

SAFETY DATA SHEET

1. Identification

Product identifier: ZINC METAL POWDER

Other means of identification

Product No.: 4282, 8681

Recommended use and restriction on use

Recommended use: Not determined.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

	Avantor Performance Materials, LLC.
	3477 Corporate Parkway
	Center Valley, PA 18034
Telephone:	
	Customer Service: 855-282-6867
Fax:	610-573-2610
Contact Person:	Environmental Health & Safety
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 4
Carcinogenicity	Category 2
Toxic to reproduction	Category 1A

Unknown toxicity - Health

Acute toxicity, oral	0 %
Acute toxicity, dermal	100 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 1
Chronic hazards to the aquatic environment	Category 1

Unknown toxicity - Environment

Acute hazards to the aquatic environment 0 %
Chronic hazards to the aquatic environment 100 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: May form combustible dust concentrations in air.
Harmful if swallowed.
Suspected of causing cancer.
May damage fertility or the unborn child.
Very toxic to aquatic life.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.

Response: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF exposed or concerned: Get medical advice/attention. Collect spillage.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	Content in percent (%)*
ZINC		7440-66-6	90 - 100%
Zinc oxide		1314-13-2	1 - 5%
LEAD		7439-92-1	0,1 - 1%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information:	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion:	Rinse mouth thoroughly. Get medical attention if symptoms occur.
Inhalation:	Move to fresh air. Get medical attention if symptoms persist.
Skin Contact:	Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
Eye contact:	Flush thoroughly with water. If irritation occurs, get medical assistance.

Most important symptoms/effects, acute and delayed

Symptoms:	May cause irritation to skin, eyes, and respiratory tract.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.
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5. Fire-fighting measures

General Fire Hazards:	Powdered material may form explosive dust-air mixtures. Use water SPRAY only to cool containers! Do not put water on leaked material.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Dry chemical.
Unsuitable extinguishing media:	Water, CO2 or Foam

Specific hazards arising from the chemical:	Dust may form an explosive mixture in the atmosphere. In contact with water releases flammable gases which may ignite spontaneously.
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Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment.
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Methods and material for containment and cleaning up:	Avoid dust formation. Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.
Notification Procedures:	Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:	Avoid generation and spreading of dust. Ground and bond container and receiving equipment. Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Conditions for safe storage, including any incompatibilities:	Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place. Keep away from moisture.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Zinc oxide - Respirable.	TWA	2 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	STEL	10 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
Zinc oxide - Respirable.	TWA	2 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	STEL	10 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Zinc oxide - Respirable fraction.	TWA	2 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	STEL	10 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
Zinc oxide - Respirable fraction.	TWA	2 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	STEL	10 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Zinc oxide - Respirable fraction and dust or fume.	15 MIN ACL	10 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	8 HR ACL	2 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
Zinc oxide - Fume.	TWA	5 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Zinc oxide - Total dust.	TWA	10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Zinc oxide - Fume.	STEL	10 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Zinc oxide - Respirable fraction.	TWA	2 mg/m3	US. ACGIH Threshold Limit Values (2011)
	STEL	10 mg/m3	US. ACGIH Threshold Limit Values (2011)

LEAD - as Pb	TWA	0,05 mg/m3	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
LEAD	TWA	0,05 mg/m3	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
LEAD - as Pb	TWA	0,05 mg/m3	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
LEAD - as Pb	8 HR ACL	0,05 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	0,15 mg/m3	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
LEAD - as Pb	TWA	0,05 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
LEAD - as Pb	TWA	0,05 mg/m3	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (06 2015)
LEAD - as Pb	TWA	0,05 mg/m3	US. ACGIH Threshold Limit Values (2011)

Appropriate Engineering Controls

No data available.

Individual protection measures, such as personal protective equipment

General information:	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. Use explosion-proof ventilation equipment.
Eyeface protection:	Use tight fitting goggles if dust is generated.
Skin Protection	
Hand Protection:	Wear protective gloves.
Other:	Wear suitable protective clothing.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator.
Hygiene measures:	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. Provide eyewash station and safety shower.

9. Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Powder.
Color:	Blue grey
Odor:	Odorless
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	419 °C
Initial boiling point and boiling range:	907 °C
Flash Point:	Not applicable
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Density:	7,14 g/ml (20 °C)
Relative density:	7,14 (20 °C)
Solubility(ies)	
Solubility in water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	460 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	Moist zinc dust can react exothermically and ignite spontaneously in air.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur. Material reacts with water.
Conditions to avoid:	Heat, sparks, flames. Moisture.
Incompatible Materials:	Water. Moisture. Strong oxidizing agents. Strong acids. Strong bases. Halogens and halogenated compounds.
Hazardous Decomposition Products:	Not applicable

11. Toxicological information

Information on likely routes of exposure

Inhalation:	May cause irritation to the respiratory system.
Skin Contact:	May cause irritation.
Eye contact:	May cause temporary eye irritation.
Ingestion:	Harmful if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral	
Product:	ATEmix (Rat): 650 mg/kg ATEmix : 649,48 mg/kg
Dermal	
Product:	No data available.

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: May cause skin irritation.

Serious Eye Damage/Eye Irritation
Product: May irritate eyes.

Respiratory or Skin Sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: Suspected of causing cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

LEAD Overall evaluation: 2B. Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

LEAD Hazard Designation: Reasonably Anticipated to be a Human Carcinogen.

ACGIH Carcinogen List:

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
Product: None known.

Specific Target Organ Toxicity - Repeated Exposure
Product: None known.

Aspiration Hazard
Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: There are no data on the degradability of this product.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log K_{ow})

Product: No data available.

Mobility in soil: No data available.

Other adverse effects: Very toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

TDG

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

15. Regulatory information

Canada Federal Regulations

List of Toxic Substances (CEPA, Schedule 1)

Chemical Identity

ZINC

Zinc oxide

LEAD

Export Control List (CEPA 1999, Schedule 3)

Not Regulated

National Pollutant Release Inventory (NPRI)

Canada. National Pollutant Release Inventory (NPRI) Substances, Part 5, VOCs with Additional Reporting Requirements

NPRI PT5 Not Regulated

Canada. National Pollutant Release Inventory (NPRI) (Schedule 1, Parts 1-4)

NPRI ZINCZinc oxideLEAD

Greenhouse Gases

Not Regulated

Controlled Drugs and Substances Act

CA CDSI Not Regulated

CA CDSII Not Regulated

CA CDSIII Not Regulated

CA CDSIV Not Regulated

CA CDSV Not Regulated

CA CDSVII Not Regulated

CA CDSVIII Not Regulated

Precursor Control Regulations

Not Regulated

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision
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Revision Date: 18.05.2018

Version #: 2.1

Further Information: No data available.

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