



**Ranhill
SAJ**

**SPECIFICATION FOR POLYACRYLAMIDES USED
FOR POTABLE WATER SUPPLY**

MATERIAL REQUIREMENTS

SPECIFICATION SAJ CH/ PAM/ 001
(REV 1.0/09.2018)

QUALITY ASSURANCE DEPARTMENT
RANHILL SAJ SDN BHD

Ranhill

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1.0 General

- 1.1 Features required for this specification are as follows or otherwise the MS 1928:2007, Specification for Polyacrylamides for use in Potable Water Supply.
- 1.2 These specifications provide the minimum requirements for cationic/non-ionic/anionic Polyacrylamides.

2.0 Features required

- 2.1 Cationic polyacrylamide $(C_3H_5NO)_x - (C_aH_bN_cO_dA)_y^-$, Anionic polyacrylamide $(C_3H_5NO)_x - (C_3H_3O_2B)_y^-$ and Non-ionic polyacrylamide $(C_3H_5NO)_x$ used for potable water supply shall comply with requirement as specified in **Table 1-Product Specification**.

Table 1 – Product Specification

Parameter	Requirement		Test Method
	Solid	Emulsion	
A. Specific requirement			
Active content, % (w/w)	80,min	20-60	Annex A
B. Impurities			
Residual acrylamide monomer content, mg/kg of active polymer content at dose of 0.5 mg/l active PAM polymer	250, max	250, max	Annex B
C. Physical/Chemical requirement			
Standard (UL) viscosity, cps	2-10	2-10	Annex C

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2.2 Physical properties of Polyacrylamides are as follows **Table 2 – Physical Properties.**

Table 2 – Physical Properties

No.	Physical Properties	Descriptions
1.	Appearance	i. Powder form -White to off-white and free flowing powder -slight ammonia odour ii. Emulsion form -Transparent, translucent or opaque white and free flowing -hydrocarbon odour
2.	Solubility	i. Miscible with water ii. Gel being formed at concentrations of approximately 20g/l and above
3.	Density	i. Powder (bulk density) -0.5 g/cm ³ to 0.9 g/cm ³ at 20°C ii. Emulsion -0.9 g/cm ³ to 1.1 g/cm ³ at 20°C
4.	Viscosity (Brookfield viscosity)	i. Powder polyacrylamide -Anionic polyacrylamide (5 g/l solution, 200cps-2800cps) -Non-ionic polyacrylamide (5 g/l solution, 8cps-200cps) -Cationic polyacrylamide (5 g/l solution, 100cps-1700cps) ii. Emulsion polyacrylamide -200cps-4000cps
5.	Inert substances	i. Dry form -may contain sodium chloride or inert substances ii. Emulsion form -contain hydrocarbon oil and may contain other inert substances.

2.3 Polyacrylamides supplied shall not contain any impurities and additives.

3.0 Test and Inspection

3.1 All in Polyacrylamides shall comply with test in accordance with the requirement of specification.

4.0 Packing and Storage

- 4.1 Polyacrylamides shall be delivered in a bulk containers, drums or bags.
- 4.2 For storage purposes, in Polyacrylamides shall be store in cool-dry and well ventilated area and separated from oxidants and strong acids.
- 4.3 Under proper storage conditions, Polyacrylamides shall be stable for at least 12 months.

5.0 Mandatory Marking

Each shipment of Polyacrylamides shall have mark legibly on it including:-

- a) "polyacrylamides", trade name and grade/type
- b) Net weight
- c) Name, address and telephone number or supplier and/ or manufacturer
- d) Batch number
- e) Date of manufacturing/packaging and any other markings as required by applicable laws
- f) In the case of shipment in bulk, every consignment shall carry a certificate setting out the above mentioned information.

6.0 Certificate of analysis

- 6.1 A certificate of analysis, with the indication of country of origin should accompany all deliveries for the chemical and be given to SAJ's.
- 6.2 The contents of the certificate of analysis shall include the following;
 - a) Product active content, % (w/w); and
 - b) Acrylamide monomer content, mg/kg of active product.

7.0 Delivery Inspection and Evaluation

- a) It is the responsibility of the tenderer to inform SAJ for inspection purposes during manufacturing and before delivery.
- b) SAJ reserve the right to inspect and witness the testing of product offered without notice.
- c) At anytime, w hen requested, the supplier is to provide SAJ a sample of the product offered for evaluation purposes. All costs shall be borne by the supplier.
- d) If at anytime the supplier fails to deliver the required sample, the products is deemed fail to meet the specification.

8.0 Certification

- 8.1 Manufacturer and/or supplier of the product are required to provide the copy of the certificate and testing report from SIRIM, IKRAM and SPAN or other recognize certification bodies.
- 8.2 Tests report required should be those tests conducted within a year period.
- 8.3 SAJ has the right to refuse offer or reject supply if those documents required are not enclosed or results provided are not complied to SAJ requirement.

