CHEMICAL INDUSTRIES (FAR EAST) LIMITED.
化学工业(远东)有限公司

Title	Doc. No.	TDC-SDS-Lab-P013
SDS – Polyaluminium Chloride	Revision	B
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SAFETY DATA SHEET (SDS)

POLYALUMINIUM CHLORIDE
[PAC SOLUTION, 10 - 16%]

This information is based on data believed by Chemical Industries (Far East) Limited to be accurate at the time of writing but is subjected to changes without notice. It is given in good faith, but no warranty expressed or implied is made to accuracy, completeness or otherwise.

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product name	:	Polyaluminium Chloride [PAC SOLUTION, 10 – 16% w/w]
Chemical name	:	Aluminium chloride hexahydrate
Chemical formula	:	$AlCl_3.6H_2O$
Other names	:	N.A.
Company's name & address	:	Chemical industries (Far East) Limited
(head office)	:	3, Jalan Samulun, Jurong Town, Singapore 629127
		Tel: 6265 0411 Fax: 6265 6690 Email: chemical.ind@cil.com.sg
(manufacturing plant)	:	91, Sakra Avenue, Jurong Island, Singapore 627882
		Tel: 6867 6977 Fax: 6867 6972 Email: sakraplant@cil.com.sg
Emergency telephone number	:	6265 0411 or 6867 7433 (Manufacturing plant's control room)

2 HAZARD IDENTIFICATION

GHS Classification:

Skin corrosion/ irritation (category 2)
Serious eye damage/ eye irritation (category 2)

GHS Label elements

Pictograms:

Hazard Statement(s):

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary Statement(s):

Prevention:

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ skin protection.
P301+P330+P331 IF SWALLOWED: rinsed mouth. DO NOT induce vomiting.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/attention if you feel unwell.
P403+P233 Store in well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/ container to an approved waste disposal.
P103 Read label before use.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Other Hazards: N/A

3 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients		CAS No.[1]	EC-No.[2]	Content
Polyaluminium Chloride	:	1327-41-9	N/A	10 – 16% (as Al_2O_3)
Water	:	7732-18-5	231-791-2	Balance

4 FIRST-AID MEASURES

Types of contact…	First aid measures
Eye contact	Wash eyes thoroughly with water for at least 15 minutes with eyelids held widely open. Immediately summon for eye doctor / specialist.
Skin contact	Immediately wash off with plenty of water for at least 15 minutes while removing contaminated clothing. Summon medical attention if it develops into irritation or burning sensation.
Inhalation	Remove to fresh air and give oxygen if necessary. Summon medical attention.
Ingestion	Don't induce vomiting. If victim is conscious give plenty of water. Never give anything to an unconscious victim. Immediately summon medical attention.

5 FIRE-FIGHTING MEASURES

Suitable Extinguishing Media : Use water spray, alcohol-resistant foam, dry chemical and carbon dioxide

Protective equipment for fire-fighting : Fire fighters should use full protective clothing and full-face positive pressure self-contained breathing apparatus.

Special hazards arising from the substance or mixture : Non-combustible. Ambient fire may liberate hazardous vapors. The following may develop in event of fire: aluminum oxide and hydrochloric acid.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid breathing vapors, mist or gas. Ensure adequate ventilation. For personal protective equipment, see Section 8.

Method to clean up : Shut off source of leak if safe to do so. Manage spill using containment structures or inert materials. Material can be captured using absorbent materials for disposal. Dispose in accordance to current local disposal regulations.
(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations.)

Environmental precautions : Prevent liquid from entering sewer, surface water, ground water and soil. Advise authorities if substance has entered a watercourse / drain / soil.

7 HANDLING & STORAGE

Handling : Keep away from heat and open flame. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Limit all unnecessary personal contact.

[1] CAS – Chemical Abstract Service
[2] EC no. – No. given by EC Commission

Storage : Store in original containers. Keep containers securely sealed. Store in a cool, dry and well-ventilated area.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls : Provide adequate general and/or local ventilation in areas of storage and use where ammonium sulfate solution is present to meet PEL (personal exposure limit) requirements.
Provide water supply / emergency eyewash / shower near area of handling.

Safe work practices / industrial hygiene : Wash hands and face after working with the substance, and before eating / drinking. Immediately remove contaminated clothing. Wash before re-using.

Personal protection

1. Eye protection : Use safety goggle / face shield.
2. Skin protection : Use rubber gloves, protective clothing and rubber boots. Chemical resistance of materials should be ascertained with the vendor.
3. Respiratory protection : Use approved half-face filter respirator suitable for the substance to be worn when dust / mist is present above permissible limits.
4. Other protective equipment : Uniform, apron, long-sleeved lab coat

Occupational exposure standards : TWA 8 hours = 5 ppm (TWA – time weighted average)
STEL = data not available (STEL – Short term exposure limit)

9 PHYSICAL & CHEMICAL PROPERTIES

Appearance		:	Clear Liquid / Colorless to Pale Amber
Boiling point		:	102°C
Melting point		:	-12 °C
Vapor pressure (at 20°C)		:	Not available
Specific gravity (at 20°C)		:	Not determined
Solubility in water (at 20°C)		:	Completely soluble
Evaporation rate		:	15.8
Vapor density		:	Not applicable
Odor		:	Mild
pH (at 25°C)		:	Not applicable
Flash point		:	Not applicable
Explosive limits	lower	:	Not applicable
	upper	:	Not applicable
Auto-ignition temperature		:	Not applicable
Flammability		:	Not flammable
Molecular weight		:	241.43

10 STABILITY & REACTIVITY

Reactivity : Reacts with calcium hypochlorite. Reacts with alkalis. Slowly corrodes metals. Reacts with cyanides.

Stability : Product is chemically stable under normal ambient temperature and conditions while stored or used.

Possibility of hazardous reactions	:	No dangerous reactions known.
Conditions to avoid instability	:	Avoid elevated temperatures. Keep away from incompatibles.
Incompatible materials	:	Alkalis, aluminum, zinc and galvanized surfaces.
Hazardous decomposition products	:	Thermal decomposition may release hydrogen chloride.

11 TOXICOLOGICAL INFORMATION

Ingestion	:	May cause nausea, vomiting and diarrhea. May cause burns to mucous membrane, liver and kidney damage.
Eye contact	:	May cause irritation.
Skin contact	:	May cause slight irritation.
Inhalation	:	May cause irritation of nose and respiratory.
Animal Toxicity Data	:	LD50 (oral, rat): 3730 mg/kg.

12 ECOLOGICAL INFORMATION

Fish toxicity	:	No data available
Biodegradability	:	No data available
Environmental Effects	:	Do not allow to enter waters, wastewater or soil.

13 DISPOSAL CONSIDERATIONS

Considerations	:	Do not dispose substance directly to sewerage, ground-water and surface-water system. Consult approved waste collectors for disposal.
Singapore regulations	:	Dispose in accordance to current local disposal regulations. *(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations.)*

14 TRANSPORT INFORMATION

Proper shipping name (for land / sea / air)	:	Not Applicable
Land [The Environmental Pollution Control (Hazardous substances) Regulations], Sea (IMDG[3] / IMO[4]), Air (ICAO[5] /IATA[6])		Not Applicable

15 REGULATORY INFORMATION

In Singapore:

Import & sale of hazardous substances	:	Not listed
Disposal of obsolete / expired chemicals / waste	:	Not listed
R-phases	:	Not listed
S-phases	:	Not listed

NFPA rating[7]

Health	Reactivity	Flammability	Other
2	0	0	N.A.

[3] IMDG – International Maritime Dangerous Goods
[4] IMO – International Maritime Organisation
[5] ICAO – International Civil Aviation Organisation
[6] IATA – International Air Transport Association
[7] NFPA rating – rating according to National Fire Protection Agency

16 OTHER INFORMATION

Revision No.	Date of issue	Description of changes
B	28 June 2022	Overall review
A	14 June 2017	Initial release