



**Ranhill
SAJ**

**SPECIFICATION FOR POLYAMINES
USED FOR POTABLE WATER SUPPLY**
MATERIAL REQUIREMENTS

SPECIFICATION SAJ CH/ PM/ 001
(REV 3.0/09.2018)

QUALITY ASSURANCE DEPARTMENT
RANHILL SAJ SDN BHD

Ranhill

Ref. No. : CH/PM/001

Date : 26/9/2018

Total Pages : 5/5

Approve by:
Ass General Manager Quality Management

SPECIFICATION FOR POLYAMINES USED FOR POTABLE WATER SUPPLY

TABLE OF CONTENT

Contents	Page
Table of Content	2
1.0 General	3
2.0 Features required	3
3.0 Test and Inspection	4
4.0 Packaging and Storage	4
5.0 Mandatory Marking	4
6.0 Certification of Analysis	5
7.0 Pre-delivery Inspection and Evaluation	5
8.0 Certification	5
Table	
Table 1 – Product Specification	3
Table 2 – Physical properties	4



SAJ SPECIFICATION FOR POLYAMINES USED FOR POTABLE WATER SUPPLY

1.0 General

- 1.1 Features required are as follows or otherwise the Malaysian Standard MS 1929:2007, Polyamines for use in Potable Water Supply-Specification shall be used.

2.0 Features required

- 2.1 Polyamines used for potable water supply shall comply with requirement as specified in **Table 1-Product Specification**.

Table 1 – Product Specification

Parameter	Requirement	Test Method
A. Specific Requirement		
Active content, % w/w	30-50	<u>Annex A</u>
B. Impurities		
Epichlorohydrin, mg/ kg of active product	20, max	<u>Annex B</u>
1,3-Dichloro-2-propanol, mg/kg of active product	1,000	
2,3-Dichloro-1-propanol, mg/kg of active product	500	
C. Physical requirement		
Product pH	4-7	<u>Annex C</u>
Bulk Brookfield viscosity, mPa.s	70-8,000	
D. Toxic substances		

Toxic substances are not relevant at a reference dose of 10mg active product per liter

Note: Limits have been given for impurities and toxic substances where these are likely to be present in significant quantities from the current production process and raw materials. If a change in the production process or raw water materials leads to significant quantities of other impurities or by-products being present, this should be notified to the user.

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2.2 Physical properties of Polyamines used for potable water supply are as follows:

Table 2 – Physical properties

No.	Physical Properties	Descriptions
1.	Appearance	i. Clear
		ii. Colourless to amber-coloured liquid
		iii. <u>No visible insoluble gel or extraneous matter</u>
2.	Solubility	i. Miscible with water at all concentration
3.	Specific Gravity (S.G)	i. 1.16 for 50% w/w polyamine at 20°C
4.	<u>Boiling Point at 100 kPa (1 bar)</u>	i. 101°C for 50% w/w polyamine
5.	Vapour Pressure	i. 2.4 kPa for 50% w/w polyamine at 20°C
6.	Viscosity	i. 70 mPa.s to 8,000 mPa.s
7.	Freezing Point	i. -7°C for 50% w/w polyamine
8.	Specific Heat	i. <u>3.13 kJ/kg.K</u> for 50% w/w polyamine

2.3 Polyamines supplied shall not contain any impurities and additives in such concentration that is capable of producing deleterious or injurious effects on the health of those consuming water that has been properly treated with the soda ash.

3.0 Test and Inspection

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

4.0 Packaging and Storage

4.1 Polyamines shall be delivered in a suitable container, bulk containers, drums, cans or bottles.

4.2 For storage purposes, Polyamines shall be stored in cool-dry.

4.3 Polyamines shall be kept away from oxidants (eg. Chlorine, hydrogen peroxide, potassium permanganate, chlorates, nitrates) and strong acids.

4.4 Under proper storage conditions, Polyamines shall stable for at least 12 months.

5.0 Mandatory Marking

Each bag of Polyamines shall have mark legibly on it including:-

- a) "polyamines", 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 shall bear such other marking as required by applicable laws.

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
- b) Epichlorohydrin content, mg/kg of active product
- c) pH

6.3 The contents of comprehensive certificate of analysis shall include the following;

- a) 1,3-dichloro-2 propanol content, mg/kg of active product
- b) 2,3-dichloro-1 propanol content, mg/kg of active product
- c) Viscosity, mPa .s
- d) Molecor mass
- e) Specific gravity

7.0 Pre-delivery Inspection and Evaluation

- a) It is the responsibility of the supplier 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 any prior notice
- c) At anytime, when 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 any time 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.