

SAFETY DATA SHEET

1. Product and Company Identification

Product Name: **Light Check LCP-450 (Visible dye penetrant “Penetrant”)**
 Company Name: Denshijiki Industry Co., Ltd.
 Address: 5-6-20 Ukima, Kita-Ku, Tokyo
 Section in Charge: Development department
 Telephone: +81-3-5970-8681 FAX: +81-3-5970-8680
 Emergency Telephone: Same as the section in charge
 Date of Creation: June 1, 2004 Date of Revision: January 21, 2021
 Reference Number: SDS15114-10e
 Product Code: 15114
 Recommended Uses and Restrictions on Use: Dye penetrant testing (penetrant)

2. Hazards Identification

GHS Classification

Physical Hazards	Aerosols	Category 1
Health Hazards	Acute toxicity (oral)	Classification not possible
	Acute toxicity (dermal)	Classification not possible
	Acute toxicity (inhalation: dust/mist)	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Respiratory Sensitization	Classification not possible
	Skin sensitization	Classification not possible
	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 2
	Reproductive Toxicity	Classification not possible
	Reproductive toxicity/effects on or via lactation	Classification not possible
	Specific target organ toxicity (single exposure)	Category 1 (blood)
		Category 2 (eye, respiratory system)
	Category 3 (Anesthetic effect)	
	Specific target organ toxicity (repeated exposure)	Category 1 (Blood, eyes, nose, lungs, skin)
		Category 2 (liver, testicles)
Environmental Hazards	Aspiration hazard	Classification not possible
	Hazardous to the aquatic environment (acute)	Category 1
	Hazardous to the aquatic environment (chronic)	Category 1
	Hazardous to the ozone layer	Classification not possible

GHS Label Elements



Pictograms:

Signal Word: Danger

Hazard Statement: Extremely flammable aerosol
 Pressurized container: may burst if heated
 Harmful if inhaled (mist)
 Causes skin irritation
 Causes serious eye irritation
 Suspected of causing genetic defects
 Suspected of causing cancer
 Causes damage to organs (blood)
 May cause damage to organs (eyes, respiratory system)
 May cause drowsiness or dizziness
 Causes damage to organs through prolonged or repeated exposure (Blood, eyes, nose, lungs, skin)
 May cause damage to organs through prolonged or repeated exposure (liver, testicles)
 Very toxic to aquatic life with long lasting effects

Precautionary Statement:

Prevention Obtain special instructions (SDS) before use.
 Do not handle until all safety precautions have been read and understood.
 Keep away from ignition sources such as heat, sparks, open flames and hot objects. No smoking.
 Do not spray on an open flame or other ignition source.
 Do not pierce or burn, even after use.
 Avoid breathing gas, mist, vapor and 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.
 Avoid release to the environment.
 Wear protective gloves/eye protection/face protection/protective clothing.

Response IF ON SKIN: Wash with plenty of water and soap.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical advice/attention.
 If exposed or concerned: Call a POISON CENTER/doctor. Get medical advice/attention.
 Call a POISON CENTER/doctor, if you feel unwell. Get medical advice/attention.
 If skin irritation occurs: Get medical advice/attention.
 Take off contaminated clothing and wash it before reuse.
 Collect spillage.

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

Store locked up.

Protect from sunlight. Do not expose to temperatures exceeding 40°C/104°F.

Disposal Dispose of contents/container at an approved waste disposal plant in accordance with local/regional/national regulations.

Other hazards not categorized by GHS classification

Contact with liquefied gas may cause frostbite

3. Composition/Information on Ingredients

Substance/Mixture: Mixture

Chemical Name or Common Name	Content (%)	CAS No.
Aromatic hydrocarbon (Mineral oil)*	25–35	64742-94-5
Petroleum hydrocarbon (lubricant base oil)	10–20	Non-disclosure
Petroleum hydrocarbon (kerosene)	10–20	8008-20-6
Solvent Red 27	0.1–1.0	1320-06-5
Dimethylether (DME)	25–35	115-10-6
LPG (Liquefied Petroleum Gas)		
n-Butane	5–15	106-97-8
i-Butane	1–5	75-28-5

*Contains 0.1–2% indene, 1–15% trimethylbenzene mixture (includes 1–10% 1, 2, 4-trimethylbenzene), and 5–15% naphthalene (typical value)

4. First Aid Measures

IF INHALED: : Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor, if you feel unwell.

IF ON SKIN: : Take off immediately all contaminated clothing.
Rinse for at least 15 minutes with lukewarm slowly flowing water.
If skin irritation occurs, get medical advice/attention.
Wash contaminated clothes before reuse.

IF IN EYES: : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse for at least 15 minutes, and then get medical attention.

IF SWALLOWED: : Call a POISON CENTER/doctor, if you feel unwell.
If the product remains in the mouth, rinse thoroughly.
Do NOT induce vomiting.

Most Important Signs and Symptoms, Acute and Delayed : Inhaled: dizziness, headache
Skin: dryness, redness
Eyes: redness, pain
Ingested: burning sensation, stomachache, dizziness and nausea.

5. Firefighting Measures

- Extinguishing Media : Small fire: Carbon dioxide, powder extinguisher, foam extinguisher and water mist with extinguishing agent
Large fire: Foam extinguisher, plenty of water mist
- Inappropriate Extinguishing Media : Straight stream of water
- Specific Hazards : May explode if aerosol container is at the scene of a fire.
Extremely flammable and easily ignited by heat, spark and flame.
May cause vapor-explosion indoors, outdoors or in a sewage trench.
May generate irritant, poisonous, or corrosive gas in a fire.
- Special Firefighting Procedures : Extremely low flash point: Use water if other extinguishing media are not effective.
Remove containers from the fire area, if it can be done safely.
If not, spray containers and the surrounding area with water to keep them cool.
Conduct firefighting activities from the most distant place that allows it to be done effectively using an unmanned hose holder or a nozzle with a monitor.
Keep cooling containers with plenty of water even after the fire is extinguished.
- Protection of Firefighters : Wear appropriate protective equipment to avoid inhalation of toxic gases.
Fight a fire from upwind.

6. Accidental Release Measures

- Personal Precautions,
Protective Equipment and
Emergency Procedures : Operators must wear proper protective gear (refer to 8. Exposure Controls/Personal Protection) and avoid contact with the eyes and skin, and gas inhalation.
When leaking (spraying), handle from upwind. Keep the leaking spot facing up. Let the gas spray out completely and then perform the subsequent procedures.
Quickly remove nearby ignition sources, high-temperature objects and flammables. Evacuate anyone who is downwind and keep everyone out except authorized persons.
Ventilate before entering the restricted area.
- Environmental Precautions : Avoid draining to drainage trench, sewage trench, basement or a closed space.
Be careful not to discharge into rivers or anywhere else that would affect the environment.
- Method and Materials for
Containment and Cleaning
Up : Use tools whose materials do not generate sparks upon impact or due to static electricity.
For small leaks, collect the material by absorbing the released material with soil, sand, or non-combustible material.
For large leaks, put sand around the leakage to keep it from flowing out.
Process contaminated items and waste according to relevant regulations.
- Measures to Prevent
Secondary Accidents : Inform relevant organizations immediately to prevent further accidents and expansion.
Remove nearby potential ignition sources immediately and prepare fire extinguishing media.
Do not walk on the released material unnecessarily.

7. Handling and Storage

Handling

- Technical Measures** : Amounts larger than the designated amount must be handled in a factory, a storage facility, or a laboratory in compliance with the standards required by the relevant regulations.
Connect the equipment to ground and use explosion-proof electric appliances as an anti-static measure.
Do not use high-temperature objects, sparks and fire nearby. - No smoking.
Take engineering measures and use protective equipment as described in Section 8. Exposure Controls/Personal Protection.
Provide local and general ventilation as described in Section 8. Exposure Controls/Personal Protection.
- Precautions for Safe Handling** : Do not use things that generate fire, sparks and arcs or high-temperature objects.
Do not spray at an open flame or high-temperature incandescent objects.
Use this substance with one's back facing upwind to prevent it from being blown back on the user.
The container may rupture if stored in a high-temperature place.
Avoid contact, inhalation, or ingestion. Do not get in eyes. Wash hands thoroughly after handling.
Avoid contact with halogens, strong acids, alkalis, and oxidizing agents.

Storage

- Proper Storage Conditions** : Store in a cool, well-ventilated place, away from direct sunlight.
May leak or spray out if containers get rusty. Avoid storing it in a humid spot.
Store away from fire and heat sources.
Do not store where the temperature exceeds 40°C.
Use explosion-proof grounded electric appliances if using them in the storage area.
Store away from oxidizing agents because of the combustibility.
Store locked up.
- Safe Packaging Materials** : Use containers regulated by the High Pressure Gas Safety Act and other regulations.

8. Exposure Controls/Personal Protection

- Control Levels** : Not established
- Permissible Exposure Levels**
- Japan Society for Occupational Health (2015 version) : Mineral oil mist...3 mg/m³, 1,2,4-trimethylbenzene...25 ppm, 120 mg/m³
Butane...500 ppm, 1,200 mg/m³
- ACGIH : TLV-TWA
Trimethylbenzene mixture...25 ppm, naphthalene...10 ppm (2011 Version)
Kerosene...200 mg/m³ (2014 Version)
Butane...1,000 ppm (2008 Version)
- Engineering Measures** : In an indoor, inadequately ventilated workplace, provide local or general ventilation equipment. Install a face-washer and safety shower.
Facilities must be such that no equipment that reaches high temperatures or that could act as an ignition source will be installed near the place where this material is handled.
- Protective Equipment** : Wear the following protective equipment as needed:

Respiratory System Protection	: Organic gas masks, air-supplied respirators, breathing equipment, etc.
Hand Protection	: Protective gloves (solvent resistant, impermeable)
Eye Protection	: Eye protection, face protection.
Skin and Body Protection	: Oil-resistant (impermeable, anti-static) apron, (anti-static) protective wear, electrically conductive boots, etc.

9. Physical and Chemical Properties

	Contained liquid	Spraying agent (LPG)	Spraying agent (DME)
Physical state	Liquid	Under atmospheric pressure: gas, in pressurized container: liquid	Under atmospheric pressure: gas, in pressurized container: liquid
Color	Colorless and transparent	Colorless and transparent	Colorless and transparent
Odor	Unique smell	odorless	Unique smell (Similar to chloroforms)
Melting point/ freezing point	-91--90.5°C	-187.7--138.4°C	-141°C
Boiling point or initial boiling point and boiling range	98-98.4°C	-42.1--0.5°C	-24.9°C
Flammability	Flammable	Flammable	Flammable
Lower and upper explosion limit / flammability limit	1.0-7.0vol%	1.8-9.5vol%	3.4-27vol%
Flash point	-4°C (Closed cup)	-104.4--73.8°C	-41.1°C
Auto-ignition temperature	204-285°C	405-550°C	350°C
Decomposition temperature	No data available	No data available	No data available
pH	No data available	No data available	No data available
Kinematic viscosity	0.4169 mPa·s (20°C)	No data available	No data available
Solubility	Water insoluble (3.4 mg/L 25°C) Alcohol, ether, Soluble in chloroform	Slightly soluble in water	Soluble in water. Can be made incombustible by mixing it with an incombustible solvent.
Partition coefficient n- octanol/water (log value)	log Pow 4.66	No data available	No data available
Vapor pressure	4.6-6.1 kPa (25°C)	0.278-1.275 MPa (40°C)	0.59 MPa (25°C)
Density and/or relative density	0.684 (20/4°C)	0.539 (20°C)	0.661
Relative vapor density	3.46 (Air = 1)	1.895-2.538 kg/m ³ (1 MPa 15.6°C)	No data available

Particle characteristics	No data available	No data available	No data available
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10. Stability and Reactivity

Chemical Reactivity and Stability	: May rupture at 40°C or higher. Internal pressure at ambient temperature: approx. 0.42 MPa May catch fire and explode by electrostatic discharge.
Possibility of Hazardous Reactions	: May rupture by heat and impact. May cause fire and explosion if mixed with oxidizing agents or other hazardous reactive chemicals. A flammable liquefied gas and readily forms an explosive gas when mixed with air.
Conditions to Avoid	: Storage in hot, humid spots and usage near fire.
Incompatible Materials	: Halogens, strong acids, strong alkalis, strong oxidizing agents.
Hazardous Decomposition Products	: May generate toxic gases (CO, NO _x , etc.) by burning.

11. Toxicological Information

Acute Toxicity (oral)	: No data available
Acute toxicity (dermal)	: No data available
Acute Toxicity (inhalation)	: LC ₅₀ = 386 ppm/15 M (mouse), 308 g/m ³ (rat): dimethylether LC ₅₀ > 277,374 ppm/4 h (rat): n-butane
Skin Corrosion and Skin Irritation	: Description in EHC187 (1996): Aromatic hydrocarbon "A rabbit skin irritation test for four hours shows intermediate irritation and causes mild edema" May cause irritation by long or repeated contact: Lubricant base oil Irritant by contact with human skin, severe irritant to rabbit 500 mg: Kerosene
Serious Eye Damage or Eye Irritation	: Contains 10% or more of the components belonging to Category 2B: Aromatic hydrocarbon May cause irritation by long or repeated contact: Lubricant base oil Information on eye irritation: Dimethylether
Respiratory Sensitization or Skin Sensitization	: Respiratory sensitization: No data available Skin sensitization: No data available
Germ Cell Mutagenicity	: Contains 10% or more of the components belonging to Category 2 (Lubricant base oil)
Carcinogenicity	: Described as "Classified as group 3 by IARC and group A3 by ACGIH": Kerosene
Reproductive Toxicity	: No data available
Specific Target Organ Toxicity, Single Exposure	: Described as "Mixture contains 1% or more of the components belonging to Category 1 (Blood)": Aromatic hydrocarbon Described as "Mixture contains 1% or more of the components belonging to Category 2 (Eyes)": Aromatic hydrocarbon Contains 10% or more lubricant base oil belonging to Category 2 (Lungs).

Described as "Depresses central nervous system and causes dizziness in humans and respiratory passage irritation in a mouse inhalation exposure test":
Lubricant base oil, kerosene
Description in ACGIH and Japan Society for Occupational Health
Recommendation: n-butane "Has anesthetic effect or depresses central nervous system in humans by high-concentration inhalation"

Specific Target Organ

Toxicity, Repeated Exposure : Contains 10% or more aromatic hydrocarbon belonging to Category 1 (Blood, eyes, nose).
Contains 10% or more petroleum hydrocarbon belonging to Category 1 (Lungs, skin).

Contains 10% or more aromatic hydrocarbon belonging to Category 2 (Liver, testicles).

Aspiration Hazard : No data available

12. Ecological Information

Ecotoxicity : LC₅₀ = 0.42–2.3 mg/L/48 h (Crustacea Daphnia magna) (EHC187 1996): Aromatic hydrocarbon
LC₅₀ > 5,000 mg/L/96 h (Fish rainbow trout) (EHC187 1996): petroleum hydrocarbon

Persistency/Degradability : No data available

Bioaccumulative Potential : No data available

Mobility in Soil : No data available

Hazardous to the Ozone Layer : No data available

13. Disposal Considerations

Dispose of after complete degassing.

Have contents/container disposed of by an industrial waste disposal contractor licensed by the prefectural governor.

Dispose of or have waste generated from effluent treatment or incineration disposed of by a waste disposal contractor in accordance with the Waste Management and Public Cleansing Act and other related laws.

14. Transport information

UN Hazard Class : 2.1

UN No. : 1950

Follow other related laws and regulations.

15. Regulatory Information

Comply with the applicable laws and regulations regarding this product in each country/region.

16. Other Information

This Safety Data Sheet was prepared in accordance with JIS Z 7253:2019 to provide users of this product with reference information to ensure safe handling. Users are responsible for taking appropriate measures for individual

handling conditions with reference to this SDS.

This SDS does not represent any guarantee of safety.

Major references

Safety Data Sheets (SDS) provided by raw material manufacturers

Japanese Standards Association (JIS) JIS Z 7253:2019 “Hazard communication of chemicals based on GHS”

NITE Chemical Risk Information Platform (CHRIP)
