
Safety Data Sheet

1. Chemical product and company identification

Product name : Aluminium(III) chloride hexahydrate

SDS code : G5-08

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	No classification	
	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)	No classification
		Acute toxicity (dermal)	classification not possible
Acute toxicity (inhalation:gas)		No classification	
Acute toxicity (inhalation:vapors)		classification not possible	
Acute toxicity (inhalation:dust/mist)		classification not possible	
Skin corrosion/irritation		Category 2	
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)	classification not possible		

Environmental hazards	Specific target organ toxicity (repeated exposure)	classification not possible
	Aspiration hazard	classification not possible
	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)



GHS07



GHS09

Signal word (GHS JP)	: Warning
Hazard statements (GHS JP)	: Causes skin irritation (H315) Very toxic to aquatic life with long lasting effects (H410)
Precautionary statements (GHS JP)	
Prevention	: 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: Wash with plenty of water. (P302+P352) If skin irritation occurs: Get medical advice/attention. (P332+P313) Take off contaminated clothing and wash it before reuse. (P362+P364) Collect spillage. (P391)
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(III) chloride hexahydrate	$\geq 97.0\%$, $\leq 100\%$	AlCl ₃ ·6H ₂ O	(1)-12	Existing Chemical Substance	7784-13-6

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 powder, Carbon dioxide, Sand.
- Unsuitable extinguishing media : Water
- Fire hazard : This product is unburnable.
- Explosion hazard : May induce explosion of containers by heating.
- 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.
Avoid (reject) fire-fighting water to enter environment.
Even after extinguishing fire, thoroughly cool containers by using plenty of water.
- 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.
- 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 : Impervious protective gloves
 Eye protection : Protective glasses (general glasses, glasses with side-shields, goggles)
 Skin and body protection : Impervious aprons, Impervious work clothing, Impervious long boots

9. Physical and chemical properties

Physical state : Solid
 Appearance : Crystals ~ Crystalline powder
 Color : white ~ pale yellow
 Odor : No data available
 pH : ≥ 2.2 (50g/L, 25°C)
 Melting point : No data available
 Freezing point : No data available
 Boiling point : 180 °C (sublimation)
 Flash point : No data available
 Auto-ignition temperature : No data available
 Decomposition temperature : No data available
 Flammability : No data available
 Vapor pressure : No data available
 Relative density : No data available
 Density : 2.39 g/cm³ (20°C)
 Relative gas density : No data available
 Solubility : Easily soluble in ethanol.
 Water: 52.3 % (20°C)
 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. Deliquesce in air.
 Possibility of hazardous reactions : Corrodes many metals in the presence of moisture. Being acidic substance, may react violently by contact with strong alkaline substances. Reacts violently with water to generate heat and white, misty, irritating and corrosive gas (hydrogen chloride). Reacts with strong acids.
 Conditions to avoid : Sunlight, moisture, heat. Contact with metals, alkaline substances, water and strong acids.
 Incompatible materials : Metals, Alkaline substances, Water, Strong acids
 Hazardous decomposition products : Hydrogen chloride, Chlorine compounds

11. Toxicological information

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

Aluminium(III) chloride hexahydrate	
Acute toxicity (oral)	Category 5
Acute toxicity (dermal)	classification not possible
Acute toxicity (gas)	No classification
Acute toxicity (vapour)	classification not possible
Acute toxicity (inhalation:dust/mist)	classification not possible

Aluminium(III) chloride hexahydrate	
Skin corrosion/irritation	Category 2
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	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.

Aluminium(III) chloride hexahydrate	
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) : 3260
- Proper Shipping Name (IMDG) : CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
- Packing group (IMDG) : III
- Transport hazard class(es) (IMDG) : 8
- Hazard labels (IMDG) : 8
- Class (IMDG) : 8
- Special provision (IMDG) : 223, 274
- Packing instructions (IMDG) : P002, LP02
- IBC packing instructions (IMDG) : IBC08
- IBC special provisions (IMDG) : B3
- Tank instructions (IMDG) : T1
- Tank special provisions (IMDG) : TP33
- Stowage category (IMDG) : A
- Properties and observations (IMDG) : Causes burns to skin, eyes and mucous membranes.
- MFAG-No : 154

Air transport(IATA)

- UN-No. (IATA) : 3260
- Proper Shipping Name (IATA) : Corrosive solid, acidic, inorganic, n.o.s.
- Packing group (IATA) : III
- Transport hazard class(es) (IATA) : 8
- Hazard labels (IATA) : 8
- Class (IATA) : 8
- PCA Excepted quantities (IATA) : E1
- PCA Limited quantities (IATA) : Y845

PCA limited quantity max net quantity (IATA)	:	5kg
PCA packing instructions (IATA)	:	860
PCA max net quantity (IATA)	:	25kg
CAO packing instructions (IATA)	:	864
CAO max net quantity (IATA)	:	100kg
Special provision (IATA)	:	A3, A803
ERG code (IATA)	:	8L
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	:	154
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	:	Not applicable
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	:	Not applicable
Foreign Exchange and Foreign Trade Control Act	:	Export Trade Control Ordinance appendix 1-16
Ship Safety Act	:	Corrosive substances (Dangerous Goods Notification Schedule first second and third Article Dangerous Goods Regulations)
Civil Aeronautics Law	:	Corrosive substances (Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)
Port Regulation Law	:	Corrosive substances (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

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.