



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier Zinc powder

Other means of identification

SDS number 2DV

Materion Code 2DV

CAS number 7440-66-6

Synonyms ZINC * ZINC DUST; ZINC POWDER (PYROPHORIC)

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 414.212.0290

E-mail advancedmaterials@materion.com

Contact person Laura Hamilton

Emergency phone number Chemtrec 800.424.9300

2. Hazard(s) identification

Physical hazards

Flammable solids Category 2

Pyrophoric solids Category 1

Self-heating substances and mixtures Category 1

Substances and mixtures which, in contact with water, emit flammable gases Category 1

Health hazards

Acute toxicity, oral Category 4

Serious eye damage/eye irritation Category 2B

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 Flammable solid. Catches fire spontaneously if exposed to air. Harmful if swallowed. In contact with water releases flammable gases which may ignite spontaneously. In contact with water releases flammable gas. In contact with water releases flammable gas. Causes mild skin irritation. Causes eye irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not allow contact with water. Do not allow contact with air. Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. Protect from moisture. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/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 in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media for extinction. Collect spillage.

Storage

Store in a dry place. Store in a closed container. 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)

The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website.

Supplemental information

None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Zinc	ZINC ZINC DUST; ZINC POWDER (PYROPHORIC)	7440-66-6	100

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

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

Composition comments

The full text for all R- and H-phrases is displayed in section 16.

4. First-aid measures

Inhalation

Move to fresh air. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Wash off with warm water and soap. Get medical attention if irritation develops and persists. If skin irritation occurs: Get medical advice/attention.

Eye contact

Rinse cautiously with water for several minutes. Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. If eye irritation persists: Get medical advice/attention.

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. If swallowed, seek medical advice immediately and show this container or label. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed

Irritation of eyes and mucous membranes.

Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.
 5. Fire-fighting measures	
Suitable extinguishing media	Powder. Dry sand.
Unsuitable extinguishing media	Water. Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Spontaneously flammable in air. In contact with water releases flammable gases which may ignite spontaneously.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Do not get water inside container. Water runoff can cause environmental damage.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk. Use water spray to cool unopened containers. In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
General fire hazards	Flammable solid. No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Local authorities should be advised if significant spillages cannot be contained. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.
Methods and materials for containment and cleaning up	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not get water on spilled substance or inside containers. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Collect spillage. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.
Environmental precautions	Avoid release to the environment. Refer to special instructions/safety data sheets. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Do not allow contact with air. Vapors may form explosive mixtures with air. Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Use explosion-proof equipment. Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with eyes. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Use appropriate container to avoid environmental contamination. Avoid release to the environment. Do not empty into drains.
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Conditions for safe storage, including any incompatibilities

CAUTION The pressure in sealed containers can increase under the influence of heat. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Use appropriate container to avoid environmental contamination. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store in a dry place. Store in cool place. Never allow product to get in contact with water during storage. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits	This substance has no PEL, TLV, or other recommended exposure limit.
Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Appropriate engineering controls	Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high. Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Chemical goggles are recommended. Eye wash fountain is recommended.
Skin protection	
Hand protection	Wear protective gloves. Not normally needed.
Other	Wear suitable protective clothing. Wear protective gloves.
Respiratory protection	Wear positive pressure self-contained breathing apparatus (SCBA).
Thermal hazards	Not available.
General hygiene considerations	When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	787.15 °F (419.53 °C)
Initial boiling point and boiling range	1664.6 °F (907 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Flammable solid.
Upper/lower flammability or explosive limits	
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	
Density	7.13 g/cm ³ at 25 °C 7.13 g/cm ³ estimated at 25 °C
Molecular formula	Zn
Molecular weight	65.38 g/mol
Specific gravity	7.13 estimated 7.13 estimated

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Risk of ignition.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use. Hazardous polymerization does not occur.
Conditions to avoid	Moisture. Contact with water liberates flammable gas. Heat, flames and sparks. High temperatures.
Incompatible materials	None known.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Due to lack of data the classification is not possible.
Skin contact	Causes mild skin irritation.
Eye contact	Causes eye irritation.
Ingestion	Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Irritant effects.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Product	Species	Test Results
Zinc (CAS 7440-66-6)		
<u>Acute</u>		
Oral		
LD50	Rat	630 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes mild skin irritation.

Serious eye damage/eye irritation Causes eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization Due to lack of data the classification is not possible.

Germ cell mutagenicity Due to lack of data the classification is not possible.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Due to lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Due to lack of data the classification is not possible.
Aspiration hazard	Due to lack of data the classification is not possible.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
Zinc (CAS 7440-66-6)		
Aquatic		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna) 2.8 mg/l, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss) 0.41 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	Not available.
Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Contract with a disposal operator licensed by the Law on Disposal and Cleaning. This material and its container must be disposed of as hazardous waste. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. After recovery of solvent dispose of residue as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations. Collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste. Dispose of contents/container (in accordance with related regulations).
Waste from residues / unused products	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). Avoid discharge into water courses or onto the ground.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT	
UN number	UN1436
UN proper shipping name	Zinc powder
Transport hazard class(es)	
Class	4.3
Subsidiary risk	4.2
Label(s)	4.3, 4.2

Packing group	III
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP4, T1, TP33, W31
Packaging exceptions	None
Packaging non bulk	213
Packaging bulk	242

IATA

UN number	UN1436
UN proper shipping name	Zinc powder
Transport hazard class(es)	
Class	4.3
Subsidiary risk	4.2
Packing group	III
Environmental hazards	Yes
ERG Code	4SW
Special precautions for user	Not assigned.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

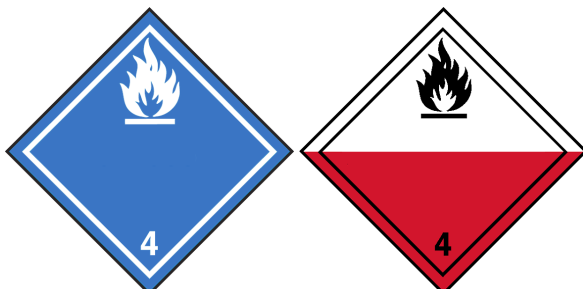
IMDG

UN number	UN1436
UN proper shipping name	ZINC POWDER
Transport hazard class(es)	
Class	4.3
Subsidiary risk	4.2
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	F-G, S-O
Special precautions for user	Not assigned.

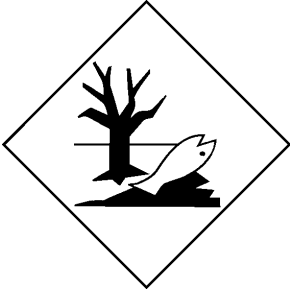
DOT



IATA; IMDG



Marine pollutant



15. Regulatory information

US federal regulations

All components are on the U.S. EPA TSCA Inventory List.
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

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

Zinc (CAS 7440-66-6) 1.0 % Annual Export Notification required.

CERCLA Hazardous Substance List (40 CFR 302.4)

Zinc (CAS 7440-66-6) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories

Flammable (gases, aerosols, liquids, or solids)
Pyrophoric (liquid or solid)
Self-heating
In contact with water emits flammable gas
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Zinc	7440-66-6	100

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.

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

Priority pollutant
Toxic pollutant

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

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.

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

Zinc (CAS 7440-66-6)

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

Issue date	05-18-2015
Revision date	03-11-2024
Version #	04
Further information	Emergency telephone numbers Austria - VergiftungsInformationsZentrale, +431.406.43.43 Belgium - Centre Antipoisons - +070.245.245 Bulgaria - Телефон за спешни случаи / факс, +359.2.9154.409 Cyprus - +357.22405611 Czech Republic - Toxikologické informační středisko, +420.224.919.293 Denmark - Akuthjælp ved forgiftning, +82.12.12.12 Estonia - Mürgistusteabekeskuse, 16662 Finland - Myrkytystietokeskus, +(0)9.471.977 France - numéro ORFILA, +33.(0)1.45.42.59.59 Germany - GIZ-Nord Poisons Centre, +49.(0)551.383.1876 Greece - +30.210.64.79.286 Hungary - Az Egészségügyi Toxikológiai Tájékoztató Szolgálat, +36 1 476 6464 Iceland - +354.591.2000 Ireland - National Poisons Information Centre - +353.01.8092566 Italy - Istituto Superiore di Sanità, 064990.2423 Latvia - Valsts Toksikoloģijas centra Saindēšanās un zāļu informācijas centrs, +371.67042473 Liechtenstein - +423.236.61.95 Lithuania - Neatidėliotina informacija apsinuodijus, +370 5 236 20 52 Luxembourg - +352 42 59 91 600 Malta - 2545 0000 Netherlands - NVIC, 030-2748888 Norway - Giftinformasjonen, 22.59.13.00 Poland - Biuro ds. Substancji Chemicznych, +48 42 2538 424 Portugal - 808.250.143 Romania - Biroul RSI si Informare Toxicologica, 021.318.36.06 Slovakia - NTIC, +421.2.5477.4166 Slovenia - Kemična urad Republike Slovenije + 386.14.00.60.51 Spain - Servicio de Información Toxicológica, + 34.91.562.04.20 Sweden - 112 HMIS® is a registered trade and service mark of the NPCA.

References

ACGIH
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
GOST 30333-2007 - Chemical production safety passport. General requirements
EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
JIS Z 7251: 2010 Labeling of chemicals based on GHS
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)
JIS Z 7250: 2010 Safety data sheet for chemical products-Content and order of sections
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
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. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
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), pre-1997 List
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)
National Toxicology Program (NTP) Report on Carcinogens
NLM: Hazardous Substances Data Base
Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)
Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)
US. IARC Monographs on Occupational Exposures to Chemical Agents

Disclaimer

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Revision information

Accidental release measures: Methods and materials for containment and cleaning up
Transport Information: Material Transportation Information