

# Safety Data Sheets

## 1. Identification

Product Name : MUH-100 Silver  
Order No. : MUH10-Si-B2  
General Use : Ink for ink jet printer  
Product Description : UV curable ink  
SDS Number : 037- U161891  
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 NE , 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 of the substance/mixture]

### Physical Hazards

Flammable Liquids : Not classified

### Health Hazards

Skin Corrosion / Irritation : Category 2  
Eye Damage / Irritation : Category 2A  
Sensitization – Skin : Category 1

### Environmental Hazards

Hazardous to the Aquatic : Category 3  
Environment - Acute Hazard  
Hazardous to the Aquatic : Category 3  
Environment - Long Term Hazard

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

[GHS label elements, including precautionary statements]

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Symbol



Signal Word

Warning

Hazard Statements

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation

H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements

[Prevention]

P261 Avoid breathing gas/mist/vapours/spray.

P264 Wash hands and eyes thoroughly after handling.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

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.

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 it before reuse.

[Storage]

None.

[Disposal]

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

### 3. Composition / Information on Ingredients

Chemical / mixture classification: mixture

No	Chemical Name	Wt%	CAS No.
1	Acrylic ester A	30-40	Trade secret
2	Acrylic ester B	20-30	Trade secret
3	Acrylic ester C	10-20	Trade secret
4	Acrylic ester D	5-10	Trade secret
5	Acrylic ester E	0.1-0.5	Trade secret
6	Polymerization initiator	1-10	Trade secret

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7	Polymerization inhibitor A	<0.1	Trade secret
8	Polymerization inhibitor B	<0.1	Trade secret
9	Antioxidant A	0.1-1	Trade secret
10	Antioxidant B	0.1-1	Trade secret
11	Organic components	1-5	Trade secret
12	Pigment	0.1-0.8	Trade secret

### 4. First Aid Measures

Inhalation	: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin Contact	: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation or rash occurs: Get medical advice/attention.
Eye Contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Ingestion	: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
Most Important Symptoms/Effects	
Acute	: skin irritation, eye irritation, allergic skin reactions
Delayed	: allergic skin reactions
Indication of any immediate medical attention and special treatment needed	: Treat symptomatically and supportively.

### 5. Fire Fighting Measures

Extinguishing Media	: Carbon dioxide, foam, powder.
Unsuitable Extinguishing Media	: Do not scatter spilled material with high-pressure water streams.
Protective Equipment and Precautions for Firefighters	: Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

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Fire Fighting Measures	: Move material from fire area if it can be done without risk. Use extinguishing agents appropriate for surrounding fire. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.
Fire/Explosion Hazard	Non combustible. Not considered a significant fire risk, however containers may burn. May emit poisonous fumes. May emit corrosive fumes.

### 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	: Wear personal protective clothing and equipment, see Section 8.
Environmental precautions	: Avoid release to the environment.
Methods and Materials for Containment and Cleaning Up	: Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. 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	: Avoid breathing gas/mist/vapours/spray. Wash hands and eyes thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Conditions for safe storage	: Avoid direct sunlight. Keep in a well-ventilated area. Keep out of reach of children. Keep away from fire and heat source. Store locked up.

### 8. Exposure Controls / Personal Protection

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## OCCUPATIONAL EXPOSURE LIMITS (OEL)

### INGREDIENT DATA

Ingredient	Source	TWA	STEL	Peak	Notes
Pigment	US NIOSH Recommended Exposure Limits (RELs)	10 (total), 5(resp)mg/m <sup>3</sup>	Not Available	Not Available	Not Available
	US ACGIH Threshold Limit Values (TLV)	1 mg/m <sup>3</sup>	Not Available	Not Available	TLV® Basis: Pneumoconiosis; LRT irr; neurotoxicity
	US OSHA Permissible Exposure Levels (PELs) - Table Z1	15 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
	US OSHA Permissible Exposure Levels (PELs) - Table Z1	5 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
Polymerization inhibitor	US NIOSH Recommended Exposure Limits (RELs)	2 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
	US NIOSH Recommended Exposure Limits (RELs)	5 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
Polymerization inhibitor	US NIOSH Recommended Exposure Limits (RELs)	5 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
	US ACGIH Threshold Limit Values (TLV)	5 mg/m <sup>3</sup>	Not Available	Not Available	TLV® Basis: Eye irr; skin dam

### EMERGENCY LIMITS

Ingredient	TEEL-1	TEEL-2	TEEL-3
Acrylic ester E	3 mg/m <sup>3</sup>	170 mg/m <sup>3</sup>	990 mg/m <sup>3</sup>
Polymerization inhibitor A	15 mg/m <sup>3</sup>	49 mg/m <sup>3</sup>	320 mg/m <sup>3</sup>

### Exposure Controls

#### Occupational Exposure Controls

Appropriate : Provide local exhaust or process enclosure ventilation system.

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Engineering Controls      Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

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



**Vapor  
Respirator**

Glove                                : Wear appropriate chemical resistant gloves.

Recommendations



**Gloves**

Eye /Face                            : Wear splash resistant safety goggles with a faceshield.

Protection



**Safety  
Glasses**

Skin Protection                 : Wear appropriate chemical resistant clothing.



**Protective  
Apron**

### 9. Physical and Chemical Properties

Appearance	- Physical State	: Liquid
	- Color	: Silver
Odor		: Slight
pH		: Not available
Melting point / freezing point		: Not available
Boiling Point / Boiling Range		: 102 – 200 degree C
Flash Point		: 131 degree C
Autoignition temperature (ignition point)		: 380 degree C
Flammability (Solid, Gas)		: Not available
Upper / Lower Flammability or		: 11.5[vol %] / 2.2[vol %]
Explosive Limits		
Vapor Pressure		: 1.33 Pa (20 degree C)
Vapor Density		: Not available

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Evaporation Rate	: Not available
Relative density (Water = 1)	: 1.092
Water Solubility	: Not available
Solubility in solvent	: Not available
Partition Coefficient (n-octanol / Water)	: Not available
Decomposition Temperature	: Not available

### 10. Stability and Reactivity

Reactivity	: No reactivity hazard is expected.
Chemical Stability	: Stable under normal conditions of use.
Conditions to Avoid	: Avoid high temperature.
Hazardous	: See section 5.
Decomposition Products	

### 11. Toxicological Information

#### Acute Toxicity

Ingredient name	Oral	Dermal
As a Product	Not classified	Not classified

#### Information on Likely Routes of Exposure

Inhalation	: No information available for the product.
Ingestion	: No information available for the product.
Skin Contact	: irritation, allergic skin reaction
Eye Contact	: Causes serious eye irritation
Immediate Effects	: skin irritation, serious eye irritation, allergic skin reaction
Delayed Effects	: allergic skin reaction
Irritation/Corrosivity	: skin irritation, eye irritation
Data	
Respiratory	: No information available for the product.
Sensitization	
Dermal Sensitization	: Available data characterizes components of this product as dermal sensitization hazards.
Germ Cell	: No information available for the product.
Mutagenicity	

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Carcinogenicity : No information available for the product.  
 Reproductive Toxicity : No information available for the product.  
 Specific Target Organ : No information available for the product.  
 Toxicity - Single Exposure  
 Specific Target Organ : No information available for the product.  
 Toxicity - Repeated Exposure  
 Aspiration Hazard : Not expected to be an aspiration hazard.

### 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 with long lasting effects.  
 Hazardous to the Aquatic Environment - Acute Hazard, Category 3  
 Hazardous to the Aquatic Environment - Long Term Hazard,  
 Category 3

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
	NOEC	72	Algae or other aquatic plants	>=0.004mg/L	2
Polymerization initiator	EC50	48	Crustacea	3.53mg/L	2
	EC50	72	Algae or other aquatic plants	>2.01mg/L	2
Polymerization inhibitors	LC50	96	Fish	28.5mg/L	2
	EC50	48	Crustacea	3mg/L	2
	EC50	72	Algae or other aquatic plants	19mg/L	2
	NOEC	504	Crustacea	0.68mg/L	2

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances – Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data

Persistence and Degradability : No information available for the product.



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Bioaccumulation : No information available for the product.  
Mobility : No information available for the product.  
Other Toxicity : No information available for the product.

### 13. Disposal Considerations

Disposal Methods : Dispose in accordance with all applicable regulations.  
Remove the contents completely from the container from the container.  
Do not dump this product into sewers, on the ground or into any body of water.

### 14. Transport Information

Check a thing without a leak in a container.

Perform prevention of collapse of cargo surely.

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

Air transport (ICAO-IATA / DGR) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code : Not Applicable

### 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 Permissible Exposure Limits for Chemical Contaminants

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)

## Safety Data Sheets

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 EPCRA Section 313 Chemical List

US NIOSH Recommended Exposure Limits (RELs)

US OSHA Permissible Exposure Levels (PELs) - Table Z1

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

### POLYMERIZATION INHIBITOR B IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - California Permissible Exposure Limits for Chemical Contaminants

US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule

US NIOSH Recommended Exposure Limits (RELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

### ACRYLIC ESTER C IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) – Agents Classified by the IARC Monographs

US AIHA Workplace Environmental Exposure Levels (WEELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

### ACRYLIC ESTER B IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

### ACRYLIC ESTER E IS FOUND ON THE FOLLOWING REGULATORY LISTS

US AIHA Workplace Environmental Exposure Levels (WEELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

### ACRYLIC ESTER A IS FOUND ON THE FOLLOWING REGULATORY LISTS

US AIHA Workplace Environmental Exposure Levels (WEELs)



## Safety Data Sheets

US List of Active Substances Exempt from the TSCA Inventory Notifications (Active-Inactive) Rule

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**POLYMERIZATION INITIATOR IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

**POLYMERIZATION INHIBITOR A IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - California Permissible Exposure Limits for Chemical Contaminants

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 - 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 ACGIH Threshold Limit Values (TLV)

US NIOSH Recommended Exposure Limits (RELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

US TSCA Section 4/12 (b) - Sunset Dates/Status

**ANTIOXIDANT A IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

**ANTIOXIDANT B IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US TSCA Chemical Substance Inventory - Interim List of Active Substances

**Federal Regulations**

Superfund Amendments and Reauthorization Act of 1986 (SARA)

**SECTION 311/312 HAZARD CATEGORIES**

Flammable (Gases, Aerosols, Liquids, or Solids)	No
Gas under pressure	No
Explosive	No

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Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	No
Reproductive toxicity	No
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	Yes
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	No
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4) : None Reported

State Regulations

California

Proposition 65

: **WARNING**



This product can expose you to chemicals including

Trimethylolpropane triacrylate and Toluene which are known to the State of California to cause cancer/ birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

National Inventory Status

National Inventory	Status
Australia - AICS	Y
Canada - DSL	N (Acrylic ester C、 Organic component)
Canada - NDSL	Y
China - IECSC	Y

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Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	N (Organic component)
Philippines - PICCS	N (Antioxidant B)
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

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.

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