1. IDENTIFICATION

Product Name	MH-110 Ink Pure Clear
Order No.	MH110-PCL-BD
Ink Ver.	1
Recommended use of the chemical and restrictions on use	UV curable 3D model ink
Restrictions on use	This product is a bottle containing ink. Under normal conditions of use, the substance is released from a bottle only inside an appropriate printing system, and therefore, exposure is limited. But the liquid within the bottle is considered hazardous, and the SDS has been prepared in case of exposure to the liquid.
SDS Number	037-U145342
Manufacturer	MIMAKI ENGINEERING CO., LTD. 2182-3 Shigeno-otsu, Tomi-shi, Nagano 389-0512 Japan +81-268-64-2413
Importer / Distributor Established in USA	MIMAKI USA, INC. 150 Satellite Boulevard NE, suite A, Suwanee, Georgia 30024, U.S.A. +1-678-730-0170
Emergency telephone No.	+1 866 928 0789 (within United States only, Toll free) +1 215 207 0061

2. HAZARDS IDENTIFICATION

Classification of the chemical in accordance with paragraph (d) of 29 CFR § 1910.1200

Acute toxicity – oral Category 4
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 1
Sensitization – skin Category 1
Reproductive toxicity Category 2
Specific target organ toxicity (repeated exposure) Category 2
Hazardous to the Aquatic Environment – Acute Hazard Category 2
Hazardous to the Aquatic Environment – Long Term Hazard Category 2

GHS Label Elements

Symbols

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 H361 Suspected of damaging fertility or the unborn child H373 May cause damage to organs through prolonged or repeated exposure H411 Toxic to aquatic life with long lasting effects
Precautionary Statements	
Prevention	Obtain SDS (Safety Data Sheet) and printer's Operation Manual before use. (P201) Do not handle until all safety precautions have been read and understood(P202) Do not breathe gas/mist.(P260) Wash hands and eyes thoroughly after handling. (P264) Do not eat, drink or smoke when using this product(P270) Contaminated work clothing should not be allowed out of the workplace.(P272) Avoid release to the environment.(P273) Wear protective gloves/protective clothing/eye protection/face protection.(P280)
Response	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell(P301+P312) (IF SWALLOWED):Rinse mouth. ((P301)+P330) IF ON SKIN: Wash with plenty of soap and water(P302+P352) 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 IN EYES): Immediately call a POISON CENTER or doctor/physician.((P305)+P310) IF exposed or concerned: Get medical advice/attention(P308+P313) Get medical advice/attention if you feel unwell(P314) 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 locked up(P405)
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).(P501)
Statement(s) of Unknown Acute Toxicity	(Oral) 89.90% of the mixture consists of ingredient(s) of unknown acute toxicity.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	Contents	CAS number
Acryl ester	45-55%	Confidential

Isobornyl acrylate	10-20%	5888-33-5
Oligomer	10-20%	Confidential
4-(1-oxo-2-propenyl)-morpholine	5-15%	5117-12-4
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	1-10%	75980-60-8
4-Hydroxy-2,2,6,6-tetramethylpiperidinoxyl	<1%	2226-96-2
Additive	<0.1%	Confidential

4. FIRST-AID MEASURES

In case of inhalation	Call a doctor if you feel unwell.
In case of skin contact	IF ON SKIN: Wash with plenty of soap and water. Specific treatment. Take off immediately all contaminated clothing and wash it before reuse. Call a doctor if you feel unwell.
In case of eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of ingestion	Rinse mouth. IF SWALLOWED: Call a doctor if you feel unwell.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Dry chemical, alcohol-resistant foam, CO2, sand.
Unsuitable extinguishing media	Cylindric water.
Specific hazards arising from the chemical	Risk of producing harmful gases such as carbon monoxide. Avoid inhalation of smoke or gases.
Special protective equipment and precautions 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 materialwash thoroughly after handling Large spills: Dike spills and dispose of in safe area.

7. HANDLING AND STORAGE

Precautions for safe 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	Wash hands thoroughly after handling. Wear protective gloves/protective clothing.
Conditions for safe storage, including any incompatibilities	
Suitable storage conditions	Store locked up.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

This product is a bottle containing ink. Under normal conditions of use, the substance is released from a bottle only inside an appropriate printing system, and therefore, exposure is limited. But the liquid within the bottle is considered hazardous.
Please prepare the following protective equipment in case of handling damaged bottle, setting an ink bottle to the printer, handling a waste bottle and being exposed to liquid.

Appropriate engineering controls	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	Wear the respirator against toxic gas. Follow the OSHA respirator regulations found in 29 CFR 1910.134. Respiratory protection approved by NIOSH - Category 19C Type C supplied-air respirator operated in pressure demand - Category 21C air-purifying respirator equipped - Category 23C air-purifying respirator equipped
Hand protection	Gloves and other dermal protection may not be used for a time period longer than they are actually tested and must be replaced at the end of each work shift. - Safety 4/4H EVOH/PE laminate - Ansell Edmont Neoprene number 865 - Solvex Nitrile Rubber number 275
Eye protection	Chemical goggles or equivalent eye protection. Tightly fitting safety goggles. It is recommended to install an eyewash station near the printer, for emergency use.
Skin and body protection	Full body chemical protective clothing. Clothing which covers any other exposed areas of the arms, legs, and torso. Wear appropriate protective gloves and clothing to prevent skin exposure.
Protective Materials	Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Environmental Exposure Controls	This product contains the substance which is regulated to release to water under SNUR.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical State	Liquid
Color	Clear to light yellow
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℃ or more
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
Specific Gravity (Density)	1.08(25℃)
Solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	57.1±3mPa・s(25℃)

10. STABILITY AND REACTIVITY

Reactivity	No information available
Chemical stability	Stable under normal conditions of use.
Possibility of hazardous reactions	Polymerization and curing may occur when exposed to light, particularly ultraviolet rays.
Conditions to avoid	No information available
Incompatible materials	Strong oxidizing agents, radical initiator, inert gas, oxygen scavenger
Hazardous decomposition products	Combustion may produce toxic gas, carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Acute toxicity (Oral)	Category 4:2226-96-2 (converted value = 500mg/kg, source: Registered substances (ECHA)), 5117-12-4 (converted value = 500mg/kg, source: 1272/2008/EC) Not classified:5888-33-5 (toxicity value = 5000mg/kg, source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC) No data:Confidential (source: None)

	Calculation result = 1148.3050847mg/kg. Classification result = Category 4.
Acute toxicity (Dermal)	Unable to classify due to insufficient data.
Acute toxicity (Inhalation : Gases)	Does not fall under gas based on GHS definitions.
Acute toxicity (Inhalation : Vapours)	Unable to classify due to insufficient data.
Acute toxicity (Inhalation : dust/mist)	Unable to classify due to insufficient data.
Skin corrosion/ Irritation	Category 2:5888-33-5 (source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC), 2226-96-2 (source: Registered substances (ECHA)), 5117-12-4 (source: 1272/2008/EC) No data:Confidential (source: None) Sum of Category 2 Concentration limit = 10%. Classification result = Category 2.
Serious eye damage/ irritation	Category 1:2226-96-2 (source: Registered substances (ECHA)), 5117-12-4 (source: 1272/2008/EC) Category 2:5888-33-5 (source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC) No data:Confidential (source: None) Sum of Eye category 1 Concentration limit = 3%. Classification result = Category 1.
Respiratory Sensitization	Unable to classify due to insufficient data.
Skin Sensitization	Category 1:5117-12-4 (source: 1272/2008/EC), 5888-33-5 (source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC), 2226-96-2 (source: Registered substances (ECHA)) No data:Confidential (source: None) 5888-33-5 >= 0.1% Classification result = Category 1
Germ cell mutagenicity	Unable to classify due to insufficient data.
Carcinogenicity	Unable to classify due to insufficient data.
Reproductive toxicity	Category 2:75980-60-8 (source: 1272/2008/EC) Classification not possible:2226-96-2 (source: Registered substances (ECHA)), 5117-12-4 (source: 1272/2008/EC), 5888-33-5 (source: Registered substances (ECHA)) No data:Confidential (source: None) 75980-60-8 >= 0.1% Classification result = Category 2
Reproductive toxicity, effects on or via lactation	Unable to classify due to insufficient data.

Specific target organ toxicity - Single exposure	Category 3:5888-33-5 (organ = respiratory tract irritation, source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC), 2226-96-2 (source: Registered substances (ECHA)), 5117-12-4 (source: 1272/2008/EC) No data:Confidential (source: None) Substances classified as hazardous are below the concentration limit. Contains substance of unknown toxicity. Changed from Not classified to Classification not possible.
Specific target organ toxicity - Repeated exposure	Category 2:2226-96-2 (organ = spleen、liver, source: Registered substances (ECHA)), 5117-12-4 (organ = ---, source: 1272/2008/EC) Classification not possible:75980-60-8 (source: 1272/2008/EC), 5888-33-5 (source: Registered substances (ECHA)) No data:Confidential (source: None) 5117-12-4 >= 1% Classification result = Category 2
Aspiration hazard	Unable to classify due to insufficient data.

12. ECOLOGICAL INFORMATION

Hazardous to the Aquatic Environment - Acute Toxicity	Category 1:5888-33-5 (source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC), 2226-96-2 (source: Registered substances (ECHA)), 5117-12-4 (source: 1272/2008/EC) No data:Confidential (source: None) (M factor x 10 x Category 1) + Category 2 >= Concentration limit(25%). Classification result = Category 2. does not apply to the target country.
Hazardous to the Aquatic Environment - Chronic Toxicity	Category 1:5888-33-5 (source: Registered substances (ECHA)) Classification not possible:75980-60-8 (source: 1272/2008/EC), 2226-96-2 (source: Registered substances (ECHA)), 5117-12-4 (source: 1272/2008/EC) No data:Confidential (source: None) (M factor x 10 x Category 1) + Category 2 >= Concentration limit(25%). Classification result = Category 2. does not apply to the target country.
Hazardous to the Ozone layer	Unable to classify due to insufficient data.

13. DISPOSAL CONSIDERATIONS

Disposal Methods	Comply with all USA, national and local regulations. Wear the appropriate protective equipment during disposal. Fully cured printed matter can be disposed of as ordinary office trash.

However, disposal of liquid and uncured waste, cleaning cloths, gloves, and empty material containers must be done in accordance with local laws and regulations. They are classified as hazardous industrial waste.

When this product is subjected to incineration, it must be done in accordance with the standard for disposing Industrial Waste.

Use industrial waste disposal companies who is authorized by local municipal government for the disposal. Do not dump this product into sewers, on the ground or into any body of water.

Contaminated Container and Packaging: Passed to a licensed waste contractor.

In case of disposal of empty containers, remove the content thoroughly.

14. TRANSPORT INFORMATION

IMDG

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains: Isobornyl acrylate)
Transport hazard class(es)	9
Packing group	Ⅲ

IATA

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains: Isobornyl acrylate)
Transport hazard class(es)	9
Packing group	Ⅲ

DOT

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains: Isobornyl acrylate)
Transport hazard class(es)	9
Packing group	Ⅲ

Renarks: Single or inner packaging less than 5 L (liquid) or 5 kg net (solids) is excepted from Dangerous Goods regulations. Refer to ICAO/IATA A197, IMDG 2.10.2.7, ADR SP 375.

15. REGULATORY INFORMATION

No main regulation

Component Analysis – Inventory

Isobornyl acrylate (5888-33-5)

TSCA – United States	ENCS – Japan	KECI Annex 1, 2 – Korea	IECSC – China	DSL/NDSL – Canada	PICCS – Philippines	AICS – Australia	EINECS/ELINCS – European Union	TCSI – Taiwan	NZIoC – New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

4-(1-oxo-2-propenyl)-morpholine (5117-12-4)

TSCA - United States	ENCS - Japan	KECI Annex 1, 2 - Korea	IECSC - China	DSL/NDSL - Canada	PICCS - Philippines	AICS - Australia	EINECS/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 Annex 1, 2 - Korea	IECSC - China	DSL/NDSL - Canada	PICCS - Philippines	AICS - Australia	EINECS/ELINCS - European Union	TCSI - Taiwan	NZIoC - New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

4-Hydroxy-2,2,6,6-tetramethylpiperidinoxyl (2226-96-2)

TSCA - United States	ENCS - Japan	KECI Annex 1, 2 - Korea	IECSC - China	DSL/NDSL - Canada	PICCS - Philippines	AICS - Australia	EINECS/ELINCS - European Union	TCSI - Taiwan	NZIoC - New Zealand
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

California Proposition 65

WARNING:

This product can expose you to chemicals including Ethyl acrylate and Propylene oxide which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

16. OTHER INFORMATION

Literature References	NITE GHS EU CLP Regulation, AnnexVI
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.
National Fire Protection Association(U.S.A)	
Health	3
Flammability	1
Reactivity	0
Specific hazard	Not applicable
HMIS(U.S.A)	
Health Hazard	*3
Fire Hazard	1
Reactivity	0
Personal Protection	The customer is responsible for determining the PPE code for this material