



उत्पाद मैनुअल
क्रोमियम ट्राइऑक्साइड— विशिष्टि
IS 330:2023 के अनुसार
PRODUCT MANUAL
CHROMIUM TRIOXIDE — Specification
ACCORDING TO IS 330:2023

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity 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.

1.	मानक संख्या IS No.	:	IS 330:2023
	शीर्षक Title	:	Chromium Trioxide-Specification
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	NA Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	All the varieties shall be tested to be covered in the scope of licence
c)	नमूने का परिमाण Sample Quantity	:	500 gm Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market).
d)	परीक्षण अनुरोध में घोषित	:	1. Grade 2. Additional Requirements for for Electronics Industry

	किए जाने वाले पैरामीटर Parameters to be Declared in Test Request		3. In case to be used in hard chrome plating, the following to be declared as per the agreement between the purchaser and the manufacturer a) chromium trioxide (as CrO ₃), b) matter insoluble in water and c) sulphate (as SO ₄) Note: This section indicates declared values to be specified against a parameter (in Test Requests) to enable testing of sample against the requirement and determine its conformity. Any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX –A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX –B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	(i) Description (ii) Solubility (iii) Chromium Trioxide (iv) Matter insoluble in water (v) Alkali Salts (vi) Iron (vii) Nitrates (viii) Potassium (ix) Sodium Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	IS 330:2023 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है “Licence is granted to use Standard Mark as per IS 330:2023 with the following scope:		
	Name of the product	:	Chromium Trioxide
	Grade (and use, as applicable)		A. Grade I- Electroplating grade 1. For hard chrome plating, 2. For other than hard chrome plating B. Grade II — Analytical reagent grade
	Additional Requirements for for Electronics Industry		With/Without

ANNEX A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	<u>Solubility</u>	• Weighing Balance • Distilled Water • Measuring Cylinder
2.	<u>Chromium Trioxide:</u>	• Distilled water • Hydrochloric Acid (Sp. Gr 1.16) • Potassium Iodide • Standard Sodium thiosulphate Solution or Sodium thiosulphate crystals, Sodium Carbonate & Standard potassium dichromate solution • Pure Starch • Weighing balance • Volumetric Cylinder • Titration Assembly • Glass Rod • Mortar • Air tight weighing bottle • Pipette • Hot Plate • Conical flask • Steam Bath • Stop Watch • Measuring Cylinder
3.	<u>Matter Insoluble in water:</u>	• Weighing balance • Steam Bath • Air tight weighing bottle • Gooch crucible with an asbestos mat or a sintered glass crucible (G No. 4) • Desiccator • Hot Air Oven • Beaker • Distilled Water • Measuring Cylinder • Desiccator • Stop watch
4.	<u>SULPHATES:</u>	• Rectified Spirit (95% by volume) • Conc. Hydrochloric Acid (Sp. Gr 1.16) • Barium Chloride Solution • Dilute Hydrochloric Acid • Acetic Acid • Glass Beaker

		• Hot Air Oven • Hot Plate • Weighing Balance • Measuring Cylinder & Beaker • filter paper • Desiccator • Gooch crucible or a sintered glass crucible (G No. 4) • Stop Watch Turbidity Test for Sulphates in Material of Analytical Reagent Grade and for electronics Industry: • Hydrochloric Acid • Barium Chloride Solution • Weighing Balance • Measuring Cylinder & Beaker • Stop Watch • Potassium Sulphate • Nessler Cylinder
5.	<u>ALKALI SALTS:</u>	• Porcelain Dish • Weighing balance • Air tight weighing bottle • filter paper • Measuring Cylinder • Hot Plate • Wash Bottle • Muffle Furnace
6.	<u>Chlorides</u>	• Conc. Nitric Acid, sp. gr. 1.42 • Silver Nitrate Solution • Dilute Ammonium Hydroxide Solution • Dilute Nitric Acid • Filter Paper • Cold Water • Wash Bottle • Hot Air Oven • Weighing Balance • Air tight weighing bottle • Desiccator • Measuring Cylinder • Beaker • Gooch crucible or a sintered glass crucible (G No. 4) <u>Turbidity Test for Chlorides in Material of Analytical Reagent Grade</u> • Dilute Nitric Acid • Silver Nitrate Solution • Weighing Balance

		- Measuring Cylinder - Beaker - Hot Plate - Hot Air Oven
7.	<u>Nitrates</u>	- Dilute Sulphuric Acid - Hydrochloric Acid - Dilute Ammonium Hydroxide Solution - Barium Chloride Crystals - Volumetric Flask - Indigo Carmine - Wash Bottle - Conc. Sulphuric Acid, Sp. Gr. 1.84 - Weighing Balance - Air tight weighing bottle - Potassium Nitrate - Measuring Cylinder - Hot Plate - Filter Paper
8.	<u>Aluminium, Iron And Trivalent Chromium</u>	- Ammonium Chloride - Ammonium Hydroxide Solution — sp gr 0.90 - Ammonium Nitrate Solution - Dilute Hydrochloric Acid - Methyl Red Indicator Solution - Weighing Balance - Hot Plate - filter paper (Whatman No. 31 or 41). - Wash Bottle - Muffle Furnace - Measuring Cylinder
9.	<u>Iron</u>	Method 1 - Concentrated nitric acid - Ammonium persulphate - Butanolic potassium thiocyanate - Dilute sulphuric acid - ferrous ammonium sulphate - Weighing Balance - Measuring Cylinder - Beaker - Volumetric Flask - Hot Plate - Stop watch - Nessler cylinder Method 2 - Atomic Absorption Spectrophotometer (AAS)
10.	<u>Potassium</u>	Method 1 - Rectified Spirit - Perchloric Acid

		• Concentrated Hydrochloric Acid • Acetic Acid • Sodium Cobaltinitrite Solution • Weighing Balance • Measuring Cylinder • Beaker • Filter Paper • Hot Air Oven • Desiccator • Phenolphthalein indicator solution Method 2 • Flame photometer at 766.5 mμ
10.	Sodium	Flame photometer at 589 m

ANNEX-B
Scheme of Inspection and Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e., a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e., lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.3.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: Chromium Trioxide manufactured at a time in the reaction chamber

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that Manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters all parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as maybe defined and put in place by the manufacturer and testing parameters/requirements which can only be to be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.1.1 MSME manufacturers may utilize common cluster-based facilities as per the guidelines for the utilization of cluster-based test facilities by MSMEs or the provisions of the Sharing of testing facilities or get testing done from BIS BIS-recognized/empaneled laboratory or any other laboratory having a valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 Large Scale manufacturers shall maintain an in-house laboratory equipped with at least test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out according to the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.2.1 Alternatively, in lieu of an in-house laboratory, large-scale manufacturers can also utilize the provisions of the Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.3 **TEST RECORDS**- The manufacturer, maintaining an in-house laboratory or utilizing common cluster-based facilities or shared test facilities, shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to a BIS-recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark, as given in the Schedule of the license shall be legibly and indelibly marked on each container/package of chromium trioxide provided that the material thus marked conforms to the requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements**: The container/package shall also be marked with the following additional requirement.

a) *“For BIS certification details please visit www.bis.gov.in”*

4. REJECTION - All the production that conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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

(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)Subcontracting permitted	Levels of Control		
SL No.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
i)	Description	4.1	IS 330	R	Manufacturer shall maintain adequate inspection and in process control, to ensure product meets specified requirements and maintain test records for tests involving Visual examination		
ii)	Solubility	4.2	IS 330	R	One	Each Control Unit	-
4.3 Table-1	Requirements for Chromium Trioxide						
i)	Chromium Trioxide	Annex 2	IS 330	R	One	Each Control Unit	
ii)	Matter Insoluble in water	Annex 3	IS 330	R	One	Each Control Unit	-
iii)	Sulphates	Annex 4	IS 330	R	One	Each Control Unit	
iv)	Alkali Salts	Annex 5	IS 330	R	One	Each Control Unit	
v)	Chlorides	Annex 6	IS 330	R	One	Each Control Unit	-
vi)	Nitrates	Annex 7	IS 330	R	One	Each Control Unit	-
vii)	Aluminum, iron and trivalent chromium	Annex 8	IS 330	R	One	Each Control Unit	
4.4 Table-2	Additional Requirements for Chromium Trioxide for Electronics Industry						
i)	Sulphates	Annex 4.5	IS 330	R	One	Each Control Unit	
ii)	Iron	Annex 9	IS 330	R	One	Each Control Unit	
iii)	Potassium	Annex 10	IS 330	R	One	Each Control Unit	
iv)	Sodium	Annex 11	IS 330	R	One	Each Control Unit	