
Safety Data Sheet**1. Chemical product and company identification****Product name** : Aluminium (Powder)**SDS code** : G5-06**Company/undertaking identification** :

HAYASHI PURE CHEMICAL IND.,LTD.

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URL : <https://www.hpc-j.co.jp/>**Emergency number** : 06-6910-7305**Recommended use** : For research and experimental use only.**Restrictions on use** : Do not use on a human body or for animal medicines, foods, household products, cosmetics, etc.**2. Hazards identification****GHS classification**

Physical hazards	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	No classification	
	Self-reactive substances and mixtures	No classification	
	Pyrophoric liquids	No classification	
	Pyrophoric solids	No classification	
	Self-heating substances and mixtures	No classification	
	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	
	Desensitized explosives	classification not possible	
	Health hazards	Acute toxicity (oral)	classification not possible
		Acute toxicity (dermal)	classification not possible
Acute toxicity (inhalation:gas)		No classification	
Acute toxicity (inhalation:vapors)		No classification	
Acute toxicity (inhalation:dust/mist)		classification not possible	
Skin corrosion/irritation		classification not possible	
Serious eye damage/eye irritation		classification not possible	
Respiratory sensitization		classification not possible	
Skin sensitization		classification not possible	
Germ cell mutagenicity		classification not possible	
Carcinogenicity	classification not possible		
Reproductive toxicity	classification not possible		
Specific target organ toxicity (single exposure)	Category 1 (respiratory system)		

Environmental hazards	Specific target organ toxicity (repeated exposure)	Category 1 (respiratory system)
	Aspiration hazard	classification not possible
	Hazardous to the aquatic environment, short-term (acute)	classification not possible
	Hazardous to the aquatic environment, long-term (chronic)	classification not possible
	Hazardous to the ozone layer	classification not possible

Hazard pictograms (GHS JP)



GHS02



GHS08

Signal word (GHS JP)	: Danger
Hazard statements (GHS JP)	: In contact with water releases flammable gases. (H261) Causes damage to organs (respiratory system) (H370) Causes damage to organs (respiratory system) through prolonged or repeated exposure (H372)
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) Do not breathe dust/fume/gas/mist/vapors/spray. (P260) Wash hands, forearms and face thoroughly after handling. (P264) Do not eat, drink or smoke when using this product. (P270) 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 exposed or concerned: Call a POISON CENTER or doctor. (P308+P311) Get medical advice/attention if you feel unwell. (P314) In case of fire: Use specify appropriate media to extinguish. (P370+P378)
Storage	: Store in a dry place. Store in a closed container. (P402+P404) Store locked up. (P405)
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	
Aluminium	≥ 99%, ≤ 100%	Al	Excluded (element)	-	7429-90-5

The above concentration or concentration range are not product specification.
All percentages listed in the above concentration or concentration range are wt%, 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 : Light shielding airtight container.
 Technical measures : Comply with applicable regulations.
 Storage temperature : Cool and dark place

8. Exposure controls / Personal protection equipment

Exposure limit values	
Aluminium	
Exposure limits (JSOH)	【Occupational exposure limits for dusts】(Class 1) Respirable dust 0.5mg/m ³ Total dust 2mg/m ³
Exposure limits (ACGIH)	TWA 1 mg/m ³ (R),STEL -

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 : Powder
 Color : silver white ~ grayish white
 Odor : No data available
 pH : No data available
 Melting point : 660 °C
 Freezing point : No data available
 Boiling point : 2327 °C
 Flash point : No data available
 Auto-ignition temperature : 590 °C
 Decomposition temperature : No data available
 Flammability (solid, gas) : No data available
 Vapor pressure : No data available
 Relative density : No data available
 Density : No data available
 Relative gas density : No data available
 Solubility : No data available
 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.
 Possibility of hazardous reactions : May react with water, acids and alkalis to evolve hydrogen gas.
 Conditions to avoid : Sunlight, heat. Ignition sources such as sparks, flames and static electricity.
 Contact with water, acids and alkalis.
 Incompatible materials : Water, Acids, Alkalis
 Hazardous decomposition products : No data available

11. Toxicological information

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

Aluminium	
Acute toxicity (oral)	classification not possible
Acute toxicity (dermal)	classification not possible
Acute toxicity (gas)	No classification
Acute toxicity (vapour)	No classification
Acute toxicity (inhalation:dust/mist)	classification not possible
Skin corrosion/irritation	classification not possible
Serious eye damage/irritation	classification not possible
Respiratory sensitization	classification not possible
Skin sensitization	classification not possible
Germ cell mutagenicity	classification not possible
Carcinogenicity	classification not possible
Reproductive toxicity	classification not possible
STOT-single exposure	Category 1
STOT-repeated exposure	Category 1
Aspiration hazard	classification not possible

12. Ecological information

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

Aluminium	
Hazardous to Aquatic Environment - Acute Hazard	classification not possible
Hazardous to Aquatic Environment - Chronic Hazard	classification not possible
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Hazardous to the ozone layer	classification not possible

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)	: 1396
Proper Shipping Name (IMDG)	: ALUMINIUM POWDER, UNCOATED
Packing group (IMDG)	: II
Transport hazard class(es) (IMDG)	: 4.3
Hazard labels (IMDG)	: 4.3
Class (IMDG)	: 4.3
Division (IMDG)	: 4.3
Limited quantities (IMDG)	: 500 g
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P410
Packing provisions (IMDG)	: PP31, PP40
IBC packing instructions (IMDG)	: IBC07
IBC special provisions (IMDG)	: B4, B21
Tank instructions (IMDG)	: T3
Tank special provisions (IMDG)	: TP33
Stowage category (IMDG)	: A

Properties and observations (IMDG)	: In contact with water, caustic alkalis or acids, evolves hydrogen, a flammable gas. When finely divided aluminium dust is scattered, it is easily ignited by naked lights, causing explosion. May explode when in contact with oxidizing substances. Reacts with liquid halogenated hydrocarbons.
MFAG-No	: 138
Air transport(IATA)	
UN-No. (IATA)	: 1396
Proper Shipping Name (IATA)	: Aluminium powder, uncoated
Packing group (IATA)	: II
Transport hazard class(es) (IATA)	: 4.3
Hazard labels (IATA)	: 4.3
Class (IATA)	: 4.3
Division (IATA)	: 4.3
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y475
PCA limited quantity max net quantity (IATA)	: 5kg
PCA packing instructions (IATA)	: 484
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)	: 4W
Marine pollutant	: Not 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	: Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9) Aluminum, soluble salts (Ordinance number : 37)
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)
Fire Service Law	: Nonhazardous material
Foreign Exchange and Foreign Trade Control Act	: Export Trade Control Order, Attached Table 1 Para.4 Export Trade Control Ordinance appendix 1-16
Ship Safety Act	: Combustible materials/Substances which, in contact with water, emit flammable gases(Dangerous Goods Notification Schedule first second and third Article Dangerous Goods Regulations)
Civil Aeronautics Law	: Combustible materials/Substances which, in contact with water, emit flammable gases(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)
Port Regulation Law	: Hazardous materials/Flammable substance (Water reaction combustible material) (Article 21, Paragraph 2 of Law, Article 12 rule, notice attached table that defines the type of dangerous goods)
Waterworks Law	: Hazardous Substances (Act Article 4 paragraph 2), Standard for Water Quality (Ministry Order No.101 of 2003)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)	: Not applicable
Pneumoconiosis Law	: Dust Work (Act Art.2, Rule for Enforcement Art.2 Attached Table)

16. Other information

- Data sources : Handbook of 17423 Chemical Products, The Chemical Daily Co, Ltd.
International Chemical Safety Cards.
National Institute of Technology and Evaluation (NITE).
2020 Emergency Response Guidebook (ERG 2020).
- 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.