

**MATERION****1. Chemical and company identification**

Name of chemical (Product name)	Zinc Aluminum Alloy	
Supplier's company name, address and phone number		
Company name	Materion Advanced Materials	
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States	
Contact person	Theodore Knudson	
Telephone	EH&S	1.216.383.4019
e-mail address	ehs@materion.com	
Emergency telephone number	See Section 16.	
Reference number	G01	

2. Hazards identification**GHS classification**

Physical hazards	The product is not classified according to GHS.	
Health hazards	Serious eye damage/eye irritation	Category 2B
	Specific target organ toxicity, single exposure	Category 2 (Respiratory system)
	Specific target organ toxicity, repeated exposure	Category 2 (Respiratory system)
Environmental hazards	Short-term (acute) hazardous to the aquatic environment	Category 1
	Long-term (chronic) hazardous to the aquatic environment	Category 1

GHS label elements**Pictograms****Signal words**

Warning

Hazard statement

Causes eye irritation. May cause damage to organs (Respiratory system). May cause damage to organs (Respiratory system) through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement**Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Observe good industrial hygiene practices.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER/doctor. If eye irritation persists: Get medical advice/attention. Wash hands after handling. Collect spillage.

Storage

Store locked up. Store away from incompatible materials.

Disposal

Dispose of waste and residues in accordance with local authority requirements. Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification

None known.

Supplemental information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

Main symptoms and emergency overview**Main symptoms**

Irritation of eyes. Prolonged exposure may cause chronic effects.

Emergency overview

May cause damage to organs. Causes eye irritation. Dangerous for the environment if discharged into watercourses.

3. Composition/information on ingredients

Substance or mixture	Mixture	Gazette notification			
		CAS Number	ENCS no.	ISHL no.	Concentration (%)
Chemical name or generic name					
Zinc		7440-66-6			95 - 100
Aluminum		7429-90-5			0 - 5

Chemical formula Zn (7440-66-6), Al (7429-90-5)

4. First aid measures

If inhaled	Move to fresh air. Call a physician if symptoms develop or persist.
If on skin	Wash off immediately with plenty of water. Get medical attention if irritation develops and persists.
If in eyes	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.
If swallowed	Rinse mouth. Drink plenty of water. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. Coughing. Discomfort in the chest. Shortness of breath. Prolonged exposure may cause chronic effects. Not applicable.
Protection of first-aid responders	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.
Notes to physician	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. This product is not expected to produce adverse effects under normal conditions of use and appropriate personal hygiene.

5. Fire-fighting measures

Extinguishing media	Powder. Dry sand.
Extinguishing media to avoid	Water. Do not use water jet as an extinguisher, as this will spread the fire. Carbon dioxide (CO ₂).
Specific hazards	This product is not flammable.
Special fire fighting procedures	Move containers from fire area if you can do so without risk.
Protection of fire-fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
General fire hazards	No unusual fire or explosion hazards noted.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. 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. In solid form this material poses no special clean-up problems. For personal protection, see section 8 of the PIS.
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.
Methods and materials for containment and cleaning up	<p>Pick up and arrange disposal without creating dust. The product is immiscible with water and will spread on the water surface. Prevent product from entering drains. Clean up in accordance with all applicable regulations.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p>

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation)	Provide adequate ventilation.
Safe handling advice	Avoid contact with eyes. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Use personal protection recommended in Section 8 of the SDS.
Contact avoidance measures	Strong oxidizing agents. For further information, please refer to section 10 of the SDS.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. 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.

Storage

Safe storage conditions	Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).
Safe packaging materials	Store in original tightly closed container.

8. Exposure controls/personal protection

Control parameters Follow standard monitoring procedures.

Occupational exposure limits

Japan. OELs - ISHL. (Workplace Environment Assessment Standards)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TLV	0.025 mg/m ³	Dust.

Japan. OELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	2 mg/m ³	Total dust.
		0.5 mg/m ³	Respirable dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m ³	Respirable fraction.

Engineering measures Good general ventilation 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. Provide eyewash station.

Personal protective equipment

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Hand protection	Wear appropriate chemical resistant gloves.
Eye protection	If contact is likely, safety glasses with side shields are recommended.
Skin and body protection	Wear suitable protective clothing. Use of an impervious apron is recommended.

9. Physical and chemical properties

Physical state	Solid.
Form	Solid.
Color	Grey.
Odor	None.
Odor threshold	Not applicable.
Melting point/freezing point	717.8 - 788 °F (381 - 420 °C)
Boiling point, initial boiling point, and boiling range	1664.6 °F (907 °C) estimated
Combustibility	Not applicable.

Lower and upper explosion limit / flammability limit

Flammability limit - lower (%)	Not applicable.
Flammability limit - lower (%) temperature	Not applicable.
Flammability limit - upper (%)	Not applicable.
Flammability limit - upper (%) temperature	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.

Flash point Not applicable.

Auto-ignition temperature Not applicable.

Decomposition temperature Not applicable.

pH Not applicable.

Kinematic viscosity Not available.

Solubility(ies)

Solubility (water) Insoluble.

Partition coefficient (n-octanol/water) (log value) Not applicable.

Vapor pressure 124.46 hPa Not applicable.

Density and/or relative density

Density 6.60 - 7.20 g/cm³

Relative density Not applicable.

Vapor density Not applicable.

Particle characteristics Not available.

Other information

Evaporation rate Not applicable.

Explosive properties Not explosive.

Miscible (water) Insoluble.

Oxidizing properties Not oxidizing.

Specific gravity 6.92 Not applicable.

Viscosity (Coefficient of viscosity) Not applicable.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity Not known.

Skin corrosion/irritation Not relevant, due to the form of the product.

Serious eye damage/eye irritation	Causes eye irritation. Not likely, due to the form of the product.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.
ACGIH Carcinogens	
Aluminum (CAS 7429-90-5)	A4 Not classifiable as a human carcinogen.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause damage to organs (Respiratory system).
Specific target organ toxicity - repeated exposure	May cause damage to organs (Respiratory system) through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicological data

Product	Species		Test Results
Zinc Aluminum Alloy			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia	1.4 mg/l, 48 hours estimated
Fish	LC50	Fish	0.2587 mg/l, 96 hours estimated

Components	Species		Test Results
Zinc (CAS 7440-66-6)			
Aquatic			
<i>Acute</i>			
Fish	LC50	Bony fish superclass (Osteichthyes)	0.52 - 3.59 mg/l, 96 hours

Ecotoxicity	Very toxic to aquatic life with long lasting effects.
Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
Bioaccumulation	No data available.
Mobility in soil	The product is immiscible with water and will spread on the water surface.
Hazardous to the ozone layer	No data available.
Other hazardous effects	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

Residual waste	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).
Contaminated packaging	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.
Local disposal regulations	Contract with a disposal operator licensed by the Law on Disposal and Cleaning. 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. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

National regulations Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act

Notifiable substances

ALUMINUM Table 9 Ordinance No. 37 0 - 5.0 %

Labeling substances

ALUMINIUM AND ITS WATER-SOLUBLE SALTS 0 - 5.0 %

Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Regulation of Manufacture and Evaluation of Chemical Substances

Class I specified chemical substances

Not regulated.

Class II specified chemical substances

Not regulated.

Monitoring chemical substances

Not regulated.

Priority Assessment Chemical Substances (PACs)

Not regulated.

Reporting Exempted Substances

Not regulated.

Law concerning Pollutant Release and Transfer Register

Specified class 1 substances (substance name, ordinance number and content)

Not regulated.

Class 1 substances (substance name, ordinance number and content)

Not regulated.

Class 2 substances (substance name, ordinance number and content)

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule Not regulated.

Air Law, Enforcement Rule Not regulated.

Explosives Control Act

Not regulated.

Water Pollution Control Act

ZINC

Sewage Act

ZINC AND ITS COMPOUNDS (AS ZN) 5 MG/L

16. Other information

Bibliography

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"
JIS Z 7253:2012 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)

Further information

Transportation Emergency
Call Chemtrec at:
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402

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Other information

Revised information in Section 16.