Safety Data Sheets

1. Identification

Product Name	: LUS-175 White
Order No.	: LU175-W-BA
General Use	: Ink jet printing ink
Product Description	: UV Inkjet ink
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 Singapore	
Company Name	: MIMAKI SINGAPORE PTE. LTD.
Address	: 31 Kaki Bukit Road 3 Singapore 417818 TechLink #02-03
Telephone No.	: +65-6508-2789
Emergency Telephone No.	: +65 3165 2217 (within Singapore only) +65 3158 1074

2. Hazards Identification

[GHS Classification]

Acute toxicity - Oral	: Category 4
Skin corrosion/irritation	: Category 2
Serious eye damage/eye irritation	: Category 1
Sensitization – Skin	: Category 1A
Toxic to Reproduction	: Category 1B
Specific target organ toxicity (repeated exposure)	: Category 1
Chronic aquatic toxicity	: Category 2

[Label Elements]

Symbol

Signal Word

Danger

Hazard Statements

H302 - Harmful if swallowed

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H360Df - May damage the unborn child. Suspected of damaging fertility
H372 - Causes damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements
P201 - Obtain special instructions before use
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection
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
P310 - Immediately call a POISON CENTER or doctor/physician

[Other hazards]

Toxic to aquatic life.

[Hazards not otherwise classified (HNOC)]

Not Applicable.

3. Composition / Information on Ingredients

Substance/mixture: mixture

Chemical identity: No information available

Chemical Name	CAS No	EC No	weight-%
2-Propenoic acid, (tetrahydro-2-furanyl)methyl ester	2399-48-6	219-268-7	20-30
2-Propenoic acid, 2-phenoxyethyl ester	48145-04-6	256-360-6	20-30
Titanium dioxide	13463-67-7	236-675-5	10-20
2H-Azepin-2-one, 1-ethenylhexahydro-	2235-00-9	218-787-6	5-15
2-Propenoic acid, oxybis(methyl-2,1-ethanediyl) ester	57472-68-1	260-754-3	5-10
Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide	75980-60-8	278-355-8	1-5
2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-ylester, exo-	5888-33-5	227-561-6	1-5
Additives	CBI	CBI	1-5
Acrylate monomer	CBI	CBI	1-5
Others	CBI	CBI	<1

4. First Aid Measures

[Description of first aid measures]

General advice : Show this safety data sheet to the doctor in attendance. Do not delay care and transport of a seriously injured person. IF exposed or concerned: Get medical advice/attention.

Inhalation	: Move victim to fresh air. Get medical attention.
Skin Contact	: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.
Eye Contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. Immediately call a POISON CENTER or doctor/physician.
Ingestion	: Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get medical attention.

[Most important symptoms and effects, both acute and delayed]

Symptoms	: Prolonged contact may cause redness and irritation May cause blindness Coughing and/ or wheezing Hives Itching May cause allergy or asthma symptoms or breathing difficulties if inhaled Rashes

[Indication of any immediate medical attention and special treatment needed]

Note to physicians	: May cause sensitization in susceptible persons.

5. Fire Fighting Measures

Suitable Extinguishing Media	: Use CO2, dry chemical, or foam, Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	: Do not use a solid water stream as it may scatter and spread fire.
Special hazards arising from the substance or mixture	: Risk of ignition. The product causes irritation of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. Product is or contains a sensitizer. The product causes burns of eyes, skin and mucous membranes.
Advice for firefighters	: Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental Release Measures

[Personal precautions, protective equipment and emergency procedures]

Personal precautions	: Evacuate personnel to safe areas Ensure adequate ventilation, especially in confined areas Keep people away from and upwind of spill/leak Use personal protection recommended in Section 8 Avoid contact with skin, eyes or clothing.
For emergency responders	: Use personal protection recommended in Section 8.
Environmental Precautions	: Collect spillage. Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment.

[Methods and material for containment and cleaning up]

Methods for containment	: Prevent further leakage or spillage if safe to do so Cover with plastic sheet to prevent spreading Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Methods for cleaning up	: Use personal protective equipment as required Clean contaminated surface thoroughly Pick up and transfer to properly labeled containers Take up with sand or other non-combustible absorbent material and place into containers for later disposal.
Prevention of secondary hazards	: Local authorities should be advised if significant spillages cannot be contained
Reference to other sections	: See Section 12: ECOLOGICAL INFORMATION.

7. Handling and Storage

[Precautions for Safe Handling]

Advice on safe handling	: Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas. Do not eat, drink or smoke when using this product.
General Hygiene Considerations	: Regular cleaning of equipment, work area and clothing is recommended. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Avoid breathing dust/fume/gas/mist/vapors/spray.

[Conditions for Safe Storage, including any Incompatibilities]

Storage Conditions : Keep away from heat. Keep container tightly closed. Keep in properly labeled containers. Store locked up.

[Specific end use(s)]

Risk Management Methods (RMM) : The information required is contained in this Safety Data Sheet.

8. Exposure Controls / Personal Protection

[Control parameters]

Exposure Limits

Chemical Name	ACGIH	Singapore
Titanium dioxide 13463-67-7	TWA: 10 mg/m3	PEL: 10 mg/m3
Caprolactam 105-60-2	TWA: 5 mg/m3 inhalable fraction and vapor	STEL: 3 mg/m3 STEL: 10 ppm STEL: 46 mg/m3 PEL: 1 mg/m3 PEL: 5 ppm PEL: 23 mg/m3

Caprolactam is non-intentionally added substance, contains less than 1% in the product

[Appropriate engineering controls]

Engineering Controls : Showers.
Eyewash stations.
Ventilation systems.

Personal protective equipment (PPE)

Respiratory protection : Vapor mask.

Hand Protection : Impervious gloves.

Eye/face protection : Face protection shield. Tight sealing safety goggles.

Skin and body protection : Rubber boots. Long sleeved clothing. Impervious clothing. Chemical resistant apron.

9. Physical and Chemical Properties

Appearance - Physical State : liquid

- Color : white

Odor : Characteristic odor

Odor Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Boiling point/boiling range	: No data available
Flash point	: 95 °C / 203 °F (Acceptance by the lowest flash point)
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Flammability Limits in Air	: No data available
Upper flammability limits	
Lower flammability limit	
Vapor Pressure	: No data available
Vapor density	: No data available
Specific gravity	: 1.0-1.3
Water solubility	: Immiscible in water
Solubility(ies)	: No data available
Partition coefficient	: No data available
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Kinematic viscosity	: No data available
Dynamic viscosity	: 7-12 mPa·s(25 deg.C)
[Other information]	
Molecular weight	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Softening point	: No data available
VOC Content (%)	: No data available
Density	: No data available
Bulk density	: No data available

10. Stability and Reactivity

Reactivity	: No information available.
Chemical stability	: Stable under the normal storage and use.
Explosion data	: Sensitivity to Mechanical Impact: None. Sensitivity to Static Discharge: Yes
Possibility of Hazardous	: No information available

Reactions	
Hazardous polymerization	: None under normal processing.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: Strong oxidizing agents. Finely powdered metals.
Hazardous Decomposition Products	: None known based on information supplied.

11. Toxicological Information

[Information on likely routes of exposure]

Inhalation	: Irritating to respiratory system.
Eye contact	: Irritating to eyes. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	: Harmful in contact with skin. Causes skin irritation. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
Ingestion	: Harmful if swallowed. Ingestion may cause irritation to mucous membranes. May be harmful if swallowed and enters airways.
Symptoms	: Coughing and/ or wheezing. May cause redness and tearing of the eyes redness burning. May cause blindness. Hives Itching May cause allergic skin reaction Rashes.

Unknown Acute Toxicity

2.5 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

31.1 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

The following values are calculated based on chapter 3.1 of the GHS document

Chemical Name	Oral LD50	Dermal LD50
Product	ATEmix = 1965.8 mg/kg	ATEmix = 2528.9 mg/kg

In calculating the ATE for product classification, the converted acute toxicity value estimate is used.

[Delayed and immediate effects as well as chronic effects from short and long-term exposure]

Skin corrosion	: Based on available data, the classification criteria are not met. In Vitro Acute Dermal Corrosivity Study Episkin test GLP OECD TG431. In this in vitro EPISKIN model test with similar product, the result indicates that the product is non-corrosive to the skin.

Skin irritation	: Classification is based on mixture calculation methods based on component data. Irritating to skin.
Serious eye damage/eye irritation	: Classification is based on mixture calculation methods based on component data Risk of serious damage to eyes.
Respiratory or skin sensitization	: Classification is based on mixture calculation methods based on component data May cause sensitization by skin contact May cause sensitization in susceptible persons.
Germ cell mutagenicity	: Classification is based on mixture calculation methods based on component data Based on available data, the classification criteria are not met.
Carcinogenicity	: Classification is based on mixture calculation methods based on component data Based on available data, the classification criteria are not met.
Reproductive toxicity	: Classification is based on mixture calculation methods based on component data Contains material that may cause adverse reproductive effects.
STOT - single exposure	: Classification is based on mixture calculation methods based on component data Based on available data, the classification criteria are not met.
STOT - repeated exposure	: Classification is based on mixture calculation methods based on component data Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Classification is based on mixture calculation methods based on component data Based on available data, the classification criteria are not met.

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 : Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Caprolactam	EC50 (72h): = 130 mg/L (Desmodesmus subspicatus) EC50 (96h): = 160 mg/L (Desmodesmus subspicatus)	LC50 (96h, static): = 930 mg/L (Lepomis macrochirus) LC50 (96h, static): = 1400 mg/L (Pimephales promelas)	EC50 (48h): 828 - 2920 mg/L (Daphnia magna) EC50 (48h): > 500 mg/L (Daphnia magna Straus)

	EC50 (72h): 4320 – 4800 mg/L (Pseudokirchneriella)		

Caprolactam is non-intentionally added substance, contains less than 1% in the product

Persistence and Degradability	: No data available.
Bioaccumulation	: No data available.
Mobility	: No data available.
Other adverse effects	: No data available.

13. Disposal Considerations

[Waste treatment methods]

Waste from Residues / Unused Products	: Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	: Disposal should be in accordance with applicable regional, national and local laws and regulations. Improper disposal or reuse of this container may be dangerous and illegal.

14. Transport Information

Check a thing without a leak in a container.
Perform prevention of collapse of cargo surely.
[IMDG]

UN/ID no	: UN3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester)
Hazard Class	: 9
Packing Group	: III
Marine pollutant	: This material meets the definition of a marine pollutant
Environmental hazard	: Yes
Special Provisions	: 2.10.2.7 *1
EmS-No	: F-A, S-F
Description	: UN3082, Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester), 9, III

[RID]

UN/ID no	: UN3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester)
Hazard Class	: 9
Packing Group	: III
Environmental hazard	: Yes
Classification code	: M6
Special Provisions	: 274, 335, 375, 601
Description	: UN3082, Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester), 9, III

[ADR]

UN/ID no	: UN3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester)
Hazard Class	: 9
Packing Group	: III
Marine pollutant	: This material meets the definition of a marine pollutant
Environmental hazard	: Yes
Special Provisions	: 274, 335, 601, 375
Classification code	: M6
Description	: UN3082, Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester), 9, III

[IATA]

UN/ID no	: UN3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester)
Hazard Class	: 9
Packing Group	: III
Environmental hazard	: Yes
Special Provisions	: A197 *1
ERG Code	: 9L

Description	: UN3082, Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester), 9, III

[ADN]

UN/ID no	: UN3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester)
Hazard Class	: 9
Packing Group	: III
Environmental hazard	: Yes
Special Provisions	: 274, 335, 375, 601
Description	: UN3082, Environmentally hazardous substance, liquid, n.o.s. (2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo-, 2-Propenoic acid, 2-phenoxyethyl ester), 9, III

*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

[National Regulations]

Poisons Act	: Not Applicable
Fire Safety Act	: Not Applicable
Environtmental Protection Management Law (EPMA)	: Not Applicable

We adopted 1.0% or more as a threshold value in case of no provision in a law.

16. Other Information

[Key or legend to abbreviations and acronyms used in the safety data sheet]

ACGIH (American Conference of Governmental Industrial Hygienists)

[This safety data sheet complies with the requirements of following Regulation and standard]

Regulation (EC) No. 1907/2006

Workplace Safety, Health Act (Chapter 354A)

SS586:2014

[Reference]

LOLI Database (ChemADVISOR,Inc.)

[The reference on GHS classification results]

EU CLP (1272/2008)Annex VI Table 3

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