

Safety Data Sheets

1. Identification

| | |
|---|---|
| Product Name | : LUS-120 Yellow |
| Order No. | : LUS12-Y-BA / LUS12-Y-B2 |
| General Use | : Ink jet printing ink |
| Product Description | : UV Inkjet Ink |
| SDS Number | : 037-U110351 |
| 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 | : 4851 Thurmon Tanner Parkway, STE 100 Flowery Branch, GA 30542, 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 : Not classified

Health Hazards

Acute Toxicity – Oral : Category 4

Skin Corrosion / Irritation : Category 2

Eye Damage / Irritation : Category 1

Sensitization – Skin : Category 1A

Toxic to Reproduction : Category 1B

Specific Target Organ Toxicity
(Repeated Exposure) : Category 1 (Liver, respiratory tract)

Environmental Hazards

Hazardous to the Aquatic : Category 2

Environment - Acute Hazard

Safety Data Sheets

Hazardous to the Aquatic : Category 2

Environment - Long Term Hazard

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

[GHS Label Elements]

Symbol



Signal Word

Danger

Hazard Statements

H302 Harmful if swallowed.

H315 Causes skin irritation

H318 Cause serious eye damage

H317 May cause an allergic skin reaction

H360 May damage fertility or the unborn child

H372 Causes damage to organs through prolonged or repeated exposure
(Liver, respiratory tract)

H411 Toxic to aquatic life with long lasting effects

Precautionary Statements

[Prevention]

P201 Obtain SDS (Safety Data Sheet) and printer's manual instructions before use.

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

P260 Do not breathe gas/mist.

P264 Wash hands and eyes thoroughly after handling.

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

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

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

[Response]

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

(P301)+P330 (IF SWALLOWED): Rinse mouth.

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.

(P305)+P310 (IF IN EYES): Immediately call a POISON CENTER or doctor/physician.

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

P314 Get medical advice/attention if you feel unwell.

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

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

P391 Collect spillage.

[Storage]

P405 Store locked up.

[Disposal]

P501 Dispose of contents/container in accordance with

Safety Data Sheets

local/regional/national/international regulation (to be specified).

[Other Information]

Hazards not otherwise classified (HNOC)

Not Applicable

Unknown Acute Toxicity

4.1 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

33.0 % 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)

HMIS Rating (scale 0 – 4)

Health = 2

Flammability= 1

Reactivity = 0

Protective Equipment = X

| | |
|---|----------------------|
| ② | Health |
| ① | Flammability |
| ① | Reactivity |
| X | Protective Equipment |

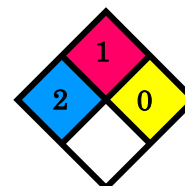
NFPA Rating (scale 0 – 4)

Health = 2

Flammability = 1

Instability = 0

Special = -



3. Composition / Information on Ingredients

Common name and synonyms: No data available

Pure substance/mixture: Mixture

| No | Chemical Name | Wt% | CAS No. |
|----|--|-------|--------------|
| 1 | 2-Propenoic acid, (tetrahydro-2-furanyl)methyl ester | 20-30 | 2399-48-6 |
| 2 | 2-Propenoic acid, 2-phenoxyethyl ester | 20-30 | 48145-04-6 |
| 3 | 2-Propenoic acid, 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, exo- | 10-20 | 5888-33-5 |
| 4 | 2H-Azepin-2-one, 1-ethenylhexahydro- | 10-20 | 2235-00-9 |
| 5 | Acrylate monomer | 5-10 | Trade Secret |
| 6 | Diphenyl-2,4,6-trimethylbenzoyl phosphine oxide | 5-10 | 75980-60-8 |
| 7 | Colorant | 1-5 | Trade Secret |
| 8 | Photoinitiator | 1-5 | Trade Secret |
| 9 | Phosphine oxide, phenylbis(2,4,6-trimethylbenzoyl)- | 1-5 | 162881-26-7 |
| 10 | Additives | 1-5 | Trade Secret |
| 11 | Others | <1 | Trade Secret |

Safety Data Sheets

4. First Aid Measures

[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.
- 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.
- Skin Contact : Immediately call a POISON CENTER or doctor/physician. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.
- 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.
- Self-protection of the first aider : Wear personal protective clothing (see section 8). Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

[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 Physician : May cause sensitization of susceptible persons.

5. Fire Fighting Measures

- Flammable Properties : Flash point : 95°C/ 203° F
- 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.

Safety Data Sheets

| | |
|---|---|
| Specific hazards arising from the chemical | : 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. |
| Explosion data | : Sensitivity to Mechanical Impact; None. Sensitivity to Static Discharge; Yes. |
| Protective equipment and precautions 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.

Other Information : Refer to protective measures listed in Sections 7 and 8.

[For emergency responders]

: Use personal protection recommended in Section 8.

[Environmental precautions]

Environmental precautions : Prevent entry into waterways, sewers, basements or confined areas.

[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.

7. Handling and Storage

[Precautions for safe handling]

Safety Data Sheets

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.

[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.

Incompatible materials : Strong oxidizing agents. Finely powdered metals.

8. Exposure Controls / Personal Protection

[Control parameters]

Exposure Limit Values

| No | Chemical Name | OSHA PEL | ACGIH | NIOSH IDLH |
|----|-------------------------|--|---|---|
| 1 | Caprolactam 105-60-2 | (vacated) TWA: 1 mg/m ³ dust (vacated) TWA: 5 ppm vapor (vacated) TWA: 20 mg/m ³ vapor (vacated) STEL: 3 mg/m ³ dust (vacated) STEL: 10 ppm vapor (vacated) STEL: 40 mg/m ³ vapor | TWA: 5 mg/m ³ inhalable fraction and vapor | TWA: 1 mg/m ³ dust TWA: 0.22 ppm vapor TWA: 1 mg/m ³ vapor STEL: 3 mg/m ³ dust STEL: 0.66 ppm vapor STEL: 3 mg/m ³ vapor |

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

[Appropriate engineering controls]

Engineering Controls : Showers
 Eyewash stations
 ventilation systems

[Individual protection measures, such as personal protective equipment]

Respiratory Protection : Vapor mask.



Glove : Impervious gloves.

Recommendations



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

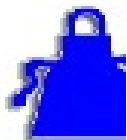
Safety Data Sheets

Protection



Safety

Skin Protection



: Rubber boots. Long sleeved clothing. Impervious clothing. Chemical resistant apron.

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.

9. Physical and Chemical Properties

[Information on basic physical and chemical properties]

| | | |
|------------------------------|------------------|---|
| Appearance | - Physical State | : liquid |
| | - Color | : yellow |
| 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 | | |
| Upper flammability limits | | : No data available |
| Lower flammability limit | | : No data available |
| Vapor Pressure | | : No data available |
| Vapor density | | : No data available |
| Specific gravity | | : 1.0-1.1 |
| Solubility(ies) | | : Immiscible in water |
| Partition coefficient | | : No data available |
| Autoignition temperature | | : No data available |

Safety Data Sheets

| | |
|---------------------------|------------------------|
| 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. |
| 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 | : None known based on information supplied. |
| Products | |

11. Toxicological Information

[Information on likely routes of exposure]

[Product Information]

| | |
|--------------|---|
| Inhalation | : Irritating to respiratory system. |
| Eye contact | : Irritating to eyes Causes serious eye damage May cause irreversible damage to eyes. |
| Skin Contact | : 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. |

[Information on toxicological effects]

| | |
|----------|---|
| Symptoms | : Coughing and/ or wheezing. May cause redness and tearing of the |
|----------|---|

Safety Data Sheets

eyes Redness Burning. May cause blindness. Hives Itching. May cause allergic skin reaction Rashes.

[Numerical measures of toxicity]

[Acute toxicity]

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

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|-----------------------|-----------------------|-----------------|
| Product | ATEmix = 1900.0 mg/kg | ATEmix = 2220.8 mg/kg | - |

[Component Information]

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

[Unknown acute toxicity]

4.1 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

33.0 % 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)

[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

Safety Data Sheets

- 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 | Toxicity to Microorganisms | Crustacea |
|---------------|---|---|----------------------------|--|
| Caprolactam | EC50 (72h) : = 130 mg/L (Desmodesmus subspicatus) EC50 (96h) : = 160 mg/L (Desmodesmus subspicatus) EC50 (72h) : 4320 - 4800 mg/L (Pseudokirchneriella subcapitata) | 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) |

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]

- Disposal Methods : Comply with all USA, national and local regulations.

Safety Data Sheets

Do not dump this product into sewers, on the ground or into any body of water.

- Disposal of wastes : 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.

[DOT]

- 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
- Special Provisions : 8, 146, 173, 335, IB3, T4, TP1, TP29
- Emergency Response Guide : 171
- Number
- 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

[TDG]

- 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
- 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

Safety Data Sheets

[MEX]

| | |
|----------------------|---|
| 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 |
| Special Provisions | : 274, 331, 335 |
| 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 |
| Special Provisions | : A197 *1 |
| 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 |

[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 |
| EmS-No | : F-A, S-F |
| Special Provisions | : 2.10.2.7 *1 |
| Marine pollutant | : This material meets the definition of a marine pollutant |
| 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 |
| Environmental hazard | : Yes |

*1: Single or inner packaging less than 5 L (liquid) or 5 kg net (solids) is excepted from Dangerous

Safety Data Sheets

Goods regulations - see UN Special Provision.

15. Regulatory Information

[International Inventories]

TSCA-US-Toxic Substances Control Act : All ingredients of this product are registered on TSCA Active inventory.

Act

TSCA 5e-US-Toxic Substances Control Act Section 5e : This product contains components registered as TSCA 5(e)

Act Section 5e

DSL-Canada-Domestic Substances List : Not listed

[US Federal Regulations]

[SARA313]

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Chemical Name | CAS No. | weight-% | SARA 313 - Threshold Values % |
|---|------------|----------|-------------------------------|
| 2-Propenoic acid, 2-phenoxyethyl ester - 48145-04-6 (Glycol ethers) | 48145-04-6 | 20-30 | 1.0 |

[SARA 311/312 Hazard Categories]

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications

[CWA (Clean Water Act)]

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

[CERCLA]

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Safety Data Sheets

[US State Regulations]

California

: **WARNING**

Proposition 65



This product can expose you to chemicals including Toluene, Bisphenol A, and Methanol which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

EPA Pesticide

: Not Applicable

Registration Number

16. Other Information

References

: LOLI Database (ChemADVISOR, Inc.)

Hazard Communication Standard(HCS2012) □ 29 CFR 1910.1200

The reference on GHS
classification results

: EU CLP(1272/2008)Annex VI Table 3

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

Other Information

: This formulation contains a maximum of 1% of a SNUR chemical which is prohibited from release to water. The product or its wastes should either be pretreated before discharge to sewerage systems according to federal regulations or disposed of by incineration or other state or federal approved methods.

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.