



**PRODUCT MANUAL  
FOR QUINALPHOS EC ACCORDING TO IS 8028 : 1987**

**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.	<b>Product</b>	:	IS 8028 : 1987
	<b>Title</b>	:	Specification for Quinalphos EC
	<b>No. of Amendments</b>	:	02
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	Quinalphos, technical, employed in the manufacture of Quinalphos EC shall conform to IS 8072.
b)	<b>Grouping guidelines</b>	:	NA (No varieties for the product mentioned in IS)
c)	<b>Sample Size</b>	:	500 ml
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX – <u>A</u>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX – <u>B</u>
5.	<b>Possible tests in a day:</b>		
	i. Description ii. Cold Test iii. Flash Point iv. Emulsion Stability v. Quinalphos Content vi. Acidity & Alkalinity		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 8028 : 1987 with the following scope:		
	Name of the product	:	Quinalphos (25 %) EC

**ANNEX - A**  
**TO PRODUCT MANUL**  
**FOR QUINALPHOS EC ACCORDING TO IS 8028 : 1987**

**LIST OF TEST EQUIPMENT**

**Major test equipment required to test as per the Indian Standard**

Sl. No.	Test Equipment, Glassware and Chemicals	Tests used in with Clause Reference
1	Test Tube or Glass beaker, Glass Stirrer, Distilled Water and	Description CI 2.2.1
2	Glass container (100 ml)/Beaker with cork fitted with thermometer (0 - 110 °C, L.C. - 0.1 °C), Stirring rod, water bath, Ice cold water.	Cold Test CI 2.2.2 (Clause 13.1 of IS 6940)
3	Cleaning solvent, Coolant, Lubricant, Verification Liquids, Ignitor and pilot light gas, Flash point apparatus/Abel flash point apparatus consisting of test cup, cover assembly, heating vessel, heating device, flash detector, Stirrer, Thermometers 2 (one for the oil cup of range; - 35°C to +70°C, and another for the water bath of the range; -30°C to +80°C), Timing device, Barometer, External cooling bath, Test cup thermal insulating cap, Abel flash point apparatus provided with a stirrer & thermometer, Heating Vessel or bath, Ethylene Glycol.	Flash Point CI 2.2.3 {IS 1448(Part 20)}
4	<b>Method I</b> Beaker of capacity 250 ml, with an internal diameter of 6.0 to 6.5 cm and marked at 100ml, Mohr type pipette, Glass rods- 4 to 6 mm in diameter, Graduated cylinder of capacity 100 ml, Standard Hard water, Air conditioner.  <b>Method II</b> Dropping funnel, remaining equipments same as method I without Mohr type pipette.	Emulsion Stability CI 2.2.4  (Clause 13.3 of IS 6940)
5	<b>A 1. High Performance Liquid Chromatography (HPLC)</b> <b>Method-</b> <b>Apparatus</b> – HPLC with SS Column and detector and other specifications as per A-1.2.1 of IS 8072, Micro-Syringe - 10 µl, Analytical Balance. <b>Reagents</b> –Internal Standard Solution 1 g meta phenoxy benzaldehyde (MPB), AR grade, Quinalphos Standard Solution <b>Glass Wares</b> – Beaker, Volumetric Flask, Graduated Cylinder etc.	Quinalphos Content CI 2.3.1  (Annex A of IS 8072)

	<p><b>A-2. Gas Liquid Chromatographic (GLC) Method:</b>  <b>Apparatus</b> –Gas Liquid Chromatograph  A gas chromatograph equipped with a FID detector is operated and glass column with suggested working parameters specified in A-2.1.1 of IS 8072, Micro-Syringe – 2 µl, Analytical Balance  <b>Reagents</b> – Quinalphos, Reference Standard, Acetone/Toluene, Internal Standard - Di-n-butyl phthalate.  <b>Glass Wares</b> – Beaker, Volumetric Flask, Graduated Cylinder etc.</p> <p><b>A-3 TLC FOLLOWED BY UV SPECTROPHOTOMETRY:</b>  <b>Apparatus</b> - Spectrophotometer Capable of recording or measuring in the region of 220 to 320 nm.  Coated Glass Plates with Silica Gel G Containing Fluorescent Indicator 254 mm - of size 20 cm x 20 cm and layer thickness of 0.25 mm. A-3.2.3  TLC Tank - To accommodate TLC plates of 20 cm x 20 cm. A-3.2.4  Filter Paper - Whatman No. 1 or equivalent, Micro-Pipette – 5 µl or 10 µl.  Spatula - Stainless steel, Centrifuge - with 15 ml capacity stoppered centrifuge tubes, Volumetric Flasks - 25 ml, UV Lamp - 254 nm, Burette - Glass A, Plastic Marker -with (2.5)<sup>2</sup> cm slot, Analytical Balance  Reagents-Toluene -AR grade, Ethyl Acetate - AR grade, Methanol - Spectroscopy grade, Quinalphos Standard - of known purity, Solvent System- Mix 95 parts of toluene with 5 parts of ethyl acetate</p> <p><b>A-4 VOLUMETRIC METHOD:</b>  <b>Apparatus</b>-Analytical Balance, Hot Plate, Glassware  <b>Reagent</b>-Nitric Acid -- 70 percent, Sulphuric Acid - 96 percent, Citric Molybdate Reagent, Hydrogen Peroxide, Mixed Indicator Solution, Quinoline Solution, Hydrochloric Acid -concentrated and 0.5 N, Sodium Hydroxide Solution -0.5 N.</p>	
6.	Analytical Balance (0-200gm, LC 0.1mg) Hot plate/ Heating mantle/ Water bath Whattman Filter Glassware: Conical Flask, Graduated Cylinder, Burette and Pipette Reagents: Methyl red indicator solution-aqueous – 1percent (m/v) Bromocresol purple indicator solution Standard Sodium Hydroxide Solution – 0.5 N Standard.	Acidity or Alkalinity CI 2.3.2 (Clause 13.5 of IS 6940)

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

**ANNEX - B**

**SCHEME OF INSPECTION AND TESTING  
FOR QUINALPHOS EC ACCORDING TO IS 8028 : 1987**

**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 equipment.

**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 Schedule of the licence shall be stenciled/printed on each container of Quinalphos EC or printed on the labels applied to the container, as the case may be, provided always that the material in each container to which this mark is thus applied conforms to every requirement of the specification.

**3.1** Packing and marking shall be done as per the provision of the Indian Standard. In addition, the following details shall be mentioned on each container legibly and indelibly:

a) BIS Licence No. CM/L\_\_\_\_\_.

b) BIS website details i.e – “For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)”.

**4. CONTROL UNIT** - For the purpose of this scheme, the entire quantity of the material processed in a mixer at a time in one operation shall constitute a control unit.

**5. 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.

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

**5.2** On the basis of tests and analysis reports, the decision regarding conformity or otherwise of a control unit to a given requirement shall be made as follows:

**5.2.1** The sample taken for test from the control unit shall satisfy all the requirements of the specification. If the sample fails in any of the requirements tested other than Quinalphos content and emulsion stability, the entire control unit represented by the sample shall be considered as unfit for the purpose of marking.

**5.2.2** In case the sample taken from the control unit fails in either Quinalphos technical content or emulsion stability, or both, the entire material may be suitably reprocessed and the defect rectified. Such reprocessed material, when tested again shall satisfy all the requirements of specification.

**6 RAW MATERIALS** - Quinalphos, technical employed in the formulation of the material shall conform to IS 8072. It is recommended that routine analysis of each consignment of other raw materials received in the factory may be carried out and appropriate records maintained. Alternatively, certificate of conformity to relevant Indian Standards shall be obtained for each consignment.

**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		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
2.2.1	Description	2.2.1	IS 8028	R	One	Every Control Unit	Please see Clause 5.2.1 of SIT
2.2.2	Cold Test	13.1	IS 6940	R	-do-	-do-	-do-
2.2.3	Flash Point (Abel)	-	IS 1448 (Part 20)	R	-do-	-do-	-do-
2.2.4	Emulsion Stability	13.3	IS 6940	R	-do-	-do-	Please see Clause 5.2.2 of SIT
2.3.1	Quinalphos Content	Annex A	IS 8072	R	-do-	-do-	-do-
2.3.2	Acidity / Alkalinity	13.5	IS 6940	R	-do-	-do-	Please see Clause 5.2.1 of SIT

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 empanelled 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 by BO Head.