ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

ZINC

Revision Date:2024-12-21 Revision Number:1

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

Product identifier

Product name	: ZINC
CBnumber	: CB0700715
CAS	: 7440-66-6
EINECS Number	: 231-175-3
Synonyms	: zn,zinc

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
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)

Signal word Danger

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P222 Do not allow contact with air.

P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231+P232 Handle under inert gas. Protect from moisture.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P370+P378 In case of fire: Use … for extinction.

P391 Collect spillage. Hazardous to the aquatic environment

P403+P235 Store in a well-ventilated place. Keep cool.

P407 Maintain air gap between stacks/pallets.

P413 Store bulk masses greater than … kg/…lbs at temperatures not exceeding … oC/…oF.

P422 Store contents under …

P501 Dispose of contents/container to..…

Hazard statements

H225 Highly Flammable liquid and vapour

H250 Catches fire spontaneously if exposed to air

H251 Self-heating; may catch fire

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

H302 Harmful if swallowed

H319 Causes serious eye irritation

H335 May cause respiratory irritation

H351 Suspected of causing cancer

H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

H411 Toxic to aquatic life with long lasting effects

SECTION 3: Composition/information on ingredients

Substance

Product name	: ZINC
Synonyms	: zn,zinc
CAS	: 7440-66-6
EC number	: 231-175-3
MF	: Zn
MW	: 65.39

SECTION 4: First aid measures

Description of first aid measures

General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

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

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Dry powder Dry sand

Unsuitable extinguishing media

Do NOT use water jet.

Special hazards arising from the substance or mixture

Zinc/zinc oxides

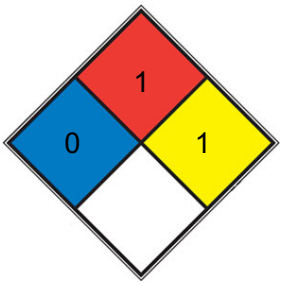
Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

No data available

NFPA 704



■	HEALTH	0	Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials
■	FIRE	1	Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. mineral oil, ammonia)
■	REACT	1	Normally stable, but can become unstable at elevated temperatures and pressures (e.g. propene)
□	SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

Environmental precautions

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

Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

Advice on protection against fire and explosion

Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Storage conditions

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

SECTION 8: Exposure controls/personal protection

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

Exposure controls

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Protective gloves against thermal risks

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection

Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full- face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

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

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance	gray powder
Odour	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	Melting point/freezing point: 419,8 °C
Initial boiling point and boiling range	908 °C
Flash point	1 °F
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	1 hPa at 487 °C
Vapour density	No data available
Relative density	7,14
Water solubility	H_2O: soluble
Partition coefficient: n-octanol/water	log Pow: 5 The substance or mixture is classified as self heating with the category 1., The substance or mixture is pyrophoric with the category 1.
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available

Explosive properties	No data available
Oxidizing properties	No data available
resistivity	5.8 µΩ-cm, 20°C

Other safety information

No data available

SECTION 10: Stability and reactivity

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Reacts violently with water.

Conditions to avoid

Exposure to moisture.

Incompatible materials

Strong acids and oxidizing agents

Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5,41 mg/l (OECD Test Guideline 403)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 5 Days Remarks:

(in analogy to similar products) (ECHA)

The value is given in analogy to the following substances: Zinc oxide

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation - 24 h (OECD Test Guideline 405)

Respiratory or skin sensitization

(OECD Test Guideline 406) Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Zinc oxide

Germ cell mutagenicity

In vitro mammalian cell gene mutation test mouse lymphoma cells

Result: negative Remarks:

(in analogy to similar products) (ECHA)

The value is given in analogy to the following substances: zinc chloride Ames test

Escherichia coli/Salmonella typhimurium Result: negative

Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Zinc sulphate Chromosome aberration test in vitro

Result: negative Remarks:

(in analogy to similar products) (ECHA)

The value is given in analogy to the following substances: zinc chloride

Mouse - male and female - Red blood cells (erythrocytes) Result: negative

Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Zinc sulphate

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Toxicity

Zinc is an essential nutrient and is not regarded as toxic. However, the metal fumes, its oxide fumes, and chloride fumes can produce adverse inhalation effects. (See Zinc Oxide and Zinc Chloride, Toxicity) Ingestion of soluble salts can cause nausea.

SECTION 12: Ecological information

Toxicity

Toxicity to fish

LC50 - Cyprinus carpio (Carp) - 0,45 mg/l - 96 h

Remarks: (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Ceriodaphnia dubia (water flea) - 0,155 mg/l - 48 h

(US-EPA)

Toxicity to algae

static test NOEC - Pseudokirchneriella subcapitata - 0,05 mg/l - 3 Days

(OECD Test Guideline 201)

Toxicity to bacteria

static test NOEC - activated sludge - 0,1 mg/l - 4 h

(ISO 9509)

Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

Very toxic to aquatic life with long lasting effects. No data available

---

SECTION 13: Disposal considerations

Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as

other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Incompatibilities

A strong reducing agent. Violent reaction with oxidizers, chromic anhydride; manganese chloride; chlorates, chlorine and magnesium. Reacts with water and reacts violently with acids, alkali hydroxides; and bases forming highly flammable hydrogen gas. Reacts violently with sulfur, halogenated hydrocarbons and many other substances, causing fire and explosion hazard.

Waste Disposal

Zinc powder should be reclaimed. Unsalvageable waste may be buried in an approved landfill. Leachate should be monitored for zinc content.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

UN number

ADR/RID: 1436 IMDG: 1436

UN proper shipping name

ADR/RID: ZINC POWDER IMDG: ZINC POWDER IATA: Zinc powder

Transport hazard class(es)

ADR/RID: 4.3 (4.2) IMDG: 4.3 (4.2) IATA: 4.3 (4.2)

Packaging group

ADR/RID: II IMDG: II IATA: II

Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

Special precautions for user

No data available

SECTION 15: Regulatory information

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

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: https://www.mem.gov.cn/

Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: https://www.mee.gov.cn/

EC Inventory:Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: https://echa.europa.eu/

Korea Existing Chemicals List (KECL):Listed. website: http://ncis.nier.go.kr

New Zealand Inventory of Chemicals (NZIoC):Listed. website: https://www.epa.govt.nz/

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: https://emb.gov.ph/

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: https://www.epa.gov/

Vietnam National Chemical Inventory:Listed. website: https://chemicaldata.gov.vn/

SECTION 16: Other information

Abbreviations and acronyms

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

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

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

STEL: Short term exposure limit

TWA: Time Weighted Average

References

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

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

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

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

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

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

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

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

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

【10】Sigma-Aldrich, website: https://www.sigmaaldrich.com/

Other Information

Zinc oxide fumes formed during combustion may cause metal fume fever (see ICSC 0208).Zinc may contain trace amounts of arsenic, when forming hydrogen, may also form toxic gas arsine (see ICSC0001 and ICSC0222).Zinc powder stabilized: Combustible solid, UN number: 3077, Hazard class: 9, Packing group: III; GHS: Warning, H400, H410.

Disclaimer:
The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.