

VYTAL 613 — LIQUID CLARIFICATION AID

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1.1 Product identifier:

**Product name:** Vytal 613 — Liquid Clarification Aid  
**Synonyms:** Vytal 613  
**CAS No.:** 1327-41-9  
**Chemical formula:** [Al<sub>2</sub>(OH)<sub>n</sub>Cl<sub>6-n</sub>]<sub>m</sub> — variable, basicity-dependent

1.2 Relevant identified uses of the substance/mixture and uses advised against:

**Identified uses:** Coagulant/clarification aid for water and wastewater treatment (see product specification sheet for application-specific use). Industrial use only.  
**Uses advised against:** Not for food, pharmaceutical, or household/consumer use.

1.3 Supplier's details:

**SURAJ CHEMICALS**  
 No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India  
 Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281  
 Email: sales@surajchemicals.com | Website: www.surajchemicals.com  
 GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

**GHS:**  
 Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

|               |                                      |
|---------------|--------------------------------------|
| Skin Irrit. 2 | Skin irritation, Category 2, H315    |
| Eye Dam. 1    | Serious eye damage, Category 1, H318 |

2.2 GHS label elements, including precautionary statements:

**GHS: Warning**

Hazard statements:

Skin Irrit. 2: H315 – Causes skin irritation.  
 Eye Dam. 1: H318 – Causes serious eye damage.

Precautionary statements:

P264: Wash hands thoroughly after handling.  
 P280: Wear protective gloves/eye protection/face protection.  
 P302+P352: IF ON SKIN: Wash with plenty of 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.  
 P332+P313: If skin irritation occurs, get medical advice/attention.  
 P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Mildly acidic liquid; may be corrosive to certain metals over prolonged contact.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

**Chemical description:** Poly aluminium chloride (basic aluminium chloride polymer), aqueous liquid  
 In accordance with Annex 4.3.3 of the GHS, the product contains:

| Identification | Chemical Name / Classification                                            | Concentration                                                                                 |
|----------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| CAS: 1327-41-9 | Poly aluminium chloride — Skin Irrit. 2: H315; Eye Dam. 1: H318 – Warning | approx. 10% Al <sub>2</sub> O <sub>3</sub> ; (liquid grade; exact assay available on request) |

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

Remove person to fresh air. Seek medical attention if symptoms occur or persist.

By skin contact:

Remove contaminated clothing. Wash affected skin with plenty of water. Seek medical attention if irritation persists.

By eye contact:

Rinse eyes immediately with plenty of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention.

By ingestion/aspiration:

Rinse mouth with water. Give water to drink if conscious. Seek medical attention if discomfort occurs or persists.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

**Suitable:** Water spray, carbon dioxide (CO2), dry chemical powder, foam – use extinguishing media suitable for surrounding fire. Product itself is non-combustible.  
**Unsuitable:** None known specifically.

**5.2 Specific hazards arising from the chemical:**  
Non-combustible aqueous liquid. Not expected to contribute significantly to a fire.

**5.3 Special protective actions for fire-fighters:**  
Wear standard fire-fighting protective equipment and, if in an enclosed space, self-contained breathing apparatus (SCBA).

**Additional provisions:**  
If safe to do so, remove exposed containers or cool with water spray from a safe distance. Prevent fire-fighting water from entering drains or watercourses; contain and collect for disposal.

SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures:**  
**For non-emergency personnel:**  
Evacuate area if large spill. Avoid slipping hazard. Ensure adequate ventilation. Use appropriate PPE (see section 8).  
**For emergency responders:**  
Wear standard chemical-resistant protective equipment for large spills.

**6.2 Environmental precautions:**  
Prevent entry into drains, sewers and watercourses; may affect pH and cause aluminium hydroxide precipitation in receiving water.

**6.3 Methods and materials for containment and cleaning up:**  
Contain spill with inert absorbent (sand, earth) or bunding. Collect for disposal or, where permitted, recover for reuse. Wash residual area with water.

**6.4 Reference to other sections:**  
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for safe handling:**  
**A. General precautions for safe use:**  
Avoid contact with skin and eyes. Avoid contact with incompatible materials (see section 10.5).  
**B. Technical recommendations for the prevention of fires and explosions:**  
Non-combustible; standard precautions apply.  
**C. Technical recommendations on general occupational hygiene:**  
Wash hands and exposed skin after handling.  
**D. Technical recommendations to prevent environmental risks:**  
Prevent uncontrolled discharge to drains and watercourses.

**7.2 Conditions for safe storage, including any incompatibilities:**  
**A. Specific storage requirements:**

|                     |                                                                             |
|---------------------|-----------------------------------------------------------------------------|
| Storage temperature | 5–35°C (avoid freezing, which may cause irreversible gelling/precipitation) |
| Maximum time        | 6–12 months in original sealed packaging                                    |

**B. General conditions for storage:**  
Store in a cool, dry, well-ventilated place in corrosion-resistant containers/tanks (HDPE, FRP, or rubber-lined). Avoid contact with carbon steel and other reactive metals. Keep container tightly closed.

**7.3 Specific end use(s):**  
Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**8.1 Control parameters:**  
No specific occupational exposure limit has been established for this product/grade. Available on request.

**8.2 Appropriate engineering controls:**  
General ventilation is normally adequate for routine handling of this liquid product.

**B. Respiratory protection:**  
Not normally required under normal conditions of use with adequate ventilation.

**C. Specific protection for the hands:**  
Chemical-resistant gloves (e.g., nitrile or PVC) recommended for prolonged or repeated contact.

**D. Eye and face protection:**  
Chemical safety goggles recommended; face shield for operations with splash risk.

**E. Bodily protection:**  
Protective apron for operations with splash risk.

**F. Additional emergency measures:**  
Emergency eyewash station and safety shower should be available in the work area.

**Environmental exposure controls:**  
Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**9.1 Information on basic physical and chemical properties:**

| Appearance              |                                 |
|-------------------------|---------------------------------|
| Physical state at 20°C  | Liquid                          |
| Appearance              | Clear to slightly turbid liquid |
| Color                   | Pale yellow to amber/brown      |
| Odor                    | Slight/odorless                 |
| Odour threshold         | Not relevant                    |
| Volatility              |                                 |
| Boiling point           | >100°C (aqueous solution)       |
| Vapour pressure at 20°C | Similar to water                |
| Evaporation rate        | Similar to water                |
| Product Description     |                                 |
|                         |                                 |

|                                    |                                                                                    |
|------------------------------------|------------------------------------------------------------------------------------|
| Density / Relative density at 20°C | approx. 1.18–1.22 g/cm³                                                            |
| pH (as supplied)                   | approx. 3.0–5.0                                                                    |
| Solubility in water                | Miscible in all proportions                                                        |
| Basicity                           | approx. 40–90% (grade dependent) – specific product datasheet available on request |
| Freezing point                     | approx. 0 to -5°C (grade dependent)                                                |
| Flammability                       |                                                                                    |
| Flash Point                        | Non-applicable (aqueous solution)                                                  |
| Flammability                       | Not flammable                                                                      |

\* Not relevant / not applicable due to the physical nature of the product.

9.2 Other information:

|                         |                                                          |
|-------------------------|----------------------------------------------------------|
| Explosive properties    | Not explosive                                            |
| Oxidising properties    | Not oxidising                                            |
| Corrosive to metals     | Mildly corrosive to carbon steel over prolonged exposure |
| Al&sub2;O&sub3; content | Available on request (grade dependent, typically 10–18%) |

SECTION 10: STABILITY AND REACTIVITY

**10.1 Reactivity:**  
Reacts with strong bases (precipitates aluminium hydroxide) and may react with strong oxidizers/reducing agents. Corrosive to certain metals.

**10.2 Chemical stability:**  
Chemically stable under recommended storage conditions; avoid freezing, which can cause irreversible polymer degradation/precipitation.

**10.3 Possibility of hazardous reactions:**  
Under normal conditions of storage, handling and use, hazardous reactions are not expected.

**10.4 Conditions to avoid:**

| Shock/Friction | Contact with Air | Increase in Temperature                         | Sunlight               | Humidity                        |
|----------------|------------------|-------------------------------------------------|------------------------|---------------------------------|
| Not applicable | Stable           | No special sensitivity within recommended range | No special sensitivity | Not applicable – aqueous liquid |

10.5 Incompatible materials:

| Strong Bases                     | Strong Oxidizers       |
|----------------------------------|------------------------|
| Carbon Steel (prolonged contact) | Strong Reducing Agents |

**10.6 Hazardous decomposition products:**  
Not expected under normal conditions of use and storage.

SECTION 11: TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects:**  
In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

**A. Ingestion (acute effect):**  
May cause mild gastrointestinal discomfort if swallowed in quantity; not expected to be acutely toxic.

**B. Inhalation (acute effect):**  
Not expected to be harmful by inhalation under normal conditions of use (low volatility liquid); mist may cause mild irritation.

**C. Contact with skin and eyes (acute effect):**  
Causes skin irritation. Causes serious eye damage.

**D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):**  
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

**E. Sensitizing effects:**  
Not classified as a skin or respiratory sensitizer based on available data.

**F. Specific target organ toxicity (STOT) – single exposure:**  
Classification criteria are not met based on available data.

**G. Specific target organ toxicity (STOT) – repeated exposure:**  
Classification criteria are not met based on available data.

**H. Aspiration hazard:**  
Classification criteria are not met based on available data.

Product-specific toxicological information:

| Identification                            | Acute Toxicity                                       | Species |
|-------------------------------------------|------------------------------------------------------|---------|
| Poly aluminium chloride<br>CAS: 1327-41-9 | LD50 oral (rat): >5000 mg/kg (practically non-toxic) | Rat     |

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment based on available data; elevated concentrations may affect pH and aluminium levels in receiving water.

**12.1 Toxicity:**

| Acute Toxicity                                      | Species       | Genus      |
|-----------------------------------------------------|---------------|------------|
| LC50 (fish): >100 mg/L (96h), practically non-toxic | Not specified | Fish       |
| EC50 (Daphnia): >100 mg/L (48h)                     | Daphnia magna | Crustacean |

**12.2 Persistence and degradability:**  
Not applicable – inorganic polymer; hydrolyzes to aluminium hydroxide, a naturally occurring, low-solubility species.

**12.3 Bioaccumulative potential:**  
Not applicable – inorganic, does not bioaccumulate.

**12.4 Mobility in soil:**

| Koc | Henry        | Dry Soil | Moist Soil                                                |
|-----|--------------|----------|-----------------------------------------------------------|
| Low | Not relevant | No       | Precipitates as aluminium hydroxide in neutral/moist soil |

**12.5 Results of PBT and vPvB assessment:**  
Non-applicable – not assessed as a PBT/vPvB substance (inorganic polymer).

**12.6 Other adverse effects:**  
Not described

SECTION 13: DISPOSAL CONSIDERATIONS

**13.1 Disposal methods:**  
Neutralize if necessary and dispose of via a licensed effluent/hazardous waste contractor, or recover for reuse where feasible, in accordance with local regulations. Do not discharge directly to drains or watercourses without treatment as permitted by local Pollution Control Board norms.  
Refer to national and local regulations on waste management (Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended).

SECTION 14: TRANSPORT INFORMATION

|                                                                                                                                                    |                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| This product is not classified as a dangerous good for transport under ADR/RID, IMDG, or IATA/ICAO regulations in its supplied form/concentration. |                                            |
| 14.1 UN number                                                                                                                                     | Not applicable – not regulated             |
| 14.2 UN proper shipping name                                                                                                                       | Non-applicable                             |
| 14.3 Transport hazard class(es)                                                                                                                    | Non-applicable                             |
| 14.4 Packing group                                                                                                                                 | Non-applicable                             |
| 14.5 Environmental hazard                                                                                                                          | No                                         |
| 14.6 Special precautions for user                                                                                                                  | Physico-chemical properties: see section 9 |
| 14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)                                                                                           | Not relevant                               |

SECTION 15: REGULATORY INFORMATION

**15.1 Safety, health and environmental regulations specific for the product in question:**  
It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.  
**Other legislation:**  
Manufacture, Storage and Import of Hazardous Chemicals Rules 1989  
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)  
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996  
Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

**Legislation related to safety data sheets:**  
This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).  
**Texts of the legislative phrases mentioned in sections 2 and 3:**  
H315: Causes skin irritation.  
H318: Causes serious eye damage.  
*The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.*  
**Advice related to training:**  
Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.  
**Principal bibliographical sources:**  
The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and labelling data for the substance/CAS number referenced in Section 1.  
**Abbreviations and acronyms:**  
ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET