

# Safety Data Sheets

## 1. IDENTIFICATION

Product Identifier	MH-100 ink White
Product Description	MH100-W-BD / MH100-W-BA
Recommended use and restriction use	UV curable 3D model ink
Supplier name	MIMAKI ENGINEERING CO., LTD.
Address	2182-3 Shigeno-otsu, Tomi-shi, Nagano 389-0512 Japan
Telephone number	+81-268-64-2413
Importer / Distributor Information	MIMAKI SINGAPORE PTE. LTD. 31 Kaki Bukit Road 3 Singapore 417818 TechLink #02-03 +65-6508-2789
Emergency telephone number	+65 3165 2217 (within Singapore only) +65 3158 1074

## 2. HAZARDS IDENTIFICATION

### GHS CLASSIFICATION

Health hazards	Acute toxicity – oral Category 4 Skin corrosion/irritation Category 2 Serious eye damage/eye irritation Category 1 Sensitization – skin Category 1 Carcinogenicity Category 2 Reproductive toxicity Category 2 Specific target organ toxicity (single exposure) Category 3 (respiratory tract irritation) Specific target organ toxicity (repeated exposure) Category 2
Environmental Hazards	Hazard to the aquatic environment (long-term hazard) Category 2

### GHS LABEL ELEMENTS

#### Pictograms



Signal Word	Danger
Hazard Statements	H302 Harmful if swallowed H315 Causes skin irritation H318 Causes serious eye damage H317 May cause an allergic skin reaction H351 Suspected of causing cancer H361 Suspected of damaging fertility or the unborn child (state specific effect if known) H335 May cause respiratory irritation H373 May cause damage to organs through prolonged or repeated exposure

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## Precautionary Statements

### Prevention

H411 Toxic to aquatic life with long lasting effects

Obtain special instructions before use(P201)

Do not handle until all safety precautions have been read and understood(P202)

Do not breathe mist, vapours and spray.(P260)

Wash thoroughly after handling.(P264)

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

Use only outdoors or in a well-ventilated area(P271)

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

Avoid release to the environment(P273)

Wear protective gloves.(P280)

Wear eye protection and face protection.(P280)

### Response

IF ON SKIN: Wash with plenty of soap and water(P302+P352)

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.(P304+P340)

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing(P305+P351+P338)

IF exposed or concerned: Get medical advice/attention(P308+P313)

Immediately call a POISON CENTER/doctor(P310)

Call a POISON CENTER/doctor. If you feel unwell.(P312)

Specific treatment.(P321)

Rinse mouth(P330)

If skin irritation or rash occurs: Get medical advice/attention(P333+P313)

Take off contaminated clothing and wash it before reuse.(P362+P364)

Collect spillage(P391)

### Storage

Store in a well-ventilated place. Keep container tightly closed.(P403+P233)

Store locked up(P405)

### Disposal

Dispose of contents/ container to an approved landfill.(P501)

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

### Substances or mixtures

### Mixtures

Chemical name	Contents	Chemical Formula	CAS RN
Tripropylene glycol diacrylate	25-35%	Unknown	42978-66-5
Acrylic monomer	20-25%	Unknown	Confidential
Morpholine, 4-(1-oxo-2-propenyl)-	15-25%	Unknown	5117-12-4
Oligomer	15-25%	Unknown	Confidential
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	1-10%	Unknown	75980-60-8

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Titanium dioxide	1-5%	TiO <sub>2</sub>	13463-67-7
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## 4. FIRST-AID MEASURES

In case of inhalation	Call a POISON CENTER or doctor / physician if you feel unwell. IF exposed or concerned: Get medical advice and attention.
In case of skin contact	IF ON SKIN: Wash with plenty of soap and water. Take of contaminated clothing and wash before re-use. If skin irritation or rash occurs, get medical advice and attention. IF exposed or concerned: Get medical advice and attention. Specific treatment.
In case of eye contact	Immediately call a POISON CENTRE or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice and attention.
In case of ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. IF exposed or concerned: Get medical advice and attention. Induce vomiting.

## 5. FIRE-FIGHTING MEASURES

Suitable fire-extinguishing media	Dry chemical, alcohol-resistant foam, CO <sub>2</sub> , sand, water spray.
Not suitable extinguishing media	Cylindric water.
Specific hazards arising from the chemical	Risk of producing harmful gases such as carbon monoxide and sulfur oxides. Avoid inhalation of smoke or gases
Special protective actions for fire fighters	Use goggles in combination with dust mask, and another protections as appropriate to situation.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Use goggles in combination with dust mask, and another protections as appropriate to situation. Large spills :Evacuate area. Ensure adequate ventilation.
Environmental precautions	Do not discharge into the drains, surface waters or ground water directly.
Methods and materials for containment and cleaning up	small spill : absorb with material such as non-combustible material wash thoroughly after handling Large spills: Dike spills and dispose of in safe area.
Prevention Measures for Secondary Accidents	Keep away from sources of ignition and prepare extinguishing media.  Risk of slipping. Spilled material forms slippery floor. Do not recklessly walk on the spillage.

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### 7. HANDLING AND STORAGE

#### Handling

##### Technical measures

Use local exhaust ventilation in case of production of fume or mist. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

##### Safe handling advice

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

Wash hands thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

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

Do not breathe dust/fume/gas/mist/vapours/spray.

#### Storage

##### Suitable storage conditions

Store locked up.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

	ACGIH (TLV)	OSHA (PEL)	Workplace Safety And Health (General Provisions) Regulations
Titanium dioxide	TWA 10 mg/m <sup>3</sup> , STEL -	15 mg/m <sup>3</sup> TWA (total dust)	10 mg/m <sup>3</sup> PEL

#### Engineering measures

Use local exhaust ventilation in case of production of fume or mist. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Use explosion-proof electrical equipment and prevent from static electricity.

#### Individual protection measures

##### Respiratory protection

If necessary, wear respiratory protection.

##### Hand protection

Wear protective gloves.

##### Eye protection

Wear eye protection/face protection.

##### Skin and body protection

Wear protective clothing.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Appearance

##### Physical State

Liquid

##### Color

white

##### Odor

unique odor

##### Odor threshold

No data available

##### pH

No data available

##### Melting point

No data available

##### Boiling point

No data available

##### Flash point

93°C or more

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Evaporation rate	No data available
Flammability(Solid, Gas)	No data available
Flammability or explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	1.08(25°C)
Solubility(ies)	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	64±3mPa·s(25°C)

### 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	acids, bases, metals, oxidizing materials, metal oxides
Hazardous decomposition products	oxides of carbon, oxides of nitrogen, oxides of titanium

### 11. TOXICOLOGICAL INFORMATION

Acute toxicity (Oral)	<p>Category 4:5117-12-4 (converted value = 500mg/kg, source: 1272/2008/EC)</p> <p>Not classified:13463-67-7 (source: NITE), 42978-66-5 (source: NITE)</p> <p>Not applicable:75980-60-8 (source: NITE)</p> <p>No data:Confidential (source: None)</p>
Acute toxicity (Dermal)	<p>Calculation result = 1300mg/kg. Classification result = Category 4.</p> <p>Not classified:13463-67-7 (source: NITE), 42978-66-5 (source: NITE)</p> <p>Not applicable:75980-60-8 (source: NITE), 5117-12-4 (source: NITE)</p> <p>No data:Confidential (source: None)</p>
Acute toxicity (Inhalation : Gases)	Contains substance of unknown toxicity. Changed from Not classified to Classification not possible.
Acute toxicity (Inhalation : Vapours)	Does not fall under gas based on GHS definitions.
Acute toxicity (Inhalation : dust/mist)	Unable to classify due to insufficient data.
	<p>Not classified:13463-67-7 (source: NITE)</p> <p>Not applicable:75980-60-8 (source: NITE), 5117-12-4 (source: NITE)</p> <p>No data:Confidential (source: None), 42978-66-5 (source: None)</p>
	Contains substance of unknown toxicity. Changed from Not classified to

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Skin corrosion/ Irritation	Classification not possible. Category 2:42978-66-5 (source: 1272/2008/EC) Not classified:13463-67-7 (source: NITE) Not applicable:75980-60-8 (source: NITE), 5117-12-4 (source: NITE) No data:Confidential (source: None)
Serious eye damage/ irritation	Sum of Category 2 Concentration limit = 10%. Classification result = Category 2. Category 1:5117-12-4 (source: 1272/2008/EC) Category 2:42978-66-5 (source: 1272/2008/EC) Category 2B:13463-67-7 (source: NITE) Not applicable:75980-60-8 (source: NITE) No data:Confidential (source: None)
Respiratory Sensitization Skin Sensitization	Sum of Eye category 1 Concentration limit = 3%. Classification result = Category 1. Unable to classify due to insufficient data. Category 1:5117-12-4 (source: 1272/2008/EC), 42978-66-5 (source: 1272/2008/EC) Not applicable:75980-60-8 (source: NITE) No data:13463-67-7 (source: None), Confidential (source: None)
Germ cell mutagenicity	42978-66-5 $\geq$ 1% Classification result = Category 1 Not classified:13463-67-7 (source: NITE) Not applicable:75980-60-8 (source: NITE), 5117-12-4 (source: NITE) No data:Confidential (source: None), 42978-66-5 (source: None)
Carcinogenicity	Contains substance of unknown toxicity. Changed from Not classified to Classification not possible. Category 2:13463-67-7 (source: NITE) Not applicable:75980-60-8 (source: NITE), 5117-12-4 (source: NITE) No data:Confidential (source: None), 42978-66-5 (source: None)
Reproductive toxicity	13463-67-7 $\geq$ 1% Classification result = Category 2 Category 2:75980-60-8 (source: 1272/2008/EC) Not applicable:5117-12-4 (source: NITE) No data:13463-67-7 (source: None), Confidential (source: None), 42978-66-5 (source: None)
Reproductive toxicity, effects on or via lactation	75980-60-8 $\geq$ 3% Classification result = Category 2 Unable to classify due to insufficient data.

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Specific target organ Toxicity – Single Exposure	Category 3:42978–66–5 (organ = respiratory tract irritation, source: 1272/2008/EC) Not applicable:75980–60–8 (source: NITE), 5117–12–4 (source: NITE) No data:13463–67–7 (source: None), Confidential (source: None)
Specific target organ toxicity – Repeated Exposure	Sum of Category 3(respiratory tract irritation) Concentration limit = 20%. Classification result = Category 3(respiratory tract irritation). Category 2:5117–12–4 (organ = ---, source: 1272/2008/EC) Not applicable:75980–60–8 (source: NITE) No data:13463–67–7 (source: None), Confidential (source: None), 42978–66–5 (source: None)
Aspiration hazard	5117–12–4 $\geq$ 10% Classification result = Category 2 Unable to classify due to insufficient data.

### 12. ECOLOGICAL INFORMATION

Hazardous to the Aquatic Environment – Acute Toxicity	Category 2:42978–66–5 (source: NITE) Not applicable:75980–60–8 (source: NITE), 5117–12–4 (source: NITE) No data:13463–67–7 (source: None), Confidential (source: None)
Hazardous to the Aquatic Environment – Chronic Toxicity	(M factor x 10 x Category 1) + Category 2 $\geq$ Concentration limit(25%). Classification result = Category 2. (M factor x 100 x Category 1) + (10 x Category 2) + Category 3 $\geq$ Concentration limit(25%). Contains substance of unknown toxicity. Changed from "Not classified" to "Classification not possible". Category 2:42978–66–5 (source: 1272/2008/EC) Not applicable:75980–60–8 (source: NITE), 5117–12–4 (source: NITE) No data:13463–67–7 (source: None), Confidential (source: None)
Hazardous to the Ozone layer	(M factor x 10 x Category 1) + Category 2 $\geq$ Concentration limit(25%). Classification result = Category 2. Unable to classify due to insufficient data.

### 13. DISPOSAL CONSIDERATIONS

Residual Waste	Before disposal, make the wastes harmless, stabilized, and neutralized, and minimize danger and toxicity of the wastes. Dispose of waste in accordance with local, state and federal regulations.
Contaminated Container and Packaging	Passed to a licensed waste contractor. In case of disposal of empty containers, remove the content thoroughly.

### 14. TRANSPORT INFORMATION

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## International regulations

### Sea(IMDG)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es)	9
Packing group	III
Special Provision	2.10.2.7 *1

### air(IATA)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es)	9
Packing group	III
Special Provision	A197 *1

\*1 Single or inner packaging less than 5 L (liquid) or 5 kg net (solids) is excepted from Dangerous Goods regulations — see UN Special Provision.

## 15. REGULATORY INFORMATION

Workplace Safety And Health Occupational Exposure Limits

Component Analysis – Inventory

Tripropylene glycol diacrylate (42978-66-5)

TSCA – United States	ENCS – Japan	KECI – Korea	IECSC – China	DSL – Canada	PICCS – Philippines	AICS – Australia	EINECS – European Union	TCSI – Taiwan	NZIoC – New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Morpholine, 4-(1-oxo-2-propenyl)- (5117-12-4)

TSCA – United States	ENCS – Japan	KECI – Korea	IECSC – China	NDSL – Canada	PICCS – Philippines	AICS – Australia	ELINCS – European Union	TCSI – Taiwan	NZIoC – New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide (75980-60-8)

TSCA – United States	ENCS – Japan	KECI – Korea	IECSC – China	DSL – Canada	PICCS – Philippines	AICS – Australia	EINECS – European Union	TCSI – Taiwan	NZIoC – New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Titanium dioxide (13463-67-7)

TSCA – United States	ENCS – Japan	KECI – Korea	IECSC – China	DSL – Canada	PICCS – Philippines	AICS – Australia	EINECS – European Union	TCSI – Taiwan	NZIoC – New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## 16. OTHER INFORMATION

Literature References

NITE GHS

EU CLP Regulation, AnnexVI



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Other data

The information suggested in this Safety Data Sheet does not comprehend everything and should be adopted only as a guide. The accuracy of the information and recommendations suggested herein are credible. However the company makes no warranty regarding such information and recommendations and disclaims all liability for reliance thereon.