

SAFETY DATA SHEET

1 Product and Company Identification

Product identifier	Low Pressure High Output Amalgam UV Lamp		
CAS #	Mixture		
Product use	Ultraviolet (UV) Lamp		
Recommended restrictions	None known		
Manufacturer information	Trojan Technologies 3020 Gore Road London, ON N5V 4T7 CA Phone: 519-457-3400 Phone: 888-220-6118	Australian supplier	Alastair MacNab Trojan Technologies Group ULC 96 Ricketts Road MOUNT WAVERLY VIC 3149
Technical assistance #		Australian emergency #	Phone: 011 03 97283953 Mobile: 011 0488 080069
Within North America	Phone: 866-388-0488		
Outside North America	Phone: 519-457-2318		

2 Hazards Identification

Physical hazards	Not applicable to intact lamps.
Health hazards	Not applicable to intact lamps.
Environmental hazards	Not applicable to intact lamps.
WHMIS 2015 defined hazards	
Label elements	
Hazard symbol	Not applicable to intact lamps.
Signal word	Not applicable to intact lamps.
Hazard statement	Not applicable to intact lamps.
WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC)	None known
WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)	None known
Hazard(s) not otherwise classified (HNOC)	None known
Supplemental information	None

3 Composition/Information on Ingredients

Components	CAS#	Percent
Indium	7440-74-6	<0.1
Mercury	7439-97-6	<0.1
Composition Comments	*Lamp consisting of quartz glass containing mercury amalgamated with metal(s).	

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4 First Aid Measures

Inhalation	Not applicable to intact lamps.
Skin Contact	Not applicable to intact lamps.
Eye Contact	Not applicable to intact lamps.
Ingestion	Not applicable to intact lamps.
General Information	<p>Burns caused by overexposure or severe injuries caused by fragment of quartz glass should be treated by a physician.</p> <p>Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.</p> <p>If you feel unwell, seek medical advice (show the label where possible).</p> <p>Show this safety data sheet to the doctor in attendance.</p> <p>Avoid contact with eyes and skin.</p> <p>Keep out of reach of children.</p> <p>There are no known health hazards from exposure to intact, un-energized lamps.</p>

5 Fire Fighting Measures

Flammable properties	Not flammable by WHMIS/OSHA criteria.
Suitable extinguishing media	Extinguishing powder, foam, or water.
Unsuitable extinguishing media	Not available
Specific hazards arising from the chemical	Not available
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.
Hazardous combustion	May include and are not limited to: Mercury, metallic oxides.
Products	Lamp is not combustible.

6 Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	<p>Keep unnecessary personnel away.</p> <p>Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.</p>
Methods and materials for containment	<p>In the event of a lamp breakage, appropriate action should be taken to contain the amalgam mercury.</p> <p>In a dry scenario where the lamp is not operating, solid amalgam mercury can be easily captured.</p> <p>In an operating closed- or open-channel system, a lamp breakage inside an intact sleeve can be easily captured.</p> <p>In an operating closed- or open-channel system, in case of a lamp and sleeve breakage in a system treating the water flow, no containment measure is available.</p> <p>Prevent entry of the solid amalgam mercury into waterways, sewers, or other catchment systems.</p>
Methods and materials for cleanup	<p>If lamps are broken, ventilate the area where the breakage occurred.</p> <p>Take the usual precautions for collecting broken glass.</p> <p>Clean up with a mercury vacuum cleaner or with other suitable means that avoids dust and mercury vapor generation.</p> <p>DO NOT USE A STANDARD VACUUM.</p>

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Place collected materials in a closed container to avoid generating dust.

In the event of a lamp breakage, appropriate action should be taken to contain the spill (solid Hg amalgam).

Additional guidance on cleaning up broken lamps may be obtained at:

<http://www2.epa.gov/cfl/cleaning-broken-cfl#instructions>.

Environmental precautions

Do not discharge into lakes, streams, ponds or public waters.

Do not contaminate water courses or ground.

Prevent entry into waterways, sewers, basements or confined areas.

This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Prevent entry into waterways, sewers, basements or confined areas.

This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water.

7 Handling and Storage

Precautions for safe handling

Handle carefully to avoid breakage.

Ensure adequate ventilation.

Use good industrial hygiene practices in handling this material.

Conditions for safe storage, including any incompatibilities

Keep out of reach of children. Keep in properly labeled containers.

8 Exposure Controls/Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values Components

Indium (CAS 7440-74-6)

Type

TWA

Value

0.1 mg/m³

Mercury (CAS 7440-74-6)

TWA

0.025 mg/m³

US. OSHA Table Z-2 (29 CFR 1910.1000) Components

Mercury (CAS 7439-97-6)

Type

TWA

Value

0.1 mg/m³

Exposure limits

Exposure to mercury is only possible due to lamp breakage, refer [Section 6](#).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Use only under good ventilation conditions.

Individual protection measures, such as personal protective equipment, Eye/face protection

Avoid contact with eyes. Wear appropriate safety glasses with side shields (or goggles).

In operation, UV lamps emit non-ionizing radiation in the 180~400 nanometer wavelength region of the electromagnetic spectrum. The UV light intensity greatly exceeds levels found in nature.

Exposure can result in temporary or permanent eye injury, skin burns or other serious effects.

Individuals present where UV lamps are in operation are at risk for UV exposure if the appropriate shielding and Personal Protective Equipment (PPE) are not used.

Refer to product manuals and product warning labels for safe operating procedures and Personal Protective Equipment.

Skin protection: Hand protection

Avoid contact with the skin. Wear impervious gloves. Confirm from a reputable supplier first. If glass is broken, use cut resistance gloves to prevent injury.

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Other

Emergency responders should wear impermeable clothing and footwear when responding to a situation where contact with the mercury liquid is possible.

Wash hands IMMEDIATELY if mercury leakage occurs.

Contaminated clothes must be changed immediately and discarded appropriately.

Respiratory protection

Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.

Thermal hazards

Not applicable

General safety and hygiene consideration

Ultraviolet radiation is emitted from the lamps. Use of approved eye and skin protection to block UV radiation. Handle in accordance with good industrial hygiene and safety practice.

9 Physical and Chemical Properties

Appearance	Article (Solid)
Color	Colorless
Form	Quartz tube containing amalgam mercury and other metals.
Odor	Odorless
Odor Threshold	Not available
Physical State	Solid
pH	Not available
Freezing point	Not available
Boiling point	Not applicable
Pour point	Not available
Evaporation rate	Not available
Flash point	Not applicable
Auto-ignition temperature	Not available
Flammability limits in air, upper, % by volume	Not available
Flammability limits in air, lower, % by volume	Not available
Vapor pressure	In case of breakage, mercury vapor pressure: <0.01 mm Hg at room temperature.

10 Stability and Reactivity

Reactivity	Amalgam mercury is contained in a glass tube and therefore is not able to react with chemicals within the surrounding environment.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	None identified for intact lamps.
Incompatible materials	Amalgam mercury is contained in a glass tube and therefore is not able to react with chemicals within the surrounding area.
Hazardous decomposition products	None identified for intact lamps. In case of breakage: May include and are not limited to: Mercury, metallic oxides.

11 Toxicological Information

Toxicological data

Components

Species

Test Results

Indium (CAS 7440-74-6)

LC50

Not Available

LD50

Not Available

Mercury (CAS 7439-97-6)

Acute

Inhalation

LC50

Rat

2.3 ppm, 4 hr

LD50

Not Available

Emergency overview

The lamp, which consists of quartz glass, is not dangerous under regular conditions. This item is a manufactured article. The mercury within the lamp is only available if the lamp is broken. Please follow standard health and safety guidelines for the use of this product.

The following statements are applicable only in case of accidental breakage of the lamp:

Routes of exposure

Eye, Skin contact, Skin absorption, Inhalation, Ingestion.

Information on likely routes of exposure:

Eyes

May cause irritation.

Skin

May cause irritation.

US ACGIH Threshold Limit Values: Skin designation

Mercury (CAS 7439-97-6)

Hg Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Mercury (CAS 7439-97-6)

VAP Hg Can be absorbed through the skin.

Inhalation

May cause respiratory tract irritation.

Ingestion

May cause stomach distress, nausea or vomiting.

Dermal

May cause irritation.

Chronic Effects

Long-term occupational exposure to moderate to high levels of mercury (0.035 to 0.1 mg/m³) has resulted in both nervous system and kidney effects. Significant toxicity has been observed in animals exposed to low concentrations.

Signs and symptoms

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

12 Ecological Information

Ecotoxicity

See below

Ecotoxicological data

Components

Species

Test Results

Mercury (CAS 7439-97-6)

Aquatic

Fish

LC50

Indian catfish (Heteropneustes fossils)

0.099 mg/l, 96 hours

Persistence and degradability

Not available

Bioaccumulation / Accumulation

Not available

US CWA Bioaccumulative Chemicals of Concern: Listed substance

Mercury (CAS 7439-97-6)

Listed

US CWA Bioaccumulative Chemicals of Concern: Listed substance

Mobility in environmental media	Not available
Environmental effects	Not available
Aquatic toxicity	Not available
Partition coefficient	Not available
Chemical fate information	Not available

13 Disposal Information

Disposal instructions	Waste must be disposed of in accordance with federal, state/provincial and local environmental control regulations. This material and its container must be disposed of as hazardous waste.
Waste from residues / unused Products	Not available
Contaminated packaging	Not available

14 Transport Information

UN number	
TDG/US DOT	3506
IMDG/IMO	3506
IATA/ICAO	3506
Remarks TDG/US DOT	This product is not subject to the transportation regulations of dangerous goods by road (ADR) based on special provision 366 (<1 kg mercury per article).
Remarks IMDG/IMO	This product is not subject to the transportation regulations of dangerous goods by sea (IMDG) based on special provision 366 (<1 kg mercury per article).
* Remarks IATA/ICAO	For transport exemptions consult IATA special provisions A48, A69 and A191.
UN proper shipping name	
TDG/US DOT	MERCURY CONTAINED IN MANUFACTURED ARTICLES
IMDG/IMO	MERCURY CONTAINED IN MANUFACTURED ARTICLES
IATA/ICAO	MERCURY CONTAINED IN MANUFACTURED ARTICLES
Transport hazard class(es)	
TDG/US DOT	8 (6.1)
IMDG/IMO	8 (6.1)
IATA/ICAO	8 (6.1)
Packing group	
TDG/US DOT	none
IMDG/IMO	none
IATA/ICAO	none
Environmental hazards	
Marine pollutant	No

15 Regulatory Information

Canadian federal regulations	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.	
Canada CEPA Schedule I: Listed substance	Mercury (CAS 7439-97-6)	Listed
Canada WHMIS Ingredient Disclosure: Threshold limits	Indium (CAS 7440-74-6)	1%

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Mercury (CAS 7439-97-6) 0.1%

WHMIS classification Exempt - Manufactured article

Occupational Safety and Health Administration (OSHA)
29 CFR 1910.1200 hazardous chemical

No

US federal regulations This product is a manufactured article and is exempt.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Mercury (CAS 7439-97-6) 1.0 %

Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold

Mercury (CAS 7439-97-6) 10 lbs

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Mercury (CAS 7439-97-6) Listed

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Mercury (CAS 7439-97-6) 1.0 % One-Time Export Notification only.

US CWA Bioaccumulative Chemicals of Concern: Listed substance

Mercury (CAS 7439-97-6) Listed

US CWA Section 307(a)(1) Toxic Pollutants: Listed substance

Mercury (CAS 7439-97-6) Listed

CERCLA Hazardous Substance List (40 CFR 302.4)

Mercury (CAS 7439-97-6) Listed

US CAA Section 112(i) High-Risk Hazardous Air Pollutants (HAPs): Weight factor

Mercury (CAS 7439-97-6) 100

US CAA Section 112(i) High-Risk Hazardous Air Pollutants (HAPs): Listed substance

Mercury (CAS 7439-97-6) Listed

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Mercury (CAS 7439-97-6) Listed

CERCLA (Superfund) reportable quantity

Mercury: 1

Superfund Amendments and Reauthorization Act of 1986 (SARA) Hazard categories

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - No Reactivity

Hazard - No

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

State regulations
US - California Hazardous Substances (Director's): Listed substance

Indium (CAS 7440-74-6) Listed

Mercury (CAS 7439-97-6) Listed

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

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US - Illinois Chemical Safety Act: Listed substance

Mercury (CAS 7439-97-6)

US - Louisiana Spill Reporting: Listed substance

Mercury (CAS 7439-97-6)

US - Michigan Critical Materials Register: Parameter number

Mercury (CAS 7439-97-6)

US - Minnesota Haz Subs: Listed substance

Indium (CAS 7440-74-6) Listed

Mercury (CAS 7439-97-6) Listed

US - New Jersey RTK - Substances: Listed substance

Indium (CAS 7440-74-6) Listed

Mercury (CAS 7439-97-6) Listed

US - New York Release Reporting: Hazardous Substances: Listed substance

Mercury (CAS 7439-97-6)

US - North Carolina Toxic Air Pollutants: Listed substance

Mercury (CAS 7439-97-6)

US - Pennsylvania RTK - Hazardous Substances: All compounds of this substance are considered environmental hazards

Mercury (CAS 7439-97-6)

US - Texas Effects Screening Levels: Listed substance

Indium (CAS 7440-74-6) Listed

Mercury (CAS 7439-97-6) Listed

US - Washington Chemical of High Concern to Children: Listed substance

Mercury (CAS 7439-97-6)

US. Massachusetts RTK - Substance List

Indium (CAS 7440-74-6) Listed

Mercury (CAS 7439-97-6) Listed

16 Other Information

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

NFPA Code

(Health: 1)
(Flammability: 0)
(Reactivity: 0)

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22-January-2018

Version #

01

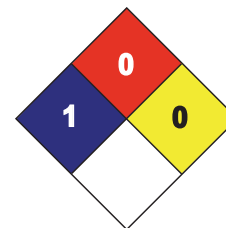
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22-January-2018

Prepared by

Manufacturer Personnel

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0



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For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

In the event of a lamp breakage, appropriate action should be taken to contain the spill. Lamp breakage can occur in several scenarios, each requiring different action. In an operating closed- or open-channel system, a lamp and sleeve break will be very difficult to contain since the mercury vapor will quickly condense, be diluted, and subsequently carried away by the flowing wastewater/water stream. Please refer to the [Section 6](#) in order to respond to a lamp breakage.