



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier	Zirconium Iodide (ZrI4)	
Other means of identification		
SDS number	2LX	
Materion Code	2LX	
CAS number	13986-26-0	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	Materion Advanced Chemicals Inc.	
Address	407 N 13th Street 1316 W. St. Paul Avenue Milwaukee, WI 53233 United States	
Telephone	414.212.0257	
E-mail	advancedmaterials@materion.com	
Contact person	Laura Hamilton	
Emergency phone number	Chemtrec	800.424.9300

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Danger	
Hazard statement	Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.	
Precautionary statement		
Prevention	Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well ventilated area. Wash hands thoroughly after handling.	
Response	IF exposed: Call a POISON CENTER or doctor/physician. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.	
Storage	Store locked up. Store in a well-ventilated place. Keep container tightly closed.	
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.	

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Zirconium Iodide (ZrI4)		13986-26-0	100

4. First-aid measures

Inhalation	Move into fresh air and keep at rest. If breathing has stopped, perform artificial respiration and obtain medical help. Do not use mouth-to-mouth method if victim inhaled the substance. Call a physician or poison control center immediately.
Skin contact	Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. Get medical attention immediately.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Hold eyelids apart. Get medical attention immediately.
Ingestion	Seek immediate medical attention. Do not induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.
Most important symptoms/effects, acute and delayed	May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Burning pain and severe corrosive skin damage.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Use dry chemical, carbon dioxide (CO2), or a dry, non-combustible material such as dry sand or earth to extinguish flames. Alcohol resistant foam.
Unsuitable extinguishing media	Not available.
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Special protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Wear necessary protective equipment. Immediately evacuate personnel to safe areas. Avoid contact with skin and eyes.
Methods and materials for containment and cleaning up	Vacuum or sweep up material and place in a disposal container. Avoid dust formation.
Environmental precautions	Avoid release to the environment. Do not contaminate water sources or sewer.

7. Handling and storage

Precautions for safe handling	Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Use only in an exhaust hood.
Conditions for safe storage, including any incompatibilities	Corrosive storage. Store in tightly closed original container in a dry, cool and well-ventilated place. Avoid contact with moist air.

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Zirconium Iodide (ZrI4) (CAS 13986-26-0)	PEL	5 mg/m3

US. ACGIH Threshold Limit Values

Material	Type	Value	Form
Zirconium Iodide (ZrI4) (CAS 13986-26-0)	STEL	10 mg/m3	
	TWA	5 mg/m3	Inhalable fraction and vapor.
		0.01 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Zirconium Iodide (ZrI4) (CAS 13986-26-0)	STEL	10 mg/m3
	TWA	5 mg/m3

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

Material	Type	Value
Zirconium Iodide (ZrI4) (CAS 13986-26-0)	PEL	5 mg/m3
	STEL	10 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Eye wash facilities and emergency shower must be available when handling this product. Ventilation should effectively remove and prevent buildup of any vapor/mist/fume/dust generated from the handling of this product.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear protective gloves.
Other	Wear suitable protective clothing and gloves.
Respiratory protection	When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.
Thermal hazards	Not available.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties**Appearance**

Physical state	Solid.
Form	Not available.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.

pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0.0000001 kPa (77 °F (25 °C))
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Molecular formula	I4Zr

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Instability caused by excessive moisture.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Water, moisture.
Incompatible materials	Strong oxidizing substances.
Hazardous decomposition products	No dangerous reaction known under conditions of normal use.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Irritating to respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns and eye damage.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics

Not available.

Information on toxicological effects

Acute toxicity	Not available.
Skin corrosion/irritation	Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes eye burns.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization Not available.

Germ cell mutagenicity Not available.

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Not available.

Specific target organ toxicity - single exposure Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not available.

12. Ecological information

Ecotoxicity No ecotoxicity data noted for the ingredient(s).

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

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

Waste from residues / unused products Not available.

Contaminated packaging Not available.

14. Transport information

DOT

UN number UN3260

UN proper shipping name Corrosive solid, acidic, inorganic, n.o.s.

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group III

Special precautions for user Not available.

IATA

UN number UN3260

UN proper shipping name Corrosive solid, acidic, inorganic, n.o.s.

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group III

Environmental hazards No.

Special precautions for user Not available.

IMDG

UN number	UN3260
UN proper shipping name	Corrosive solid, acidic, inorganic, n.o.s.
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Not available.

DOT



IATA; IMDG



15. Regulatory information

US federal regulations

Toxic Substances Control Act (TSCA)

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories

Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

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

Not regulated.

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

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

16. Other information, including date of preparation or last revision

Issue date	01-31-2020
Version #	01
Disclaimer	Not available.