Safety Data Sheet

1. Chemical product and company identification

Product name : Zinc (Powder)

SDS code : C8-17

Company/undertaking identification :

HAYASHI PURE CHEMICAL IND.,LTD.
Address : 3-2-12 Uchihiranomachi, Chuo-ku, Osaka, Osaka, Japan
Responsible department : Planning Group, Reagent & Chemical Product Department
Telephone : 06-6910-7305
E-mail : shiyaku_kikaku@hpc-j.co.jp
URL : https://www.hpc-j.co.jp/

Emergency number : 06-6910-7305

2. Hazards identification

GHS classification

Physical hazards	Desensitized eplosives	classification not possible
	Explosives	No classification
	Flammable gases	No classification
	Aerosol	No classification
	Oxidizing gases	No classification
	Gases under pressure	No classification
	Flammable liquids	No classification
	Flammable solids	classification not possible
	Self-reactive substances and mixtures	No classification
	Pyrophoric liquids	No classification
	Pyrophoric solids	No classification
	Self-heating substances and mixtures	classification not possible
	Substances and mixtures which in contact with water emit flammable gases	Category 2
	Oxidizing liquids	No classification
	Oxidizing solids	No classification
	Organic peroxides	No classification
	Corrosive to metals	classification not possible
Health hazards	Acute toxicity (oral)	No classification
	Acute toxicity (dermal)	classification not possible
	Acute toxicity (inhalation:gas)	No classification
	Acute toxicity (inhalation:vapors)	No classification
	Acute toxicity (inhalation:dust/mist)	No classification
	Skin corrosion/irritation	No classification
	Serious eye damage/eye irritation	Category 2B
	Respiratory sensitization	classification not possible
	Skin sensitization	No classification
	Germ cell mutagenicity	classification not possible
	Carcinogenicity	classification not possible
	Reproductive toxicity	classification not possible
	Specific target organ toxicity (single exposure)	classification not possible
	Specific target organ toxicity (repeated exposure)	classification not possible
	Aspiration hazard	classification not possible

Environmental hazards	Hazardous to the aquatic environment, short-term (acute)	Category 1
	Hazardous to the aquatic environment, long-term (chronic)	Category 1
	Hazardous to the ozone layer	classification not possible

Hazard pictograms (GHS JP)

GHS02

GHS09

Signal word (GHS JP) : Danger

Hazard statements (GHS JP) : In contact with water releases flammable gases. (H261)
Causes eye irritation (H320)
Very toxic to aquatic life with long lasting effects (H410)

Precautionary statements (GHS JP)

Prevention : Keep away from any possible contact with water, because of violent reaction and possible flash fire. (P223)
Handle and store contents under inert gas. Protect from moisture. (P231+P232)
Wash hands, forearms and face thoroughly after handling. (P264)
Avoid release to the environment. (P273)
Wear protective gloves/protective clothing/eye protection/face protection. (P280)

Response : IF ON SKIN: Brush off loose particles from skin. Immerse in cool water . (P302+P335+P334)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)
If eye irritation persists: Get medical advice/attention. (P337+P313)
In case of fire: Use specify appropriate media to extinguish. (P370+P378)
Collect spillage. (P391)

Storage : Store in a dry place. Store in a closed container. (P402+P404)

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. (P501)

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Name	Concentration or Concentration range	Formula	Kanpo number		CAS RN
			CSCL no	ISHL no	
Zinc	≧85.0%	Zn	Excluded (element)	-	7440-66-6

The above concentration or concentration range are not product specification.
All percentages listed in the above concentration or concentration range are mass%, unless otherwise specified.

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
Get immediate medical advice/attention.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing.
Gently wash with plenty of soap and water.
Get immediate medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.

First-aid measures after ingestion : Rinse mouth.
Get immediate medical advice/attention.

5. Fire fighting measures

Suitable extinguishing media	:	Dry chemical for metal fire, Sand.
Unsuitable extinguishing media	:	Water, Carbon dioxide (CO2), Foam.
Fire hazard	:	In contact with water releases flammable gas.
Explosion hazard	:	May induce explosion of containers by water contamination.
Reactivity in case of fire	:	Reacts violently with water.
Hazardous decomposition products in case of fire	:	In case of fire, product may produce irritative or toxic fumes/gases.
Firefighting instructions	:	If ignited, for the initial fire-fighting, cut off combustion sources, extinguish fire at a stroke using appropriate fire-extinguishers. In the case of peripheral fire, quickly remove movable containers to safe places. If unable to be moved containers, sprinkle water to containers and surrounding equipment, etc. to cool.
Protection during firefighting	:	Wear appropriate fire-resistant clothing including self contained-compressed air breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures	:	Before entering, ventilate the area. Do not let unauthorized persons come close to the area. Immediately place the leakage area in isolation, with taking proper distances for all directions. Wear appropriate personal protective devices to prevent inhalation and contact with eye, skin, and clothing, and never attempt to work on the lee.

Environmental precautions

Environmental precautions	:	Avoid release to the environment. Prevent entry to sewers and public waters.

Methods and Equipment for Containment and Cleaning up

Methods for cleaning up	:	Take care not to generate dust, sweep it up as much as possible, collect it in an empty container that can be sealed, and move it to a safe place. Wash out the spilled area with large amounts of water.

7. Handling and storage

Handling

Technical measures	:	Work with appropriate personal protective equipment to prevent inhalation or contact to eyes, skin, and clothing. Handle with care to prevent leakage, overflowing, or scattering, minimize generation of mist or vapor, and thoroughly ventilate.
Precautions for safe handling	:	Do not eat, drink or smoke when using this product. Thoroughly wash your hands and gargle after handling. Ensure good ventilation of the work station. Do not contact, breathe or swallow. Take precautionary measures against static discharge. Use explosion-proof equipment.
Prevents handling of incompatible substances or mixtures	:	Avoid prolonged or repeated exposure.

Storage

Storage conditions	:	Store locked up. Store in a well-ventilated place, away from direct sunlight. Keep container tightly closed and keep away from fire and heat sources.
Material used in packaging/containers	:	Airtight container.
Technical measures	:	Comply with applicable regulations.
Storage temperature	:	Cool and dark place

8. Exposure controls / Personal protection equipment

Appropriate engineering controls : Cover up tightly the generation source at the handling place or install local exhaust equipment or overall ventilation equipment. Install safety showers and eye-fountains near a handling place. Clearly indicate the location.

Protective equipment

Respiratory protection : Dustproof mask

Hand protection : Protective gloves

Eye protection : Protective glasses (general glasses, glasses with side-shields, goggles)

Skin and body protection : Protective clothing, Protective boots, Protective apron

9. Physical and chemical properties

Physical state	:	Solid
Appearance	:	Fine powder
Color	:	gray
Odor	:	Odorless
pH	:	No data available
Melting point	:	419.5 °C
Freezing point	:	No data available
Boiling point	:	907 °C（101.3kPa）
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	0.1 kPa（487℃）
Relative density	:	No data available
Density	:	7.14 g/cm³
Relative gas density	:	No data available
Solubility	:	Insoluble in water. Soluble in acids. Soluble in alkaline solution.
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	No data available
Chemical stability	:	Stable under normal handling conditions. Oxidized in the air. When a large amount of powder is exposed to air in a damp state, it generates heat and spontaneously ignites. It reacts with a small amount of water such as moisture and water vapor to produce flammable/explosive hydrogen. In a dry state, it may be charged with static electricity due to stirring, air transportation, injection, etc.
Possibility of hazardous reactions	:	Be strong reducing agents, reacts violently with oxidizing agents. Reacts with water and also reacts violently with acids and bases to produce flammable hydrogen gas. Reacts violently with sulfur, halogenated hydrocarbons and many other substances to pose a risk of fire and explosion.
Conditions to avoid	:	Sunlight, moisture, heat. Ignition sources such as flame, spark, and static electricity. Contact with water, oxidizing agents, acids, bases, sulfur, and halogenated hydrocarbons.
Incompatible materials	:	Water, Oxidizing agents, Acids, Bases, Sulfur, Halogenated hydrocarbons
Hazardous decomposition products	:	Zinc oxide

11. Toxicological information

The information in this section is based on the "GHS Classification Results" by NITE.

Zinc	
Acute toxicity (oral)	No classification
Acute toxicity (dermal)	classification not possible
Acute toxicity (gas)	No classification
Acute toxicity (vapour)	classification not possible
Acute toxicity (inhalation:dust/mist)	No classification
Skin corrosion/irritation	No classification
Serious eye damage/irritation	Category 2B
Respiratory sensitization	classification not possible
Skin sensitization	No classification
Germ cell mutagenicity	classification not possible
Carcinogenicity	classification not possible
Reproductive toxicity	classification not possible
STOT-single exposure	classification not possible
STOT-repeated exposure	classification not possible
Aspiration hazard	classification not possible

12. Ecological information

The information in this section is based on the "GHS Classification Results" by NITE.

Zinc	
Hazardous to Aquatic Environment - Acute Hazard	Category 1
Hazardous to Aquatic Environment - Chronic Hazard	Category 1
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Hazardous to the ozone layer	No data available

13. Disposal considerations

Ecology - waste materials : With the detail information of the waste, subcontract its disposal to a waste disposer authorized by a Prefectural Governor.

Contaminated container and packaging : Empty the packaging completely prior to disposal.

Empty containers should be taken for recycle, recovery or waste in accordance with local regulation.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG) : 1436
Proper Shipping Name (IMDG) : ZINC POWDER
Packing group (IMDG) : II
Transport hazard class(es) (IMDG) : 4.3 (4.2)
Hazard labels (IMDG) : 4.3,4.2
Class (IMDG) : 4.3
Subsidiary risks (IMDG) : 4.2
Division (IMDG) : 4.3
Limited quantities (IMDG) : 0
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P410
Packing provisions (IMDG) : PP40
IBC packing instructions (IMDG) : IBC07
IBC special provisions (IMDG) : B21
Tank instructions (IMDG) : T3

Tank special provisions (IMDG)	:	TP33
Stowage category (IMDG)	:	A
Properties and observations (IMDG)	:	In contact with water, alkalis or acids, evolves hydrogen, a flammable gas. Zinc dust is easily ignited, causing explosion. May explode when in contact with oxidizing substances.
MFAG-No	:	138

Air transport(IATA)

UN-No. (IATA)	:	1436
Proper Shipping Name (IATA)	:	Zinc powder
Packing group (IATA)	:	II
Transport hazard class(es) (IATA)	:	4.3 (4.2)
Hazard labels (IATA)	:	4.3, 4.2
Class (IATA)	:	4.3
Subsidiary hazards (IATA)	:	4.2
Division (IATA)	:	4.3
PCA Excepted quantities (IATA)	:	E2
PCA Limited quantities (IATA)	:	Forbidden
PCA limited quantity max net quantity (IATA)	:	Forbidden
PCA packing instructions (IATA)	:	483
PCA max net quantity (IATA)	:	15kg
CAO packing instructions (IATA)	:	490
CAO max net quantity (IATA)	:	50kg
Special provision (IATA)	:	A3, A803
ERG code (IATA)	:	4SW
Marine pollutant	:	Applicable

Regulations in Japan

Regulatory information by sea	:	Conform to the provisions of the Ship Safety Law.
Regulatory information by air	:	Conform to the provisions of the Civil Aeronautics Law.
MFAG-No	:	138
Special transport precautions	:	When transporting, load containers so that they do not tip over, damage, drop or collapse. Make sure there is no leak in containers.

15. Regulatory information

National law

Industrial Safety and Health Law	:	Dangerous Substances - Ignitable Substance (Enforcement Order Attached Table 1 Item 2)
Japanese Poisonous and Deleterious Substances Control Law	:	Not applicable
Water Pollution Prevention Law	:	Designated Chemical Substances (Law Article 2, Paragraph 4, Enforcement Order Article 3-3) Living Environment Pollution Itemes (Act, Art.2, Enforcement Oder, Art.3, Ministerial Ordinance to Provide for Effluent Standards, Art.1, Appended Table 2)
Fire Service Law	:	Nonhazardous material
Air Pollution Control Law	:	Hazardous Air Pollutants (Central Environment Council Report No. 9)
Ship Safety Act	:	Combustible materials/Substances which, in contact with water, emit flammable gases
Civil Aeronautics Law	:	Combustible materials/Substances which, in contact with water, emit flammable gases
Port Regulation Law	:	Combustible materials/Substances which, in contact with water, emit flammable gases
Waterworks Law	:	Hazardous Substances (Act Article 4 paragraph 2), Standard for Water Quality (Ministry Order No.101 of 2003)
Sewerage Law	:	Substances for Water Quality Standard (Act Art.12-2 Para.2, Enforcement Order Art.9-4)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)	:	Not applicable
Labor Standards Act	:	Chemical Substances Causing Occupational Illnesses (Act Art.75, Para.2, Ordinance Attached Table 1-2, Item 4-1,MHLW Nortification No.36 of 1978

16. Other information

Data sources	:	Handbook of 17120 Chemical Products, The Chemical Daily Co, Ltd. International Chemical Safety Cards. National Institute of Technology and Evaluation (NITE). 2016 Emergency Response Guidebook (ERG 2016).
Other information	:	The SDS is copyrighted material of Hayashi Pure Chemical Ind, Ltd. This Safety Data Sheet is intended to be provided for business operators who handle chemical substance products of the relevant product and is not intended to assure safety in any way. The Safety Data Sheet does not verify all the information on the applicable chemical substance in the present time. With the recognition in that unknown danger constantly exists in the relevant chemical substance, the product shall be used in the principle of self-responsibility of the user with the highest priority to safety from transport and unpacking to disposal. When the relevant chemical substance is used, the user him/herself shall collect safety information and shall investigate laws and regulations at the place, organizations, countries, etc. where the substance is actually used and give the highest priority to them. The Company shall take no responsibility for investigating state and local regulations and the user shall handle this problem on his/her own responsibility. In the event that SDS in Japanese and SDS translated into other languages exist, the document described in Japanese is prior to all other documents whether or not there is any difference in contents, and documents in other languages shall be references.