



**PRODUCT MANUAL FOR
PHENOL (CARBOLIC ACID) —SPECIFICATION
ACCORDING TO IS 538:2020**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 538: 2000
	Title	:	Phenol (Carbolic acid) - Specification
	No. of Amendments	:	0
2.	Sampling Guidelines:		
a)	Raw material	:	NA
b)	Grouping guidelines	:	NA
c)	Sample Size	:	Minimum of 500 g
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day:		
	All the tests mentioned in the IS are possible to be carried out in a day.		
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 538:2020 with the following scope:		
	Name of the product	Phenol (Carbolic acid)	
	Grade/Variety	As Applicable (Phenol/Hydrated Phenol of Grade A/ Grade B)	

ANNEX A

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference		Test Equipment
	Test	Clause	
1.	Description	4.1	Visual Hot Plate Thermometer of 1 °C least count Apparatus for determination of water by distillation method as per IS 1448 [P : 40] : 2015 comprising a glass or metal still, a heater, a reflux condenser, and a graduated glass trap and necessary reagents (For hydrated phenol only)
2.	Solubility in water	4.2	Weighing balance (0-200 grams/0.1 mg) Distilled water Thermostatically controlled water bath Thermometer of 1 °C least count
3.	Crystallization point	Annex A	Weighing balance (0-200 grams/0.1 mg) Distilled water Crystallization point apparatus Thermometer of 0.1 °C accuracy Thermostatically controlled water bath Measuring cylinders of 50 ml and 10 ml capacities Stop watch
4.	Moisture	Annex B	Phenol Karl Fischer titrator Weighing balance (0-200 grams/0.1 mg) Distilled water Methanol Karl Fischer reagent Hydrated Phenol Apparatus comprising of a glass or metal still, a heater, a reflux condenser, and a graduated glass trap Aromatic solvent like industrial grade xylene, blend of 20 % industrial grade toluene and 80 % industrial grade xylene or petroleum distillate, yielding not more than 5 % distillates at 125 °C and not less than 20 % at 160 °C
5.	Residue on evaporation	Annex C	Weighing balance (0-200 grams/0.1 mg) Distilled water Stoppered U-tube

			Air bath Thermometer of 0.5 °C least count and range of 50-210 °C Calcium Chloride tube Conical flask Suction pump
6.	Purity	Annex D	Weighing balance (0-200 grams/0.1 mg) Distilled water BROMIDE – BROMATE SOLUTION METHOD (for Phenol/Hydrated Phenol) Chloroform Concentrated Hydrochloric Acid Potassium Iodide solution Potassium bromide Potassium bromate Sodium thiosulfate Pipette of 50 ml and 25 ml capacities Iodine flask – 500 ml capacity Starch solution Measuring cylinders of 100 ml and 25 ml capacities Burette of 50 ml capacity GAS CHROMATOGRAPHIC METHOD (for Phenol) Gas chromatograph with flame ionization detector Chromatographic column Certified Reference Materials (CRM) of Mesityl oxide, Cumene.α-methylstyrene, 2-methylbenzofuran, acetophenone, Dimethylbenzyl alcohol and Tetradecane.
7.	Colour	Table 1	As per IS 8768 or relevant ASTM D Method

The above list is indicative only and may not be treated as exhaustive.

ANNEX B

Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING — The Standard Mark, as given in the Schedule of the licence, shall be marked on the container provided always that material so marked conform to requirements of the specification.

3.1 Packing and Marking shall be done as per the provisions of the Indian Standard. In addition, the following shall be incorporated on each container:

i) BIS Licence Number CM/Land

ii) BIS website details i.e. "For details of BIS certification please visit www.bis.gov.in".

5. CONTROL UNIT – For the purpose of this scheme, the entire quantity of the phenol or hydrated phenol of same grade produced in one day shall constitute a control unit.

6. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

6.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

7. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1: LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
CI	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4.1	Description	4.1	IS 538:2020	R	One	Every Control Unit	Visual
4.2	Solubility in water	4.2	IS 538:2020	R	-do-	-do-	-
4.3, Table 1, Sl. No. (i)	Crystallization point	Annex A	IS 538:2020	R	-do-	-do-	-
4.3, Table 1, Sl. No. (ii)	Moisture	Annex B	IS 538:2020	R	-do-	-do-	-
4.3, Table 1, Sl. No. (iii)	Residue on evaporation by mass	Annex C	IS 538:2020	S	-do-	Once in a month	-
4.3, Table 1, Sl. No. (iv)	Purity	Annex D	IS 538:2020	S	-do-	-do-	-
4.3, Table 1, Sl. No. (v)	Colour	IS 8768/ASTM D 1686 or ASTM D 5386 or ASTM D 1209	IS 538:2020	S	-do-	-do-	

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval to BO head.