



**Ranhill
SAJ**

**SPECIFICATION FOR HYDRATED LIME AND SLURRY
LIME USED FOR POTABLE WATER SUPPLY**

MATERIAL REQUIREMENTS

**SPECIFICATION SAJ CH/ HSL/ 001
(REV 4.0/09.2018)**

QUALITY ASSURANCE DEPARTMENT
RANHILL SAJ SDN BHD

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SAJ SPECIFICATION FOR HYDRATED LIME AND SLURRY LIME USED FOR POTABLE WATER SUPPLY

1.0 General

- 1.1 Features required for this specification are as follows or otherwise the MS 1836:2005, Specification for Hydrated Lime and Slurry Lime used for Potable Water Supply.
- 1.2 These specifications provide the minimum requirements for Hydrated Lime and Slurry Lime.

2.0 Features required

- 2.1 Hydrated Lime ($\text{Ca}(\text{OH})_2$) and Slurry Lime ($\text{Ca}(\text{OH})_2$) used for potable water supply shall comply with requirement as specified in **Table 1-Product Specification.**

Table 1 – Product Specification

Parameter	Hydrated Lime			Slurry Lime			Test method
	Class 1	Class 1a	Class 2	Class 1	Class 1a	Class 2	
A. Chemical requirement							
Available Calcium Oxide (dry basis), % (w/w), min	69.7	68.0	65.9	69.7	68.0	65.9	EN 12485 or MS 850
Available Calcium Hydroxide (dry basis), % (w/w), min	92.0	90.0	87.0	92.0	90.0	87.0	EN 12485 or MS 850
B. Impurity I	Limits						
Water content, % (w/w), max	2.0	2.0	2.0	60-70	60-70	60-70	EN 12485 or MS 850
Water insoluble matters (dry basis), % (w/w), max	8.0	10.0	13.0	8.0	10.0	13.0	EN 12485 or MS 850
Calcium Carbonate, (dry basis), % (w/w), max	7.0	7.5	8.0	7.0	7.5	8.0	EN 12485 or MS 850
SiO ₂ , % (w/w) of dry product, max	2.0	2.5	3.0	2.0	2.5	3.0	EN 12485 or MS 850
C. Impurity II	Limits						
Al ₂ O ₃ , % (w/w) of dry product, max	0.5	0.8	1.0	0.5	0.8	1.0	EN 12485 or MS 850
Fe ₂ O ₃ , % (w/w) of dry product, max	0.5	0.8	1.0	0.5	0.8	1.0	EN 12485 or MS 850
MnO ₂ , % (w/w) of dry product, max	0.15	0.3	0.4	0.15	0.3	0.4	EN 12485 or MS 850
D. Physical requirement							
Fineness – Wet sieving (dry basis)	Minimum 90% pass through 75µm sieve			Minimum 99.9% pass through 600µm sieve			AS 4489.2.1

- 2.2 The content of toxic substances in Hydrated Lime (Ca(OH)₂) and Slurry Lime (Ca(OH)₂) are as follows **Table 2 – Content of toxic substances.**

Table 2 – Content of toxic substances

Parameter	Maximum limit in mg/kg of dry substance	Test method
Arsenic (As)	5.0	EN 12485 or EPA 600/4-79-0 20 40 Method 206.2
Cadmium (Cd)	2.0	EN 12485 or EPA 600/4-79-0 20 40 Method 213.2
Chromium (Cr)	20.0	EN 12485 or EPA 600/4-79-0 20 40 Method 218.2
Mercury (Hg)	0.3	EN 12485 or EPA 600/4-79-0 20 40 Method 245.2
Lead (Pb)	25.0	EN 12485 or EPA 600/4-79-0 20 40 Method 239.2
Selenium (Se)	4.0	EN 12485 or EPA 600/4-79-0 20 40 Method 270.2
Nickel (Ni)	20.0	EN 12485 or EPA 600/4-79-0 20 40 Method 272.2
Antimony (Sb)	4.0	EN 12485 or EPA 600/4-79-0 20 40 Method 204.2

NOTE : The concentration limits are specified in milligram per kilogram of substance.

- 2.3 Hydrated Lime (Ca(OH)₂) and Slurry Lime (Ca(OH)₂) supplied shall not contain any impurities and additives.

3.0 Test and Inspection

- 3.1 All in Hydrated Lime (Ca(OH)₂) and Slurry Lime (Ca(OH)₂) shall comply with test in accordance with the requirement of specification.

4.0 Packing and Storage

- 4.1 Hydrated Lime (Ca(OH)₂) and Slurry Lime (Ca(OH)₂) shall be delivered in a bulk or packages forms.
- 4.2 For storage purposes, in Hydrated Lime (Ca(OH)₂) and Slurry Lime (Ca(OH)₂) shall be store in cool-dry and well ventilated area and separated from acids.
- 4.3 Avoid contact with strong mineral acids.
- 4.4 Under proper storage conditions, Hydrated Lime (Ca(OH)₂) shall be stable up to 12 months and Slurry Lime (Ca(OH)₂) shall be stable up to 6 months.

5.0 Mandatory Marking

Each bulk/packages of in Hydrated Lime (Ca(OH)₂) and Slurry Lime (Ca(OH)₂) shall have mark legibly on it including:-

- "lime", trade name and grade/type
- Net weight
- Name, address and telephone number or supplier and/ or manufacturer
- Batch number
- Date of manufacturing/packaging and any other markings as required by applicable laws
- 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) Available calcium oxide (dry basis), % (w/w)
- b) Available calcium hydroxide (dry basis), % (w/w)
- c) Water content, % (w/w)
- d) Passing sieve of 75µm (hydrated lime) 600µm (slurry lime), % (w/w)
- e) Insoluble matters (dry basis), % w/w

6.3 A comprehensive certificate of analysis shall include the following:

- a) Calcium carbonate (dry basis), % (w/w)
- b) SiO₂, Al₂O₃, Fe₂O₃, MnO₂ content (dry basis), % (w/w)
- c) As, Cd, Cr, Pb, Se, Sb, Hg, Ni as mg/kg Ca(OH)₂.

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, 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.