



**PRODUCT MANUAL  
FOR ERYTHROSINE, FOOD GRADE ACCORDING TO IS 1697 : 1994**

**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 1697 : 1994                         |
|    | <b>Title</b>   | :                       | <b>Erythrosine, Food Grade</b>         |
|    | <b>No. of amendments</b>   | :                       | 01                                     |
| 2. | <b>Sampling Guidelines</b>   |                         |  |
| a) | <b>Raw material</b>  | :                       | No specific requirements               |
| b) | <b>Grouping Guidelines</b>   | :                       | NA                                     |
| c) | <b>Sample Size</b>   | :                       | 50 g                                   |
| 3. | <b>List of Test Equipment</b>  | :                       | Please refer <a href="#">Annex – A</a> |
| 4. | <b>Scheme of Inspection and Testing</b>  | :                       | Please refer <a href="#">Annex - B</a> |
| 5. | <b>Possible tests in a day:</b>  |                         |  |
|    | i. Total Dye content<br>ii. Loss on drying at 135°C<br>iii. Water insoluble matter<br>iv. Ether-extractable matter<br>v. Inorganic iodide<br>vi. Subsidiary colouring matter except fluorescein<br>vii. Organic compounds other than coloring matter:<br>-Tri-idoresorcinol<br>-2-(2,4-dihydroxy-3,5-di-iodobenzoyl) benzoic acid<br>viii. Arsenic<br>ix. Zinc<br>x. Heavy metal |                         |  |
| 6. | <b>Scope of the Licence :</b>  |                         |  |
|    | Licence is granted to use Standard Mark as per IS 1697 : 1994 with the following scope:  |                         |  |
|    | <b>Name of the product</b>   | Erythrosine, Food Grade |  |

ANNEX –A

TO PRODUCT MANUAL  
FOR ERYTHROSINE, FOOD GRADE ACCORDING TO IS 1697 : 1994

LIST OF TEST EQUIPMENT

Major test equipments required to test as per requirements of Indian Standard.

| Sr. No. | Tests used in with Clause Reference  | Test Equipment/Chemicals/Glassware   |
|---------|--|--|
| 1       | Total Dye Content<br>Cl. 3.1 & Table 1<br>(i)<br>(Annex A of IS 1697)  | <b>Spectrophotometric Method:</b><br>spectrophotometer/spectrocolorimeter, 0.1 N Sodium hydroxide, volumetric flask, glass cell, Analytical balance (L.C- 1 mg), Air oven (L.C- 1°C)<br><br><b>Nitric Acid Method:</b> Nitric Acid, Silver Nitrate, Distilled water, Analytical balance (L.C- 1 mg), Beaker, Sintered glass crucible, small glass stirring rod, Oven (L.C- 1°C), Desiccator.   |
| 2       | Loss on drying at 135°C and chlorides and sulphates expressed as sodium salt<br>Cl. 3.1 & Table 1 (ii)<br>(Cl 6, 13 & 14 of IS 1699) | <b>Determination of loss of drying:</b> Analytical balance, weighing bottle fitted with a ground glass lid, heater, timer, Air oven, Desiccator.<br><br><b>Determination of chloride as sodium chloride:</b> Potentiometric titration apparatus with silver indicator electrode, Analytical balance, water, measuring cylinder, nitric acid solution, silver nitrate solution, saturated potassium sulphate bridge/glass electrode.<br><br><b>Determination of sulphate as sodium sulphate:</b> Analytical balance, Conical flask, Distilled Water, Water Bath, Sulphate- Free Sodium Chloride, Timer, Measuring Flask, Dry Filter Paper, Beaker, Pipette, Hydrochloric Acid, 0.25 N Barium Chloride Solution, Timer, Filter, Crucible, Hotplate, Barium Sulphate. |
| 3       | Water -insoluble matter<br>Cl. 3.1 & Table 1 (iii)<br>(Cl 7 of IS 1699)  | Weighing balance, Prepared Gooch Crucible, Hot Water, Cold Water, Oven (L.C- 1°C), Timer and Desiccator.   |
| 4       | Ether Extractable matter<br>Cl. 3.1 & Table 1 (iv)<br>(Cl 8 of IS 1699)  | Weighing machine, Separator or continuous extractor of 250 ml, Isopropyl ether, Sodium hydroxide solution (10 % m/v), Sodium hydroxide wash solution (0.1 N), neutral ether extract, Alkaline ether extract  |
| 5       | Inorganic iodide as sodium iodide<br>Cl. 3.1 & Table 1 (v)<br>(Annex B of IS 1697)   | Silver Nitrate, Nitric Acid, potentiometric titration apparatus, weighing balance (LC – 1g), beaker, distilled water, Grade 3 sintered glass filter.   |
| 6       | Subsidiary colouring matters except fluorescein  | Chromatography tank and ancillary equipment, microsyringe capable of delivering 0.1ml with a   |

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|    |  |   |
|----|--|---|
|    | Cl. 3.1 & Table 1 (vi)<br>(Annex C of IS 1697)   | tolerance of $\pm 0.002$ ml, spectrophotometer, chromatography solvents, extracting solvent, sodium bicarbonate (0.05 N), measuring apparatus, drying cabinet.  |
| 7  | Fluorescein<br>Cl. 3.1 & Table 1 (vii)<br>(Annex D of IS 1697)   | Methanol, water, Ammonia, Analytical balance (LC- 1 mg), volumetric flask, fluorescein standard, chromatography solvent (n-butanol, water, ammonia and ethanol), cellulose plate, UV light source   |
| 8  | Organic compounds other than colouring matter<br>Cl. 3.1 & Table 1 (viii)<br>a) Tri-idoresorcinol<br>b) 2-(2,4-dihydroxy-3,5-di-iodobenzoyl) benzoic acid.<br>(Annex E of IS 1697) | Chromatographic tube, UV-range spectrophotometer, Whatman powdered cellulose (or equivalent), Ammonium Sulphate, Small disc of stainless steel gauze, Analytical balance (L.C- 1 mg), beaker, distilled water.  |
| 9  | Lead<br>Cl. 3.1 & Table 1 (ix)<br>Arsenic<br>Cl. 3.1 & Table 1 (x)<br>Zinc<br>Cl. 3.1 & Table 1 (xi)<br><br>(Cl 15 of IS 1699)   | <b>Instrument method:</b> Kjeldahl flask, Atomic absorption spectrophotometer, pipette, burette, standard lead/zinc/arsenic solution, sulphuric acid, hydrochloric acid, metal-free/distilled water, sodium sulphate, sodium borohydride pellets, potassium chloride, measuring cylinder/ beaker, volumetric flask, weighing balance, heater, Perchloric Acid<br><br><b>Chemical method:</b><br><b>For Lead:</b> Digestion funnel, separatory funnel, Nitric acid, sulphuric acid, ammonium acetate- citrate solution, ammonia solution, carbon tetrachloride, ammonium hydroxide, potassium cyanide, hydroxylamine hydrochloride solution, dithizone solution, buffer pH2, Weighing balance (LC – 0.1 g), digestion flask, dish, distilled water, heater, pH paper/meter, standard lead solution<br><br><b>For Arsenic:</b> Distillation apparatus, conical flask, sulphuric acid, potassium permanganate solution, ferrous sulphate, Hydrochloric acid, potassium bromine solution, aluminium stripes, tin chloride solution, test paper, weighing balance (L.C- 1 mg), micro burner, distilled water, reagent tube, water bath, arsenic solution |
| 10 | Heavy Metal<br>Cl. 3.1 & Table 1 (xii)<br>(Cl 16 of IS 1699)   | Ammonia solution, hydrochloric acid, acetic acid solution, standard lead solution, lead nitrate stock solution, nitric acid, Sulphuric acid, Hydrogen sulphide, Nessler tube, Crucible, lid, heater, Muffle furnace, Steam-bath, Distilled water, Litmus paper, Measuring beaker/cylinder, Analytical balance, pH indicator paper.  |

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

## ANNEX - B

### SCHEME OF INSPECTION AND TESTING FOR ERYTHROSINE, FOOD GRADE ACCORDING TO IS 1697 : 1994

**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 clearly and indelibly marked on each container of Erythrosine, Food Grade or printed on the labels applied to it, as the case may be, provided always that the material in each container to which the Mark is thus applied conforms to every requirement of the specification.

**3.1 Marking** – Each container shall be legibly and indelibly marked with the information mentioned under clause 4.2.1 of IS 1697. In addition, the following information shall be clearly and indelibly marked on each container:

- a) The words “Synthetic Food Colour”;
- b) Names of the major dye intermediates present;
- c) Name and address of the manufacturer;
- d) BIS Licence No. CM/L\_.
- e) BIS website details i.e – “For details of BIS Certification please visit [www.bis.gov.in](http://www.bis.gov.in)”.

**3.2 Packing** – The material shall be packed in glass containers, polyethylene containers, metal containers, or cardboard containers suitably lined with polyethylene. Any other suitable container may also be used subject to agreement between the purchaser and the vendor.

**4. CONTROL UNIT** – For the purpose of this Scheme, Erythrosine, Food Grade blended at one time from different filter pressed batches 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 test results, the decision regarding conformity or otherwise of a control unit to a given requirement shall be made as follows:

5.2.1 Two independent samples drawn from each control unit or batch and tested for total dye content, shall individually satisfy the requirements given in the specification. If any one of the sample fails, the entire material in the control unit shall be considered unfit for the purpose of marking.

5.2.2 A composite sample made from the two independent samples drawn under 5.2.1 and tested for the all the remaining characteristics of the specification, shall satisfy the corresponding requirements. If it fails in any one or more of these requirements, the entire material of the control units shall be considered as unfit for the purpose of marking.

5.2.3 Precaution shall be taken to ensure that the material is free from mercury, copper, and chromium in any form; aromatic amines; aromatic nitro compounds, aromatic hydrocarbons and cyanides.

**6 RAW MATERIALS** - Routine analysis of various raw materials going into the manufacture of Erythrosine, Food Grade shall be made on each lot received in the factory or alternatively raw materials of known composition may be used.

**7. HYGIENIC CONDITIONS** - The material shall be processed, packed, stored and distributed under hygienic conditions (See IS 2491). All the processing equipments should be properly cleaned and care should be taken to prevent infestation.

**8. 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<br>R: required (or)<br>S: Sub-contracting permitted | Levels of Control |                   |                         |  |
| Clause        | Requirement   | Test Method Cl. Ref.    | Test Method IS |  | No. of Sample     | Frequency         | Remarks                 |  |
| 3.1 & Table 1 |   |                         |                |  |                   |                   |                         |  |
| Sr No. i)     | Total Dye content   | Annex A                 | IS 1697        | R  | Two               | Each control unit | See clause 5.2.1 of SIT |  |
| ii)           | Loss on drying at 135 °C and chlorides and sulphates expressed as sodium salt | 6, 13 & 14 respectively | IS 1699        | R  | One               | -do-              | See clause 5.2.2 of SIT |  |
| iii)          | Water Insoluble Matter  | 7                       | -do-           | R  | -do-              | -do-              |                         |  |
| iv)           | Ether-Extractable Matter  | 8                       | -do-           | R  | -do-              | -do-              |                         |  |
| v)            | Inorganic Iodide  | Annex B                 | IS 1697        | R  | -do-              | -do-              |                         |  |
| vi)           | Subsidiary colouring matter except Fluorescein                                | Annex C                 | -do-           | R  | -do-              | -do-              |                         |  |
| vii)          | Fluorescein   | Annex D                 | -do-           | R  | -do-              | -do-              |                         |  |
| viii)         | Organic compounds other than coloring matter                                  |                         |                |  |                   |                   |                         |  |
|               | a) Tri-iodoresorcinol   | Annex E                 | -do-           | R  | -do-              | -do-              |                         |  |
|               | b) 2-(2,4-dihydroxy-3, 5-di-iodobenzoyl) benzoic acid                         | Annex E                 | -do-           | R  | -do-              | -do-              |                         |  |
| ix)           | Lead  | 15                      | IS 1699        | R  | -do-              | -do-              |                         |  |
| x)            | Arsenic   | 15                      | -do-           | R  | -do-              | -do-              |                         |  |
| xi)           | Zinc  | 15                      | -do-           | R  | -do-              | -do-              |                         |  |
| xii)          | Heavy Metals  | 16                      | -do-           | R  | -do-              | -do-              |                         |  |

Note-1: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control and submit his own levels of control in column 3 with proper justification for approval by BO Head.

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.