SAFETY DATA SHEET

In accordance with OSHA HCS 1910.1200

Section 1: Identification

Product identifier used on the label;

Product Name: LED UV Curable INK Magenta

Other means of identification;

VJ-LUH1-MA220U, 800U

Recommended use of the chemical and restrictions on use;

Digital printing

Name, address, and telephone number of the manufacturer;

Name: MUTOH INDUSTRIES LTD.
Address: Unit 19/76 Reserve Road, Artarmon, NSW 2064, Australia
Contact section: admin@mutoh-au.com or +61 2 9437 1366
Telephone number: +61 2 94371366
Emergency phone number. Emergency phone number (business hours): +61 2 9437 1366

Section 2: Hazard(s) identification

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

Physical Hazards

FLAMMABLE LIQUIDS	Not classified

Health Hazards

ACUTE TOXICITY – ORAL	Category 4
* Max. 25 % of the mixture consists of ingredients of unknown acute toxicity.	
SENSITIZATION – SKIN	Category 1
CARCINOGENICITY	Not classified

Environmental Hazards

HAZARDOUS TO THE AQUATIC ENVIRONMENT (ACUTE)
Category 2

Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200;

Symbols:

Signal word **Warning**

Hazard Statements Harmful if swallowed

May cause an allergic skin reaction
Toxic to aquatic life

Precautionary Statements

[Prevention] Avoid breathing dust/fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
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.

[Response] If swallowed: Call a poison center/doctor if you feel unwell.
If on skin: Wash with plenty of water.
Rinse mouth.
If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

[Disposal] Dispose of contents/ container in accordance with related laws and local/ regional regulations.

Description of any hazards not otherwise classified;

No information

Section 3: Composition/information on ingredients

Information on ingredients:

Chemical name	CAS No.	Concentration (wt %)
2-(2-Vinyloxyethoxy) ethyl acrylate	86273-46-3	> 75
Propoxylated Neopentyl Glycol Diacrylate Esters	84170-74-1	1-10
Phosphine Oxide	162881-26-7	1-10

Section 4: First-aid measures

Necessary first-aid measures by relevant routes of exposure;

IF IN EYES: Flush eyes and under eyelids for 15 minutes with water. Seek medical attention if irritation or redness persists.

IF ON SKIN: Wash with soap and water and rinse thoroughly for 15 minutes. Get medical attention if blisters or inflammation are present on the skin.

IF INHALED: Move to fresh air. Seek medical attention if irritation persists.

IF INGESTED: Ingestion: Do not induce vomiting. Rinse mouth with water but do not swallow and get medical attention. Call Poison Control or Physician immediately.

Most important symptoms/effects, acute and delayed;

No information

Indication of immediate medical attention and special treatment needed, if necessary;

No information

Section 5: Fire-fighting measures

Suitable (and unsuitable) extinguishing media;

Suitable extinguishing media:

Water spray for cooling, foam, carbon dioxide, dry chemical, or Halon for fire suppression.

Unsuitable extinguishing media:

No information

Specific hazards arising from the chemical;

Material is a flammable liquid but must be preheated for combustion. May burn in fire conditions releasing products, which may be toxic (CO, CO_2, and volatile organics).

Special protective equipment and precautions for fire-fighters;

Wear approved MSHA/NIOSH breathing apparatus and full protective clothing. Non-responsible personnel should escape from the fire site. Immediately move all the movable containers to safe area. If it is not possible to move, cool the container and surrounding area with water. Take action from windward. In case of fire, use appropriate extinguishing media depending on fire in surrounding area.

Section 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures;

Personal precautions:

Evacuate personnel from the area. Shut off all sources of ignition; No flares, smoking, or flames in the area. Wear protective equipment. Keep out except responsible personnel (e.g. stretch a rope) from the spilled area. Do not flush to sewer or waterways. Dike with soil. Cover with a sheet to prevent expanding odor.

Protective equipment:

Refer to “Section 8: Exposure controls/personal protection”.

Emergency procedures:

Do not release to sewer, surface- or ground-water.

Methods and materials for containment and cleaning up;

For small spills, use absorbent media. Dispose of the absorbent media according to local, regional, and national regulations. For large spills, enclose the spilled liquid with sand. Recover the liquid while covering it with an oil-resistant antistatic sheet. Dispose of material according to local, regional, and national regulations.

Section 7: Handling and storage

Precautions for safe handling;

Technical measures: Wear suitable protective equipment described in “Section 8: Exposure controls/personal protection” to prevent contacting with skins or inhaling vapors. Avoid breathing dust/fume/gas/mist/vapours/spray.

Precautions such as local/total ventilation:

Install local ventilation/general ventilation described in "Section 8: Exposure controls/personal protection". Prevent spill, leak or splash of the product to avoid vapour generation.

Precautions for safe handling:

Use proper ventilation and no fire in work place. Avoid contact with eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling.

Conditions for safe storage, including any incompatibilities;

Technical measures: Install appropriate equipment and wear suitable protective apparatus described in "Section 8: Exposure controls/personal protection". Keep away from direct sunlight and high temperature.

Incompatible materials and mixtures:

Strong Oxidizing materials, explosives, peroxides, acids or iron.

Conditions for safe storage:

Store locked up. Keep out of direct sunlight. Store in a closed container in a cool place. Indoor storage for hygroscopic, prohibited cargo directly on the ground. Pay attention to water leaks and condensation. Avoid incompatible materials (e.g. oxidants).

Packing material: No information

Section 8: Exposure controls/personal protection

Occupational Exposure Limits;

OSHA PEL-TWA: -

ACGIH TLV-TWA: -

California PELs (TWA): -

Appropriate engineering controls;

Facilities storing or utilizing this substance should be equipped with an eyewash facility and a safety shower. Use Process enclosures, local exhaust ventilation, or other engineering controls.

Individual protection measures, such as personal protective equipment;

Respiratory protection: Chemical cartridge respirator for an organic vapor, or pressure self-contained breathing apparatus.

Hand protection: Chemical resistant gloves made of Butyl rubber or Polyethylene-polyvinyl alcohol laminated rubber.

Eye/ face protection: Safety Glasses with side shields, goggles, or face shield.

Skin and body protection:

Suitable safety clothes, aprons, shoes and protective boots.

Section 9: Physical and chemical properties

Appearance (physical state, color, etc.);

Colored liquid

Odor; Mild odor

Odor threshold; No information

pH; Not applicable

Melting point/freezing point;

-71°C

Initial boiling point and boiling range;

94°C

Flash point; 119°C (closed cup)

Evaporation rate; No information
Flammability (solid, gas); Not applicable (liquid)
Upper/lower flammability or explosive limits;
No information
Vapor pressure; No information
Vapor density; >3 (air = 1)
Relative density; 1.03-1.06 g/mL (20°C)
Solubility(ies); Water: 18 g/L
Partition coefficient: *n*-octanol/water;
No information
Auto-ignition temperature; No information
Decomposition temperature;
No information
Viscosity; 2-10 cps
Other information; VOC: No information

Section 10: Stability and reactivity

Reactivity; Stable under normal handling condition.
Chemical stability; No hazardous reaction expected under normal handling.
Possibility of hazardous reactions;
None
Conditions to avoid; Heat and freezing temperatures
Incompatible materials; Strong Oxidizing materials, explosives, peroxides, acids or iron.
Hazardous decomposition products;
Will decompose to form carbon oxides when burned.

Section 11: Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics;

Information on product:

Routes of toxicology: Eye, skin, inhalation, and oral.

Acute Health Hazards : Overexposure of eye surface to ink may be mildly irritating. Overexposure of skin to ink may cause irritation, redness and swelling. Inhalation or overexposure to ink vapors may result in respiratory tract irritation and anesthesia. Ingestion may cause upset stomach.

Information on ingredient (2-(2-Vinyloxyethoxy) ethyl acrylate):

Acute toxicity (oral): Rats LD_{50} = 2,026 mg/kg (male), 1,790 mg/kg(female)(OECD TG 401)

Acute toxicity (dermal): Rats LD_{50} > 2,000 mg/kg (OECD TG 402)

Acute toxicity (inhalation:mist):
Rats LC_{50} = 5.82 mg/L(4hr)

Skin sensitization: Skin sensitizer (mouse) (OECD TG 429 (Local Lymph Node Assay))

Delayed and immediate effects and also chronic effects from short- and long-term exposure;

Not applicable

Numerical measures of toxicity (such as acute toxicity estimates);

Not applicable

Whether the chemical is listed in the NTP Report on Carcinogens or has been found to be a potential carcinogen in the IARC Monographs, or by OSHA;

IARC: Not listed
NTP Report: Not listed
OSHA: Not listed

Section 12: Ecological information

Ecotoxicity;

Information on product: No information

Information on ingredient (2-(2-Vinyloxyethoxy) ethyl acrylate):

Fish (*Brachydanio rerio*): 96-h LC_{50} = 6.8 mg/L, NOEC = 2.2 mg/L (OECD TG 203)
Crustacean (*Daphnia magna*): 48-h EC_{50} = 55 mg/L, NOEC = 25 mg/L (OECD TG 202)
Algae (*Scenedesmus subspicatus*):72-h EC_{50} = Biomass 5 mg/L, Growth rate 10 mg/L, NOEC = Biomass 0.78 mg/L, Growth rate 0.78 mg/L (OECD TG 201)

Persistence and degradability;

Information on product: No information

Information on ingredient (2-(2-Vinyloxyethoxy) ethyl acrylate):

Hydrolysis degradability (OECD TG111)
t½: 1.8h at pH=4.0, 25°C
t½: 200.1h at pH=7.0, 25°C
t½: 66.9h at pH=9.0, 25°C

Biodegradability (OECD TG301C)
Readily biodegradable
28 days BOD 82.1 %, TOC 84.4%, GC 100.0%

Bioaccumulative potential;

Information on product: No information

Information on ingredient (2-(2-Vinyloxyethoxy) ethyl acrylate):

Log Pow = 1.7 (OECD TG117)

Mobility in soil;

Information on product: No information

Information on ingredient (2-(2-Vinyloxyethoxy) ethyl acrylate):

Evaluation very high mobility

Koc = 15 (log Koc = 1.2) (OECD TG121)

Other adverse effects;

No information

Section 13: Disposal considerations

Hazardous waste characteristics

Burn in a chemical incinerator equipped with an afterburner and scrubber. Consult an expert on the disposal of recovered material. Comply with all federal, state and local regulations. Do not dump this product into sewers, on the ground or into any body of water.

Contaminated container and packaging

Do not put other material into the used container and do not use it for other purpose. Wash the inside of the container before disposal.

Section 14: Transport information

UN number; Not applicable

UN proper shipping name; Not applicable

Transport hazard class(es); Not applicable

Packing group, if applicable; Not applicable

Environmental hazards (e.g., Marine pollutant (Yes/No));

No

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);

Not applicable

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises;

Avoid falling, dropping, shocking and dragging a container. Protect a container from direct sunlight.

Section 15: Regulatory information

OSHA: Hazardous chemical

TSCA inventory: All ingredients in this product are listed on the TSCA Inventory.

TSCA SNUR: Listed (2-Propenoic acid, 2-[2-(ethenyloxy) ethoxy]ethyl ester)

SARA Title III: This product does not contain Section 313 (TRI Chemicals)

Clean Air Act Section 112, Hazardous Air Pollutants:

Not regulated

California Proposition 65: Not listed

Section 16: Other information, including date of preparation or last revision

HMIS (Hazardous Material Identification System) Rating:

Health: 1, Flammability: 1, Physical hazard: 0

(0 = minimal, 1 = slight, 2 = moderate, 3 = serious, 4 = severe, *= chronic hazard)

NFPA (National Fire Protection Association) Rating:

Health: 1, Flammability: 1, Instability: 0

(0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard)

Update history:

Date of issue: August03, 2015

Literature references: Information of Mutoh Industries Ltd.
ACGIH, American Conference of Governmental Industrial Hygienists (2013) TLVs and BEIs.

[Disclaimer]

This SDS has been prepared based on our best knowledge regarding the product and safety/hazard information which can be obtained at the time of the preparation, however, care should be made because contents may not be sufficient. In case new findings become available, descriptions in this SDS can be updated as appropriate without prior notice. Please consider that precautions in this SDS only cover normal handling conditions and additional safety measures should be taken for special situation which are suitable for your own usage or purposes.