

Poly Aluminium Chloride

Safety data sheet in the 16-section GHS format · CAS Not available

Velora Chemicals Private Limited
Ahmedabad, Gujarat, India
+91 99255 22674 · info@velorachemicals.com

1. Identification of the substance and of the supplier

Product name	Poly Aluminium Chloride
Synonyms	PAC chemical, polyaluminium chloride, PAC 10%, PAC 17%
C.A.S. number	No single true CAS - PAC is a polymeric inorganic mixture (UVCB), and the CAS quoted is a representative one that varies between suppliers. The ones actually in commercial use are: 1327-41-9, aluminium chloride basic, EC 215-477-2 (used by Kemira and by most Indian producers); 39290-78-3, aluminium chloride hydroxide, EC 254-400-7 (used by several UK/EU suppliers); and 101707-17-9. Declare the product as a mixture and label the CAS explicitly as representative - do not present any of these as the definitive CAS.
Molecular formula	$Al_n(OH)_mCl_{(3n-m)}$, commonly written $[Al_2(OH)_nCl_{(6-n)}]_m$ - not a discrete molecule
Grade supplied	10% & 17% liquid · 30% powder
Product group	Water & Effluent Treatment
Identified uses	Municipal water, Effluent treatment, Textile effluent, Pulp & paper, Industrial water, Sludge treatment
Supplier	Velora Chemicals Private Limited
Emergency contact	Medical, fire or spill emergency — call the emergency services first: 112 (all-India), 101 fire, 108 ambulance. Velora Chemicals Private Limited does not at present operate a 24-hour chemical emergency advice line, and this sheet does not pretend otherwise. Every consignment despatched by road carries an emergency information panel under rule 134 of the Central Motor Vehicles Rules 1989 bearing a number from which expert advice on this material can be obtained, and the producer's safety data sheet issued with the consignment carries the producer's own 24-hour number where one is operated. For product, grade and documentation queries in business hours: +91 99255 22674.

2. Hazards identification

GHS signal word	Danger for the acidic liquid grades (Kemira PAX-18 and UK supplier SDS). For the powder grade: Not available - the powder SDS located still uses pre-GHS wording ('CORROSIVE!') rather than a GHS signal word, so obtain your own supplier's GHS classification.
Hazard classification	Liquid grades: Eye Dam. 1 - H318; Met. Corr. 1 - H290 (Kemira PAX-18 at 30-40% PAC in water, and a UK 10% solution SDS). This is supplier self-classification: there is NO EU harmonised CLP Annex VI entry for poly aluminium chloride, so classification legitimately varies with grade, basicity and free acidity, and some suppliers of higher-basicity grades classify the product as not hazardous. Powder grade classification: Not available. Use your own supplier's classification for the exact grade you sell, and do not carry the 17% classification onto a 10% or a powder datasheet.

3. Composition / information on ingredients

Substance	Poly Aluminium Chloride
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C.A.S. number	No single true CAS - PAC is a polymeric inorganic mixture (UVCB), and the CAS quoted is a representative one that varies between suppliers. The ones actually in commercial use are: 1327-41-9, aluminium chloride basic, EC 215-477-2 (used by Kemira and by most Indian producers); 39290-78-3, aluminium chloride hydroxide, EC 254-400-7 (used by several UK/EU suppliers); and 101707-17-9. Declare the product as a mixture and label the CAS explicitly as representative - do not present any of these as the definitive CAS.
Molecular weight	Not available (polymeric mixture - grades are specified by % Al ₂ O ₃ and % basicity, not by molecular weight)
Composition	10% & 17% liquid · 30% powder

4. First-aid measures

Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 10-15 minutes, holding the eyelids wide apart and removing contact lenses if easy to do. Get medical attention immediately - the acidic liquid grades cause serious eye damage.
Skin contact	Remove contaminated clothing immediately and wash the skin with plenty of soap and water. Get medical advice if redness, irritation or discomfort persists.
Inhalation	Move the person to fresh air, keep them warm and at rest and maintain a clear airway. Get medical attention if breathing difficulty develops. Mist from the acidic liquid and dust from the powder both irritate the nose, throat and airway.
Ingestion	Rinse the mouth thoroughly with water. Do NOT induce vomiting. If the person is conscious, give one or two glasses of water or milk to drink. Get medical attention immediately.

5. Fire-fighting measures

Flash point	Not flammable (inorganic; not applicable)
Suitable extinguishing media	Water fog, foam, dry chemical powder or carbon dioxide, chosen to suit the surrounding fire. The substance itself does not contribute fuel.
Unsuitable extinguishing media	Do not use a high-pressure water jet: it will spread the material and the fire.
Special hazards arising from the substance	Hazardous gases and decomposition products may be formed in a fire, from this substance or from its packaging and the materials stored with it. Packaging and pallets are themselves a substantial fire load. That is true even though the contents do not contribute fuel.
Advice for fire-fighters	Fire-fighters must wear self-contained breathing apparatus and full protective clothing. Keep unnecessary personnel away and upwind. Prevent firefighting run-off from entering drains, surface water or groundwater.

6. Accidental release measures

Keep unnecessary personnel away and upwind, and ventilate. Wear the protective equipment in section 8, including respiratory protection, before approaching. Eliminate ignition sources and prohibit smoking before approaching. Avoid raising dust, and never blow a spilled powder down with compressed air. Dry-collect — vacuum with a HEPA-filtered unit, or sweep gently without raising dust — into labelled, closable containers for disposal under section 13. A spill inside a vessel, tank, silo, container or pit is a confined-space job: test the atmosphere and work under permit. A fine powder makes a floor slippery, especially once wet, so treat every wetted surface as slippery until it has been washed and dried. Prevent entry to drains, surface water and groundwater. Do not return spilled material to the original container; a damaged bag should be overpacked into a labelled outer rather than decanted into an unmarked one.

7. Handling and storage

- Liquid PAC is acidic and corrosive to metals — store in HDPE or FRP, never mild steel. The powder is far less troublesome to store but must be kept dry, because it is hygroscopic and will cake.
- Dilute the powder properly before dosing. Under-dissolved PAC dosed as a slurry gives poor floc and blocks dosing lines, and the plant then wrongly concludes the chemical is weak.
- Transport classification depends on the grade. Most water-treatment PAC — the powder and the higher-basicity liquid — is not regulated, which makes it simpler to move than the mineral acids. Low-basicity and high-strength liquid grades run acidic enough to be classified UN 3264, Class 8. Work from the safety data sheet for the specific grade being shipped rather than assuming. Standard chemical PPE at the dosing point.

Storage: Store between 0 degC and below 30 degC in closed original containers, in a bunded, acid-resistant area. Suitable materials: PE, PP, PVC, GRP/fibreglass-reinforced polyester, epoxy-coated concrete, titanium, and acid-proof or rubber-lined steel. Never galvanised or mild steel, and never aluminium. Keep segregated from hypochlorites, chlorites, sulphites and alkalis - do not share a bund or a delivery line with sodium hypochlorite. The liquid becomes unstable above about 40 degC and has a limited shelf life (Kemira states 8 months). Keep the powder grade dry - it is hygroscopic and cakes.

8. Exposure controls / personal protection

Engineering controls. Enclose every transfer, tipping, bag-slitting and sampling point and fit local exhaust extraction at each, and keep airborne concentrations below the limit in force at the place of use. Provide an eyewash within reach of the working position, and a safety shower wherever the material is classified corrosive or irritant or is handled in quantity. Do not eat, drink or smoke in the handling area; wash before breaks. Where no limit is stated above, occupational exposure limits vary by jurisdiction: check the limit in force at the place of use and the producer's sheet for the grade supplied, and record which value your assessment adopted. Select eye, skin and respiratory protection on the strength of a measured or modelled exposure assessment, not on this sheet alone.

9. Physical and chemical properties

Appearance	Liquid grades (10% and 17%): clear to slightly hazy straw, light-yellow or amber liquid with a faint acidic odour. Powder grade (about 29-32% Al ₂ O ₃): yellow to pale brown free-flowing spray-dried powder or granule.
Physical state	Liquid (the 10% and 17% grades) or solid powder (the 30% grade)
Melting / freezing point	Liquid grades: freezing/crystallisation point about -10 degC for the 17-18% grade (Kemira PAX-18) and below -25 degC for the 10% grade. Powder grade: Not available.
Boiling point	About 105-115 degC for the 17-18% liquid grade (Kemira PAX-18). Thermal decomposition above about 200 degC. Not applicable to the powder.
Relative density	10% liquid: about 1.21 g/cm ³ at 20 degC. 17-18% liquid: 1.34-1.40 g/cm ³ at 20 degC (Kemira PAX-18), 1.37 +/- 0.02 g/cm ³ (Koruma PAC 17). Powder bulk density: Not available.
Solubility in water	Completely soluble/miscible in water. Important: solutions diluted below about 3% Al ₂ O ₃ hydrolyse and are not storage-stable, so prepare dilute dosing solutions fresh.
pH	Strongly acidic, and the number is meaningless without the dilution. 17-18% liquid: about 1.0 on the undiluted product (Kemira PAX-18), and 3.5-4.5 measured on a 5% solution at 20 degC (Koruma PAC 17). 10% liquid: 1.8-2.5 on the undiluted product. Powder at 29-32% Al ₂ O ₃ : 3.5-5.0 measured on a 1% aqueous solution. Always print the dilution alongside the figure.
Flash point	Not flammable (inorganic; not applicable)
Auto-ignition / ignition temperature	Not available
Explosive / dust-explosion properties	Not available
Vapour pressure	Not available

Vapour density	Not available
Partition coefficient (log Pow)	Not available
Particle characteristics	Not available
Molecular weight	Not available (polymeric mixture - grades are specified by % Al ₂ O ₃ and % basicity, not by molecular weight)

10. Stability and reactivity

Incompatible materials	Alkalis and strong bases (sodium and potassium hydroxide, carbonates, ammonia) - violent exothermic neutralisation and gelling; hypochlorites, chlorites and sulphites - NEVER mix PAC with sodium hypochlorite, which liberates chlorine gas; iron salts and other aluminium salts; and bare metals - aluminium, zinc and galvanised surfaces generate hydrogen and can form an explosive atmosphere, and mild steel, copper, brass and nickel are corroded.
Conditions to avoid	Store between 0 degC and below 30 degC in closed original containers, in a bunded, acid-resistant area. Suitable materials: PE, PP, PVC, GRP/fibreglass-reinforced polyester, epoxy-coated concrete, titanium, and acid-proof or rubber-lined steel. Never galvanised or mild steel, and never aluminium. Keep segregated from hypochlorites, chlorites, sulphites and alkalis - do not share a bund or a delivery line with sodium hypochlorite. The liquid becomes unstable above about 40 degC and has a limited shelf life (Kemira states 8 months). Keep the powder grade dry - it is hygroscopic and cakes.

11. Toxicological information

The health hazards classified for this substance are listed in section 2, and the corresponding first-aid measures in section 4. Numerical toxicological endpoints are not reproduced here: refer to the producer's safety data sheet for the grade supplied, and to the ECHA and PubChem entries for the substance.

12. Ecological information

Where section 2 or section 14 classifies this substance as hazardous to the aquatic environment, prevent any release to drains, surface water or groundwater and treat aqueous effluent before discharge. Otherwise, refer to the producer's sheet.

13. Disposal considerations

Dispose of the substance and its container through an authorised facility under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 where the waste is scheduled under those Rules, and otherwise as non-hazardous industrial waste, in each case under the conditions of the State Pollution Control Board consent in force at the site. Whether a particular waste stream is scheduled depends on the substance and on what it has been mixed with, so classify the waste before consigning it. Do not reuse empty containers for any other purpose.

14. Transport information

UN number	Not available - genuinely grade dependent, and must be taken from the classification of the specific product. See notes for what the producer SDS actually say.
Class	Not available - Class 8 where the grade meets the corrosive criteria (see notes); not regulated where it does not.
Packing group	Not available - Packing Group III where the product is assigned as a Class 8 corrosive liquid (see notes).
Proper shipping name	Not available - see notes. PAC has no dedicated entry in the UN dangerous goods list, so any shipping name is an n.o.s. or analogous entry chosen on the basis of the product's own classification.

15. Regulatory information

Supply in India is subject to the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 where the substance is scheduled, and to any product-specific licensing named on the product page. Classification and labelling follow the GHS as adopted in the jurisdiction of use.

Note: Two things in this entry are routinely got wrong on published datasheets. First, transport: PAC has no dedicated UN entry, and producer SDS disagree. Kemira (PAX-18) and a UK 10% supplier both declare UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., Class 8, PG III. A Turkish producer of PAC 17 declares UN 2581 ALUMINIUM CHLORIDE SOLUTION, Class 8, PG III. Another supplier declares UN 1760. A powder-grade supplier states the product is not regulated by DOT, IMO or IATA. All of these can be correct for their own product, because the assignment follows the measured corrosivity (skin corrosion and/or metal corrosion) of that grade. Do NOT copy a UN number from another company's SDS - have the grade classified, or take the entry from the manufacturer's own current SDS, and note that the solid 30% powder needs a solid entry (potentially UN 3260) rather than a liquid one. Second, the grade numbers: 10%, 17% and 30% all refer to % Al₂O₃ content, not to % product, so compare and dose grades on the alumina basis - a 30% powder is about the alumina equivalent of 1.7 kg of 17% liquid per kg. Basicity (typically 40-70%) is a separate specification that drives coagulation performance and is not captured by the Al₂O₃ figure at all.

16. Other information

Version	1.0
Date of issue	07 October 2026
Supersedes	No previous version
Regulatory basis as at the date of issue	EU CLP Regulation 1272/2008 as amended, including Annex VI harmonised classifications; UN Model Regulations and the IMDG Code Amendment 42-24, mandatory from 1 January 2026; ADR 2025; and, in India, the Manufacture, Storage and Import of Hazardous Chemical Rules 1989 and the Central Motor Vehicles Rules 1989.

How this sheet was compiled and what governs. This sheet was prepared by Velora Chemicals Private Limited as the supplier, from PubChem, the ECHA CLP inventory including Annex VI harmonised classifications, ILO International Chemical Safety Cards and published producer safety data sheets. Values that could not be confirmed from those sources are shown as "Not available" rather than estimated. **The producer's safety data sheet for the specific grade and lot supplied is the governing document** and is issued with the consignment; where the two differ, the producer's sheet prevails. This sheet carries no warranty of the properties of any particular batch. Velora Chemicals Private Limited is a bulk supplier and trader, not a manufacturer.

Sources consulted: <https://www.hillbrothers.com/pdf/downloads/msds/sds/n/pax-18.pdf>;
<https://www.nexchem.co.uk/wp-content/uploads/1970/01/Polyaluminium-Chloride-10-2.pdf>;
<https://koruma.com/wp-content/uploads/2020/11/POLYALUMINIUM-CHLORIDE-HYDROXIDE-PAC-17-SDS5303-EN.pdf>;
https://www.poyaluminium-chloride.net/pubfiles/2016/07/MSDS-Poyaluminium-Chloride_rev003.pdf;
<https://www.easttharbourgroup.com/storage/download-files/poly-aluminium-chloride/Poly-Aluminium-Chloride-MSDS-96-V2-2026.pdf>