Safety Data Sheets

SECTION 1: IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

1.1 Product identifier

Product Name	LUS-350 Black
Product Description	LUS35-K-BA

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended use(s)	Ink-jet ink
Restrictions on use	Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet

Importers	MIMAKI AUSTRALIA PTY LTD. Unit 14, 38-46 South Street, Rydalmere, NSW 2116, Australia
Telephone	+ 61-2-8036-4500
Manufacturer	Mimaki Engineering Co., Ltd 2182-3 Shigeno-otsu, Tomi-shi, Nagano, 389-0512 Japan
Telephone	+81-268-64-2413

1.4 Emergency telephone number: +61 2 8014 4558 (within Australia only)
18000 74234 (within Australia only)
+65 3158 1074

SECTION 2: HAZARD(S) IDENTIFICATION

2.1 Classification of the substance or mixture

According to GHS (Rev.7) (2017)

Acute Toxicity Category 4, H302
Acute Toxicity Category 4, H312
Skin Irritation Category 2, H315
Skin Sensitization Category, 1 H317
Eye Irritation Category 2, H319
Specific Target Organ Toxicity - Single Exposure Category 3, H335
Reproductive Toxicity Category 2, H361f
Specific Target Organ Toxicity – Repeated Exposure Category 1, H372
Acute Aquatic Toxicity Category 1, H400
Chronic Aquatic Toxicity Category 1, H410

2.2 Label elements

Hazard pictogram(s)

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Signal word(s)

Danger

Hazard statement(s)

H302: Harmful if swallowed
H312: Harmful in contact with skin.
H315: Causes skin irritation
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation
H361f: Suspected of damaging fertility
H373: Causes damage to organs(liver, respiratory tract stimulative) through prolonged or repeated exposure
H410: Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release into the environment.
P280: Wear protective gloves/eye protection/face protection.

Response

P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P312: Call a POISON CENER/doctor/physician if you feel unwell.
P314: Get medical advice/attention if you feel unwell.
P321: Specific treatment (see advice on this label).
P330: Rinse mouth.
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313: If eye irritation persists: Get medical advice/attention.
P362 + P364: Take off contaminated clothing and wash it before reuse.
P391: Collect spillage.

Storage

P405: Store locked up.
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501: Dispose of contents/container to local/regional/national/international regulations.

2.3 Other hazards

The hazardous properties of this product have not been fully investigated, so handle and dispose of with caution.

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SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	% Weight	CAS No.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	<40	5888-33-5
2-phenoxyethyl acrylate	<30	48145-04-6
1-vinylhexahydro-2H-azepin-2-one:	<20	2235-00-9
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide	<15	75980-60-8
Carbon black	<5	1333-86-4

In accordance with Schedule 8 of the WHS Regulations the specific chemical identity of the composition has been withheld as a confidential and in addition the values provide are representative only.

SECTION 4: FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation

IF INHALED: Remove victim to fresh air and keep in a position comfortable for breathing.
Call a doctor/physician if you feel unwell.

Skin Contact

IF ON SKIN: Remove contaminated clothing and wash affected area with soap and water. Get medical attention if irritation or other symptoms occur. Launder contaminated clothing before re-use.

Eye Contact

IF IN EYES: Rinse cautiously for several minutes, occasionally parting eyelids. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion

IF SWALLOWED: Rinse mouth. Call a doctor/physician if you feel unwell. Do not induce vomiting, unless instructed by medical personnel.

Protection of first aid responders

Avoid contact with skin and eyes.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed and in contact with skin.
Causes skin irritation and may cause an allergic skin reaction.
Causes serious eye irritation.
May cause respiratory irritation
Suspected of damaging fertility
Causes damage to organs(liver, respiratory tract stimulative) through prolonged or repeated exposure

4.3 Indication of any immediate medical attention and special treatment needed

Treatment should be based on judgment of the doctor in response to symptoms of the patient.

SECTION 5: FIRE-FIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable Extinguishing Media	Use water spray, carbon dioxide, dry chemical powder or foam.
	Unsuitable Extinguishing Media	Water jet.
5.2	**Special hazards arising from the substance or mixture**	The product is not classified as flammable, but will decompose if involved in a fire, producing smoke, and toxic fumes and gases.
5.3	**Special protective equipment and precautions for fire fighters**	Remove containers from fire or cool them with water spray. Do NOT use water jets, as this may spread the fire. Approved self-contained breathing apparatus and protective clothing must be used for all fires.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	For large-scale spills, ensure full personal protection is worn. Keep unauthorised personnel from the spillage area. Ventilate area once containment and clean-up operations have been completed. Note product may produce a slip hazard.
6.2	**Environmental precautions**	Do NOT release product or waste to the environment. Prevent product from entering water courses or drainage system, by bunding or absorption with an inert material. Follow prescribed procedures for responding to large spills and reporting to authorities.
6.3	**Methods and materials for containment and cleaning up**	Stop the source of leak or release if safe to do so. Immediately absorb spill with inert absorbent materials or mechanically with pumping. Collect and place in suitable container for disposal. Wash contaminated surfaces with water and detergent, and collect washings for safe disposal.
6.4	**Reference to other sections**	For recommended personal protective equipment, see Section 8. For disposal considerations, see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Utilise appropriate engineering controls and personal protective equipment, see section 8 for further details. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release into the environment. Take off contaminated clothing and wash it before reuse. Collect spillage.

7.2	**Conditions for safe storage, including any incompatibilities**	Keep container tightly closed. Store in a cool (5 to 35 °C), well-ventilated place, away from direct sunlight. Do not store next to oxidising agents or strong alkalis.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1	**Control parameters**	
8.1.1	**Occupational exposure limits**	**Australian Hazardous Chemical Information System (HCIS):** **Carbon black: 3 mg/m3 TWA**
8.1.2	**Biological Monitoring limits**	No biological limits allocated.
8.1.3	**Control Banding:**	None.
8.2	**Exposure controls**	
8.2.1	**Appropriate engineering controls**	Good general ventilation is recommended. If operating conditions create airborne vapours (e.g. during heating or spraying), local exhaust ventilation may be required.
8.2.2	**Personal protection equipment**	The need for personal protective equipment should be based on a workplace risk assessment for the particular use.
	Eye/face protection	Protective safety goggles are required in accordance with the standards, AS/NZS 1336 and AS/NZS 1337 on selection of eye protection.
	Skin protection (Hand protection/ Other)	Wear chemical resistant gloves in accordance with the standard, AS/NZS 2161 on occupational protective gloves.
	Respiratory protection	Wear a respiratory equipped with an organic filter for vapour. Use approved respirators in accordance with the standards, AS/NZS 1715 and AS/NZS 1716 on respiratory protective devices. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection
	Skin and body protection	Wear appropriate work overalls or apron accordance with the standard AS/NZS 3765 on clothing.
	Thermal hazards	Wear appropriate air-respirator and chemical protective clothing when engaged in fire-fighting. See “Section 5.3 Special protective equipment and precautions for fire fighters”.
	Hygiene measures	Do not eat, drink or smoke whilst using this product. Wash hands thoroughly after handling. Take off contaminated clothing and wash before reuse. Contact PPE manufacturer regarding breakthrough times.
8.2.3	**Environmental Exposure Controls**	Follow best practice for site management and disposal of waste. Do not release into the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	**Information on basic physical and chemical properties**	
	Appearance	Liquid
	Colour	Black
	Odour	No data available
	Odour threshold (ppm)	No data available
	pH (Value)	No data available
	Melting point / freezing point	No data available
	Initial boiling point and boiling range	No data available
	Flash point (°C)	100°C
	Evaporation rate	No data available
	Flammability (solid, gas)	No data available
	Upper/lower flammability or explosive limits	No data available
	Vapour pressure	No data available
	Vapour density (Air=1)	No data available
	Relative Density	No data available
	Solubility(ies)	Insoluble in water Soluble in organic solvents
	Partition coefficient (n-Octanol/water)	No data available
	Auto ignition temperature	No data available
	Decomposition temperature (°C)	No data available
	Viscosity (mPa. s)	No data available
	Explosive properties	No data available
	Oxidising properties	No data available
9.2	**Other information**	
	Volatile Organic Compounds	<1%

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	No information available.
10.2	**Chemical stability**	Stable under ordinary temperatures (up to 40°C) and pressures.
10.3	**Possibility of hazardous reactions**	No hazardous reactions under normal handling conditions.
10.4	**Conditions to avoid**	Heat, sunlight.
10.5	**Incompatible materials**	Oxidising agents, strong bases and transition metals
10.6	**Hazardous Decomposition Product(s)**	No data available.

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

No data are available for the product therefore available data for the components of the product are provided below.

Acute toxicity	Classified as Acute Toxicity Category 4 (oral and dermal)
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	LD50 > 2000 mg/kg bw (Oral, rat, male/female)
2-phenoxyethyl acrylate:	LD50 5000 mg/kg bw (Oral, rat, female) LD0 2000 mg/kg bw (Dermal, rat, male/female)
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	LD50 > 5000 mg/kg bw (Oral, rat, male/female) LD50 > 2000 mg/kg bw (Dermal, rat, male/female)
1-vinylhexahydro-2H-azepin-2-one:	LD50 1114 mg/kg bw (Oral, rat, male/female) LD50 1700 mg/kg bw (Dermal, rabbit, male/female)
Skin corrosion/irritation	Classified as Skin Irritation Category 2.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	Not irritating to rabbit skin.
2-phenoxyethyl acrylate:	Slightly irritating to rabbit skin.
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	Not irritating to rabbit skin.
1-vinylhexahydro-2H-azepin-2-one:	Not irritating to rabbit skin.
Serious eye damage/irritation	Classified as Eye Irritation Category 2.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	Not irritating to rabbit eyes.
2-phenoxyethyl acrylate:	Slightly irritating to rabbit eyes.
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	Not irritating to rabbit eyes.
1-vinylhexahydro-2H-azepin-2-one:	Not irritating to rabbit eyes.
Respiratory or Skin sensitization	Classified as Skin Sensitization Category 1.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	Classified as a skin sensitizer based on a mouse local lymph node assay (LLNA).
2-phenoxyethyl acrylate:	Determined to be a skin sensitizer based on a guinea pig maximisation test.
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	Classified as a skin sensitizer based on a mouse local lymph node assay (LLNA).
1-vinylhexahydro-2H-azepin-2-one:	Classified as a skin sensitizer based on a mouse local lymph node assay (LLNA).
Germ cell mutagenicity	Not classified.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	Negative results obtained in an in vitro ames test, mammalian cell gene mutation assay, mammalian cell micronucleus test.
2-phenoxyethyl acrylate:	Negative results obtained in an in vitro ames test, mammalian cell gene mutation assay, Chromosome aberration test in human lymphocytes.
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	Negative results obtained in an in vitro ames test, mammalian cell gene mutation assay, mammalian cell micronucleus test.
1-vinylhexahydro-2H-azepin-2-one:	Negative results obtained in an in vitro ames test, mammalian cell gene mutation assay, mammalian cell micronucleus test.
Carcinogenicity	Classification not possible due to lack of data.
Reproductive toxicity	Classified as Reproductive Toxicity Category 2.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	NOAEL 100 mg/kg bw/day (Oral, rat, male/female). Under the conditions of the study there were no significant effects noted on the reproductive and developmental parameters.
2-phenoxyethyl acrylate:	NOAEL 300 mg/kg bw/day (oral, rat, male/female). Increase in post-implantation loss noted at 800 mg/kg bw/d.

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Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	NOAEL 60 mg/kg bw/day (Oral, rat, male). A reduction of testes size (on average by 50%) together with a marked diffuse atrophy of the testicular parenchyma and a slight to moderate interstitial edema were detected in males at 300 and 1000 mg/kg.
1-vinylhexahydro-2H-azepin-2-one:	NOAEL 100 mg/kg bw/day (Oral, rat, male/female). Under the conditions of the study no significant effects on the reproductive/developmental parameters were noted.
STOT-single exposure	Classified as STOT-Single Exposure Category 3.
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	May cause respiratory irritation.
STOT-repeated exposure	Classified as STOT-Repeated Exposure Category 1.
2-phenoxyethyl acrylate:	NOAEL 300 mg/kg bw/day (oral, rat, male/female). Increase in liver weight and local toxic effects in the stomach.
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	NOAEL 100 mg/kg bw/day (Oral, rat, male/female). Reduction in body weight gain in males and females and increased in serum alkaline phosphatase and gamma-glutamyltransferase activity was observed.
1-vinylhexahydro-2H-azepin-2-one:	NOAEC 1 mg/m3 air. (inhalation, rat, male/female). Based on histopathological findings in the nasal cavity and corresponding increases in the S-phase at 6 mg/m³ and above.
Aspiration Hazard	Classification not possible due to lack of data.
Human health data	No available human health data.
Information on possible routes of exposure	Contact with skin and eyes.
Early onset symptoms related to exposure	Skin irritation and serious eye irritation.
Delayed health effects from exposure	No data available.
Exposure levels and health effects	No data available.
Interactive effects	No data available.

SECTION 12: ECOLOGICAL INFORMATION

No data are available for the product therefore available data for the components of the product are provided below.

12.1	**Toxicity**	Classified as Chronic Aquatic Toxicity Category 1.
	Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	(Danio rerio) 96 h LC50 0.704 mg/L (mortality) (Pseudokirchneriella subcapitata) 72 h NOEC 0.405 mg/L (growth rate)
	2-phenoxyethyl acrylate:	(Leuciscus idus) 96 h LC50 10 mg/L (mortality) (Daphnia magna) 24 h EC50 3.85 mg/L (mobility) (Desmodesmus subspicatus) 96 h EC50 4.1 mg/L (growth rate)
	Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	(Killifish) 48 h LC50 1-10mg/L (Bacteria) 0.5 h LC50 >1.0mg/l
	1-vinylhexahydro-2H-azepin-2-one:	(Danio rerio) 96 h LC50 318 mg/L (mortality) (Daphnia magna) 48 h EC50 > 100 mg/L (mobility) (Desmodesmus subspicatus) 72 h NOEC 25 mg/L (growth rate)
12.2	**Persistence and degradability**	
	Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	Not readily biodegradable. 57 % degradation (CO_2 evolution) in 28 days.
	2-phenoxyethyl acrylate:	Inherently biodegradable. 22.3% degradation (O_2 consumption) in 28 days.
	Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	Not readily biodegradable. 0-10 % degradation (O_2 consumption) in 28 days.
	1-vinylhexahydro-2H-azepin-2-one:	Partly biodegradable. 30 - 40 % degradation (DOC removal) in 28 days.

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12.3 Bioaccumulative potential

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	BCF 37.
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	BCF 18 - 22

12.4 Mobility in soil

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:	log Koc 3.71
2-phenoxyethyl acrylate:	Koc 155
Diphenyl-(2,4,6-trimethyl-benzoyl)-phosphine oxide:	Koc 784.8, log Koc 2.895 (QSAR)
1-vinylhexahydro-2H-azepin-2-one:	Koc 46.88, log Koc 1.67

12.5 Other adverse effects No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

13.1.1 Residual wastes The recommended method of disposal is by incineration. Small amounts may be suitable for dilution and disposal via the drains, or by landfill. Dispose of the substance in accordance with national and local regulations.
If required, dispose of the substance by contracting a licensed industrial waste disposal company.

13.1.2 Contaminated containers and packaging Containers must be recycled after cleaning or disposed of in accordance with national and local regulations.
Remove contents completely before the disposal of empty containers.

SECTION 14: TRANSPORT INFORMATION

14.1	**UN number**	3082.
14.2	**UN Proper Shipping Name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S
14.3	**Transport hazard class(es)**	9
14.4	**Packing Group**	III
14.5	**Environmental hazards**	Yes.
14.6	**Special precautions for user**	No data available
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
14.8	**Hazchem or Emergency Action Code**	Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Montreal Protocol (Ozone depleting substances):	This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
The Stockholm Convention (Persistent Organic Pollutants):	None of the chemicals in this product are listed.
The Rotterdam Convention (Prior Informed Consent):	None of the chemicals in this product are listed.

Basel Convention (Hazardous Waste):	None of the chemicals in this product are listed.

This SDS is prepared in accordance with the Work Health and Safety Act and Regulation 330, Schedule 7.

All components are listed on the Australian Inventory of Chemical Substances (AICS) or meet exempted (NCE) criteria.

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) established under the Therapeutic Goods Act 1989 (Commonwealth) (as amended): Components are not listed.

SECTION 16: OTHER INFORMATION

Date of preparation of SDS: 19 April 2021
Version: 0.1

References:

Supplier information.
ECHA Disseminated Dossiers.
Hazardous Chemical Information System (HCIS), which can be accessed at http://hcis.safeworkaustralia.gov.au/
Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals (2011).
Work Health and Safety Act and Regulation 330, Schedule 7.

Basis of classification	The mixture is self-classified on the basis of available information on the ingredients.

ABBREVIATIONS
ACGIH - American Conference of Governmental Industrial Hygienists
ADG code – Australian Dangerous Goods Code.
BCF: Bioconcentration Factor.
CAS# - Chemical Abstract Services Number
EC50: half maximal effective concentration
GHS - Globally Harmonized System of Classification and Labelling of Chemicals
IARC - International Agency for Research on Cancer
LC50: lethal concentration, 50%
LD50: lethal dose, 50%
NOAEL: no-observed-adverse-effect-level
NOEC: no observed effect concentration
NTP - National Toxicology Program
PPE: Personal protective equipment.
STOT: Specific target organ toxicity.
TWA - Time Weighted Average

Other information
This information is furnished without warranty, express or implied, except that it is accurate to the best our knowledge and available information. It relates only to the specific material designated herein, and dose not relates to use in combination with any other material or process.

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