



**Ranhill
SAJ**

**SPECIFICATION FOR GRANULAR ACTIVATED
CARBON USED FOR POTABLE WATER SUPPLY**

**SPECIFICATION SAJ CH/GAC/001
(Rev.3.0 / 09.2018)**

QUALITY ASSURANCE DEPARTMENT
RANHILL SAJ SDN. BHD.

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SAJ Specification for Granular Activated Carbon Used For Potable Water Supply

1.0 GENERAL DESCRIPTION

- 1.1) Granular Activated Carbon Used For Potable Water Supply shall be provided in accordance with Malaysian Standard, MS 1815:2005 Specification For Granular Activated Carbon Use In Potable Water Supply.
- 1.2) Features required are as follows or otherwise the above specification will be used.

2.0 FEATURES REQUIRED

- 2.1) Granular Activated Carbon Used for Potable Water Supply shall comply with requirements as specified in Table 1 – Product Specification.

Table 1 – Product Specification

Parameter	Requirements	Test Method
A. Specific requirements		
	Limit	
Iodine number, mg/g of dry product	900 min	<u>EN 12902</u>
Uniformity coefficient, UC	2.1 max	
B. Impurities		
Water soluble matter, %(w/w)	3.0 max	
Moisture, %(w/w)	5 max	
Ash, %(w/w)	15 max	
Zinc, %(w/w)	0.002 max	
C. Physical Requirements		
Ball pan hardness	75 min	<u>EN 12915</u>
Wet ability	99 min	
Bulk density, packed, kg/m ³	180 min	
D. Water-extractable toxic substance		
	<u>Maximum limit µg/l of Extracted solutionProduct</u>	Test Method
Arsenic, As	10	<u>Annex B</u>
Cadmium, Cd	0.5	
Chromium, Cr	5	
Mercury, Hg	0.3	
Nickel, Ni	5	
Lead, Pb	5	
Selenium, Se	3	
Antimony, Sb	3	
Cyanide, Cn	5	
PAH	0.02	

2.2) Physical Properties of Granular Activated Carbon used for potable water supply as follow:

No.	Physical Properties	Description
1.	Appearance	i. Black ii. Porous granular of irregular shape
2.	Density	i. Bed density – 85% - 93% of bulk density ii. Absolute density – 2.1g/cm ³
3.	<u>Solubility</u>	i. <u>Non-soluble</u>

2.3) The Granular Activated Carbon shall not contain any impurities and additives.

3.0 TEST AND INSPECTION

3.1 All Granular Activated Carbon shall comply with test in accordance with the requirement of specification.

4.0 PACKING AND STORAGE

- 4.1 Granular Activated Carbon shall be delivered in bag form.
- 4.2 For storage purpose, Granular Activated Carbon shall be stored in a building or compartment that is a fire resistant.
- 4.3 Bags of Granular Activated Carbon should be stacked in rows with aisles between them and should be stored alone.

5.0 MANDATORY MARKING

Each bag of Granular Activated Carbon shall have mark legibly on it including: - 5.1 “Granular Activated Carbon”, trade name and grade;

- 5.2 Net Weight;
- 5.3 Name, address and telephone number of supplier and/or manufacturer;
- 5.4 Batch number
- 5.5 Date of manufacturing or packaging; and shall bear such other markings as requires by applicable laws;
- 5.6 Any other markings as required by applicable laws

6.0 TRANSPORTATION AND LABELING

The product shall be categorized under the following transportation guideline and labeling:

- | | | | |
|-----|----------|---|----------------------|
| 6.1 | RID | : | class 4.2 (UN 1362); |
| 6.2 | ADR | : | class 4.2 (UN 1362); |
| 6.3 | IMO-IMDG | : | class 4.2 (UN 1362) |
| 6.4 | IATA | : | Prohibited |

7.0 CERTIFICATE OF ANALYSIS

7.1 The contents of the certificate of analysis shall include the following:

- a) iodine number, mg/g of dry product;
- b) water soluble matter, % w/w;
- c) uniformity coefficient, UC;
- d) moisture content, % w/w;
- e) ball pan hardness;
- f) nominal effective size, d_{10} ; and
- g) wettability, % w/w, and
- h) ash content, % w/w

7.2 A comprehensive certificate of analysis shall be provided to SAJ and shall include 7.1 and the following:

- a) Bulk density (packed), kg/m^3 ;
- b) Minimum size, d_1 ;
- c) Zinc, % w/w; and
- d) Water-extractable toxic substances (As, Cd, Cr, Pb, Se, Sb, Hg, Ni, CN, PAH) as $\mu\text{g/l}$ in the extraction water.

8.0 PRE-DELIVERY INSPECTION AND EVALUATION

- 8.1 It is the responsibility of the tenderer to inform SAJ for inspection purposes during manufacturing and before delivery.
- 8.2 SAJ reserve the right to inspect and witness the testing of the product offered without any prior notice.
- 8.3 At any time, when requested, the supplier is to provide SAJ a sample of the product offered for evaluation purposes. All cost shall be borne by the supplier.
- 8.4 If at any time the supplier fails to deliver the required sample, the product is deemed fail to meet the specification.

9.0 CERTIFICATION

- 9.1 Manufacturer and/or supplier of the product are required to provide a copy of the certificate and testing report from SIRIM, IKRAM and/or other recognised certification bodies.
- 9.2 Tests report required should be those tests conducted within a year period.
- 9.3 SAJ has the right to refuse offer or reject supply if those documents required are not enclosed.