

Safety Data Sheets

1. Identification

Product Name : Latex ink LX100/LX101 White
Order No. : LX100-W-22
Ink Ver. : 3
General Use : Ink for ink jet printer
Product Description : Aqueous ink
SDS Number : 037-W352463
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 Australia
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

[Classification of the substance or mixture]

Physical Hazards

Flammable Liquids : Not classified

Health Hazards

Skin Corrosion/Irritation : Category 2

Eye Damage / Irritation : Category 2

Carcinogenicity : Category 1A

Specific Target Organ Toxicity : Category 3 (respiratory tract irritation)

(Single Exposure)

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

[Label Elements]

Symbol



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Signal Word

DANGER

Hazard Statements

- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H350 May cause cancer.

Precautionary Statements

[Prevention]

- P201 Obtain special instructions before use.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P261 Avoid breathing mist/vapours/spray.

[Response]

- P308+P313 IF exposed or concerned: Get medical advice/ attention.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P302+P352 IF ON SKIN: Wash with plenty of water and soap.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.

[Storage]

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

[Disposal]

- P501 Dispose of contents/container in accordance with local regulations.

3. Composition / Information on Ingredients

[Substances]

See section below for composition of Mixtures

Mixtures

No	Chemical Name	Wt%	CAS No.
1	Alcohol solvent series	23-27	Not Available
2	Glycol ether solvents	15-25	Not Available
3	titanium dioxide	1-10	13463-67-7
4	methyldiethanolamine	0.1-0.5	105-59-9
5	water	residue	7732-18-5

4. First Aid Measures

[Description of first aid measures]

Eye Contact : If this product comes in contact with the eyes:

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	<p>Wash out immediately with fresh running water.</p> <p>Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</p> <p>Seek medical attention without delay; if pain persists or recurs seek medical attention.</p> <p>Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</p>
Skin Contact	<p>If skin contact occurs:</p> <p>Immediately remove all contaminated clothing, including footwear.</p> <p>Flush skin and hair with running water (and soap if available).</p> <p>Seek medical attention in event of irritation.</p>
Inhalation	<p>: If fumes or combustion products are inhaled remove from contaminated area.</p> <p>Lay patient down. Keep warm and rested.</p> <p>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</p> <p>Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</p> <p>Transport to hospital, or doctor, without delay.</p>
Ingestion	<p>: If swallowed do NOT induce vomiting.</p> <p>If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</p> <p>Observe the patient carefully.</p> <p>Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</p> <p>Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</p> <p>Seek medical advice.</p>
Indication of Immediate Medical Attention and Special Treatment Needed	<p>: Treat symptomatically.</p>

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5. Fire Fighting Measures

[Extinguishing Media]

Extinguishing Media : Foam. dry chemical powder. carbon dioxide.

[Special hazards arising from the substrate or mixture]

Fire Incompatibility : Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

[Advice for firefighters]

Fire Fighting : Alert Fire Brigade and tell them location and nature of hazard.
Wear full body protective clothing with breathing apparatus.
Prevent, by any means available, spillage from entering drains or water courses.
Use fire fighting procedures suitable for surrounding area.
DO NOT approach containers suspected to be hot.
Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

Fire/Explosion Hazard : The material is not readily combustible under normal conditions. However, it will break down under fire conditions and the organic component may burn.
Not considered to be a significant fire risk.
Heat may cause expansion or decomposition with violent rupture of containers.
Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
May emit acrid smoke.
Decomposes on heating and produces toxic fumes of: carbon dioxide (CO₂)
other pyrolysis products typical of burning organic material.
May emit poisonous fumes.
May emit corrosive fumes.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures : See section 8.

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Environmental precautions : See section 12.

[Methods and material for containment and cleaning up]

Minor Spills : Slippery when spilt.
Remove all ignition sources.
Clean up all spills immediately.
Avoid breathing vapours and contact with skin and eyes.
Control personal contact with the substance, by using protective equipment.
Contain and absorb spill with sand, earth, inert material or vermiculite.
Wipe up.
Place in a suitable, labelled container for waste disposal.

Major Spills : Slippery when spilt.
Moderate hazard.
Clear area of personnel and move upwind.
Alert Fire Brigade and tell them location and nature of hazard.
Wear breathing apparatus plus protective gloves.
Prevent, by any means available, spillage from entering drains or water course.
Stop leak if safe to do so.
Contain spill with sand, earth or vermiculite.
Collect recoverable product into labelled containers for recycling.
Neutralise/decontaminate residue (see Section 13 for specific agent).
Collect solid residues and seal in labelled drums for disposal.
Wash area and prevent runoff into drains.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

7. Handling and Storage

[Precautions for safe handling]

Safe handling : Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.

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Use in a well-ventilated area.

Avoid contact with incompatible materials.

When handling, DO NOT eat, drink or smoke.

Keep containers securely sealed when not in use.

Avoid physical damage to containers.

Always wash hands with soap and water after handling.

Work clothes should be laundered separately. Launder contaminated clothing before re-use.

DO NOT allow clothing wet with material to stay in contact with skin

[Conditions for safe storage, including any incompatibilities]

Storage

: Store in original containers.

Keep containers securely sealed.

No smoking, naked lights or ignition sources.

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Store away from incompatible materials and foodstuff containers.

Protect containers against physical damage and check regularly for leaks.

Observe manufacturer's storage and handling recommendations contained within this SDS.

Incompatibility

Strong acids, strong oxidisers, acid anhydrides, oxidising and reducing agents.

8. Exposure Controls / Personal Protection

[Control parameters]

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source: Singapore Permissible Exposure Limits of Toxic Substances

Ingredient	Material name	TWA	STEL	Peak	Notes
titanium dioxide	Titanium dioxide	10 mg/m ³	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
titanium dioxide	Titanium oxide; (Titanium dioxide)	30 mg/m ³	330 mg/m ³	2,000 mg/m ³

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Ingredient	Original IDLH	Revised IDLH
Glycol ether solvents	Not Available	Not Available
Alcohol solvent series	Not Available	Not Available
titanium dioxide	N.E. mg/m ³ / N.E. ppm	5,000 mg/m ³
methyldiethanolamine	Not Available	Not Available

Exposure Controls

Appropriate : Local exhaust ventilation usually required.

Engineering Controls Provide adequate ventilation in warehouse or closed storage area.

Personal protection

Eye and face protection : Safety glasses with side shields.
Chemical goggles.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

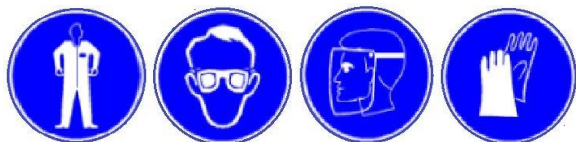
Hands/feet protection : Wear chemical protective gloves, e.g. PVC.

Wear safety footwear or safety gumboots, e.g. Rubber

Body protection : P.V.C. apron.

Respiratory Protection : Consult with a health and safety professional for specific respirators appropriate for your use.

Thermal hazards : Not Available.



9. Physical and Chemical Properties

[Information on basic physical and chemical properties]

Appearance - Physical State : liquid

- Color : white

Odor : Slight

Odour threshold : Not Available

pH (as supplied) : 8.8-9.8

Melting point / freezing point (°C) : Not Available

Initial boiling point and boiling range (°C) : Not Available

Flash point (°C) : Not Available

Evaporation rate : Not Available

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Flammability	: Not Available
Upper Explosive Limit (%)	: Not Available
Lower Explosive Limit (%)	: Not Available
Vapour pressure (kPa)	: Not Available
Solubility in water (g/L)	: Not Available
Vapour density (Air = 1)	: Not Available
Relative density (Water = 1)	: 1.07-1.09
Partition coefficient n-octanol / water	: Not Available
Auto-ignition temperature (°C)	: Not Available
Decomposition temperature	: Not Available
Viscosity (cSt)	: Not Available
Molecular weight (g/mol)	: Not Available
Taste	: Not Available
Explosive properties	: Not Available
Oxidising properties	: Not Available
Surface Tension (dyn/cm or mN/m)	: Not Available
Volatile Component (%vol)	: Not Available
Gas group	: Not Available
pH as a solution (1%)	: Not Available
VOC g/L	: Not Available

10. Stability and Reactivity

Reactivity	: Stable under normal conditions of use.
Chemical Stability	: Unstable in the presence of incompatible materials. Product is considered stable.
Possibility of Hazardous Reactions	: Hazardous polymerisation will not occur.
Conditions to Avoid	: See section 7
Incompatible Materials	: See section 7
Hazardous	: See section 5
Decomposition	

11. Toxicological Information

Acute Toxicity

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	TOXICITY	IRRITATION
As a product	Not Available	Not Available
titanium dioxide	Inhalation (rat) LC50: >2.28 mg/l/4hr Oral (rat) LD50: >2000 mg/kg	Skin (human): 0.3 mg /3D (int)-mild
Methyldiethanol amine	Dermal (rabbit) LD50: >2000 mg/kg Oral (rat) LD50: 1945 mg/kg	Eye (rabbit) 20 mg open - irrit. Skin (rabbit) 10 mg/24H open-mild Skin (rabbit) 502 mg open - mild

[Information on toxicological effects]

- Inhaled** : The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
- Ingestion** : Accidental ingestion of the material may be damaging to the health of the individual.
- Skin Contact** : This material can cause inflammation of the skin on contact in some persons.
The material may accentuate any pre-existing dermatitis condition
Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
Open cuts, abraded or irritated skin should not be exposed to this material
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
- Eye** : This material can cause eye irritation and damage in some persons.
- Chronic** : Studies show that inhaling this substance for over a long period (e.g. in an occupational setting) may increase the risk of cancer.
Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.
Some glycol esters and their ethers cause wasting of the testicles,

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reproductive changes, infertility and changes to kidney function.

Shorter chain compounds are more dangerous.

Medical Conditions

: TITANIUM DIOXIDE

Aggravated by Exposure

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Exposure to titanium dioxide is via inhalation, swallowing or skin contact. When inhaled, it may deposit in lung tissue and lymph nodes causing dysfunction of the lungs and immune system. Absorption by the stomach and intestines depends on the size of the particle. It penetrated only the outermost layer of the skin, suggesting that healthy skin may be an effective barrier. There is no substantive data on genetic damage, though cases have been reported in experimental animals. Studies have differing conclusions on its cancer-causing potential.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to

Humans.

* IUCLID

PRODUCT & METHYLDIETHANOLAMINE

Asthma-like symptoms may continue for months or even years after exposure to the material ceases.

This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of

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irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

TITANIUM DIOXIDE & METHYLDIETHANOLAMINE

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Skin	: Category 2, as a product
Irritation/Corrosion	
Serious Eye	: Category 2, as a product
Damage/Irritation	
Respiratory or Skin sensitisation	: Data Not Available to make classification
Mutagenicity	: Data Not Available to make classification
Carcinogenicity	: Category 1A, as a product
Reproductivity	: Data Not Available to make classification
STOT – Single	: Category 3, as a product
Exposure	
STOT – Repeated	: Data Not Available to make classification
Exposure	
Aspiration Hazard	: Data Not Available to make classification

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.

Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
titanium dioxide	LC50	96	Fish	155mg/L	2
	EC50	48	Crustacea	>10mg/L	2
	EC50	72	Algae or other aquatic plants	5.83mg/L	4
	EC20	72	Algae or other aquatic plants	1.81mg/L	4
	NOEC	336	Fish	0.089mg/L	4
methyldiethanolamine	LC50	96	Fish	320mg/L	1
	EC50	48	Crustacea	=230mg/L	1

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	EC50	96	Algae or other aquatic plants	=20mg/L	1
	NOEC	96	Fish	=460mg/L	1

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data

Mobility : No information available for the product.

Persistence and : No information available for the product.

Degradability

Bioaccumulative : No information available for the product.

Potential

Other Adverse Effects : No information available for the product.

13. Disposal Considerations

Disposal Methods : Dispose in accordance with all applicable regulations. Empty containers may contain product residue.

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

14. Transport Information

Check a thing without a leak in a container.

Perform prevention of collapse of cargo surely.

Land transport (UN) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
(ICAO-IATA / DGR)

Sea transport : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
(IMDG-Code / GGVSee)

Transport in bulk : Not Applicable

according to Annex II of

MARPOL and the IBC

code

Marine Pollutant : No

15. Regulatory Information

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

Chemical Name	Regulatory
TITANIUM DIOXIDE(13463-67-7)	International Agency for Research on Cancer (IARC) – Agents Classified by the IARC Monographs Singapore Permissible Exposure Limits of Toxic Substances
METHYLDIETHANOLAMINE (105-59-9)	Not Applicable

[National Inventory]

Australia - AICS	: Y
Canada - DSL	: N
Canada - NDSL	: Y
China - IECSC	: N
Europe - EINEC / ELINCS / NLP	: Y
Japan - ENCS	: Y
Korea - KECI	: Y
New Zealand - NZIoC	: N
Philippines - PICCS	: N
USA - TSCA	: Y

Y = All ingredients are on the inventory

N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

16. Other Information

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.

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