

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

Name of chemical (Product name) **Zinc Oxide/Magnesium Oxide Targets**

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 G20

2. Hazards identification**GHS classification**

The product is not classified according to GHS.

GHS label elements

Pictograms None.

Signal words 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 Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store locked up.

Disposal 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 None known.

Emergency overview 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.

3. Composition/information on ingredients

Substance or mixture Mixture

Chemical name or generic name	CAS Number	Gazette notification		
		ENCS no.	ISHL no.	Concentration (%)
Zinc Oxide	1314-13-2	(1)-561	(1)-561	80 - 95
Magnesium Oxide	1309-48-4	(1)-465	(1)-465	5 - 20

Chemical formula O-Zn (1314-13-2), Mg-O (1309-48-4)

4. First aid measures

If inhaled Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

If on skin Wash off with soap and water. Get medical attention if irritation develops and persists.

If in eyes	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
If swallowed	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	None known.
Protection of first-aid responders	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.
Notes to physician	Treat symptomatically.

5. Fire-fighting measures

Extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Extinguishing media to avoid	None known.
Specific hazards	No unusual fire or explosion hazards noted.
Special fire fighting procedures	Use water spray to cool unopened containers.
Protection of fire-fighters	Wear suitable protective equipment.
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. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.
Environmental precautions	Prevent further leakage or spillage if safe to do so.
Methods and materials for containment and cleaning up	Wear appropriate protective equipment and clothing during clean-up. Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Handling	
Technical measures (e.g. Local and general ventilation)	Provide appropriate exhaust ventilation at places where dust is formed.
Safe handling advice	Do not handle until all safety precautions have been read and understood. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the SDS.
Contact avoidance measures	For further information, please refer to section 10 of the SDS.
Hygiene measures	Observe any medical surveillance requirements. 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. Store away from incompatible materials (see Section 10 of the SDS).
Safe packaging materials	No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product.

8. Exposure controls/personal protection

Control parameters	Follow standard monitoring procedures.
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Occupational exposure limits

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

Components	Type	Value	Form
Magnesium Oxide (CAS 1309-48-4)	TWA	8 mg/m ³	Total dust.
		2 mg/m ³	Respirable dust.
Zinc Oxide (CAS 1314-13-2)	TWA	4 mg/m ³	Total dust.

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

Components	Type	Value	Form
		1 mg/m ³	Respirable dust.
US. ACGIH Threshold Limit Values			
Components	Type	Value	Form
Magnesium Oxide (CAS 1309-48-4)	TWA	10 mg/m ³	Inhalable fraction.
Zinc Oxide (CAS 1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	2 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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Provide eyewash station.

Personal protective equipment

Respiratory protection If ventilation is insufficient, suitable respiratory protection must be provided.
Hand protection Wear gloves to prevent metal cuts and skin abrasions during handling.
Eye protection Not available.
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 Dark green.
Odor None.
Odor threshold Not applicable.
Melting point/freezing point Not applicable.
Boiling point, initial boiling point, and boiling range Not applicable.
Combustibility None known.
Lower and upper explosion limit / flammability limit
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 Not applicable.

Density and/or relative density	
Density	5.25 g/cm ³ estimated
Relative density	Not applicable.
Vapor density	Not applicable.
Particle characteristics	Not available.
Other information	
Evaporation rate	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
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	No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product.
Incompatible materials	None known.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity	Not known.
Skin corrosion/irritation	Not likely, due to the form of the product.
Serious eye damage/eye irritation	Not likely, due to the form of the product.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.
ACGIH Carcinogens	
Magnesium Oxide (CAS 1309-48-4)	A4 Not classifiable as a human carcinogen.
Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Causes damage to organs (lung, systemic toxicity). May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicity	Not relevant, due to the form of the product.
Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
Bioaccumulation	No data available.
Mobility in soil	No data available for this product.
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	
ZINC OXIDE	Table 9 Ordinance No. 188 80 - 95 %
Labeling substances	
ZINC OXIDE	80 - 95 %
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	
MAGNESIUM OXIDE	
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	<p>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)</p>
Further information	<p>Transportation Emergency Call Chemtrec at: International: 703.741.5970 Spain: 900.868.538 Switzerland: 0800.564.402</p>
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Other information	<p>Revised information in Section 16.</p>