

Safety Data Sheets

1. Identification

Product Name : SS21 ink Silver
Order No. : SPC-0504Si
General Use : Ink for ink jet printer
Product Description : Solvent pigment ink
SDS Number : 037-S080271
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. : +1-678-730-0170
Emergency Telephone No. : +1 866 928 0789 (within United States only, Toll free)
+1 215 207 0061

2. Hazards Identification

[GHS Classification]

Physical Hazards

Flammable Liquids : Category 4

Health Hazards

Eye Damage / Irritation : Category 2B

Toxic to Reproduction : Category 2

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

[GHS Label Elements]

Symbol



Signal Word
Warning

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Hazard Statements

H227 Combustible liquid.

H320 Causes eye irritation.

H361 Suspected of damaging fertility or the unborn child.

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 open flames and other ignition sources. No smoking.

P264 Wash hands and eyes thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/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+P313 IF exposed or concerned: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P370+P378 In case of fire: Use foam, carbon dioxide, dry chemical for extinguish.

[Storage]

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

P405 Store locked up.

[Disposal]

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

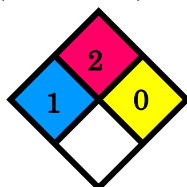
NFPA Rating (scale 0 – 4)

Health = 1

Flammability = 2

Instability = 0

Special = None



CANADIAN WHMIS SYMBOLS



3. Composition / Information on Ingredients

Mixtures

| No | Chemical Name | Wt% | CAS No. |
|----|-------------------------|---------|--------------|
| 1 | Glycol ether solvents | 65-75 | Trade Secret |
| 2 | Glycol ether solvents B | 20-30 | Trade Secret |
| 3 | Pigment | 0.8-1.5 | Trade Secret |

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

4. First Aid Measures

Description of first aid measures

Eye Contact

: If this product comes in contact with the eyes:

Wash out immediately with fresh running water. Ensure complete

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irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact

: If skin or hair contact occurs:

Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.

Inhalation

: If fumes, aerosols or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary.

Ingestion

: Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed

See Section 11.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire Fighting Measures

Flammable Properties

: Flash point 62 degree C

Auto Ignition Temperature: 169 degree C

Explosive Limit : 2.5% to 33.0%

Extinguishing Media

: Foam, Dry chemical powder, BCF (where regulations permit), Carbon dioxide, Water spray or fog - Large fires only.

Unsuitable Extinguishing Media

: Do not scatter spilled material with high-pressure water streams.

Special hazards arising from the substrate or mixture

Fire

: None known.

Incompatibility

Special protective equipment and precautions for fire-fighters

Fire Fighting

: Alert Fire Brigade and tell them location and nature of hazard.

Wear full body protective clothing with breathing apparatus.

Prevent, by any means available, spillage from entering drains or water course. Use water delivered as a fine spray to control fire and cool adjacent area. Avoid spraying water onto liquid pools.

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| | |
|----------------|--|
| Fire/Explosion | DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. |
| Hazard | If safe to do so, remove containers from path of fire. |
| | : Combustible. |
| | Slight fire hazard when exposed to heat or flame. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit irritating/ toxic fumes. May emit acrid smoke. Mists containing combustible materials may be explosive. |
| | May emit poisonous fumes. |
| | May emit corrosive fumes. |

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

See section 8.

Environmental precautions

See section 12.

Methods and material for containment and cleaning up

Minor Spills : Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal.

Major Spills : Moderate hazard. Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. No smoking, naked lights or ignition sources. Increase ventilation. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labelled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occurs, advise emergency services.

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7. Handling and Storage

| | |
|-------------------------------|---|
| Precautions for Safe Handling | : Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. |
| Conditions for Safe Storage | : Store in original containers. Keep containers securely sealed. No smoking, naked lights or ignition sources. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS. |
| Storage incompatibility | : None known. |

8. Exposure Controls / Personal Protection

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|------------|------------|---------------|---|---------------|---------------|---|
| OSHA-PELs | Pigment | Trade secret | 15 mg/m ³ 5mg/m ³ | Not Available | Not Available | Total dust; (as Al) / (as Al) |
| ACGIH-TLV | Pigment | Trade secret | 0.1 mg/m ³ | Not Available | Not Available | TLV® Basis: Argyria |
| ACGIH-TLV | Pigment | Trade secret | 1 mg/m ³ | Not Available | Not Available | TLV® Basis: Pneumoconiosis; LRT irr; neurotoxicity |
| NIOSH-RELS | Pigment | Trade secret | 10 (total), 5(resp) mg/m ³ | Not Available | Not Available | Not Available |

EMERGENCY LIMITS

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| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|-------------------------|---------------|----------------------|-----------------------|-------------------------|
| Glycol ether solvents B | Trade secret | 34 mg/m ³ | 370 mg/m ³ | 2,200 mg/m ³ |

| Ingredient | Original IDLH | Revised IDLH |
|-------------------------|-----------------------------------|----------------------|
| Pigment | N.E. mg/m ³ / N.E. ppm | 10 mg/m ³ |
| Glycol ether solvents | Not Available | Not Available |
| Glycol ether solvents B | Not Available | Not Available |

Exposure Controls

Occupational Exposure Controls

Appropriate : General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

Engineering Controls

Personal Protection

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



Hand Protection : Wear chemical protective gloves, e.g. PVC.



Eye Protection : Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.



Skin Protection : Wear safety footwear or safety gumboots, e.g. Rubber. Overalls. P.V.C. apron.



9. Physical and Chemical Properties

Information on basic physical and chemical properties

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Appearance: Silver liquid

| | | | |
|---|-----------------|--|---------------|
| Physical state | Liquid | Relative density (Water = 1) | 0.97 |
| Odour | Slight | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | 169 |
| pH (as supplied) | Not Available | Decomposition temperature | Not Available |
| Melting point /freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | 176-249 | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | 62 (closed cup) | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Combustible | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | 33 | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | 2.5 | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | 0.1 | Gas group | Not Available |
| Solubility in water (g/L) | Immiscible | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

10. Stability and Reactivity

- Reactivity : Stable under normal conditions of use.
- Chemical Stability : Unstable in the presence of incompatible materials.
Product is considered stable.
- Possibility of Hazardous Reactions : Hazardous polymerisation will not occur.
- Conditions to Avoid : See section 7.
- Incompatible Materials : See section 7.
- Hazardous decomposition products : See section 5.

11. Toxicological Information

Information on toxicological effects

- Inhaled : The material is not thought to produce adverse health effects or

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irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

- Ingestion** : The material has NOT been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence.
- Skin Contact** : The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives.
Open cuts, abraded or irritated skin should not be exposed to this material
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
- Eye** : There is some evidence to suggest that this material can cause eye irritation and damage in some persons.
- Chronic** : Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother.

| Ingredient | TOXICITY | IRRITATION |
|-------------------------|---------------|---------------|
| As a product | Not Available | Not Available |
| Pigment | Not Available | Not Available |
| Glycol ether solvents | Not Available | Not Available |
| Glycol ether solvents B | Not Available | Not Available |

- Acute Toxicity** : Data Not Available to make classification.
- Skin** : Data Not Available to make classification.
- Irritation/Corrosion**
- Serious Eye** : Data available to make classification.
- Damage/Irritation**

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| | |
|-----------------------------------|--|
| Respiratory or Skin sensitisation | : Data Not Available to make classification. |
| Mutagenicity | : Data Not Available to make classification. |
| Carcinogenicity | : Data Not Available to make classification. |
| Reproductivity | : Data available to make classification. |
| STOT - Single Exposure | : Data Not Available to make classification. |
| STOT - Repeated Exposure | : Data Not Available to make classification. |
| Aspiration Hazard | : Data Not Available to make classification. |

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.

| Ingredient | Endpoint | Test Duration (hr) | Species | Value | Source |
|-------------------------|----------|--------------------|-------------------------------|-----------------|--------|
| Pigment | LC50 | 96 | Fish | 0.078-0.108mg/L | 2 |
| | EC50 | 48 | Crustacea | 0.7364mg/L | 2 |
| | EC50 | 96 | Algae or other aquatic plants | 0.0054mg/L | 2 |
| | BCF | 360 | Algae or other aquatic plants | 9mg/L | 4 |
| | EC50 | 120 | Fish | 0.000051mg/L | 5 |
| | NOEC | 72 | Algae or other aquatic plants | >=0.004mg/L | 2 |
| Glycol ether solvents | LC50 | 96 | Fish | 713.772mg/L | 3 |
| | EC50 | 96 | Algae or other aquatic plants | 4246.290mg/L | 3 |
| | EC50 | 384 | Crustacea | 163.553mg/L | 3 |
| Glycol ether solvents B | LC50 | 96 | Fish | 49.23597mg/L | 3 |
| | EC50 | 48 | Crustacea | >500mg/L | 1 |
| | EC50 | 72 | Algae or other aquatic plants | >500mg/L | 1 |
| | EC0 | 24 | Crustacea | =500mg/L | 1 |
| | NOEC | Not Applicable | Fish | >130mg/L | 1 |

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances – Ecotoxicological

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Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA,

Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data

DO NOT discharge into sewer or waterways.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|-------------------------|-------------------------|------------------|
| Glycol ether solvents | LOW | LOW |
| Glycol ether solvents B | LOW | LOW |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|-------------------------|-----------------------|
| Glycol ether solvents | LOW (LogKOW = 0.0093) |
| Glycol ether solvents B | LOW (BCF = 1.4555) |

Mobility in soil

| Ingredient | Mobility |
|-------------------------|----------------|
| Glycol ether solvents | LOW (KOC = 10) |
| Glycol ether solvents B | LOW (KOC = 10) |

13. Disposal Considerations

Comply with all USA, national and local regulations.

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.

Disposal of : Empty containers may contain product residue. Dispose in

Contaminated accordance with all applicable regulations.

Packaging

14. Transport Information

Check a thing without a leak in a container.

Perform prevention of collapse of cargo surely.

Labels Required : Marine Pollutant; NO

Land transport (DOT) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS.

*1

Air transport : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS.

(ICAO-IATA / DGR)

Sea transport : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS.

(IMDG-Code / GGVSee)

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Transport in bulk : Not Applicable

according to Annex II of

MARPOL and the IBC

code

*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

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

PIGMENT IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Alaska Limits for Air Contaminants
US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - Hawaii Air Contaminant Limits
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - Oregon Permissible Exposure Limits (Z-1)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits
for Air Contaminants
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US ATSDR Minimal Risk Levels for Hazardous Substances
(MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List

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US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

GLYCOL ETHER SOLVENTS ARE FOUND ON THE FOLLOWING REGULATORY LISTS

US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - Pennsylvania - Hazardous Substance List
US Clean Air Act - Hazardous Air Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

GLYCOL ETHER SOLVENTS B ARE FOUND ON THE FOLLOWING REGULATORY LISTS

US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - Pennsylvania - Hazardous Substance List
US Clean Air Act - Hazardous Air Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

| | |
|---------------------------------|-----|
| Immediate (acute) health hazard | Yes |
| Delayed (chronic) health hazard | Yes |
| Fire hazard | Yes |
| Pressure hazard | No |
| Reactivity hazard | No |

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported.

State Regulations

US. CALIFORNIA PROPOSITION 65



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WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - CALIFORNIA PREPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE

Nickel compounds Listed

Inventory

| National Inventory | Status |
|-------------------------------|--------|
| Australia - AICS | Y |
| Canada - DSL | Y |
| Canada - NDSL | Y |
| China - IECSC | Y |
| Europe - EINEC / ELINCS / NLP | Y |
| Japan - ENCS | Y |
| Korea - KECI | Y |
| New Zealand - NZIoC | Y |
| Philippines - PICCS | N |
| USA - TSCA | Y |

Legend: Y = All ingredients are on the inventory.

N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets).

16. Other Information

Other Information

This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of Mimaki Engineering Corporation.

It relates only to the specific material designated herein, and does not relate to use in combination with any other material or process.

Mimaki Engineering Corporation assumes no legal responsibility for use or reliance upon this information.