

## Safety Data Sheets

### 1. Identification

|   |  |
|---|--|
| Product Name                              | : Reactive Dye Ink Rc400 Black                                     |
| Order No.                                 | : RC400-K-2L   |
| Ink Ver.                                  | : 1  |
| General Use                               | : Ink jet printing ink   |
| Product Description                       | : Ink jet printing ink   |
| SDS Number                                | : 037-W461417  |
| Manufacture                               |  |
| Company Name                              | : Mimaki Engineering Co., Ltd.                                     |
| Address                                   | : 2182-3 Shigeno-otsu, Tomi-shi, Nagano 389-0512 JAPAN             |
| Telephone No.                             | : +81-268-64-2413  |
| Importer / Distributor Established in USA |  |
| Company Name                              | : MIMAKI USA, INC.   |
| Address                                   | : 150 Satellite Boulevard, suite A, Suwanee, Georgia 30024, U.S.A. |
| Telephone No.                             | : +1-678-730-0700  |
| Emergency Telephone No.                   | : +81-268-64-2281  |

### 2. Hazards Identification

#### [GHS Classification]

##### Physical Hazards

Flammable Liquids : Not classified

##### Health Hazards

Acute Toxicity – Oral : Not classified

Acute Toxicity – Dermal : Not classified

Skin Corrosion / Irritation : Category 2

Eye Damage / Irritation : Category 2

Sensitization – Skin : Category 1

Toxic to Reproduction : Category 1

Specific Target Organ Toxicity (Single Exposure) : Category 1 (central nervous system, respiratory, kidneys, heart)

Specific Target Organ Toxicity (Repeated Exposure) : Category 1 (central nervous system, respiratory, kidneys, heart, liver)

The above list does not include category being non-classifiable or not-applicable.

## Safety Data Sheets

### [GHS Label Elements]

#### Symbol



#### Signal Word

Danger

#### Hazard Statements

- H315 Cause skin irritation
- H317 May cause an allergic skin reaction
- H319 Causes serious eye irritation
- H360 May damage fertility or the unborn child
- H370 Causes damage to organs(central nervous system, respiratory, kidneys, heart)
- H372 Cause damage to organs through prolonged or repeated exposure(central nervous system, respiratory, kidneys, heart, liver)

#### Precautionary Statements

##### [Prevention]

- P201 Obtain SDS (Safety Data Sheet) and printer's Operation Manual before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe gas/mist/vapors.
- P264 Wash hands and eyes thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

##### [Response]

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P311 IF exposed or concerned: Call a POISON CENTER/doctor.
- P314 Get medical advice/attention if you feel unwell.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash before reuse.

##### [Storage]

- P405 Store locked up.

##### [Disposal]

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).

### 3. Composition / Information on Ingredients

| No | Chemical Name | Wt%   | CAS No.      |
|----|---------------|-------|--------------|
| 1  | Reactive Dye  | 10-20 | Trade Secret |
| 2  | Glycerols     | 10-20 | Trade Secret |

## Safety Data Sheets

|   |                     |         |              |
|---|---------------------|---------|--------------|
| 3 | Ethylene glycol     | 1-10    | 107-21-1     |
| 4 | Additives           | <10     | Trade Secret |
| 5 | epsilon-caprolactam | 1-5     | 105-60-2     |
| 6 | Water               | balance | 7732-18-5    |

### 4. First Aid Measures

- Inhalation : Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.
- Eye Contact : Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 If eye irritation persists: Get medical advice/attention.
- Skin Contact : Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. If skin irritation or rash occurs: Get medical advice/attention.
- Ingestion : If swallowed, get medical attention.

### 5. Fire Fighting Measures

- Flammable Properties : Flash point Not flammable
- Extinguishing Media : carbon dioxide, regular dry chemical, water spray, alcohol resistant foam
- Unsuitable Extinguishing Media : Do not scatter spilled material with high-pressure water streams.
- Special Hazards Arising from the Chemical : Negligible fire hazard.
- Hazardous Combustion Products : Carbon monoxide, carbon dioxide, nitrogen oxide.
- Fire Fighting Measures : Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Avoid inhalation of material or combustion by-products.
- Special Protective Equipment and Precautions for : Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

## Safety Data Sheets

Firefighters

### 6. Accidental Release Measures

|   |   |
|---|---|
| Personal Precautions, Protective Equipment and Emergency Procedures | : Wear personal protective clothing and equipment, see Section 8.<br>Avoid release to the environment.  |
| Methods and Materials for Containment and Cleaning Up               | : Eliminate all ignition sources if safe to do so. Stop leak if possible without personal risk. Reduce vapors with water spray.<br><b>Small spills:</b> Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.<br><b>Large spills:</b> Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. |

### 7. Handling and Storage

|  |  |
|--|--|
| Precautions for Safe Handling                                | : Do not breathe gas/mist. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. |
| Conditions for Safe Storage, including any Incompatibilities | : Store and handle in accordance with all current regulations and standards. Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up. Keep separated from incompatible substances.   |

### 8. Exposure Controls / Personal Protection

|                       |  |
|-----------------------|--|
| Exposure Limit Values | : <b>Ethylene glycol (107-21-1)</b><br>OSHA PEL: 50ppm Ceiling; 125mg/m <sup>3</sup> Ceiling<br>ACGIH TLV-C: 100 mg/m <sup>3</sup> Ceiling (aerosol only)<br>NIOSH: 50ppm Ceiling<br>Mexico 100 mg/m <sup>3</sup> Ceiling (aerosol)<br><b>epsilon-caprolactam(105-60-2)</b><br>ACGIH-TLV: 5 mg/m <sup>3</sup> TWA (inhalable fraction and vapor) |
|-----------------------|--|

## Safety Data Sheets

OSHA: 3 mg/m<sup>3</sup> STEL (dust); 10 ppm STEL (vapor)  
40 mg/m<sup>3</sup> STEL (vapor)

OSHA: 1 mg/m<sup>3</sup> TWA (dust); 5 ppm TWA (vapor)  
20 mg/m<sup>3</sup> TWA (vapor)

NIOSH: 3 mg/m<sup>3</sup> STEL (dust); 0.66 ppm STEL (vapor)  
3 mg/m<sup>3</sup> STEL (vapor)

NIOSH: 1 mg/m<sup>3</sup> TWA (dust); 0.22 ppm TWA (vapor)  
1 mg/m<sup>3</sup> TWA (vapor)

Component Biological Limit Values : There are no biological limit values for the component(s) of this product.

### Exposure Controls

#### Occupational Exposure Controls

Appropriate Engineering Controls : Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

#### Personal Protection

Respiratory Protection : Consult with a health and safety professional for specific respirators appropriate for your use.



Hand Protection : Wear appropriate chemical resistant gloves.



Eye Protection : Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.



Skin Protection : Wear appropriate chemical resistant clothing.



## 9. Physical and Chemical Properties

Appearance - Physical State : Liquid

## Safety Data Sheets

|  |                       |
|--|-----------------------|
| - Color  | : Black               |
| Odor   | : characteristic odor |
| pH   | : 8-10 (25°C)         |
| Boiling Point / Boiling Range                  | : Not available       |
| Melting Point / Melting Range                  | : Not available       |
| Decomposition Temperature                      | : Not available       |
| Flash Point                                    | : Not flammable       |
| Auto ignition temperature                      | : Not available       |
| Flammability (Solid, Gas)                      | : Not available       |
| Explosive Properties                           | : Not available       |
| Oxidizing Properties                           | : Not available       |
| Upper / Lower Flammability or Explosive Limits | : Not available       |
| Vapor Pressure                                 | : Not available       |
| Specific Gravity                               | : 1.1-1.2 (25 ° C)    |
| Solubility                                     | : Not available       |
| Water Solubility                               | : Soluble             |
| Partition Coefficient (n-octanol / Water)      | : Not available       |
| Viscosity                                      | : 4-6 mPa·s (25 °C)   |
| Vapor Density                                  | : Not available       |
| Evaporation Rate                               | : Not available       |
| Surface tension                                | : Not available       |

### 10. Stability and Reactivity

|                                    |   |
|------------------------------------|---|
| Reactivity                         | : No reactivity hazard is expected.   |
| Chemical Stability                 | : Stable under normal conditions of use.  |
| Possibility of Hazardous Reactions | : Will not polymerize.  |
| Conditions to Avoid                | : Avoid flames, sparks, and other sources of ignition. Avoid contact with incompatible materials. |
| Incompatible Materials             | : Strong oxidizing agents, strong acids, strong bases, metal salts, flammable substance.          |
| Hazardous Decomposition            | : Combustion: Carbon monoxide, carbon dioxide, nitrogen oxide.                                    |

## Safety Data Sheets

### 11. Toxicological Information

|  |  |
|--|--|
| Acute Toxicity                                     | : The component(s) of this material have been reviewed in various sources and the following selected endpoints are published:  |
| Component Analysis - LD50/LC50                     | <p><b>Ethylene glycol (107-21-1)</b><br/>         Oral LD50 Rat 4700 mg/kg; Dermal LD50 Rabbit 10600mg/kg</p> <p><b>epsilon-caprolactam(105-60-2)</b><br/>         Oral LD50 Rat 1210 mg/kg; Dermal LD50 Rabbit&gt; 1438mg/kg<br/>         Inhalation LC50 Rat=8.16mg/L 4h</p> |
| Immediate Effects                                  | : mild skin irritation, eye irritation, allergic skin reaction, central nervous system damage, heart damage, kidney damage, respiratory damage.  |
| Delayed Effects                                    | : allergic skin reaction, reproductive effects, central nervous system damage, heart damage, respiratory damage, kidneys damage , liver damage.  |
| Irritation/Corrosivity Data                        | : mild skin irritation, eye irritation.  |
| Respiratory Sensitization                          | : No information available for the product.  |
| Dermal Sensitization                               | : Available data characterizes components of this product as dermal sensitization hazards.   |
| Carcinogenicity                                    | : Component Carcinogenicity<br><b>Ethylene glycol (107-21-1)</b><br>ACGIH: A4 - Not Classifiable as a Human Carcinogen   |
| Mutagenic Data                                     | : No information available for the product.  |
| Reproductive Effects Data                          | : Available data characterizes components of this product as reproductive hazards.   |
| Specific Target Organ Toxicity - Single Exposure   | : central nervous system, respiratory, kidneys, heart  |
| Specific Target Organ Toxicity - Repeated Exposure | : central nervous system, respiratory, kidneys, heart, liver   |
| Aspiration Hazard                                  | : Not expected to be an aspiration hazard.   |
| Medical Conditions Aggravated by Exposure          | : kidney disorders, skin disorders and allergies, eye disorders, respiratory disorders, heart disorders, liver disorders   |

## Safety Data Sheets

### 12. Ecological Information

|                                       |  |
|---------------------------------------|--|
|                                       | <p>Handling is noted because it might influence the environment when leaking and abandoning it.</p> <p>Especially, note that the product doesn't flow directly to ground, the river, and the drain ditch.</p>  |
| Component Analysis - Aquatic Toxicity | <p>: <b>Ethylene glycol (107-21-1)</b></p> <p>Fish: 96 Hr LC50 Oncorhynchus mykiss: 41000 mg/L; 96 Hr LC50 Oncorhynchus mykiss: 14 - 18 mL/L [static]; 96 Hr LC50 Lepomis macrochirus: 27540 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 40761 mg/L [static]; 96 Hr LC50 Pimephales promelas: 40000 - 60000 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 16000 mg/L [static]</p> <p>Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: 6500 - 13000 mg/L Invertebrate: 48 Hr EC50 Daphnia magna: 46300 mg/L</p> <p>: <b>epsilon-caprolactam(105-60-2)</b></p> <p>Fish: 96 Hr LC50 Lepomis macrochirus: 930 mg/L [static]; 96 Hr LC50 Pimephales promelas: 1400 mg/L [static]</p> <p>Invertebrate: 48 Hr EC50 Daphnia magna Straus: &gt;500 mg/L; 48 Hr EC50 Daphnia magna: 828 - 2920 mg/L</p> <p>Algae: 72 Hr EC50 Desmodesmus subspicatus: 130 mg/L; 96 Hr EC50 Desmodesmus subspicatus: 160 mg/L; 72 Hr EC50 Pseudokirchneriella subcapitata: 4320 - 4800 mg/L</p> |
| Persistence and Degradability         | : No information available for the product.  |
| Bioaccumulation                       | : No information available for the product.  |
| Mobility                              | : No information available for the product.  |
| Other Toxicity                        | : No additional information is available.  |

### 13. Disposal Considerations

|                  |  |
|------------------|--|
|                  | <p>: Comply with all USA, national and local regulations.</p> <p><u>Do not dump this product into sewers, on the ground or into any body of water.</u></p> |
| Disposal Methods | : Dispose in accordance with all applicable regulations.   |
| Component Waste  | : The U.S. EPA has not published waste numbers for this product's  |



## Safety Data Sheets

Numbers components.  
 Disposal of Contaminated Packaging : Empty containers may contain product residue. Dispose in accordance with all applicable regulations.

### 14. Transport Information

Check a thing without a leak in a container.  
 Perform prevention of collapse of cargo surely.

US DOT Information : Not regulated as a hazardous material for transport.  
 IATA Information : Not regulated as dangerous goods for transport.  
 ICAO Information : Not regulated as dangerous goods for transport.  
 IMDG Information : Not regulated as dangerous goods for transport.  
 TDG Information : Not regulated as dangerous goods for transport.  
 UN Number : Not regulated

### 15. Regulatory Information

U.S. Federal Regulations : This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

**Ethylene glycol (107-21-1)**

SARA 313: 1.0 % de minimis concentration  
 CERCLA: 5000 lb final RQ; 2270 kg final RQ

U.S. State Regulations : The following components appear on one or more of the following state hazardous substances lists

| Component                                 | CA  | MA  | MN  | NJ  | PA  |
|---|-----|-----|-----|-----|-----|
| Ethylene glycol<br>(CAS No. 107-21-1)     | Yes | Yes | Yes | Yes | Yes |
| epsilon-caprolactam<br>(CAS No. 105-60-2) | Yes | Yes | Yes | Yes | Yes |

: Not regulated under California Proposition 65

Canadian WHMIS : Components of this material have been checked against the

## Safety Data Sheets

|                                  |  |
|----------------------------------|--|
| Ingredient Disclosure List (IDL) | Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which fall under WHMIS criteria specified in the Controlled Products Regulations and present above the threshold limits listed on the IDL.<br><b>Ethylene glycol (107-21-1) 1 %</b><br><b>epsilon-caprolactam(105-60-2) 1 %</b> |
|----------------------------------|--|

### 16. Other Information

#### Key/Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; CAS - Chemical Abstracts Service; CLP - Classification, Labelling and Packaging; EEC - European Economic Community; EIN (EINECS) - European Inventory of Existing Commercial Chemical Substances; ELN (ELINCS) - European List of Notified Chemical Substances; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IMDG - International Maritime Dangerous Goods; IBC Code - International Bulk Chemical Code; Kow - Octanol/water partition coefficient; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NTP = National Toxicology Program; REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - European Rail Transport; STEL - Short-term Exposure Limit; TWA - Time Weighted Average; UEL - Upper Explosive Limit

#### Other Information

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