



MATERIAL SAFETY DATA SHEET

MATERION

1. Chemical product and company identification

A. Product name Zinc Aluminum Alloy

Other means of identification

SDS number G01

B. Recommended use and Limitations on use

Recommended use Industrial uses: Uses of substances as such or in preparations at industrial sites

Limitations on use Consumer uses: Private households (= general public = consumers)

C. Supplier information

Company name Materion Advanced Materials

Address
6070 Parkland Boulevard
Mayfield Heights OH 44124
United States

Telephone EH&S 1.216.383.4019

Email ehs@materion.com

Contact person Theodore Knudson

Emergency telephone number See Section 16.

MSDS number G01

2. Hazards identification

A. Hazard category/Classification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

B. Warning label items including precautionary statement

• **Pictogram** None.

• **Signal word** None.

• **Hazard statement** The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

• Precautionary statement

Prevention

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

Response

P330 Rinse mouth.

P314 Get medical advice/attention if you feel unwell.

Storage

Store away from incompatible materials.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard) None known.

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

3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Zinc		7440-66-6	KE-35518	95 - 100
Aluminum		7429-90-5	KE-00881	0 - 5

4. First aid measures

A. In case of eye contact	Get medical attention if irritation develops and persists.
B. In case of skin contact	Get medical attention if irritation develops and persists.
C. In case of inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
D. In case of swallowing	Drink plenty of water.
E. Note to physician	This product is not expected to produce adverse effects under normal conditions of use and appropriate personal hygiene.
Most important symptoms/effects, acute and delayed	Not applicable.
General advice	If you feel unwell, seek medical advice (show the label where possible).

5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media	
Suitable extinguishing media	Powder. Dry sand.
Unsuitable extinguishing media	Water. Carbon dioxide (CO ₂).
B. Specific hazards arising from the chemical (example: hazardous combustion products)	This product is not flammable.
C. Specific methods of fire-fighting	
Special fire fighting procedures	Move containers from fire area if you can do so without risk.
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

A. Personal precautions, protective equipment and emergency measures	In solid form this material poses no special clean-up problems.
B. Environmental precautions	Avoid release to the environment.
C. Methods and materials for containment and cleaning up	Clean up in accordance with all applicable regulations. Pick up and arrange disposal without creating dust.

7. Handling and storage

A. Precautions for safe handling	See Section 8 of the MSDS for Personal Protective Equipment.
B. Conditions for safe storage (including any incompatibilities)	Store in a dry place.

8. Exposure controls/personal protection

A. Exposure limit values, biological limit values, etc

Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	5 mg/m ³	Fume.
		2 mg/m ³	
		10 mg/m ³	Dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m ³	Respirable fraction.
Biological limit values	No biological exposure limits noted for the ingredient(s).		
B. 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.		
C. Personal protective equipment			
• Respiratory protection	In case of inadequate ventilation, use respiratory protection.		
• Eye protection	If contact is likely, safety glasses with side shields are recommended.		
• Hand protection	Wear gloves to prevent metal cuts and skin abrasions during handling.		
• Body protection	Wear suitable protective clothing.		
Hygiene measures	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

A. Appearance

Physical state Solid.

Form Solid.

Color Grey.

B. Odor

None.

C. Odor threshold

Not applicable.

D. pH

Not applicable.

E. Melting point/freezing point

Melting point 717.8 - 788 °F (381 - 420 °C)

F. Boiling point, initial boiling point, and boiling range

1664.6 °F (907 °C) estimated

G. Flash point

Not applicable.

H. Evaporation rate

Not applicable.

I. Flammability (solid, gas)

Not applicable.

J. Upper/lower limit on flammability or explosive limits

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.

K. Vapor pressure

124.46 hPa Not applicable.

L. Solubility

Solubility (water) Insoluble.

M. Vapor density

Not applicable.

N. Specific gravity

6.92 Not applicable.

O. n-octanol/water partition coefficient

Not applicable.

P. Auto-ignition temperature	Not applicable.
Q. Decomposition temperature	Not applicable.
R. Viscosity	Not applicable.
S. Molecular weight	Not available.

Other data

Density	6.60 - 7.20 g/cm ³
Explosive properties	Not explosive.
Miscible (water)	Insoluble.
Oxidizing properties	Not oxidizing.
Relative density	Not applicable.

10. Stability and reactivity

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

A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.

B. Conditions to avoid (e.g. static discharge, shock or vibration, etc) Contact with incompatible materials.

C. Incompatible materials Strong oxidizing agents.

D. Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure

• Respiratory organs	Prolonged inhalation may be harmful.
• Skin	No adverse effects due to skin contact are expected.
• Eyes	Not relevant, due to the form of the product.
• Mouth	Harmful if swallowed.

B. Information on health hazards

• Acute toxicity (list all possible routes of exposure)	None known.
• Corrosivity or irritation to the skin	Not relevant, due to the form of the product.
• Serious eye damage/eye irritation	Not likely, due to the form of the product.
• Respiratory sensitization	Not a respiratory sensitizer.
• Skin sensitization	This product is not expected to cause skin sensitization.
• Carcinogenic properties /Carcinogenicity	Not available.
• Mutagenic properties /Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
• Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
• Specific target organ toxicity - single exposure	Not classified.
• Specific target organ toxicity - repeated exposure	Not classified.
• Aspiration hazard	Not an aspiration hazard.

12. Ecological information

A. Ecotoxicity

Components	Species	Test Results
Zinc (CAS 7440-66-6)		
Aquatic		
Acute		
Fish	LC50	Bony fish superclass (Osteichthyes) 0.52 - 3.59 mg/l, 96 hours
Hazardous to the aquatic environment, acute hazard		Not relevant, due to the form of the product.
Hazardous to the aquatic environment, long-term hazard		Not relevant, due to the form of the product.
B. Persistence/degradability		
C. Bioaccumulative potential		No data available.
D. Mobility in soil		No data available for this product.
E. Other adverse effects		Not available.

13. Disposal considerations

A. Method of disposal	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 related regulations).
B. Disposal considerations (including disposal of contaminated containers or 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.
Waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

14. Transport information

IATA

A. UN number	Not applicable.
B. UN proper shipping name	Not applicable.
C. Transport hazard class(es)	
Class	Not applicable.
Subsidiary risk	-
D. Packing group	Not applicable.
E. Environmental hazards	No.
F. Special precautions for user	Not applicable.

IMDG

A. UN number	Not applicable.
B. UN proper shipping name	Not applicable.
C. Transport hazard class(es)	
Class	Not applicable.
Subsidiary risk	-
D. Packing group	Not applicable.
E. Environmental hazards	
Marine pollutant	No.
EmS	Not applicable.
F. Special precautions for user	Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

General information

IMDG Regulated Marine Pollutant.

15. Regulatory information

A. Restrictions under the Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacturing

Not regulated.

Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

Controlled Hazardous Substances

Aluminum (CAS 7429-90-5)

Zinc (CAS 7440-66-6)

Harmful Substances Requiring Special Medical Examination

Aluminum (CAS 7429-90-5)

Workplace Environmental Monitoring Harmful Materials

Aluminum (CAS 7429-90-5)

Occupational Exposure Limit

Aluminum (CAS 7429-90-5)

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

Accidental Release Prevention Substances

Not regulated.

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals

Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

Restricted Chemical Substances

Not regulated.

Toxic Chemicals

Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act

D. Restrictions under the Wastes Control Act

Halogenated Materials in Waste Organic Solvents

Not regulated.

Hazardous Substances

Not regulated.

E. Restrictions under other foreign or domestic laws

Clean Air Conservation Act

Air Pollutants

Aluminum (CAS 7429-90-5)

Zinc (CAS 7440-66-6)

Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended

Not listed.

Specific Air Pollutants

Not regulated.

Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

A. Source of information

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)
Korea. Accidental Release Prevention Substances (Pres. Decree of Toxic Chemical Control Law, Ex. Order No. 19203, Tables 2 & 3, Dec 28, 2005)
Korea. OELs (ISHL Article 42; MOL Public Notice No. 1986-45, as amended through MOEL Notice 2013-38, August 14, 2013)
Korea. Prohibited Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 4 and 5)
Korea. Restricted Chemical Substances (AREC "K-REACH" Article 27; Designation of Toxic, Restricted or Banned Chemicals Appendices 2 and 3)
KECI, January 27, 2015, amended through MoE 2016-138, July 13, 2016
Korea. Toxic Chemicals (AREC "K-REACH" Article 20; Designation of Toxic, Restricted or Banned Chemicals Appendix 1)
Korea. Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002)

B. Issue date

11-04-2019

C. Number of revisions and date of most recent revision

03-08-2022 (03 revision)

Further information

Transportation Emergency
Call Chemtrec at:
US: 800.424.9300
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059
South Korea Toll-free Number – 080-880-0468

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Other information

Revised information in Section 2.
Revised information in Section 4.
Revised information in Section 5.
Revised information in Section 8.
Revised information in Section 9.
Revised information in Section 11.