



MATERIAL SAFETY DATA SHEET (MSDS/SDS)

POLYACRYLAMIDE — PAM

SECTION 1 — IDENTIFICATION

1.1 Product identifier

Product Name:

Polyacrylamide

Abbreviation:

PAM

Chemical Name:

Polyacrylamide

Synonyms:

- Poly(acrylamide)
- Acrylamide Polymer
- PAM Flocculant
- Water-Soluble Polymer
- Anionic Polyacrylamide
- Cationic Polyacrylamide
- Nonionic Polyacrylamide

CAS Number:

9003-05-8

Chemical Formula:

$(C_3H_5NO)_n$

Product Type:

Water-soluble polymer / Industrial flocculant

Physical Form Covered by This SDS:

Solid granular or powder product



1.2 Relevant identified uses

Recommended industrial applications include:

- Municipal water treatment
- Industrial wastewater treatment
- Sludge dewatering
- Mining and mineral processing
- Oil and gas drilling
- Enhanced oil recovery
- Papermaking
- Textile processing
- Soil stabilization
- Construction
- Sedimentation and clarification
- Solid-liquid separation
- Thickening and rheology modification

1.3 Uses advised against

- Any use contrary to applicable regulations
- Direct food or pharmaceutical use unless the specific grade is approved
- Uncontrolled release into natural waterways
- Use without confirming compatibility with the intended process
- Use of cationic grades in environmentally sensitive applications without an environmental assessment

1.4 Supplier information

Supplier:

BASEKIM KIMYASAL URUNLER IC VE DIS TIC. LTD. STI.



SECTION 2 — HAZARD IDENTIFICATION

2.1 GHS classification

General classification

The polyacrylamide polymer itself is generally not classified as a hazardous substance or mixture under GHS or EU CLP criteria when supplied as a dry commercial polymer with residual monomer controlled below applicable disclosure limits.

The final classification depends on:

- Ionic type
- Charge density
- Residual acrylamide concentration
- Added process aids
- Product form
- Destination-country regulations

Draft classification for standard solid PAM

Not classified as hazardous under GHS.

2.2 Label elements

Signal Word:

None required

Hazard Pictograms:

None required

Hazard Statements:

None required for a non-classified solid PAM grade.

Recommended precautionary statements

- Avoid breathing dust.
- Avoid contact with eyes.
- Wash hands thoroughly after handling.
- Wear protective gloves and safety glasses during bulk handling.
- Prevent product from entering drains and waterways.



- Clean spills immediately because wet product creates an extremely slippery surface.

2.3 Other hazards

- Dust may cause temporary mechanical irritation of the eyes, nose, throat, or respiratory tract.
- Dissolved or wet polyacrylamide creates an extreme slipping hazard.
- The dry polymer swells rapidly when exposed to water.
- Fine organic dust dispersed in air may present a combustible-dust hazard under certain conditions.
- Cationic PAM grades may be more hazardous to aquatic organisms than anionic or nonionic grades.
- Commercial PAM may contain trace residual acrylamide monomer.
- Acrylamide monomer is hazardous and must be controlled to the manufacturer's applicable specification.
- The product is not expected to meet PBT or vPvB criteria, subject to formulation-specific assessment.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization

Polymeric substance or mixture.

Typical composition — solid PAM

Component	CAS Number	Typical Concentration
Polyacrylamide polymer	9003-05-8	Typically ≥88–95%
Moisture	7732-18-5	Typically ≤5–12%
Inorganic salts or process aids	Various	Grade dependent
Residual acrylamide monomer	79-06-1	Trace; specification dependent

Grade-specific composition

Depending on the product grade, the polymer may be:



- **Anionic PAM:** Partially hydrolyzed polyacrylamide or acrylamide/acrylate copolymer
- **Cationic PAM:** Copolymer containing cationic functional monomers
- **Nonionic PAM:** Predominantly polyacrylamide with low ionic charge

The exact ionic monomers, counterions, process additives, and residual acrylamide content must be stated in the manufacturer-approved SDS where they meet applicable disclosure requirements.

SECTION 4 — FIRST-AID MEASURES

4.1 Description of first-aid measures

Eye contact

Immediately rinse cautiously with clean water for at least 15 minutes.

Hold eyelids open during rinsing.

Remove contact lenses if present and easy to do.

Do not rub the eyes.

Obtain medical attention if redness, pain, tearing, or irritation persists.

Skin contact

Remove contaminated clothing.

Wash the affected area thoroughly with soap and water.

Dry polymer may absorb moisture and cause dryness.

Wet polymer is slippery; take care to prevent falls during decontamination.

Obtain medical advice if irritation develops or persists.

Wash contaminated clothing before reuse.



Inhalation

Move the exposed person to fresh air.

Keep the person comfortable for breathing.

Rinse the mouth and nose with water if dust irritation occurs.

Obtain medical attention if coughing, breathing difficulty, or irritation persists.

Ingestion

Rinse mouth thoroughly with water.

Do not induce vomiting unless instructed by medical personnel.

Give water to drink if the person is conscious and able to swallow.

Never give anything by mouth to an unconscious person.

Seek medical advice if a large quantity is swallowed or discomfort develops.

4.2 Most important symptoms and effects

Possible symptoms include:

- Temporary eye irritation
- Redness or tearing
- Dry skin
- Dust-related coughing
- Throat irritation
- Gastrointestinal discomfort following ingestion

4.3 Immediate medical attention

Treat symptomatically.

No specific antidote is known.



SECTION 5 — FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media

Use extinguishing media appropriate for the surrounding fire:

- Water spray
- Water fog
- Foam
- Dry chemical powder
- Carbon dioxide

5.2 Unsuitable extinguishing media

Avoid a high-pressure water jet where it may spread powder or contaminated material.

5.3 Specific hazards

The product is not readily flammable in bulk form.

Dry polymer dust suspended in air may form a combustible dust mixture under certain conditions.

Avoid generating dust clouds.

Packaging may burn.

Thermal decomposition or combustion may produce:

- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides
- Ammonia
- Irritating organic fumes

5.4 Firefighter protection

Wear:

- Positive-pressure self-contained breathing apparatus
- Full protective firefighting clothing



Cool exposed containers with water spray.

Prevent contaminated firefighting water from entering drains or waterways.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions

- Restrict access to the spill area.
- Avoid generating airborne dust.
- Avoid eye and skin contact.
- Wear appropriate personal protective equipment.
- Eliminate ignition sources where a large dust release has occurred.
- Use extreme caution around wet material because surfaces become very slippery.

6.2 Environmental precautions

Prevent uncontrolled release into:

- Drains
- Sewers
- Surface water
- Groundwater
- Soil

Do not wash dry product into drains.

Notify appropriate authorities where required.

6.3 Cleanup methods

Dry spill

Collect dry material using:

- Industrial vacuum equipment
- Soft sweeping methods
- Non-sparking tools where combustible dust could accumulate

Avoid dry sweeping that creates airborne dust.



Place recovered material in a suitable, labeled container.

Reuse uncontaminated product where appropriate.

Wet spill

Contain the affected area.

Apply inert absorbent material, sand, or soil where necessary.

Wet polymer may remain slippery even after dilution.

Use mechanical collection rather than flushing with water.

Clean the residual film with repeated washing only after the bulk material has been removed and the wastewater can be contained.

6.4 Reference to other sections

See Section 8 for personal protective equipment.

See Section 13 for disposal guidance.

SECTION 7 — HANDLING AND STORAGE

7.1 Safe handling

- Avoid creating dust.
- Avoid breathing dust.
- Avoid contact with eyes.
- Use adequate ventilation.
- Keep handling equipment clean and dry.
- Prevent contact with water before intended use.
- Do not eat, drink, or smoke while handling.
- Wash thoroughly after handling.
- Keep floors and work surfaces clean.
- Clean spills promptly.
- Avoid pneumatic transfer conditions that generate excessive dust or static charge.
- Ground and bond equipment where combustible-dust precautions are required.



- Do not use compressed air to clean contaminated clothing or surfaces.

7.2 Safe storage

Store:

- In the original, sealed packaging
- In a cool, dry, well-ventilated warehouse
- Away from moisture and humidity
- Away from heat and ignition sources
- Away from incompatible oxidizing materials
- Away from food and animal feed

Protect bags from:

- Rain
- Direct sunlight
- Physical damage
- Contamination
- Contact with wet floors

Keep containers tightly closed when not in use.

Use opened bags promptly or reseal them carefully.

7.3 Specific uses

Use according to the product Technical Data Sheet, process instructions, and customer treatment program.



SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Occupational exposure limits

No specific occupational exposure limit is generally established for the polyacrylamide polymer.

Applicable national limits for nuisance dust, inhalable particulate, or respirable particulate should be observed.

Residual acrylamide monomer must comply with applicable occupational and regulatory requirements.

8.2 Engineering controls

Use adequate general ventilation.

Provide local exhaust ventilation where:

- Powder is transferred
- Bags are opened
- Dust is generated
- Product is mechanically conveyed

Provide an eyewash station near bulk handling locations.

8.3 Personal protective equipment

Eye protection

Wear safety glasses with side shields.

Use chemical splash goggles where contact with solution or slurry is possible.

Hand protection

Wear protective work gloves.

For prolonged contact with solutions, use chemically resistant gloves selected according to the process and glove-manufacturer data.



Skin and body protection

Wear:

- Long-sleeved work clothing
- Protective footwear
- Slip-resistant footwear where wet PAM is handled

Respiratory protection

Respiratory protection is normally unnecessary where ventilation controls dust adequately.

Where airborne dust exceeds applicable exposure limits, use an approved particulate respirator, such as P2, N95, or equivalent.

Use respirators only as part of an appropriate respiratory-protection program.

Hygiene measures

Wash hands and exposed skin after handling.

Remove contaminated clothing before entering eating areas.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

The following information is typical for solid industrial PAM and must be confirmed for the selected grade.

Property	Typical Information
Physical state	Solid
Appearance	White to off-white granules or powder
Odor	Odorless or slight characteristic odor
Ionic character	Anionic, cationic, or nonionic
pH	Grade dependent; commonly approximately 5–9 in dilute solution
Melting point	Not applicable; decomposes
Boiling point	Not applicable



Property	Typical Information
Flash point	Not applicable
Flammability	Not normally classified as flammable
Combustible-dust potential	Fine airborne dust may be combustible
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Grade dependent
Bulk density	Commonly approximately 0.6–0.9 g/cm ³
Water solubility	Soluble or dispersible; forms a viscous solution
Solubility rate	Grade and particle-size dependent
Partition coefficient	Not determined
Auto-ignition temperature	Not determined
Decomposition temperature	Typically above approximately 150°C; grade dependent
Viscosity	Not applicable to dry product; solutions are highly viscous
Explosive properties	Not classified as explosive
Oxidizing properties	Not oxidizing
Molecular weight	High molecular weight; grade dependent

SECTION 10 — STABILITY AND REACTIVITY

10.1 Reactivity

No dangerous reaction is expected under normal handling and storage conditions.

10.2 Chemical stability

Stable when stored dry in sealed packaging under recommended conditions.

10.3 Hazardous reactions

Hazardous polymerization is not expected.

Dry product rapidly absorbs water and forms a viscous, slippery gel or solution.



10.4 Conditions to avoid

Avoid:

- Moisture
- Excessive heat
- Open flames
- Dust-cloud formation
- Static discharge
- Contamination
- Prolonged exposure to high temperature

10.5 Incompatible materials

- Strong oxidizing agents
- Strong acids
- Strong alkalis where degradation may occur
- Materials identified as incompatible with grade-specific additives

10.6 Hazardous decomposition products

Thermal decomposition or combustion may produce:

- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides
- Ammonia
- Irritating fumes

SECTION 11 — TOXICOLOGICAL INFORMATION

11.1 Likely routes of exposure

- Eye contact
- Skin contact
- Inhalation of dust
- Accidental ingestion



11.2 Acute toxicity

The polyacrylamide polymer is generally considered to have low acute toxicity.

The product is not expected to meet acute-toxicity classification criteria when residual monomer is adequately controlled.

11.3 Skin corrosion or irritation

Not expected to be corrosive.

Prolonged or repeated contact may cause mild mechanical irritation or dryness.

11.4 Eye damage or irritation

Dust may cause temporary mechanical irritation.

Polymer solutions may cause discomfort and interfere with normal tearing because of their viscosity.

11.5 Respiratory sensitization

Not expected to be a respiratory sensitizer.

Dust may irritate the nose, throat, and upper respiratory tract.

11.6 Skin sensitization

The polymer is not generally expected to cause skin sensitization.

Grade-specific additives or residual monomers must be assessed separately.

11.7 Germ-cell mutagenicity

The polyacrylamide polymer is not expected to be classified as mutagenic.

11.8 Carcinogenicity

Polyacrylamide polymer is not generally classified as carcinogenic.



Residual acrylamide monomer is hazardous and has a different toxicological profile from the polymer.

The manufacturer must control and document residual acrylamide to the limit required for the intended application and jurisdiction.

11.9 Reproductive toxicity

The polymer is not expected to meet reproductive-toxicity classification criteria.

11.10 Specific target-organ toxicity — single exposure

Not expected to meet classification criteria.

High dust concentrations may cause temporary respiratory irritation.

11.11 Specific target-organ toxicity — repeated exposure

Not expected to meet classification criteria for the polymer.

Repeated exposure to inadequately controlled residual acrylamide must be avoided.

11.12 Aspiration hazard

Not applicable to the solid product.

SECTION 12 — ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Ecological effects depend significantly on ionic type and charge density.

Anionic and nonionic grades

Anionic and nonionic polyacrylamide grades generally have low acute aquatic toxicity when used as directed.



Cationic grades

Cationic polyacrylamide may be harmful or toxic to aquatic organisms because of its interaction with biological surfaces.

A grade-specific ecological assessment is required for cationic products.

12.2 Persistence and degradability

Polyacrylamide is a high-molecular-weight polymer.

It is not expected to biodegrade rapidly.

It may degrade gradually through physical, chemical, and biological processes.

12.3 Bioaccumulative potential

Significant bioaccumulation is not expected because of the polymer's high molecular weight.

12.4 Mobility in soil

Mobility depends on:

- Ionic charge
- Soil composition
- Organic matter
- Mineral surfaces
- Water chemistry

Polyacrylamide can adsorb strongly to soil, clay, and suspended solids.

12.5 PBT and vPvB assessment

The polymer is not expected to meet PBT or vPvB criteria, subject to grade-specific regulatory assessment.

12.6 Other adverse effects

Large releases may:



- Increase water viscosity
- Interfere with sedimentation
- Affect wastewater-treatment processes
- Physically coat aquatic organisms or surfaces
- Create severe slipping hazards

Avoid uncontrolled environmental release.

SECTION 13 — DISPOSAL CONSIDERATIONS

13.1 Product disposal

Recover or reuse uncontaminated material where possible.

Dispose of waste through an authorized waste-management contractor.

Do not dispose of dry or dissolved product into drains, sewers, or waterways.

Waste classification must be determined according to:

- Product grade
- Contamination
- Residual monomer content
- Local regulations
- Intended disposal method

13.2 Packaging disposal

Empty packaging may retain product dust or residue.

Completely empty bags before disposal.

Recycle clean packaging where approved facilities exist.

Dispose of contaminated packaging according to applicable regulations.

Do not reuse packaging for food, feed, or drinking water.



SECTION 14 — TRANSPORT INFORMATION

Standard solid polyacrylamide is generally not regulated as dangerous goods for transport.

Transport Regulation	Classification
ADR/RID — Road/Rail	Not regulated
IMDG — Sea	Not regulated
ICAO/IATA — Air	Not regulated
ADN — Inland waterways	Not regulated

UN Number:

Not assigned

UN Proper Shipping Name:

Not applicable

Transport Hazard Class:

Not applicable

Packing Group:

Not applicable

Marine Pollutant:

Not normally classified

Environmental Hazard:

Grade dependent; verify cationic formulations

Special transport precautions

- Keep packaging dry.
- Protect bags from rain and moisture.
- Prevent physical damage.
- Secure loads against movement.
- Clean spilled material immediately.
- Do not use water to wash spills from transport surfaces before the bulk product has been mechanically removed.



SECTION 15 — REGULATORY INFORMATION

15.1 Applicable framework

This draft follows the general structure of:

- Globally Harmonized System of Classification and Labelling of Chemicals
- OSHA Hazard Communication Standard, 29 CFR 1910.1200
- Regulation (EC) No. 1907/2006 — REACH
- Regulation (EC) No. 1272/2008 — CLP
- Applicable ADR, RID, IMDG, ICAO, and IATA provisions

15.2 Chemical identification

Polyacrylamide CAS Number:
9003-05-8

Residual Acrylamide CAS Number:
79-06-1

15.3 Regulatory considerations

The following must be confirmed for the specific commercial grade:

- Polymer inventory status
- Monomer inventory status
- Residual acrylamide concentration
- Ionic monomer identity
- National chemical-registration requirements
- Water-treatment approvals
- Drinking-water-contact approvals
- Food-contact or paper-contact restrictions
- Environmental classification of cationic grades
- Application-specific maximum residual monomer limits

15.4 Chemical safety assessment

A formulation-specific chemical safety assessment was not available for preparation of this draft.



SECTION 16 — OTHER INFORMATION

Document control

Document Title:

Material Safety Data Sheet — Polyacrylamide

Product Abbreviation:

PAM

Revision Number:

1.0 Draft

Issue Date:

To be assigned

Supersedes:

New document

Prepared For:

BASEKIM

Prepared By:

Technical / Regulatory Department

Abbreviations

- **ADN:** European Agreement concerning International Carriage of Dangerous Goods by Inland Waterways
- **ADR:** European Agreement concerning International Carriage of Dangerous Goods by Road
- **CAS:** Chemical Abstracts Service
- **CLP:** Classification, Labelling and Packaging Regulation



- **GHS:** Globally Harmonized System
- **IATA:** International Air Transport Association
- **ICAO:** International Civil Aviation Organization
- **IMDG:** International Maritime Dangerous Goods Code
- **PAM:** Polyacrylamide
- **PBT:** Persistent, Bioaccumulative and Toxic
- **PPE:** Personal Protective Equipment
- **REACH:** Registration, Evaluation, Authorisation and Restriction of Chemicals
- **RID:** Regulations concerning International Carriage of Dangerous Goods by Rail
- **SDS:** Safety Data Sheet
- **vPvB:** Very Persistent and Very Bioaccumulative

Manufacturer verification required

Before official issue, BASEKIM must confirm:

1. Whether the product is anionic, cationic, nonionic, or amphoteric.
2. Whether the product is supplied as powder, granules, emulsion, dispersion, or solution.
3. Active polymer content.
4. Moisture content.
5. Ionic charge and charge density.
6. Molecular-weight range.
7. Residual acrylamide concentration.
8. Identity and concentration of ionic comonomers.
9. Presence of surfactants, hydrocarbon carriers, salts, or process aids.
10. Product-specific GHS and aquatic classification.
11. Dust-combustibility data.
12. Physical properties from the current Technical Data Sheet.
13. Transport classification of the exact formulation.
14. Supplier address and emergency telephone number.
15. Destination-market chemical-inventory and registration status.