# Safety Data Sheets

## 1. Identification

| | |
|---|---|
| Product Name | : SS21 ink White |
| Order No. | : SPC-0504W-2 |
| General Use | : Ink for ink jet printer |
| Product Description | : Solvent pigment ink |
| SDS Number | : 037-S080500 |
| 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. | : +1-678-730-0100 |
| Emergency Telephone No. | : +81-268-64-2281 |

## 2. Hazards Identification

[GHS Classification]

Physical Hazards

| | |
|---|---|
| Flammable Liquids | : Category 4 |

Health Hazards

| | |
|---|---|
| Eye Damage / Irritation | : Category 2 |
| Carcinogenicity | : Category 2 |
| Toxic to Reproduction | : Category 2 |
| Specific Target Organ Toxicity (Single Exposure) | : Category 2 (central nervous system) |
| Specific Target Organ Toxicity (Repeated Exposure) | : Category 1 (lungs) |

Environmental Hazards

| | |
|---|---|
| Hazardous to the Aquatic Environment - Acute Hazard | : Category 3 |

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

H227 Combustible liquid
H319 Cause serious eye irritation
H351 Suspected of causing cancer
H361 Suspected of damaging fertility or the unborn child
H371 May cause damage to central nervous system
H372 Causes damage to lungs through prolonged or repeated exposure.
H402 Harmful to aquatic life

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.
P210 Keep away from heat/sparks/open flames/hot surfaces.-No smoking.
P260 Do not breathe vapor or mist.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/clothing and eye/face protection.

[Response]

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 or doctor/physician.
P314 Get medical advice/attention if you feel unwell.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use appropriate media for extinction.

[Storage]

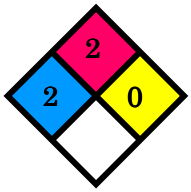
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

[Disposal]

P501 Dispose of contents and container in accordance with local, regional, national and international regulation.

NFPA Rating (scale 0 – 4)

Health = 2
Flammability = 2
Instability = 0
Special = None



# Safety Data Sheets

CANADIAN WHMIS SYMBOLS : B3, D2A, D2B

## 3. Composition / Information on Ingredients

| No | Chemical Name | Wt% | CAS No. |
|---|---|---|---|
| 1 | Glycol ether solvents | 60-70 | Trade Secret |
| 2 | Lactone solvent series | 10-20 | Trade Secret |
| 3 | Titanium dioxide | 5-15 | 13463-67-7 |
| 4 | Vinyl resin | 1-5 | Trade Secret |
| 5 | Silica, amorphous | 0-1 | 7631-86-9 |
| 6 | 1-Imidazole | 0.1-1 | 288-32-4 |
| 7 | Aluminum oxide | 0-0.5 | 1344-28-1 |
| 8 | Zirconium oxide | 0-0.5 | 1314-23-4 |

## 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. Get immediate medical attention.

Skin Contact : Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. Get medical attention if irritation develops.

Ingestion : If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute : eye irritation, central nervous system damage

Delayed : cancer, reproductive effects, lung damage

Indication of Immediate Medical Attention and Special Treatment Needed, If Needed : Treat symptomatically and supportively.

## 5. Fire Fighting Measures

| | |
|---|---|
| Flammable Properties | : Flash point 65℃ (TCC)<br>Auto Ignition Temperature: 169℃<br>Flammable point : 2.2% to 33.0% |
| 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 | : Combustible liquid and vapor. |
| Hazardous Combustion Products | : oxides of carbon, oxides of titanium, acid halides |
| 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. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. |
| Special Protective Equipment and Precautions for Firefighters | : Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. |

## 6. Accidental Release Measures

| | |
|---|---|
| Personal Precautions, Protective Equipment and Emergency Procedures | : Wear personal protective clothing and equipment, see Section 8. 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>**Small spills:** Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.<br>**Large spills:** 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 | : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Do not eat, drink, or smoke when using this product. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Avoid release to the environment. |
| 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. Grounding and bonding required. Store locked up. Keep separated from incompatible substances. |

## 8. Exposure Controls / Personal Protection

Exposure Limit Values

| No | Chemical Name | | TWA |
|---|---|---|---|
| 1 | Titanium dioxide (13463-67-7) | ACGIH: | 10 mg/m3 TWA |
| | | OSHA: | 15 mg/m3 TWA (total dust) |
| | | Mexico | 10 mg/m3 TWA LMPE-PPT (as Ti)<br>20 mg/m3 STEL [LMPE-CT] (as Ti) |
| 2 | Silica, amorphous (7631-86-9) | NIOSH: | 6 mg/m3 TWA |
| 3 | Aluminum oxide (1344-28-1) | OSHA: | 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) |
| | | Mexico | 10 mg/m3 TWA LMPE-PPT |

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 : Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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 |
| | - Color | : White |
| Odor | | : slight solvent odor |
| pH | | : Not available |
| Boiling Point / Boiling Range | | : >=176 ℃ |
| Melting Point / Melting Range | | : Not available |

| | |
|---|---|
| Decomposition Temperature | : Not available |
| Flash Point | : 65℃ |
| Auto ignition temperature | : 169℃ |
| Flammability (Solid, Gas) | : Not applicable |
| Explosive Properties | : Not available |
| Oxidizing Properties | : Not available |
| Upper / Lower Flammability or Explosive Limits | : 2.2% to 33.0% |
| Vapor Pressure | : Less than 133Pa(20℃) |
| Specific Gravity | : 1.09 (20 ℃) |
| Solubility | : Not available |
| Water Solubility | : Not available |
| Partition Coefficient (n-octanol / Water) | : Not available |
| Viscosity | : 5.0±0.3(20° C) |
| Vapor Density | : Not available |
| Evaporation Rate | : Not available |
| VOC | : 881.0 g/L |

## 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. Containers may rupture or explode if exposed to heat. Avoid contact with incompatible materials. |
| Incompatible Materials | : acids, bases, oxidizing materials, metals, halogens |
| Hazardous Decomposition | : Combustion: oxides of carbon, oxides of titanium, acid halides |

## 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 | |

**Lactone solvent series (Proprietary)**

Inhalation LC50 Rat >5100 mg/m3 4 h; Oral LD50 Rat 1540 mg/kg

**Titanium dioxide (13463-67-7)**

Oral LD50 Rat >10000 mg/kg

**Silica, amorphous (7631-86-9)**

Dermal LD50 Rabbit >2000 mg/kg; Inhalation LC50 Rat >2.2 mg/L 1 h; Oral LD50 Rat >5000 mg/kg

**1-Imidazole (288-32-4)**

Oral LD50 Rat 220 mg/kg

**Aluminum oxide (1344-28-1)**

Oral LD50 Rat >5000 mg/kg

Information on Likely Routes of Exposure

Inhalation : irritation, nausea, headache, drowsiness, dizziness, loss of coordination, unconsciousness, coma, cough, lung damage, cancer, reproductive effects

Ingestion : irritation, nausea, headache, drowsiness, dizziness, loss of coordination, unconsciousness, coma

Skin Contact : irritation, nausea, headache, drowsiness, dizziness, unconsciousness, coma

Eye Contact : irritation, eye damage

Immediate Effects : eye irritation, central nervous system damage

Delayed Effects : cancer, reproductive effects, lung damage

Medical Conditions Aggravated by Exposure : respiratory disorders

Irritation/Corrosivity Data : eye irritation

Respiratory Sensitization : No information available for the product.

Dermal Sensitization : No information available for the product.

Germ Cell Mutagenicity : No information available for the product.

Carcinogenicity : Component Carcinogenicity

Lactone solvent series (Proprietary)

| | |
|---|---|
| IARC: | Monograph 71 [1999]; Supplement 7 [1987]; Monograph 11 [1976] (Group 3 (not classifiable)) |

Titanium dioxide (13463-67-7)

| | |
|---|---|
| ACGIH: | A4 - Not Classifiable as a Human Carcinogen |

| | |
|---|---|
| IARC: | Monograph 93 [2010]; Monograph 47 [1989] (Group 2B (possibly carcinogenic to humans)) |
| DFG: | Category 3A (could be carcinogenic for man, inhalable fraction with the exception of ultra small particles) |
| OSHA: | Present |

Vinyl resin (Proprietary)

| | |
|---|---|
| IARC: | Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable)) |

Silica, amorphous (7631-86-9)

| | |
|---|---|
| IARC: | Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable)) |

Aluminum oxide (1344-28-1)

| | |
|---|---|
| DFG: | Category 2 (considered to be carcinogenic for man, fibre dust) |

Reproductive Toxicity : Available data characterizes components of this product as reproductive hazards.

Specific Target Organ Toxicity - Single Exposure : central nervous system

Specific Target Organ Toxicity - Repeated Exposure : lungs

Aspiration Hazard : No information available for the product.

## 12. Ecological Information

Handling is noted because it might influence the environment when leaking and abandoning it.
Especially, note that the product doesn't flow directly to ground, the river, and the drain ditch.

Ecotoxicity : Harmful to aquatic life.

Component Analysis - Aquatic Toxicity : Lactone solvent series (Proprietary)

| | |
|---|---|
| Algae: | 72 Hr EC50 Desmodesmus subspicatus: 360 mg/L; 96 Hr EC50 Desmodesmus subspicatus: 79 mg/L |
| Invertebrate: | 48 Hr EC50 Daphnia magna Straus: >500 mg/L |

Silica, amorphous (7631-86-9)

| | |
|---|---|
| Fish: | 96 Hr LC50 Brachydanio rerio: 5000 mg/L [static] |
| Algae: | 72 Hr EC50 Pseudokirchneriella subcapitata: 440 mg/L |
| Invertebrate: | 48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L |

1-Imidazole (288-32-4)

| | |
|---|---|
| Algae: | 72 Hr EC50 Desmodesmus subspicatus: 130 mg/L; 96 Hr EC50 Desmodesmus subspicatus: 82 mg/L |
| Invertebrate: | 48 Hr EC50 Daphnia magna: 341.5 mg/L |

| | |
|---|---|
| Persistence and Degradability | : Not available |
| Bioaccumulation | : Not available |
| Mobility | : Not available |
| Other Toxicity | : Not available |

## 13. Disposal Considerations

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

| | |
|---|---|
| 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. |

| | |
|---|---|
| Marine Pollutant | : Lactone solvent series (Proprietary)<br>IBC Code: Category Y<br>Titanium dioxide (13463-67-7)<br>IBC Code: Category Z (slurry) |
| TDG Information | : Not regulated as dangerous goods for transport. |
| US DOT Information | : Not regulated as dangerous goods for transport. *1 |

*1 Class combustible liquid (NA1993), Packing group III for quantities of 450 liters (119 gallons) or more; not regulated for smaller quantities

## 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.

Aluminum oxide (1344-28-1)

| | |
|---|---|
| SARA 313: | 1.0 % de minimis concentration (fibrous forms) |

SARA TitleⅢ Section 311/312 : Acute Health: Yes
Chronic Health: Yes
Fire: Yes
Pressure: No
Reactive: No

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

| Component | CAS No. | CA | MA | MN | NJ | PA |
|---|---|---|---|---|---|---|
| Titanium dioxide | 13463-67-7 | No | Yes | Yes | Yes | Yes |
| Silica, amorphous | 7631-86-9 | Yes | Yes | Yes | Yes | Yes |
| Aluminum oxide | 1344-28-1 | Yes | Yes | Yes | Yes | Yes |
| Zirconium oxide | 1314-23-4 | No | Yes | No | No | No |

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

# Safety Data Sheets

Canada : WHMIS CLASSIFICATION: B3, D2A, D2B.

Canadian WHMIS Ingredient Disclosure List (IDL) : None of the product component(s) are listed on the Ingredients Disclosure List (IDL).

Chemical Inventory Listings : Component Analysis - Inventory

| Component | US | CA | EU | AU | PHIL | JP | KR | CN | NZ |
|---|---|---|---|---|---|---|---|---|---|
| Glycol ether solvents (Proprietary) | Yes | NSL | EIN | No | No | Yes | No | Yes | No |
| Lactone solvent series (Proprietary) | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |
| Titanium dioxide (13463-67-7) | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |
| Vinyl resin (Proprietary) | Yes | DSL | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Silica, amorphous (7631-86-9) | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |
| 1-Imidazole (288-32-4) | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |
| Aluminum oxide (1344-28-1) | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |
| Zirconium oxide (1314-23-4) | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |

## 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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