



# SAFETY DATA SHEET

**MATERION**

## 1. Identification

Product identifier	Lead Zirconate	
Other means of identification		
SDS number	1MN	
Materion Code	1MN	
CAS number	12060-01-4	
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	Noreen Atkinson	
Emergency phone number	Chemtrec	800.424.9300

## 2. Hazard(s) identification

Physical hazards	Pyrophoric solids	Category 1
	Substances and mixtures which, in contact with water, emit flammable gases	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Carcinogenicity	Category 1B
	Reproductive toxicity (fertility, the unborn child)	Category 1A
	Specific target organ toxicity, repeated exposure	Category 2
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Not classified.	

### Label elements



**Signal word** Danger

**Hazard statement** Catches fire spontaneously if exposed to air. In contact with water releases flammable gases which may ignite spontaneously. Harmful if swallowed. Harmful if inhaled. May cause cancer. May damage fertility. May damage the unborn child. May cause damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

## Precautionary statement

### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not allow contact with air. Do not allow contact with water. Handle under inert gas. Protect from moisture. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid breathing dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

### Response

If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. In case of fire: Use appropriate media to extinguish. Collect spillage.

### Storage

Store in a dry place. Store in a closed container. Store locked up. Store contents under appropriate liquid or inert gas.

### Disposal

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

### Hazard(s) not otherwise classified (HNOC)

None known.

### Supplemental information

100% of the mixture consists of component(s) of unknown acute dermal toxicity.

## 3. Composition/information on ingredients

### Substances

Chemical name	Common name and synonyms	CAS number	%
Lead Zirconate		12060-01-4	100

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## 4. First-aid measures

### Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.

### Skin contact

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

### Eye contact

Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

### Ingestion

Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

### Most important symptoms/effects, acute and delayed

Prolonged exposure may cause chronic effects.

### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

### General information

IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

## 5. Fire-fighting measures

### Suitable extinguishing media

Dry chemical, soda ash, lime or DRY sand.

### Unsuitable extinguishing media

Water.

### Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

### Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Do not get water inside container.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards** Catches fire spontaneously if exposed to air. In contact with water releases flammable gases which may ignite spontaneously.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Use only non-sparking tools. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up** Do not get water on spilled substance or inside containers. Neutralize with lime or soda ash. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

**Environmental precautions** Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not allow contact with air. Open container carefully and only in a dry, oxygen-free or inert atmosphere. Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. Minimize dust generation and accumulation. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities** Store locked up. Never allow product to get in contact with water during storage. Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store in a dry place. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Material	Type	Value
Lead Zirconate (CAS 12060-01-4)	TWA	0.05 mg/m <sup>3</sup>

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

Material	Type	Value
Lead Zirconate (CAS 12060-01-4)	PEL	5 mg/m <sup>3</sup>

### US. ACGIH Threshold Limit Values

Material	Type	Value
Lead Zirconate (CAS 12060-01-4)	STEL	10 mg/m <sup>3</sup>

### US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Lead Zirconate (CAS 12060-01-4)	STEL	10 mg/m <sup>3</sup>
	TWA	5 mg/m <sup>3</sup>

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

Material	Type	Value	Form
Lead Zirconate (CAS 12060-01-4)	STEL	10 mg/m <sup>3</sup>	
	TWA	0.03 mg/m <sup>3</sup>	Dust and fume.

### Biological limit values

#### ACGIH Biological Exposure Indices

Material	Value	Determinant	Specimen	Sampling Time
Lead Zirconate (CAS 12060-01-4)	300 µg/l	Lead	Blood	*

\* - For sampling details, please see the source document.

**Appropriate engineering controls** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Control parameters** Follow standard monitoring procedures.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear eye/face protection. If contact is likely, safety glasses with side shields are recommended.

#### Skin protection

**Hand protection** Wear appropriate chemical resistant gloves.

**Other** Wear suitable protective clothing. Use of an impervious apron is recommended.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

## 9. Physical and chemical properties

### Appearance

**Physical state** Solid.  
**Form** Solid.  
**Color** Not available.

**Odor** Not available.

**Odor threshold** Not available.

<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Molecular formula</b>	O3PbZr
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

<b>Reactivity</b>	In contact with water releases flammable gas.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Exposure to moisture. Exposure to air. Contact with incompatible materials.
<b>Incompatible materials</b>	Air.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Harmful if inhaled.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Ingestion</b>	Harmful if swallowed.
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Direct contact with eyes may cause temporary irritation.

## Information on toxicological effects

<b>Acute toxicity</b>	Harmful if inhaled. Harmful if swallowed.
<b>Skin corrosion/irritation</b>	Prolonged skin contact may cause temporary irritation.
<b>Serious eye damage/eye irritation</b>	Direct contact with eyes may cause temporary irritation.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	This product is not expected to cause skin sensitization.
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Carcinogenicity</b>	May cause cancer.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
Lead Zirconate (CAS 12060-01-4)	2A Probably carcinogenic to humans.
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	
Not regulated.	
<b>US. National Toxicology Program (NTP) Report on Carcinogens</b>	
Lead Zirconate (CAS 12060-01-4)	Reasonably Anticipated to be a Human Carcinogen.
<b>Reproductive toxicity</b>	May damage fertility. May damage the unborn child.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	May cause damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Chronic effects</b>	May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

## 12. Ecological information

<b>Ecotoxicity</b>	Very toxic to aquatic life with long lasting effects.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	No data available.
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### DOT

UN number	UN2291
UN proper shipping name	Lead compounds, soluble, n.o.s., MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	138, IB8, IP3, T1, TP33
Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240

### IATA

UN number	UN2291
UN proper shipping name	Lead compound, soluble, n.o.s.
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	6L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

### IMDG

UN number	UN2291
UN proper shipping name	LEAD COMPOUND, SOLUBLE, N.O.S., MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-A
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

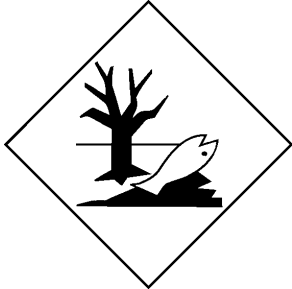
### DOT



IATA; IMDG



Marine pollutant



General information

IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

## 15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**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 1910.1001-1050)**

Lead Zirconate (CAS 12060-01-4)

Reproductive toxicity  
Central nervous system  
Kidney  
Blood  
Acute toxicity

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - Yes

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical**

Yes

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations**

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

Lead Zirconate (CAS 12060-01-4)

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

Not regulated.



Clean Water Act (CWA) Priority pollutant  
Section 112(r) (40 CFR Toxic pollutant  
68.130)

Safe Drinking Water Act 0 mg/l  
(SDWA) 0.015 mg/l

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

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Lead Zirconate (CAS 12060-01-4) Listed: October 1, 1992

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Lead Zirconate (CAS 12060-01-4)

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

Issue date 03-10-2017

Revision date 01-11-2018

Version # 02

**Disclaimer** Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.