

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** Thallium doped Cesium Iodide Crystal

**Product Code:** CSI-TLD-01-XTAL

**CAS Number:** N/A

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:

GHS08 health hazard

Repr. 2 - H361 Suspected of damaging fertility or the unborn child.

GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2

H315 Causes skin irritation.

Eye Irrit. 2

H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3

H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

Xn; Harmful

R20/22-62: Harmful by inhalation and if swallowed. Possible risk of impaired fertility.

Xi; Irritant

R36/37/38: Irritating to eyes, respiratory system and skin.

Sensitising

R43: May cause sensitisation by skin contact.

Dangerous for the environment

R50: Very toxic to aquatic organisms.

Label elements

Labelling according to Regulation (EC) No 1272/2008:

The product is classified and labelled according to the CLP regulation.

Hazard pictograms:



Signal word: Warning

Hazard-determining components of labelling:

cesium iodide

thallium iodide

Hazard statements:

H302+H332 Harmful if swallowed or if inhaled.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H317

May cause an allergic skin reaction.

H361

Suspected of damaging fertility or the unborn child.

H335

May cause respiratory irritation.

H400

Very toxic to aquatic life.

Precautionary statements:

P261

Avoid breathing dust/fume/gas/mist/vapors/spray.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P273

Avoid release to the environment.

P264

Wash 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.

P201

Obtain special instructions before use.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P362

Take off contaminated clothing and wash before reuse.

P304+P340

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P363

Wash contaminated clothing before reuse.

P332+P313

If skin irritation occurs: Get medical advice/attention.

P333+P313

If skin irritation or rash occurs: Get medical advice/attention.

P337+P313

If eye irritation persists: Get medical advice/attention.

P330

Rinse mouth.

P391

Collect spillage.

P405

Store locked up.

P403+P233

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

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Results of PBT and vPvB assessment:

The components do not meet the criteria for classification as PBT or vPvB.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS # / Substance Name

7789-17-5 Cesium iodide

Identification number(s):

EC number: 232-145-2

Description: White crystal, doped with thallium

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## SECTION 4. FIRST AID MEASURES

Description of first aid measures

If inhaled:

Take affected persons into fresh air and keep quiet.

Seek immediate medical advice.

In case of unconsciousness place patient stably in side position for transportation.

In case of breathing difficulties administer oxygen.

In case of irregular breathing or respiratory arrest provide artificial respiration.

In case of allergic symptoms in the breathing area, seek medical advice immediately.

Do not use mouth to mouth or mouth to nose resuscitation.

In case of skin contact:

Take off all contaminated clothing.

Immediately wash with soap and water; rinse thoroughly.

If skin irritation continues, consult a doctor.

In case of eye contact:

Protect unharmed eye.

Rinse opened eye for several minutes under running water.

Remove contact lenses, if present and easy to do. Continue rinsing.

Call a doctor immediately.

If swallowed:

Rinse mouth.

Do not induce vomiting; call for medical help immediately.  
Most important symptoms and effects, both acute and delayed:  
Allergic reactions  
Irritating effect  
Headache  
Fever  
Erythema (reddening)  
Inflammation of the skin  
Prolonged/repetitive skin contact may cause skin defatting or dermatitis.  
Hazards:  
Harmful if swallowed.  
Harmful if inhaled.  
Indication of any immediate medical attention and special treatment needed  
First Aid, decontamination, treatment of symptoms.

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media  
Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.  
For safety reasons unsuitable extinguishing agents: Water with full jet  
Special hazards arising from the substance or mixture  
The product is non flammable.  
In certain fire conditions, traces of other toxic gases cannot be excluded, e.g.:  
Hydrogen iodide (HI)  
Metal oxide fume  
Advice for firefighters  
Protective equipment:  
Do not inhale explosion gases or combustion gases.  
Wear self-contained respiratory protective device.  
Wear fully protective suit.  
Additional information:  
Move undamaged containers from immediate hazard area if it can be done safely.  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Collect contaminated fire fighting water separately. It must not enter the sewage system.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures  
Use personal protective equipment. Keep unprotected persons away.  
Avoid formation of dust.  
Avoid any contact with eyes or skin.  
Do not inhale dust / smoke / mist.  
Ensure adequate ventilation.  
Remove persons from danger area.  
Environmental precautions:  
Dumping into the environment must be prevented.  
Do not allow material to penetrate the ground or soil.  
Do not allow product to enter drains, sewage systems, or other water courses.  
Methods and material for containment and cleaning up  
Remove mechanically, placing in appropriate containers for disposal.  
Use approved industrial vacuum cleaner for removal.

Ensure adequate ventilation.  
Dispose of the material collected according to regulations.  
Reference to other sections  
See section 1 for emergency contact details.  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

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## **SECTION 7. HANDLING AND STORAGE**

Precautions for safe handling  
Avoid any contact with eyes or skin. Wear personal protective equipment.  
Do not breathe dust/fume/gas/mist/vapors/spray.  
Provide for sufficient ventilation and punctiform suction at critical points.  
Prevent formation of dust.  
Information about fire - and explosion protection:  
No special measures required.  
Usual measures for fire prevention.  
Conditions for safe storage, including any incompatibilities  
Requirements to be met by storerooms and receptacles:  
Store only in the original container.  
Access is only to be granted to authorised personal.  
Information about storage in one common storage facility:  
Keep away from food, drink and animal feeding stuffs.  
Do not store together with oxidizing and acidic materials.  
Store away from water.  
Further information about storage conditions:  
Store in cool, dry conditions in well-sealed containers.  
Protect from humidity and water.  
Protect from heat and direct sunlight.  
This product is hygroscopic.  
Store under lock and key and with access restricted to technical experts or their assistants only.  
Storage class: 13 Incombustible solids  
Specific end use(s): See section 1

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Exposure controls  
Personal protective equipment:  
General protective and hygienic measures:  
Avoid contact with the eyes and skin.  
Do not inhale dust / smoke / mist.  
Ensure that washing facilities are available at the work place.  
Wash hands before breaks and at the end of work.  
Do not eat, drink, smoke or sniff while working.  
Immediately remove all soiled and contaminated clothing  
Store protective clothing separately.  
The usual precautionary measures are to be adhered to when handling chemicals.  
Respiratory protection:  
If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn.

The filter class must be suitable for the maximum contaminant concentration (gas/Vapor/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

Suitable respiratory protective equipment:

Half-mask (EN 140) with filter FFP1 or P2 (EN 149)

Protection of hands:

Tested protective gloves are to be worn. When handling chemical substances, chemical protective gloves must be worn with CE label including a four digit code. Type of chemical protective gloves to choose depends on the concentration and quantity of dangerous substances as well as on work place specifications. In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer of the gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves:

Recommendation:

Nitrile rubber, NBR

Butyl rubber, BR

Recommended thickness of the material:  $\geq 0.35$  mm

Penetration time:

> 480 min (EN 374)

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles

Body protection:

Only wear fitting, comfortable and clean protective clothing.

Recommendation:

Protective work clothing

Boots

Limitation and supervision of exposure into the environment: Dumping into the environment must be prevented.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Solid Crystalline

Colour: White

Odor: Odorless

Odor threshold: Not determined.

pH: N/A

Melting point/Melting range: 621 °C

Boiling point/Boiling range: 1280 °C

Flash point: N/A

Flammability (solid, gas): Product is not flammable.

Ignition temperature: Not determined.

Decomposition temperature: Not determined.

Self-igniting: Product is not selfigniting.

Danger of explosion: Not explosive.

Vapor pressure: N/A

Density at 25 °C: 4.5 g/cm<sup>3</sup>  
Vapor density: N/A  
Evaporation rate: N/A  
Solubility in / Miscibility with water at 20 °C: ~670 g/l  
Partition coefficient (n-octanol/water): Not determined.  
Viscosity:  
Dynamic: N/A  
Kinematic: N/A  
Other information  
Hygroscopic crystal.

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity: The product is stable under standard conditions (temperature, pressure) of storage and handling.

Chemical stability: The product is hygroscopic.

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid:

Avoid generation of dust.

Protect from direct sunlight.

Heat

Water / moisture

Incompatible materials:

Acids

Oxidizing agents

Hazardous decomposition products:

In case of fire, the following products can be released:

Iodine compounds

Hydrogen iodide (HI)

Metal oxid fume

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## SECTION 11. TOXICOLOGICAL INFORMATION

Primary irritant effect:

on the skin: Irritating to skin.

on the eye: Irritating effect.

on the respiratory tract:

May cause respiratory irritation.

Sensitization: Sensitization possible through skin contact.

Additional toxicological information: Harmful

CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):

Carcinogenicity: No indications of human carcinogenicity exist.

Mutagenicity: No indications of human germ cell mutagenicity exist.

Reproductive toxicity: Suspected of damaging fertility or the unborn child.

Repr. 2

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## SECTION 12. ECOLOGICAL INFORMATION

Persistence and degradability: No data available.

Bioaccumulative potential: No indication of bio-accumulation potential.

Mobility in soil: No data available.

General notes:

Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water

The material is harmful to the environment.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

Other adverse effects: No data available.

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods

Recommendation:

Must be specially treated adhering to official regulations.

Must not be disposed together with household garbage. Do not allow product to enter drains, sewage systems, or other water courses system.

Hand over to officially registered waste disposal company.

Waste disposal according to official state regulations.

Uncleaned packaging:

Recommendation:

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

Packagings that may not be cleansed are to be disposed of in the same manner as the product.

Disposal must be made according to official regulations.

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## **SECTION 14. TRANSPORT INFORMATION**

UN-Number

ADR, IMDG, IATA

UN3077

UN proper shipping name

ADR

3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cesium iodide, thallium iodide)

IMDG

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cesium iodide, thallium iodide), MARINE POLLUTANT

IATA

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cesium iodide, thallium iodide)

Transport hazard class(es)

ADR, IMDG, IATA

Class

9 Miscellaneous dangerous substances and articles.

Label

9

Packing group

ADR, IMDG, IATA

III

Environmental hazards:

Product contains environmentally hazardous substances: caesium iodide



Marine pollutant:

Yes

Symbol (fish and tree)

Special marking (ADR):

Symbol (fish and tree)

Special marking (IATA):

Symbol (fish and tree)

Special precautions for user

Warning: Miscellaneous dangerous substances and articles.

Danger code (Kemler):

90

EMS Number:

F-A,S-F

14.7. Transport in bulk according to Annex II of  
MARPOL73/78 and the IBC Code

N/A

Transport/Additional information:

ADR

Limited quantities (LQ)

5 kg

Transport category

3

Tunnel restriction code

E

UN "Model Regulation":

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cesium iodide, thallium  
iodide), 9, III

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## SECTION 15. REGULATORY INFORMATION

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

EU-Regulations

Regulation (EC) No 1907/2006 (REACH)

Regulation (EC) No 1272/2008 (CLP)

Directives 67/548/EEC and 1999/45/EC

Directive 89/656/EEC

Labelling according to Regulation (EC) No 1272/2008: GHS label elements

National regulations:

Information about limitation of use:

Employment restrictions concerning juveniles must be observed.

Employment restrictions concerning pregnant and lactating women must be observed.

Employment restrictions concerning women of child-bearing age must be observed.

Other regulations, limitations and prohibitive regulations: National legislation has to be observed!

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the

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