SAFETY DATA SHEET

CATIONIC POLYELECTROLYTE — VERY HIGH MOLECULAR WEIGHT

CAS No.: Proprietary polymer blend (principal reference component: cationic acrylamide-based copolymer, CAS 9003-05-8)

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

CATIONIC POLYELECTROLYTE – VERY HIGH MOLECULAR WEIGHT
Very high molecular weight cationic acrylamide-based copolymer flocculant

CAS: Proprietary polymer blend (principal reference component: cationic acrylamide-based copolymer, CAS 9003-05-8)

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Very high molecular weight cationic flocculant for demanding sludge dewatering duties (belt press, centrifuge, screw press) in municipal and industrial wastewater treatment, biosolids conditioning, and clarification of organically-loaded/high-turbidity process water where maximum floc strength and dewatering yield are required. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3. Not for use in direct contact with food/potable water unless the specific grade supplied is certified for that purpose.

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

Emergency phone number

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

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS: Based on available data, this product does not meet the GHS classification criteria for physical, health, or environmental hazard classes.

GHS label elements, including precautionary statements

No hazard pictograms or signal word are required. General precautionary statement: in case of contact with eyes, rinse immediately with plenty of water and seek medical advice; wear suitable protective clothing and avoid generating/breathing dust (powder grade).

Other hazards which do not result in classification

Dust or mist may be irritating to eyes, respiratory system and skin on prolonged/repeated contact (non-classifying effect; see section 11). Due to its very high molecular weight, dilute solutions/wetted surfaces of this grade are exceptionally slippery/viscous – significant slip hazard; extra caution required around mixing tanks, presses and walkways.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Non-applicable – this product is a polymer formulation (see 3.2).

Mixtures

Identification	Chemical Name / Classification	Concentration
CAS: 9003-05-8 (reference)	Cationic acrylamide-based copolymer, very high molecular weight – Not classified	Available on request (proprietary formulation)

Exact monomer ratio, cationic charge density, molecular weight and formulation are proprietary to the manufacturer. Liquid/emulsion grades additionally contain a carrier oil/surfactant system and water. To obtain more information on the hazards of the components, consult sections 11, 12 and 16.

4. FIRST AID MEASURES

Description of necessary first-aid measures

By skin contact
Immediately wash skin with soap and copious amounts of water. If irritation persists, call a physician.

By eye contact
Flush with copious amounts of water for at least 15 minutes, separating the eyelids with fingers to assure adequate flushing. If irritation persists, call a physician.

By inhalation
Remove to fresh air. If necessary, get medical attention.

By ingestion
If swallowed and the person is conscious, immediately wash out mouth with water. Call a physician.

Most important symptoms/effects, acute and delayed

May be irritating to eyes, respiratory system and skin. Wetted material presents a pronounced slip hazard due to its very high viscosity at low concentration.

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

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide or appropriate foam.
Unsuitable: None known.

Specific hazards arising from the chemical	Combustible solid (powder grade) under prolonged fire exposure; fine dust dispersed in air may present a dust explosion hazard in confined/unventilated spaces. Emits toxic fumes (carbon monoxide, carbon dioxide, nitrogen oxides) under fire conditions.
Special protective actions for fire-fighters	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Avoid raising dust when fighting fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Exercise appropriate precautions to minimize direct contact with skin and eyes. Avoid generating dust. Wetted floors and mixing-tank/press surrounds are extremely slippery even at very low concentration – barricade area and use extra caution.
Environmental precautions	Avoid discharge to water bodies where practicable; contain spillage. Powder forms a highly viscous, slippery gel-like surface when wetted, even in small quantities. Cationic polymer is toxic to aquatic organisms.
Methods and materials for containment and cleaning up	Sweep up dry material with a spade and transfer to a dry, clean, lidded container for disposal/reuse. Avoid raising dust. For liquid/wetted spills, use absorbent material, then wash the area with copious water (rinse water will remain slippery/viscous until well diluted).
Reference to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling	Wear appropriate clothing and gloves. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Mechanical exhaust ventilation is recommended for powder handling. Keep away from ignition sources, heat and flame. Incompatible with strong oxidizing agents, anionic materials and food. No smoking at the working site. Add powder slowly to the vortex of well-agitated water to avoid "fish-eye" lump formation, given the very high viscosity build of this grade.
Conditions for safe storage, including any incompatibilities	Store in a cool, dry, well-ventilated area away from ignition sources, heat, flame and direct sunlight, in a tightly closed container. Protect powder grade from moisture (caking). Incompatible with strong oxidizing agents, anionic materials and food.
Specific end use(s)	No special requirement beyond the uses specified in section 1.2. Prepare dilute stock solutions per manufacturer's dosing guidance (typically 0.05–0.2% w/v given the very high molecular weight) using low-shear mixing to avoid degrading polymer chain length and floc strength.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific occupational exposure limit is established for this formulation; general nuisance dust limits apply for the powder grade under the Factories Act, 1948 (as amended).

Appropriate engineering controls

Use ventilation equipment where available. Safety shower and eye bath should be accessible.

B. Respiratory protection

Government-approved respirator if necessary (dusty conditions, powder grade).

C. Specific protection for the hands

Compatible chemical-resistant protective gloves.

D. Eye and face protection

Chemical safety goggles.

E. Bodily protection

Appropriate protective clothing. Non-slip footwear recommended around mixing/dosing/press areas. No smoking, drinking or eating at the working site; wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties (Powder grade)

Item	Result
Physical state	Solid, granular/powder (water-soluble organic polymer)
Solid content	≥ 90%
Bulk density	0.75 – 0.85 g/cm³
Soluble matter	> 99%
Insoluble matter	< 1%
Moisture content	< 10%
Ionicity	Cationic (charge density grade-dependent)
Molecular weight class	Very high (grade-specific; available on request)
0.1% solution viscosity	Very high (Brookfield value grade-dependent; available on request)

Liquid/emulsion grade: physical properties are grade-dependent and available on request from Suraj Chemicals.

Other information (heavy metal content, powder grade, typical)

Item	Result
Cadmium	≤ 1 mg/kg
Lead	≤ 5 mg/kg
Mercury	≤ 0.5 mg/kg

10. STABILITY AND REACTIVITY

Reactivity	Reacts with anionic polymers/surfactants (charge neutralisation). No other specific reactivity hazard identified under normal conditions.
Chemical stability	Stable under normal temperatures and pressures. Powder is hygroscopic – keep dry to avoid caking/degradation. High-shear mixing/pumping can mechanically degrade the very high molecular weight chains, reducing flocculation/dewatering performance – use low-shear equipment for makedown.
Possibility of hazardous reactions	Hazardous polymerization will not occur.

Conditions to avoid

Ignition Sources	Heat/Flame	Strong Oxidizers	High Shear (solution)
Avoid	Avoid	Avoid contact	Avoid (degrades polymer)

Incompatible materials	Strong oxidizing agents; anionic polymers/surfactants; food.
Hazardous decomposition products	Carbon monoxide, carbon dioxide, nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Irritation data: may be irritating to eyes, respiratory system and skin.

Product-specific toxicological information (reference: cationic polyacrylamide-based class)

Test	Species/Route	Value
Oral LD50	Rat	> 1,000 mg/kg
Oral LD50	Rat	12,990 mg/kg
Intraperitoneal LD50	Rat	3,670 mg/kg
Oral LD50	Rabbit	11,520 mg/kg

Values as reported by the reference polymer manufacturer for cationic polyacrylamide-based material; low acute toxicity overall. Molecular weight does not materially change the acute toxicological profile of the polymerized product.

12. ECOLOGICAL INFORMATION

Toxicity

Not established for this specific formulation. Polymerized cationic polyacrylamide flocculants are generally of low aquatic toxicity in their polymerized form; however, the cationic charge makes this class more toxic to aquatic organisms (particularly fish and invertebrates) than anionic/nonionic grades, and residual unreacted acrylamide monomer (if present) is toxic to aquatic organisms and neurotoxic. Avoid direct discharge to water bodies.

Persistence and degradability

No data available for the polymer; expected to be poorly biodegradable due to its very high molecular weight.

Bioaccumulative potential

Not expected to bioaccumulate (very high molecular weight, water-soluble polymer).

Mobility in soil

Soluble/dispersible in water, forming highly viscous solutions even at low concentration; cationic character promotes strong adsorption to negatively charged soil/sediment particles.

Results of PBT and vPvB assessment

Not established.

Other adverse effects

No data available.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Spent or discarded material is not normally classified as hazardous waste. Dispose of via a licensed waste disposal contractor, or dissolve and dispose of in accordance with local, state and national environmental regulations.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID)

14.1 UN number	None – non-hazardous for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	None
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by sea (IMDG/IMO)

14.1 UN number	None – non-hazardous for sea transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	None
14.4 Packing group	Non-applicable
14.5 Marine pollutant	No
14.6 Special precautions for user	None
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by air (IATA)

14.1 UN number	None – non-hazardous for air transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	None
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	None
14.7 Transport in bulk	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

Handle in accordance with general workplace chemical safety norms under the Factories Act, 1948 (as amended, 1987). Not classified as hazardous chemical under the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.

Other legislation

The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)

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

Not applicable – this product is not classified as hazardous under GHS.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, to facilitate comprehension of this safety data sheet and the product label, with particular attention to the pronounced slip hazard of this very high molecular weight grade around presses and mixing equipment.

Principal bibliographical sources

Manufacturer's Material Safety Data Sheet for the polyacrylamide-based reference polymer (ISO 11014-1:1994 format); general public reference data on cationic polyacrylamide flocculants, very high molecular weight grade.

Abbreviations and acronyms

LD50: Lethal Dose 50 | PPE: Personal Protective Equipment | MW: Molecular Weight

Disclaimer: 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.

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