquid Colour : violet
b) Odour	polymer-like
c) Odour Threshold	no data available
d) pH	4.5 ~ 7.0
e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	95 - 100 °C
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	-
j) Upper/lower flammability or explosive limits	Upper explosion limit: no data available Lower explosion limit: no data available
k) Vapour pressure	40 ~ 60 hPa at 20,0 °C
l) Vapour density	no data available
m) Relative density	1.04 ~ 1.05
n) Water solubility	no data available
o) Partition coefficient: n- octanol/water	no data available
p) Auto-ignition temperature	no data available

- |                              |                         |
|------------------------------|-------------------------|
| q) Decomposition temperature | no data available       |
| r) Viscosity                 | 3.0 ~ 15.0 cps at 25 °C |
| s) Explosive properties      | no data available       |
| t) Oxidizing properties      | no data available       |

**9.2 Other safety information**  
no data available

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**SECTION 10 : Stability and reactivity**

- 10.1 Reactivity**  
no data available
- 10.2 Chemical stability**  
no data available
- 10.3 Possibility of hazardous reactions**  
no data available
- 10.4 Conditions to avoid**  
no data available.
- 10.5 Incompatible materials**  
Strong oxidizing agents
- 10.6 Hazardous decomposition products**  
Other decomposition products - no data available

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**SECTION 11 : Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

LD50 Oral - mouse - 1500 mg/kg

**Skin corrosion/irritation**

May cause only minimal skin irritation.

Basic violet 10 : skin irritation.

**Serious eye damage/eye irritation**

May cause slight transient eye irritation.

Basic violet 10 : eye damage of human.

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: IARC : Basic violet 10 has been tested in mice and rats by subcutaneous injection and, in inadequate studies, by oral administration. It was carcinogenic in rats when injected subcutaneously, producing local sarcomas. No case reports or epidemiological studies were available to Human. (Group 3).

**Reproductive toxicity**

no data available.

**Specific target organ toxicity - single exposure**

Basic Violet 10 : may cause irritation to the stomach.

**Specific target organ toxicity - repeated exposure**

Basic Violet 10 : may cause injury to the river.

**Aspiration hazard**

no data available

**Additional Information**

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**SECTION 12 : Ecological information**

**12.1 Toxicity**

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

no data available

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**SECTION 13 : Disposal considerations**

**13.1 Waste treatment methods**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**SECTION 14 : Transport information**

**14.1 UN number**

ADR/RID: -

IMDG: -

IATA: -

**14.2 UN proper shipping name**

ADR/RID: not dangerous goods

IMDG: not dangerous goods

IATA: not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: -

IMDG: -

IATA: -

**14.4 Packaging group**

ADR/RID: -

IMDG: -

IATA: -

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

no data available

---

**SECTION 15 : Regulatory information**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) 1272/2008.

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

no data available

## **15.2 Chemical Safety Assessment**

no data available.

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### **SECTION 16 : Other information**

#### **Full text of H-Statements referred to under sections 2 and 3.**

H302 Harmful if swallowed.

#### **Full text of R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.

#### **Further information**

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#### **Sources of key data used to compile the data sheet:**

EC Directive 67/548/EC resp. 99/45/EC as amended in each case.  
Regulation (EC) No 1907/2006 (REACH) as amended in each case.  
EC Directives 2000/39/EC, 2006/15/EC as amended in each case.  
National Threshold Limit Values of the corresponding countries as amended in each case.  
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.  
Institute for Health and Consumer Protection (IHCP).  
European Chemicals Agency (ECHA).  
ChemIDplus Lite.  
Chemicals Information System (NCIS).  
U.S. Environmental Protection Agency.  
United States National Library of Medicine (NLM).  
International Agency for Research on Cancer (IARC).  
Incorporated Administrative Agency National Institute of Technology and Evaluation. (NITE).  
MSDS ( that was written from the raw material manufacturers.)

#### **Issuing date**

16. April. 2008

#### **Date of Revisions**

31. May. 2013.

#### **Revision version**

No.3

## Material Safety Data Sheet

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifiers

Product name : **ORIMEMO BASE FB-12**

**Use of the substance/preparation** : **HIGHLIGHTER MAKER INK**

Brand : ORIENT CHEMICAL

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

Identified uses :

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

Company : ORIENT CHEMICAL (KOREA), LTD.  
142, Sandan-ro 35 beon-gil,  
Ansan-si, Gyeonggi-do, KOREA

Telephone : +82 - 31-491-2114~5

Fax : +82 - 31-491-3405

E-mail address : [orient@orient-chemical.com](mailto:orient@orient-chemical.com)

#### 1.4 Emergency telephone number

Emergency Phone # : +82 - 31-493-6166~8

### SECTION 2 : Hazards identification

#### 2.1 Classification

##### Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

For the Full text of the H-Statements mentioned in the Section, see Section 16.

##### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful if swallowed. R22

For the Full text of the H-Statements mentioned in the Section, see Section 16.

#### 2.2 Label elements

##### Labeling according to Regulation (EC) No 1272/2008

Pictogram



Signal word : Warning

Hazard statement(s)  
H302 : Harmful if swallowed.

Precautionary statement(s)

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P301+P310 IF SWALLOWED : immediately call a POISON CENTER or doctor/physician.  
P330 Rinse mouth.  
P501 Dispose of contents/ container to in accordance with local regulation.

Supplemental Hazard Statements none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrase(s)  
R22 Harmful if swallowed.

S-phrase(s)  
S2 Keep out of reach of children.  
S20 When using do not eat or drink.  
S29 Do not empty into drains.  
S46 If swallowed, seek medical advice immediately and show this container or label.  
S64 If swallowed, rinse mouth with water (only if the person is conscious).

## 2.3 Other Hazards – none

## SECTION 3 : Composition / information on ingredients

Ingredient name	CAS-No.	EC-No.	%	Classification
STYRENE ACRYLONITRILE	9003-54-7	-	60 ~ 70	-
EDIBLE ANTISEPTIC	-	-	0.1 ~ 0.2	-
GLYCEROL	56-81-5	200-289-5	1 ~ 5	-
WATER	7732-18-5	-	30 ~ 40	-
YELLOW DYE	trade secret	-	trade secret	-

## SECTION 4 : First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed



Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

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## **SECTION 5 : Fire-fighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available.

---

## **SECTION 6 : Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal according to local regulations.

**6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7 : Handling and storage**

**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

no data available.

---

## **SECTION 8 : Exposure controls / personal protection**

**8.1 Control parameters**

## Components with workplace control parameters

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

For nuisance exposure use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

## SECTION 9 : Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form : liquid
b) Odour	Colour : yellow
c) Odour Threshold	polymer-like
d) pH	no data available
e) Melting point/freezing point	4.5 ~ 7.0
f) Initial boiling point and boiling range	no data available
g) Flash point	95 - 100 °C
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	-
	Upper explosion limit: no data available
	Lower explosion limit: no data available
k) Vapour pressure	40 ~ 60 hPa at 20,0 °C
l) Vapour density	no data available
m) Relative density	1.04 ~ 1.05
n) Water solubility	no data available
o) Partition coefficient: n- octanol/water	no data available
p) Auto-ignition temperature	no data available

- |                              |                         |
|------------------------------|-------------------------|
| q) Decomposition temperature | no data available       |
| r) Viscosity                 | 3.0 ~ 15.0 cps at 25 °C |
| s) Explosive properties      | no data available       |
| t) Oxidizing properties      | no data available       |

**9.2 Other safety information**  
no data available

---

**SECTION 10 : Stability and reactivity**

- 10.1 Reactivity**  
no data available
- 10.2 Chemical stability**  
no data available
- 10.3 Possibility of hazardous reactions**  
no data available
- 10.4 Conditions to avoid**  
no data available.
- 10.5 Incompatible materials**  
Strong oxidizing agents
- 10.6 Hazardous decomposition products**  
Other decomposition products - no data available

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**SECTION 11 : Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

LD50 Oral - mouse - 1515 mg/kg

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**

---

**SECTION 12 : Ecological information**

- 12.1 Toxicity**  
no data available
- 12.2 Persistence and degradability**  
no data available
- 12.3 Bioaccumulative potential**  
no data available
- 12.4 Mobility in soil**  
no data available
- 12.5 Results of PBT and vPvB assessment**  
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
- 12.6 Other adverse effects**  
no data available

---

**SECTION 13 : Disposal considerations**

- 13.1 Waste treatment methods**
- Product**  
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
- Contaminated packaging**  
Dispose of as unused product.

---

**SECTION 14 : Transport information**

- |   |                           |                           |
|---|---------------------------|---------------------------|
| <b>14.1 UN number</b><br>ADR/RID: -                                 | IMDG: -                   | IATA: -                   |
| <b>14.2 UN proper shipping name</b><br>ADR/RID: not dangerous goods | IMDG: not dangerous goods | IATA: not dangerous goods |
| <b>14.3 Transport hazard class(es)</b><br>ADR/RID: -                | IMDG: -                   | IATA: -                   |
| <b>14.4 Packaging group</b><br>ADR/RID: -                           | IMDG: -                   | IATA: -                   |
| <b>14.5 Environmental hazards</b><br>ADR/RID: no                    | IMDG Marine pollutant: no | IATA: no                  |
| <b>14.6 Special precautions for user</b><br>no data available       |                           |                           |

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**SECTION 15 : Regulatory information**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) 1272/2008.

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
no data available
- 15.2 Chemical Safety Assessment**  
no data available.

**SECTION 16 : Other information****Full text of H-Statements referred to under sections 2 and 3.**

H302 Harmful if swallowed.

**Full text of R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.

**Further information**

Copyright 2013 ORIENT CHEMICAL LTD,. License granted to make unlimited paper copies for internal use only.

**Sources of key data used to compile the data sheet:**

EC Directive 67/548/EC resp. 99/45/EC as amended in each case.  
Regulation (EC) No 1907/2006 (REACH) as amended in each case.  
EC Directives 2000/39/EC, 2006/15/EC as amended in each case.  
National Threshold Limit Values of the corresponding countries as amended in each case.  
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.  
Institute for Health and Consumer Protection (IHCP).  
European Chemicals Agency (ECHA).  
ChemIDplus Lite.  
Chemicals Information System (NCIS).  
U.S. Environmental Protection Agency.  
United States National Library of Medicine (NLM).  
International Agency for Research on Cancer (IARC).  
Incorporated Administrative Agency National Institute of Technology and Evaluation. (NITE).  
MSDS ( that was written from the raw material manufacturers.)

**Issuing date**

16. April. 2008

**Date of Revisions**

31. May. 2013.

**Revision version**

No.3

## Material Safety Data Sheet

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifiers

Product name : **ORIMEMO BASE FB-62**

Use of the substance/preparation : **HIGHLIGHTER MAKER INK**

Brand : ORIENT CHEMICAL

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

Identified uses :

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

Company : ORIENT CHEMICAL (KOREA), LTD.  
142, Sandan-ro 35 beon-gil,  
Ansan-si, Gyeonggi-do, KOREA

Telephone : +82 - 31-491-2114~5

Fax : +82 - 31-491-3405

E-mail address : [orient@orient-chemical.com](mailto:orient@orient-chemical.com)

#### 1.4 Emergency telephone number

Emergency Phone # : +82 - 31-493-6166~8

### SECTION 2 : Hazards identification

#### 2.1 Classification

##### Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

For the Full text of the H-Statements mentioned in the Section, see Section 16.

##### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful if swallowed. R22

For the Full text of the H-Statements mentioned in the Section, see Section 16.

#### 2.2 Label elements

##### Labeling according to Regulation (EC) No 1272/2008

Pictogram



Signal word

Warning

Hazard statement(s)

H302

H315

H319

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

**Precautionary statement(s)**

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P301+P310 IF SWALLOWED : immediately call a POISON CENTER or doctor/physician.

P330 Rinse mouth.

P501 Dispose of contents/ container to in accordance with local regulation.

Supplemental Hazard  
Statements

none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrases(s)

R22 Harmful if swallowed.

S-phrases(s)

S2 Keep out of reach of children.

S20 When using do not eat or drink.

S29 Do not empty into drains.

S46 If swallowed, seek medical advice immediately and show this container or label.

S64 If swallowed, rinse mouth with water (only if the person is conscious).

**2.3 Other Hazards – none**

---

**SECTION 3 : Composition / information on ingredients**

Ingredient name	CAS-No.	EC-No.	%	Classification
STYRENE ACRYLONITRILE	9003-54-7	-	60 ~ 70	-
EDIBLE ANTISEPTIC	-	-	0.1 ~ 0.2	-
GLYCEROL	56-81-5	200-289-5	1 ~ 5	-
WATER	7732-18-5	-	30 ~ 40	-
BLUE DYE	trade secret	-	trade secret	-

---

**SECTION 4 : First aid measures**

**4.1 Description of first aid measures**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

---

**SECTION 5 : Fire-fighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available.

---

**SECTION 6 : Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal according to local regulations.

**6.4 Reference to other sections**

For disposal see section 13.

---

**SECTION 7 : Handling and storage**

**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

no data available.

---

**SECTION 8 : Exposure controls / personal protection**



## 8.1 Control parameters

### Components with workplace control parameters

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

For nuisance exposure use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

## SECTION 9 : Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form : liquid Colour : blue
b) Odour	polymer-like
c) Odour Threshold	no data available
d) pH	4.5 ~ 7.0
e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	95 - 100 °C
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	-
j) Upper/lower flammability or explosive limits	Upper explosion limit: no data available Lower explosion limit: no data available
k) Vapour pressure	40 ~ 60 hPa at 20,0 °C
l) Vapour density	no data available
m) Relative density	1.04 ~ 1.05
n) Water solubility	no data available

- |  |                         |
|--|-------------------------|
| o) Partition coefficient: n- octanol/water | no data available       |
| p) Auto-ignition temperature               | no data available       |
| q) Decomposition temperature               | no data available       |
| r) Viscosity                               | 3.0 ~ 15.0 cps at 25 °C |
| s) Explosive properties                    | no data available       |
| t) Oxidizing properties                    | no data available       |

**9.2 Other safety information**  
no data available

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## **SECTION 10 : Stability and reactivity**

- 10.1 Reactivity**  
no data available
- 10.2 Chemical stability**  
no data available
- 10.3 Possibility of hazardous reactions**  
no data available
- 10.4 Conditions to avoid**  
no data available.
- 10.5 Incompatible materials**  
Strong oxidizing agents
- 10.6 Hazardous decomposition products**  
Other decomposition products - no data available

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## **SECTION 11 : Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

LD50 Oral - mouse - 1500 mg/kg

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**


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**SECTION 12 : Ecological information**
**12.1 Toxicity**

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

no data available

---

**SECTION 13 : Disposal considerations**
**13.1 Waste treatment methods**
**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

---

**SECTION 14 : Transport information**
**14.1 UN number**

ADR/RID: -

IMDG: -

IATA: -

**14.2 UN proper shipping name**

ADR/RID: not dangerous goods

IMDG: not dangerous goods

IATA: not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: -

IMDG: -

IATA: -

**14.4 Packaging group**

ADR/RID: -

IMDG: -

IATA: -

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

no data available

---

**SECTION 15 : Regulatory information**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) 1272/2008.

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

no data available

**15.2 Chemical Safety Assessment**  
no data available.

---

**SECTION 16 : Other information**

**Full text of H-Statements referred to under sections 2 and 3.**

H302 Hamful if swallowed.

**Full text of R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.

**Further information**

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**Sources of key data used to compile the data sheet:**

EC Directive 67/548/EC resp. 99/45/EC as amended in each case.  
Regulation (EC) No 1907/2006 (REACH) as amended in each case.  
EC Directives 2000/39/EC, 2006/15/EC as amended in each case.  
National Threshold Limit Values of the corresponding countries as amended in each case.  
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.  
Institute for Health and Consumer Protection (IHCP).  
European Chemicals Agency (ECHA).  
ChemIDplus Lite.  
Chemicals Information System (NCIS).  
U.S. Environmental Protection Agency.  
United States National Library of Medicine (NLM).  
International Agency for Research on Cancer (IARC).  
Incorporated Administrative Agency National Institute of Technology and Evaluation. (NITE).  
MSDS ( that was written from the raw material manufacturers.)

**Issuing date**

16. April. 2008

**Date of Revisions**

31. May. 2013.

**Revision version**

No.3

# Material Safety Data Sheet

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : **ORIMEMO BASE FB-52**

Use of the substance/preparation : **HIGHLIGHTER MAKER INK**

Brand : ORIENT CHEMICAL

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

Identified uses :

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

Company : ORIENT CHEMICAL (KOREA), LTD.  
142, Sandan-ro 35 beon-gil,  
Ansan-si, Gyeonggi-do, KOREA

Telephone : +82 - 31-491-2114~5

Fax : +82 - 31-491-3405

E-mail address : [orient@orient-chemical.com](mailto:orient@orient-chemical.com)

### 1.4 Emergency telephone number

Emergency Phone # : +82 - 31-493-6166~8

## SECTION 2 : Hazards identification

### 2.1 Classification

#### Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

For the Full text of the H-Statements mentioned in the Section, see Section 16.

#### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful if swallowed. R22

For the Full text of the H-Statements mentioned in the Section, see Section 16.

### 2.2 Label elements

#### Labeling according to Regulation (EC) No 1272/2008

Pictogram



Signal word Warning

Hazard statement(s)  
H302 Harmful if swallowed.

Precautionary statement(s)

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P301+P310 IF SWALLOWED : immediately call a POISON CENTER or doctor/physician.  
P330 Rinse mouth.  
P501 Dispose of contents/ container to in accordance with local regulation.

Supplemental Hazard Statements none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrase(s)  
R22 Harmful if swallowed.

S-phrase(s)  
S2 Keep out of reach of children.  
S20 When using do not eat or drink.  
S29 Do not empty into drains.  
S46 If swallowed, seek medical advice immediately and show this container or label.  
S64 If swallowed, rinse mouth with water (only if the person is conscious).

## 2.3 Other Hazards – none

## SECTION 3 : Composition / information on ingredients

Ingredient name	CAS-No.	EC-No.	%	Classification
STYRENE ACRYLONITRILE	9003-54-7	-	60 ~ 70	-
EDIBLE ANTISEPTIC	-	-	0.1 ~ 0.2	-
GLYCEROL	56-81-5	200-289-5	1 ~ 5	-
WATER	7732-18-5	-	30 ~ 40	-
YELLOW DYE	trade secret	-	trade secret	-
ACID BLUE 9	3844-45-9	220-168-0	1 ~ 5	-

## SECTION 4 : First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

---

**SECTION 5 : Fire-fighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available.

---

**SECTION 6 : Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal according to local regulations.

**6.4 Reference to other sections**

For disposal see section 13.

---

**SECTION 7 : Handling and storage****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

no data available.

---

**SECTION 8 : Exposure controls / personal protection**

## 8.1 Control parameters

### Components with workplace control parameters

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

For nuisance exposure use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

## SECTION 9 : Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form : liquid
b) Odour	Colour : green
c) Odour Threshold	polymer-like
d) pH	no data available
e) Melting point/freezing point	4.5 ~ 7.0
f) Initial boiling point and boiling range	no data available
g) Flash point	95 - 100 °C
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	-
	Upper explosion limit: no data available
	Lower explosion limit: no data available
k) Vapour pressure	40 ~ 60 hPa at 20,0 °C
l) Vapour density	no data available
m) Relative density	1.04 ~ 1.05
n) Water solubility	no data available



- |  |                         |
|--|-------------------------|
| o) Partition coefficient: n- octanol/water | no data available       |
| p) Auto-ignition temperature               | no data available       |
| q) Decomposition temperature               | no data available       |
| r) Viscosity                               | 3.0 ~ 15.0 cps at 25 °C |
| s) Explosive properties                    | no data available       |
| t) Oxidizing properties                    | no data available       |

**9.2 Other safety information**  
no data available

---

**SECTION 10 : Stability and reactivity**

- 10.1 Reactivity**  
no data available
- 10.2 Chemical stability**  
no data available
- 10.3 Possibility of hazardous reactions**  
no data available
- 10.4 Conditions to avoid**  
no data available.
- 10.5 Incompatible materials**  
Strong oxidizing agents
- 10.6 Hazardous decomposition products**  
Other decomposition products - no data available

---

**SECTION 11 : Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

LD50 Oral - mouse - 1500 mg/kg

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: Acid blue 9 is carcinogenic in rats after its subcutaneous injection. it produces fibrosarcomas following repeated injections. No case reports or epidemiological studies were available to Human. (Group 3).

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**

---

**SECTION 12 : Ecological information**

**12.1 Toxicity**

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

no data available

---

**SECTION 13 : Disposal considerations**

**13.1 Waste treatment methods**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

---

**SECTION 14 : Transport information**

**14.1 UN number**

ADR/RID: -

IMDG: -

IATA: -

**14.2 UN proper shipping name**

ADR/RID: not dangerous goods

IMDG: not dangerous goods

IATA: not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID: -

IMDG: -

IATA: -

**14.4 Packaging group**

ADR/RID: -

IMDG: -

IATA: -

**14.5 Environmental hazards**

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

**14.6 Special precautions for user**

no data available

---

**SECTION 15 : Regulatory information**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) 1272/2008.

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

no data available

## **15.2 Chemical Safety Assessment**

no data available.

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### **SECTION 16 : Other information**

#### **Full text of H-Statements referred to under sections 2 and 3.**

H302 Hamful if swallowed.

#### **Full text of R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.

#### **Further information**

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#### **Sources of key data used to compile the data sheet:**

EC Directive 67/548/EC resp. 99/45/EC as amended in each case.  
Regulation (EC) No 1907/2006 (REACH) as amended in each case.  
EC Directives 2000/39/EC, 2006/15/EC as amended in each case.  
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Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.  
Institute for Health and Consumer Protection (IHCP).  
European Chemicals Agency (ECHA).  
ChemIDplus Lite.  
Chemicals Information System (NCIS).  
U.S. Environmental Protection Agency.  
United States National Library of Medicine (NLM).  
International Agency for Research on Cancer (IARC).  
Incorporated Administrative Agency National Institute of Technology and Evaluation. (NITE).  
MSDS ( that was written from the raw material manufacturers.)

#### **Issuing date**

16. April. 2008

#### **Date of Revisions**

31. May. 2013.

#### **Revision version**

No.3

# Material Safety Data Sheet

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : **ORIMEMO BASE FB-22**

Use of the substance/preparation : **HIGHLIGHTER MAKER INK**

Brand : ORIENT CHEMICAL

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

Identified uses :

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

Company : ORIENT CHEMICAL (KOREA), LTD.  
142, Sandan-ro 35 beon-gil,  
Ansan-si, Gyeonggi-do, KOREA

Telephone : +82 - 31-491-2114~5

Fax : +82 - 31-491-3405

E-mail address : [orient@orient-chemical.com](mailto:orient@orient-chemical.com)

### 1.4 Emergency telephone number

Emergency Phone # : +82 - 31-493-6166~8

## SECTION 2 : Hazards identification

### 2.1 Classification

#### Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

For the Full text of the H-Statements mentioned in the Section, see Section 16.

#### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful if swallowed. R22

For the Full text of the H-Statements mentioned in the Section, see Section 16.

### 2.2 Label elements

#### Labeling according to Regulation (EC) No 1272/2008

Pictogram



Signal word Warning

Hazard statement(s)  
H302 Harmful if swallowed.

Precautionary statement(s)

P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P301+P310 IF SWALLOWED : immediately call a POISON CENTER or doctor/physician.  
P330 Rinse mouth.  
P501 Dispose of contents/ container to in accordance with local regulation.

Supplemental Hazard Statements none

**According to European Directive 67/548/EEC as amended.**

Hazard symbol(s)



R-phrase(s)  
R22 Harmful if swallowed.

S-phrase(s)  
S2 Keep out of reach of children.  
S20 When using do not eat or drink.  
S29 Do not empty into drains.  
S46 If swallowed, seek medical advice immediately and show this container or label.  
S64 If swallowed, rinse mouth with water (only if the person is conscious).

## 2.3 Other Hazards – none

## SECTION 3 : Composition / information on ingredients

Ingredient name	CAS-No.	EC-No.	%	Classification
STYRENE ACRYLONITRILE	9003-54-7	-	60 ~ 70	-
EDIBLE ANTISEPTIC	-	-	0.1 ~ 0.2	-
GLYCEROL	56-81-5	200-289-5	1 ~ 5	-
WATER	7732-18-5	-	30 ~ 40	-
YELLOW DYE	trade secret	-	trade secret	-
BASIC RED 1	989-38-8	213-584-9	0.1 ~ 0.2	-

## SECTION 4 : First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

no data available

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**SECTION 5 : Fire-fighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides, nitrogen oxides (NOx)

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

no data available.

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**SECTION 6 : Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal according to local regulations.

**6.4 Reference to other sections**

For disposal see section 13.

---

**SECTION 7 : Handling and storage****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

no data available.

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**SECTION 8 : Exposure controls / personal protection**

## 8.1 Control parameters

### Components with workplace control parameters

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

For nuisance exposure use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

## SECTION 9 : Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form : liquid
b) Odour	Colour : orange
c) Odour Threshold	polymer-like
d) pH	no data available
e) Melting point/freezing point	4.5 ~ 7.0
f) Initial boiling point and boiling range	no data available
g) Flash point	95 - 100 °C
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	-
	Upper explosion limit: no data available
	Lower explosion limit: no data available
k) Vapour pressure	40 ~ 60 hPa at 20,0 °C
l) Vapour density	no data available
m) Relative density	1.04 ~ 1.05
n) Water solubility	no data available

- |  |                         |
|--|-------------------------|
| o) Partition coefficient: n- octanol/water | no data available       |
| p) Auto-ignition temperature               | no data available       |
| q) Decomposition temperature               | no data available       |
| r) Viscosity                               | 3.0 ~ 15.0 cps at 25 °C |
| s) Explosive properties                    | no data available       |
| t) Oxidizing properties                    | no data available       |

**9.2 Other safety information**  
no data available

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**SECTION 10 : Stability and reactivity**

- 10.1 Reactivity**  
no data available
- 10.2 Chemical stability**  
no data available
- 10.3 Possibility of hazardous reactions**  
no data available
- 10.4 Conditions to avoid**  
no data available.
- 10.5 Incompatible materials**  
Strong oxidizing agents
- 10.6 Hazardous decomposition products**  
Other decomposition products - no data available

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**SECTION 11 : Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

LD50 Oral - mouse - 1470 mg/kg

**Skin corrosion/irritation**

May cause only minimal skin irritation.

Basic red 1 : skin irritation.

**Serious eye damage/eye irritation**

May cause slight transient eye irritation.

Basic red 1 : middle of irritation to eye damage of rabbit.

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available.

**Carcinogenicity**

IARC: Basic red 1 is carcinogenic in rats after its subcutaneous injection. it produces sarcomas. It has been inadequately tested in mice by oral administration. No case reports or epidemiological studies were available to Human. (Group 3)

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

Basic red 1 : irritation to the airway.



**Specific target organ toxicity - repeated exposure**

no data available.

**Aspiration hazard**

no data available

**Additional Information**


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**SECTION 12 : Ecological information**
**12.1 Toxicity**

no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

no data available

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**SECTION 13 : Disposal considerations**
**13.1 Waste treatment methods**
**Product**

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**14.5 Environmental hazards**

ADR/RID: no

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