SAFETY DATA SHEET

CATIONIC POLYELECTROLYTE — HIGH MOLECULAR WEIGHT (MEDIUM CHARGE)

CAS No.: Proprietary polymer blend (base polymer class: cationic polyacrylamide copolymer) – exact monomer ratio and molecular weight are manufacturer-proprietary; full composition available on request.

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 – HIGH MOLECULAR WEIGHT (MEDIUM CHARGE)
Cationic Polyacrylamide (C-PAM), Cationic Flocculant Powder

CAS: Proprietary polymer blend (base polymer class: cationic polyacrylamide copolymer) – exact monomer ratio and molecular weight are manufacturer-proprietary; full composition available on request.

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Flocculant/coagulant aid for municipal and industrial water & wastewater treatment, sludge dewatering (belt press, centrifuge), effluent clarification, paper & pulp retention aid. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3. Not for use in direct food contact applications unless a specific food-grade certificate is separately provided.

Supplier's details

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2. HAZARDS IDENTIFICATION

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). The polymerized product as supplied is **not classified** as hazardous under GHS criteria based on available data for cationic polyacrylamide-type flocculants. It may, however, contain trace residual (unreacted) acrylamide monomer (CAS 79-06-1), which is itself classified as hazardous – see Section 3.

Not classified	No hazard category applies to the finished polymer product as supplied, based on standard data for this polymer class

GHS label elements, including precautionary statements

GHS: No pictogram/signal word required for the product as supplied.

Hazard statements

None assigned to the finished polymer product.

Precautionary statements

P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/eye 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.
P501: Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification

Fine polymer dust, like many organic powders, can form a combustible dust cloud in air under certain conditions of concentration and ignition source – avoid dust accumulation and ignition sources (see Section 7 and 10). Wetted product/solutions create very slippery surfaces – slip hazard. Not a PBT/vPvB substance based on available information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures

Chemical description: High molecular weight cationic polyacrylamide copolymer, medium charge density, supplied as a dry powder.

Identification	Chemical Name / Classification	Concentration
Proprietary	Cationic polyacrylamide copolymer – Not classified	>98% (matrix polymer)
CAS: 79-06-1	Acrylamide (residual monomer) – Carc. 1B H350; Muta. 1B H340; Repr. 2 H361f; Acute Tox. 3 H301/H311/H331; STOT RE 1 H372; Skin Sens. 1 H317; Aquatic Chronic 3 H412	Trace, typically <0.05% w/w (manufacturer-controlled; certificate of analysis available on request per batch)

The finished polymer is not classified overall because residual acrylamide monomer content is controlled by the manufacturer below the applicable GHS mixture classification cut-off for the endpoints listed. To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product, if symptoms occur or persist.

By inhalation

Remove the person affected to fresh air and keep at rest. If dust has caused irritation or breathing difficulty, seek medical attention.

By skin contact

Remove contaminated clothing. Wash skin thoroughly with plenty of water and soap. Note: wetted product is very slippery – take care of footing when rinsing floors/skin. Seek medical attention if irritation persists.

By eye contact

Rinse eyes thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration

Rinse mouth with water. Do not induce vomiting. Give water to drink if the person is conscious. Seek medical advice if large quantities are ingested or symptoms develop.

Most important symptoms/effects, acute and delayed

Mechanical irritation of eyes/respiratory tract from dust. No specific delayed effects expected from the finished polymer at typical trace-monomer control levels; see Section 11 for acrylamide monomer data.

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

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray/fog, foam, dry chemical powder, carbon dioxide.
Unsuitable: High-pressure water jet (may disperse dust and increase fire spread)

Specific hazards arising from the chemical

Not flammable/explosive in bulk solid form. Fine dispersed dust may present a combustible dust explosion hazard in the presence of an ignition source. Combustion may produce carbon monoxide, carbon dioxide, oxides of nitrogen and, potentially, traces of ammonia.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water spray. Avoid generating dust clouds during fire-fighting/clean-up.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Avoid raising dust. Use appropriate PPE (see Section 8). Note extreme slip hazard once wetted.

For emergency responders

Wear protective equipment. Ventilate the area.

Environmental precautions

Prevent entry into drains, watercourses and soil – the product is designed to flocculate suspended matter and can affect aquatic ecosystems and clog waterways/drains if released in concentrated form.

Methods and materials for containment and cleaning up

Sweep or vacuum up dry material (avoid actions that raise dust) and place in a labelled container for disposal/reuse. For small wetted spills, allow to gel and scrape/shovel; the wetted material is extremely slippery – barricade the area. Do not flush to drain.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Avoid generating and breathing dust. Keep containers closed when not in use. Avoid contact with strong oxidizers.

B. Technical recommendations for the prevention of fires and explosions

Use local exhaust ventilation/dust extraction where dust is generated during bag emptying or dosing preparation. Bond and ground equipment used for bulk handling of dry polymer to control static discharge. Keep away from ignition sources.

C. Technical recommendations on general occupational hygiene

Do not eat, drink or smoke while handling. Wash hands after handling. Keep work areas clean of spilled polymer – wetted residues become extremely slippery.

D. Technical recommendations to prevent environmental risks

Prevent product/solution from entering drains or watercourses. Prepare stock solutions in dedicated makeup tanks with contained overflow.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	5°C
Maximum Temp.	30°C
Maximum time (unopened, original packaging)	12 Months

B. General conditions for storage

Store in tightly closed original bags/containers, in a cool, dry, well-ventilated place away from direct sunlight and moisture. Keep away from strong oxidizing agents.

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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific occupational exposure limit has been established for this polymer under the Factories Act, 1948. General nuisance dust limits (particulates not otherwise classified) of 10 mg/m³ (total dust, 8-hr TWA) are recommended as good practice.

Appropriate engineering controls

Use local exhaust ventilation where dust is generated. Consult manufacturer's leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection

Dust mask/filtering half-mask (FFP2 or equivalent) where dust generation is possible.

C. Specific protection for the hands

Chemical-resistant gloves (nitrile or PVC).

D. Eye and face protection

Safety glasses with side shields or chemical goggles when handling dry powder or making up solutions.

E. Bodily protection

Standard work clothing/coveralls; non-slip footwear recommended given the slip hazard of the wetted product.

F. Additional emergency measures

Eyewash station and washing facilities should be available.

Environmental exposure controls

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (granular powder/beads)
Appearance	Free-flowing powder
Color	White to off-white
Odor	Odorless / faint characteristic
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Non-applicable (decomposes before boiling)
Vapour pressure at 20°C / 50°C	Not relevant *
Evaporation rate at 20°C	Not relevant *
Product Description	
Bulk density	Approx. 0.65–0.85 g/cm³
Dynamic / Kinematic viscosity	Non-applicable (solid); 0.1% aqueous solution is highly viscous
Concentration	>98% active polymer
pH (0.5% aqueous solution)	Approx. 3–8 (grade dependent) – Available on request for this specific grade
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not relevant (ionic polymer, not applicable)
Solubility in water at 20°C	Soluble (forms viscous colloidal solution)
Decomposition temperature	>200°C (approx.)
Melting point/freezing point	Non-applicable (decomposes rather than melts)
Flammability	
Flash Point	Non-applicable (solid)
Flammability (solid, gas)	Not readily flammable; combustible dust hazard possible (see Section 10)
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Available on request (grade dependent)

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

Other information

Explosive properties	Not explosive; dust cloud may be combustible
Oxidising properties	Not an oxidizer
Corrosive to metals	Non-corrosive
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use. Reacts with strong oxidizing agents.

Chemical stability

Chemically stable under the indicated conditions of storage, handling and use. Aqueous solutions are subject to biological/mechanical degradation and viscosity loss over time; prepare fresh solutions periodically.

Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected. Fine dust clouds can be combustible in the presence of an ignition source.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Dust cloud accumulation	Avoid prolonged high heat/decomposition	Avoid prolonged direct exposure	Avoid moisture ingress (caking/hydrolysis)

Incompatible materials

Strong Oxidizers	Strong Acids/Alkalis	Anionic Polymers (concentrated contact)
Avoid contact	Avoid contact (hydrolysis)	May cause premature gelling if mixed undiluted

Hazardous decomposition products

Thermal decomposition may release carbon monoxide, carbon dioxide, oxides of nitrogen and trace ammonia.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Cationic polyacrylamide flocculants of this class are generally regarded as having low acute toxicity. Quantitative endpoint data for this specific proprietary grade is not published by the manufacturer – Available on request.

A. Ingestion (acute effect)

Low order of acute toxicity expected based on data for this polymer class; may cause mild gastrointestinal discomfort if large quantities are swallowed.

B. Inhalation (acute effect)

Dust may cause mechanical irritation of the upper respiratory tract.

C. Contact with skin and eyes (acute effect)

May cause mechanical irritation; wetted product may cause slight irritation from contained residual monomer/processing aids.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

The finished polymer is not classified as CMR. The residual acrylamide monomer (Section 3) is classified Carc. 1B, Muta. 1B, Repr. 2 as a substance, but is controlled to trace levels below the applicable mixture classification cut-offs in the finished product.

E. Sensitizing effects

Not classified as a sensitizer for the finished polymer based on available data.

F. Specific target organ toxicity (STOT) – single exposure

Classification criteria are not met for the finished product based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure

Classification criteria are not met for the finished product based on available data.

H. Aspiration hazard

Not applicable (solid).

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Finished polymer (class data)	Oral LD50: >5000 mg/kg (typical for this polymer class, not batch-specific – available on request)	Rat

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment for the finished polymer based on available class data; however, the product is designed to flocculate suspended solids and should not be discharged to waterways.

Toxicity

Quantitative aquatic toxicity data specific to this grade is not published – Available on request. Cationic polyacrylamide flocculants as a class typically show low-to-moderate aquatic toxicity to fish/invertebrates at use concentrations, but can be locally toxic to fish gills via physical flocculation effects at high concentrations.

Persistence and degradability

The polymer backbone is not readily biodegradable; slowly degrades via hydrolysis and mechanical/UV shear over time.

Bioaccumulative potential

Not expected to bioaccumulate due to high molecular weight.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Low mobility (binds to soil particles)	Low mobility

Results of PBT and vPvB assessment

Not expected to meet PBT/vPvB criteria based on available information.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Do not discharge undiluted product to drains or watercourses. Dry material may be disposed of as general industrial waste where local regulations permit, or as per local waste authority classification. Empty bags may retain product residue; handle with same precautions as full bags.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	Not regulated as dangerous goods
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

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	Not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Marine pollutant	No
14.6 Special precautions for user	Not regulated
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	Not regulated as dangerous goods
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	Not regulated
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

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 (India)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Public Liability Insurance Act, 1991

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

H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H317: May cause an allergic skin reaction.
H331: Toxic if inhaled.
H340: May cause genetic defects.
H350: May cause cancer.
H361f: Suspected of damaging fertility.
H372: Causes damage to organs through prolonged or repeated exposure.
H412: Harmful to aquatic life with long lasting effects.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components (residual monomer) 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 reference data for cationic polyacrylamide flocculants and for acrylamide (CAS 79-06-1).

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 | LD50: Lethal Dose 50 | Koc: Partition coefficient of organic carbon | PBT: Persistent, Bioaccumulative and Toxic | vPvB: very Persistent, very Bioaccumulative | C-PAM: Cationic Polyacrylamide

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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