Chemical Safety Data Sheet MSDS / SDS

Zirconium SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Zirconium

CAS: 7440-67-7

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

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

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

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

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P222 Do not allow contact with air.
P233 Keep container tightly closed.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P223 Do not allow contact with water.
P231+P232 Handle and store contents under inert gas/....Protect from moisture.

Response

P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water [or wrap in wet bandages].
P370+P378 In case of fire: Use ... to extinguish.

Storage

P402+P404 Store in a dry place. Store in a closed container.

Disposal

P501 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 classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Zirconium
Common names and synonyms:	Zirconium
CAS number:	7440-67-7
EC number:	231-176-9
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth.

Most important symptoms/effects, acute and delayed

no data available

Indication of immediate medical attention and special treatment needed, if necessary

no data available

SECTION 5: Firefighting measures

Suitable extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

Specific hazards arising from the chemical

Combustible. Many reactions may cause fire or explosion. Finely dispersed particles form explosive mixtures in air.

Special protective actions for fire-fighters

Use dry sand, dry powder.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

See Chemical Dangers.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 5 mg/m3, as TWA; 10 mg/m3 as STEL; A4 (not classifiable as a human carcinogen).MAK not established but data are available

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Solid.
Colour:	White.
Odour:	no data available
Melting point/freezing point:	Remarks: Test substance does not melt.
Boiling point or initial boiling point and boiling range:	4377°C(lit.)
Flammability:	no data available
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	In water: 166 g/L. Temperature: 10 °C. pH: 0.52. Remarks: Without pH adjustment.; 169 g/L. Temperature: 20 °C. pH: 0.48. Remarks: Without pH adjustment.; < 0.4 mg/L. Temperature: 10 °C. pH: 4.02. Remarks: With pH adjustment to pH 4.
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	no data available
Density and/or relative density:	1.987. Temperature: 20 °C.

Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air.Reacts violently with borax and carbon tetrachloride when heated. Reacts explosively with alkali metal hydroxides when heated.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (female) - > 300 - < 2 000 mg/kg bw.

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

May cause mechanical irritation to the eyes.

STOT-repeated exposure

Repeated or prolonged inhalation of dust particles may cause effects on the lungs.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LL50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - > 100 mg/L - 96 h. Remarks:Anhydrous form.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 100 % v/v saturated solution - 48 h.

Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 80 % v/v saturated solution - 72 h.

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN2008 (For reference only, please check.)
IMDG: UN2008 (For reference only, please check.)
IATA: UN2008 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ZIRCONIUM POWDER, DRY (For reference only, please check.)
IMDG: ZIRCONIUM POWDER, DRY (For reference only, please check.)
IATA: ZIRCONIUM POWDER, DRY (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 4.2 (For reference only, please check.)
IMDG: 4.2 (For reference only, please check.)
IATA: 4.2 (For reference only, please check.)

Packing group, if applicable

ADR/RID: I (For reference only, please check.)
IMDG: I (For reference only, please check.)
IATA: I (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Other UN numbers: 1358 Zirconium powder; wetted; hazard class 4.1, packaging group II; 1932 Zirconium scrap, hazard class 4.2, packaging group III; 2009 Zirconium, dry, finished metal sheets, wire, strip, hazard class 4.2, packaging group III; 2858 Zirconium, metal sheets, 18-254 microns, hazard class 4.1, packaging group III.Pure Zirconium sponge is pyrophoric and violently explosive when impure.

based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any