



Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

- Product Name** • Cesium Iodide (Na) scintillation crystal
- Synonyms** • Cesium Iodide CsI(NaI)

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified use(s)** • Scintillation material for Radiation Detection

1.3 Details of the supplier of the safety data sheet

- Manufacturer** • Luxium Solutions
17900 Great Lakes Parkway
Hiram, OH 44234
United States
www.luxiumsolutions.com

Telephone (General) • 440-834-5600

1.4 Emergency telephone number

Contract # 6493674

- U.S. & Canada** • 1-800-255-3924 – VelocityEHS
- International** • +1-813-248-0585 – VelocityEHS

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 2015/830]

According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

- CLP** • Due to formed nature of this product, no airborne concentrations are expected.
Acute Toxicity Oral 4 - H302
Skin Sensitization 1 - H317
Respiratory Sensitization 1 - H334
- DSD/DPD** • Harmful (Xn)
Substances Toxic To Reproduction - Category 1
R22, R61

2.2 Label Elements

CLP

DANGER



- Hazard statements**
- H302 - Harmful if swallowed
 - H317 - May cause an allergic skin reaction
 - H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
 - H360 - May damage fertility or the unborn child.

Precautionary statements

- Prevention**
- P201 - Obtain special instructions before use.
 - P202 - Do not handle until all safety precautions have been read and understood.
 - P261 - Avoid breathing dust.
 - P264 - Wash thoroughly after handling.
 - P270 - Do not eat, drink or smoke when using this product.
 - P272 - Contaminated work clothing should not be allowed out of the workplace.
 - P280 - Wear protective gloves, clothing, and eye/face protection, .
 - P281 - Use personal protective equipment as required.
 - P285 - In case of inadequate ventilation wear respiratory protection.
- Response**
- P304+P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
 - P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
 - P363 - Wash contaminated clothing before reuse.
 - P321 - Specific treatment, see supplemental first aid information.
 - P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
 - P301+P312 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell.
 - P330 - Rinse mouth.
 - P308+P313 - IF exposed or concerned: Get medical advice/attention.
- Storage/Disposal**
- P405 - Store locked up.
 - P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD



- Risk phrases**
- R22 - Harmful if swallowed.
 - R61 - May cause harm to the unborn child.
- Safety phrases**
- S53 - Avoid exposure - obtain special instructions before use.

2.3 Other Hazards

- CLP**
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.
- DSD/DPD**
- This product is considered dangerous according to the European Directive 67/548/EEC.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

- OSHA HCS 2012**
- Due to formed nature of this product, no airborne concentrations are expected.
 - Acute Toxicity Oral 4
 - Skin Sensitization 1
 - Respiratory Sensitization 1
 - Reproductive Toxicity 1A

2.2 Label elements

OSHA HCS 2012**DANGER**

- Hazard statements**
- Harmful if swallowed
 - May cause an allergic skin reaction
 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
 - May damage fertility or the unborn child.

Precautionary statements

- Prevention**
- Obtain special instructions before use.
 - Do not handle until all safety precautions have been read and understood.
 - Avoid breathing dust.
 - Wash thoroughly after handling.
 - Do not eat, drink or smoke when using this product.
 - Contaminated work clothing should not be allowed out of the workplace.
 - Wear protective gloves, clothing, and eye/face protection, .
 - In case of inadequate ventilation wear respiratory protection.
- Response**
- **IF INHALED:** If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
 - If on skin: Wash with plenty of water .
 - Wash contaminated clothing before reuse.
 - Specific treatment, see supplemental first aid information.
 - If skin irritation or rash occurs: Get medical advice/attention.
 - **IF SWALLOWED:** Immediately call a POISON CENTER or doctor/physician if you feel unwell.
 - Rinse mouth.
 - **IF exposed or concerned:** Get medical advice/attention.
- Storage/Disposal**
- Store locked up.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards**OSHA HCS 2012**

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture**WHMIS**

- Due to formed nature of this product, no airborne concentrations are expected.
- Other Toxic Effects - D2A

2.2 Label elements**WHMIS****WHMIS**

- Other Toxic Effects - D2A

2.3 Other hazards**WHMIS**

- In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance.

3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Cesium iodide	CAS:7789-17-5 EINECS:232-145-2	99% TO 100%	NDA	EU DSD/DPD: Self Classified: Xn; R22 EU CLP: Self Classified: Acute Tox. 4 (orl), H302 OSHA HCS 2012: Acute Tox. 4 (orl)	NDA
Sodium iodide	CAS:7681-82-5 EC Number:231-679-3	< 1%	Ingestion/Oral-Rat LD50 • 4340 mg/kg	EU DSD/DPD: Self Classified: Xi R36/38, R42/43, Repr. 1, R61; Xn, R48/25 EU CLP: Self Classified: Skin Irrit. 2, H315; Eye Irrit. 2, H319; Repr. 1A, H360; STOT RE 1 (Thyroid), H372; Skin Sens. 1, H317; Resp. Sens. 1, H334 OSHA HCS 2012: Skin Irrit. 2; Eye Irrit. 2; Repr. 1A; STOT RE 1 (Thyroid); Skin Sens. 1; Resp. Sens. 1	NDA

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. If signs/symptoms continue, get medical attention.

Skin

- Wash skin with soap and water. If irritation develops and persists, get medical attention.

Eye

- Flush eyes with water for at least 15 minutes while holding eyelids open. If eye irritation persists: Get medical advice/attention.

Ingestion

- Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media • Use water, carbon dioxide or foam.

Unsuitable Extinguishing Media

- No data available.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion

- Not a fire or explosion hazard. However, toxic emissions are possible in a fire

- Hazards** situation.
- Hazardous Combustion Products**
- No data available

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal Precautions**
- Ventilate the area before entry. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact.
- Emergency Procedures**
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away.

6.2 Environmental precautions

- Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

- Containment/Clean-up Measures**
- Avoid generating dust.
SMALL DRY SPILLS: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
LARGE SPILLS: Cover powder spill with plastic sheet or tarp to minimize spreading.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

- Handling**
- Use only with adequate ventilation. Minimize dust generation and accumulation. Wear appropriate personal protective equipment, avoid direct contact. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

- Storage**
- Store in a tightly closed container. Store in a cool, dry, well ventilated area.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

- Exposure Limits/Guidelines**
- No applicable exposure limits available for product or components.

8.2 Exposure controls

- Engineering Measures/Controls**
- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment).

Personal Protective Equipment**Respiratory**

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety goggles.

Skin/Body

- Wear appropriate gloves. Wear long sleeves and/or protective coveralls.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste.

Section 9 - Physical and Chemical Properties**9.1 Information on Basic Physical and Chemical Properties**

Material Description			
Physical Form	Solid	Appearance/Description	Colorless and odorless crystal.
Color	Colorless	Odor	Odorless
Odor Threshold	No data available		
General Properties			
Boiling Point	2336 °F(1280 °C)	Melting Point/Freezing Point	621 °C(1149.8 °F)
Decomposition Temperature	No data available	pH	Not relevant
Specific Gravity/Relative Density	4 to 51 Water=1	Water Solubility	42.5 % @ 68 °F(20 °C)
Viscosity	No data available	Explosive Properties	No data available
Oxidizing Properties:	No data available		
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	No data available
Flammability (solid, gas)	No data available		
Environmental			
Octanol/Water Partition coefficient	No data available		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity**10.1 Reactivity**

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization not indicated.

10.4 Conditions to avoid

- None expected.

10.5 Incompatible materials

- Oxidizers, mineral acids.

10.6 Hazardous decomposition products

- When heated to decomposition, emits toxic fumes of iodine.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Cesium iodide (99% TO 100%)	7789-17-5	Acute Toxicity: Ingestion/Oral-Rat LD50 • 1400 mg/kg
Sodium iodide (< 1%)	7681-82-5	Acute Toxicity: Ingestion/Oral-Rat LD50 • 4340 mg/kg; Irritation: Eye-Rabbit • 100 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation; Reproductive: Ingestion/Oral-Woman TDLo • 9240 mg/kg (1-43W preg); <i>Reproductive Effects:Specific Developmental Abnormalities:Endocrine system; Reproductive Effects:Effects on Newborn:Other postnatal measures or effects</i>

GHS Properties	Classification
Acute toxicity	EU/CLP • Acute Toxicity - Oral 4 OSHA HCS 2012 • Acute Toxicity - Oral 4
Skin corrosion/Irritation	EU/CLP • No data available OSHA HCS 2012 • No data available
Serious eye damage/Irritation	EU/CLP • No data available OSHA HCS 2012 • No data available
Skin sensitization	EU/CLP • Skin Sensitizer 1 OSHA HCS 2012 • Skin Sensitizer 1
Respiratory sensitization	EU/CLP • Respiratory Sensitizer 1 OSHA HCS 2012 • Respiratory Sensitizer 1
Aspiration Hazard	EU/CLP • No data available OSHA HCS 2012 • No data available
Carcinogenicity	EU/CLP • No data available OSHA HCS 2012 • No data available
Germ Cell Mutagenicity	EU/CLP • No data available OSHA HCS 2012 • No data available
Toxicity for Reproduction	EU/CLP • Toxic to Reproduction 1A OSHA HCS 2012 • Toxic to Reproduction 1A
STOT-SE	EU/CLP • No data available OSHA HCS 2012 • No data available
STOT-RE	EU/CLP • No data available OSHA HCS 2012 • No data available

Potential Health Effects

Inhalation

Acute (Immediate)

- Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed)

- May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin

- Acute (Immediate)**
 - May cause skin sensitization. Symptoms include redness, and skin rash. Exposure to dust may cause mechanical irritation.
- Chronic (Delayed)**
 - No data available.

Eye

- Acute (Immediate)**
 - Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.
- Chronic (Delayed)**
 - No data available.

Ingestion

- Acute (Immediate)**
 - Harmful if swallowed. Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.
- Chronic (Delayed)**
 - No data available.

Reproductive Effects

- Repeated and prolonged exposure may cause reproductive effects.

Key to abbreviations

LD = Lethal Dose

TD = Toxic Dose

Section 12 - Ecological Information**12.1 Toxicity**

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations**13.1 Waste treatment methods****Product waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
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DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

14.6 Special precautions for user • None specified.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code • No data available

Section 15 - Regulatory Information

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

SARA Hazard Classifications • Acute, Chronic

State Right To Know		
Component	CAS	PA
Cesium iodide	7789-17-5	No
Sodium iodide	7681-82-5	No

Inventory						
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
Cesium iodide	7789-17-5	No	Yes	Yes	Yes	No
Sodium iodide	7681-82-5	Yes	No	Yes	Yes	No

Inventory (Con't.)			
Component	CAS	Korea KECL	TSCA
Cesium iodide	7789-17-5	Yes	Yes
Sodium iodide	7681-82-5	Yes	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

- | | | |
|-----------------|-----------|---|
| • Sodium iodide | 7681-82-5 | D2A |
| • Cesium iodide | 7789-17-5 | Uncontrolled product according to WHMIS classification criteria |

Canada - WHMIS - Ingredient Disclosure List

- | | | |
|-----------------|-----------|------------|
| • Sodium iodide | 7681-82-5 | 1 % |
| • Cesium iodide | 7789-17-5 | Not Listed |

Environment

Canada - CEPA - Priority Substances List

- | | | |
|-----------------|-----------|------------|
| • Sodium iodide | 7681-82-5 | Not Listed |
| • Cesium iodide | 7789-17-5 | Not Listed |

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed
U.S. - OSHA - Specifically Regulated Chemicals		
• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

Environment**U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

United States - California**Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Sodium iodide	7681-82-5	Not Listed
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• Cesium iodide	7789-17-5	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

United States - Pennsylvania

Labor		
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List		
• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances		
• Sodium iodide	7681-82-5	Not Listed
• Cesium iodide	7789-17-5	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H372 - Causes damage to organs through prolonged or repeated exposure.
- R36/38 - Irritating to eyes and skin.
- R42/43 - May cause sensitisation by inhalation and skin contact.
- R48/25 - Toxic: danger of serious damage to health by prolonged exposure if swallowed.

Revision Date

- 22/May/2023

Preparation Date

- 07/November/2014

Disclaimer/Statement of Liability

- Reasonable care has been taken in the preparation of this information, but the supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product.

Key to abbreviations

NDA = No data available