



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name of the substance Zirconium powder
Identification number 040-002-00-9 (Index number)
Registration number -
Document number 2NA
Synonyms None.
Materion Code 2NA
Issue date 06-May-2020

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Advanced Chemicals Inc.
Address 407 N. 13th Street
1316 W. St. Paul Avenue
Milwaukee, WI 53233
United States
Division Milwaukee
Telephone 414.212.0257
e-mail advancedmaterials@materion.com
Contact person Laura Hamilton

1.4. Emergency telephone number

Version number 01

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Not available.
Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Flammable liquids	Category 3
Self-heating substances and mixtures	Category 1
Substances and mixtures which, in contact with water, emit flammable gases	Category 1

H260 - In contact with water releases flammable gases which may ignite spontaneously.

Hazard summary Pyrophoric - catches fire if exposed to air. In contact with water releases flammable gases which may ignite spontaneously.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Zirconium powder

Hazard pictograms



Signal word Danger

Hazard statements

H250 Catches fire spontaneously if exposed to air.
H260 In contact with water releases flammable gases which may ignite spontaneously.

Precautionary statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P222 Do not allow contact with air.
P223 Do not allow contact with water.
P231 + P232 Handle and store contents under inert gas. Protect from moisture.
P280 Wear protective gloves/eye protection/face protection.

Response

P335 + P334 Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

Storage

P402 + P404 Store in a dry place. Store in a closed container.
P422 Store contents under

Disposal

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

Supplemental label information

None.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Zirconium powder	100	7440-67-7 231-176-9	-	040-002-00-9	
Classification:	Pyr. Sol. 1;H250, Water-React. 1;H260				T

SECTION 4: First aid measures

General information Not available.

4.1. Description of first aid measures

Inhalation

Move into fresh air and keep at rest. If breathing has stopped, perform artificial respiration and obtain medical help. Consult a physician for specific advice.

Skin contact

Wash off with soap and plenty of water. Contact physician if irritation continues.

Eye contact

Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion

Never give anything by mouth to an unconscious person. Rinse mouth thoroughly. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Not available.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media

Dry sand. Dry chemicals. Alcohol resistant foam.

Unsuitable extinguishing media

Do not use water jet.

5.2. Special hazards arising from the substance or mixture

In contact with water releases flammable gases which may ignite spontaneously.

5.3. Advice for firefighters

Special protective equipment for firefighters

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Avoid generation and spreading of dust. Ensure adequate ventilation. Avoid contact with skin or inhalation of spillage, dust or vapour. Keep public away from danger area.
For emergency responders	Not available.

6.2. Environmental precautions Prevent entry into drains.

6.3. Methods and material for containment and cleaning up Avoid the generation of dusts during clean-up. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use approved industrial vacuum cleaner for removal. Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Avoid contact with moist air. Handle under inert gas atmosphere.

7.2. Conditions for safe storage, including any incompatibilities Not available.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Zirconium powder (CAS 7440-67-7)	MAK	5 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	MAC	5 mg/m ³
	STEL	10 mg/m ³

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	TWA	5 mg/m ³

Finland. Workplace Exposure Limits

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	TWA	1 mg/m ³

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Material	Type	Value	Form
Zirconium powder (CAS 7440-67-7)	TWA	1 mg/m ³	Inhalable fraction.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Material	Type	Value	Form
Zirconium powder (CAS 7440-67-7)	AGW	1 mg/m ³	Inhalable fraction.

Greece. OELs (Decree No. 90/1999, as amended)

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	20 mg/m ³
	TWA	5 mg/m ³

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	TWA	5 mg/m ³

Italy. Occupational Exposure Limits

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	TWA	6 mg/m ³

Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	TWA	1 mg/m ³

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Material	Type	Value	Form
Zirconium powder (CAS 7440-67-7)	TWA	1 mg/m ³	Inhalable dust.

Spain. Occupational Exposure Limits

Material	Type	Value
Zirconium powder (CAS 7440-67-7)	STEL	10 mg/m ³
	TWA	5 mg/m ³

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
Zirconium powder (CAS 7440-67-7)	TWA	5 mg/m ³	Inhalable fraction.

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Not available.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Not available.

Individual protection measures, such as personal protective equipment

General information Not available.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- **Hand protection** Use protective gloves.

- **Other** Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities. Wear fire/flame resistant/retardant clothing.

Respiratory protection When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

Thermal hazards Not available.

Hygiene measures Not available.

Environmental exposure controls Not available.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Appearance	Powder.
Physical state	Solid.
Form	Not available.
Colour	Not available.
Odour	None.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	1857 °C (3374,6 °F)
Initial boiling point and boiling range	3577 °C (6470,6 °F)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.

Flammability limit - upper (%)	Not available.
Vapour pressure	< 0,0000001 kPa (25 °C (77 °F))
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	> 200 °C (> 392 °F)
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.
9.2. Other information	
Molecular formula	Zr
Molecular weight	91,22 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity	Moisture, heating and strong oxidising substances.
10.2. Chemical stability	Material is stable under normal conditions. Water reactive material.
10.3. Possibility of hazardous reactions	Not available.
10.4. Conditions to avoid	Moisture.
10.5. Incompatible materials	Water. Strong acids. Strong oxidising substances. Hydrogen fluoride. Oxygen. Phosphorus.
10.6. Hazardous decomposition products	Carbon oxides. Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

SECTION 11: Toxicological information

General information	Not available.
Information on likely routes of exposure	
Inhalation	Not available.
Skin contact	Not available.
Eye contact	Not available.
Ingestion	Not available.
Symptoms	Not available.
11.1. Information on toxicological effects	
Acute toxicity	No data available.
Skin corrosion/irritation	Not available.
Serious eye damage/eye irritation	Not available.
Respiratory sensitisation	Not available.
Skin sensitisation	Not available.
Germ cell mutagenicity	Not available.
Carcinogenicity	
Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)	
Not listed.	
Reproductive toxicity	Not available.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not available.
Mixture versus substance information	Not available.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity No toxicity data noted for the ingredient(s).
12.2. Persistence and degradability Not available.
12.3. Bioaccumulative potential Not available.
Partition coefficient n-octanol/water (log Kow) Not available.
Bioconcentration factor (BCF) Not available.
12.4. Mobility in soil Not available.
12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.
12.6. Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations.
Contaminated packaging Not available.
EU waste code Not available.
Disposal methods/information Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

ADR

14.1. UN number UN1358
14.2. UN proper shipping name ZIRCONIUM POWDER, WETTED with not less than 25% water
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
Label(s) 4.1
Hazard No. (ADR) 40
Tunnel restriction code E
14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

RID

14.1. UN number UN1358
14.2. UN proper shipping name ZIRCONIUM POWDER, WETTED with not less than 25% water
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
Label(s) 4.1
14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

ADN

14.1. UN number UN1358
14.2. UN proper shipping name ZIRCONIUM POWDER, WETTED with not less than 25% water
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
Label(s) 4.1
14.4. Packing group II

14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

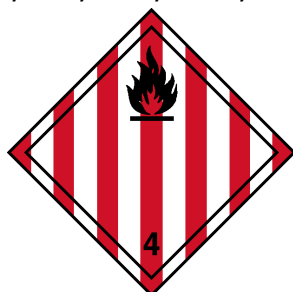
IATA

14.1. UN number UN2008
14.2. UN proper shipping name ZIRCONIUM POWDER, DRY
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards No.
ERG Code 3L
14.6. Special precautions for user Not available.
Other information
Passenger and cargo aircraft Allowed with restrictions.
Cargo aircraft only Allowed with restrictions.

IMDG

14.1. UN number UN2008
14.2. UN proper shipping name ZIRCONIUM POWDER, DRY
14.3. Transport hazard class(es)
Class 4.1
Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards
Marine pollutant No.
EmS F-E, S-D
14.6. Special precautions for user Not available.

ADN; ADR; IATA; IMDG; RID



SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Zirconium powder (CAS 7440-67-7)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Zirconium powder (CAS 7440-67-7)

National regulations Not available.

15.2. Chemical safety assessment Not available.

SECTION 16: Other information

List of abbreviations Not available.

References Not available.

Training information Not available.