



TOKYO CHEMICAL INDUSTRY CO., LTD.

Lead(II) Iodide (99.99%, trace metals basis) [for Perovskite precursor]

Revision 2  
number:

Revision date: 12/04/2020

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## SAFETY DATA SHEET

### 1. IDENTIFICATION

**Product name:** Lead(II) Iodide (99.99%, trace metals basis) [for Perovskite precursor]  
**Product code:** L0279  
**Company:** TOKYO CHEMICAL INDUSTRY CO., LTD.  
**Address:** 4-10-2, Nihonbashi-honcho, Chuo-ku, Tokyo 103-0023, Japan  
**Responsible department:** Global Business Department  
**Telephone:** +81-3-5640-8872  
**Fax:** +81-3-5640-8902  
**e-mail:** globalbusiness@TCIchemicals.com  
**Revision number:** 2

#### SUPPLIER CONTACT DETAILS IN AUSTRALIA

**Company:** ChemSupply Australia Pty Ltd  
**Address:** 38-50 Bedford Street, Gillman SA 5013  
**Telephone:** (08) 8440 2000  
**Emergency telephone number:** (CHEMCALL®, 24 hours): 1800 127 406 (Australia), +64 4 917 9888 (International)

### 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

#### PHYSICAL HAZARDS

Not classified

#### HEALTH HAZARDS

**Acute toxicity (Oral)** Category 3  
**Acute toxicity (Inhalation)** Category 3  
**Carcinogenicity** Category 1B  
**Reproductive toxicity** Category 1A  
**Specific target organ toxicity - Single exposure [Category 1]** Blood system, Nervous system, Kidney  
**Specific target organ toxicity - Repeated exposure [Category 1]** Blood system, Nervous system, Kidney  
**Specific target organ toxicity - Repeated exposure [Category 2]** Organs

#### ENVIRONMENTAL HAZARDS

**Acute aquatic hazard** Category 1  
**Long-term aquatic hazard** Category 1

#### Label elements

#### Pictograms or hazard symbols



#### Signal word

Danger

#### Hazard statements

Toxic if swallowed or if inhaled.  
 May cause cancer  
 May damage fertility or the unborn child  
 Causes damage to organs : Blood system Nervous system Kidney  
 Causes damage to organs through prolonged or repeated exposure : Blood system Nervous system Kidney  
 May cause damage to organs through prolonged or repeated exposure : Organs

Very toxic to aquatic life  
Very toxic to aquatic life with long lasting effects

**Precautionary statements**  
**[Prevention]**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dust, fume, mist, vapors or spray.  
Use only outdoors or in a well-ventilated area.  
Avoid release to the environment.  
Do not eat, drink or smoke when using this product.  
Wash hands and face thoroughly after handling.

**[Response]**

Wear protective gloves, protective clothing, face protection.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor.  
If exposed or concerned: Call a POISON CENTER or doctor.

**[Storage]**

Collect spillage.  
Store in a well-ventilated place. Keep container tightly closed.  
Store locked up.

**[Disposal]**

Dispose of contents and container in accordance with local, regional, national regulations.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substance/mixture:** Substance  
**Chemical Formula:**  $PbI_2$   
**Notice Through Official Gazettes Reference Number**  
**ENCS:** (1)-1139  
**ISHL:** Official announcement chemistry substance.

**4. FIRST-AID MEASURES**

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.  
**Skin contact:** Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Call a POISON CENTER or doctor/physician.  
**Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Call a POISON CENTER or doctor/physician.  
**Ingestion:** Immediately call a POISON CENTER or doctor/physician. Rinse mouth.  
**Protection of first-aiders:** A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

**5. FIRE-FIGHTING MEASURES**

**Suitable extinguishing media:** Dry chemical, foam, water spray, carbon dioxide.  
**Precautions for firefighters:** Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so.  
**Special protective equipment for firefighters:** When extinguishing fire, be sure to wear personal protective equipment

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Keep people away from and upwind of spill/leak. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.  
**Environmental precautions:** Be careful not to let it flow into rivers, etc., since adverse effects on the environment are concerned.  
**Methods and materials for containment and cleaning up:** Sweep dust to collect it into an airtight container, taking care not to disperse it. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Technical measures:** Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent dispersion of dust. Wash hands and face thoroughly after handling.  
Use a closed system if possible. Use a local exhaust if dust or aerosol will be generated.

**Advice on safe handling:** Avoid all contact!

### Conditions for safe storage, including any incompatibilities

**Storage conditions:** Keep container tightly closed. Store in a cool, dark and well-ventilated place.  
Store under inert gas.  
Store locked up.  
Store away from incompatible materials such as oxidizing agents.  
Air-sensitive

**Packaging material:** Comply with laws.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering controls:** Install a closed system or local exhaust. Also install safety shower and eye bath.

**Control parameters:** as Pb 0.05 mg/m<sup>3</sup>

### **Exposure limits:**

**ACGIH TLV(TWA):** 0.05 mg(Pb)/m<sup>3</sup>

**OSHA PEL(TWA):** 0.03 mg(Pb)/m<sup>3</sup>

**JSOH OELs(TWA):** 0.03 mg(Pb)/m<sup>3</sup>

### **Personal protective equipment**

**Respiratory protection:** Dust respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.

**Hand protection:** Impervious gloves.

**Eye protection:** Safety goggles. A face-shield, if the situation requires.

**Skin and body protection:** Impervious protective clothing. Protective boots, if the situation requires.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state (20°C):** Solid  
**Form:** Crystal - Powder  
**Colour:** Pale yellow - Yellow red  
**pH:** No data available  
**Melting point/freezing point:** 412°C  
**Boiling point/range:** 954°C  
**Flash point:** No data available  
**Flammability or explosive limits:**  
**Lower:** No data available  
**Upper:** No data available  
**Vapour pressure:** 0.14kPa/300°C  
**Relative density:** No data available  
**Solubility(ies):**  
**[Water]** No data available  
**[Other solvents]** No data available

## 10. STABILITY AND REACTIVITY

**Reactivity:** No data available  
**Chemical stability:** Stable under proper conditions.  
**Possibility of hazardous reactions:** No special reactivity has been reported.  
**Incompatible materials:** Oxidizing agents  
**Hazardous decomposition products:** Hydrogen Iodide, Lead oxides

## 11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	No data available
Skin corrosion/irritation:	No data available
Serious eye damage/irritation:	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	
IARC =	Group 2A (Probably carcinogenic to humans)
NTP =	b (Reasonably anticipated to be carcinogens)
Reproductive toxicity:	No data available

## 12. ECOLOGICAL INFORMATION

Ecotoxicity:	
Fish:	No data available
Crustacea:	No data available
Algae:	No data available
Persistence / degradability:	No data available
Bioaccumulative potential(BCF):	No data available
Mobility in soil	
Log Pow:	No data available
Soil adsorption (Koc):	No data available
Henry's Law (PaM <sup>3</sup> /mol):	No data available
Other adverse effects:	No data available

## 13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. Observe all federal, state and local regulations when disposing of the substance.

## 14. TRANSPORT INFORMATION

Hazards Class:	6.1: Toxic substance.
UN-No:	2291
Proper shipping name:	Lead compound, soluble, n.o.s.
Packing group:	III
Marine pollutant	Y
Specific precautionary transport measures and conditions:	

## 15. JAPANESE REGULATORY INFORMATION

Poisonous and Deleterious Substances Control Law:	on Deleterious Substances List.
ISHL(Article 57):	Dangerous or Harmful Substances Subject to Be Indicated their Names, etc.
ISHL(Article 57-2):	Dangerous or Harmful Substances Subject to Be Notified their Names, etc.
Law for safety of vessels:	Hazardous materials notification, Schedule form No.1 Toxic substance
Pollutant Release and Transfer Register Law:	on Specified Chemical Substances, Class I List (No.305)
Air Pollution Control Law:	Harmful substances
Water Pollution Control Law:	Harmful substances

## 16. OTHER INFORMATION

### The reference company name of written contents

**Company:** TOKYO CHEMICAL INDUSTRY CO., LTD.  
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This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.