



उत्पाद मानुयल
चेलेटिड जिंक (Zn-EDTA) कृषि ग्रेड - विशिष्टि
IS 13921: 1994 के अनुसार
PRODUCT MANUAL
FOR CHELATED ZINC (Zn-EDTA), AGRICULTURAL GRADE
ACCORDING TO IS 13921: 1994

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम 2018 की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरणके प्रचलन में रीति और पारदर्शिता के सुसंगत सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

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.	उत्पाद Product	:	IS 13921 : 1994
	शीर्षक Title	:	चेलेटिड जिंक (Zn-EDTA) कृषि ग्रेड - विशिष्टि Chelated Zinc (Zn-EDTA), Agricultural Grade -Specification
	संशोधन संख्या No. of Amendments	:	1
2.	नमूनाकरण दिशा निर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहिकरण दिशा निर्देश Grouping guidelines	:	NA (No varieties mentioned for the product in IS)
c)	नमूनेका परिमाण Sample Size	:	500 grams
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृपया Annex-ए देखें Please see Annex – A
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	कृपया Annex-B देखें Please see Annex – B

5.	एक दिन में संभावित परीक्षण Possible tests in a day :	
	(i) Description (ii) Zinc content (expressed as Zn), (iii) Lead (as Pb) (iv) pH	
6.	लाइसेन्स का कार्यक्षेत्र / Scope of the Licence:	
	IS 13921: 1994 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्रके लिए प्रदान किया जाता है “Licence is granted to use Standard Mark as per IS 13921: 1994 with the following scope:	
	उत्पाद का नाम Name of the product	चेलेटिड जिंक (Zn-EDTA) कृषि ग्रेड - विशिष्टि Chelated Zinc (Zn-EDTA), Agricultural Grade

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

ANNEX – A
TO PRODUCT MANUAL FOR
FOR CHELATED ZINC (Zn-EDTA), AGRICULTURAL GRADE
ACCORDING TO IS 13921: 1994

List of test equipment

Major test equipment required to test as per the Indian Standard

SI.	Tests used in with Clause Reference	Test Equipment
1.	Zinc content (expressed as Zn), in the form of Zn-EDTA, Clause 3.2, SI No. (i) of Table 1	<u>Apparatus:</u> • Weighing balance (L.C :0.1 gram) • Volumetric Flasks (100 ml, 250 ml, 1000 ml) • Beakers (100 ml, 250 ml, 1000 ml) • Measuring cylinders (50 ml, 100 ml, 1000 ml) • Burette: 25 ml capacity • Pipette: 10 ml capacity • Titration apparatus assembly <u>Chemical/Reagents:</u> • EDTA Solution (0.05 M) • Standard Zinc Solution (1000 ppm) • Concentrated Ammonia Solution (Specific Gravity. 0.88) • Ammonium nitrate (AR Salt Grade) • Buffer solution (pH 10) • Eriochrome Black (T) indicator Mixture • Hydroxylamine hydrochloride (AR Grade) • Potassium cyanide (15 % Aqueous Solution) • Manganese Sulphate powder • Sodium Fluoride • Distilled water (Lab Grade)
2.	Lead (as Pb), Clause 3.2, SI No. (ii) of Table 1	<u>Apparatus:</u> • Weighing balance (L.C :0.1 gram) • Filter paper • Volumetric flasks (50 ml, 100 ml, 250 ml, 1000 ml) • Beakers (50 ml, 100 ml, 250 ml, 1000 ml) • Heating assembly • Nessler cylinder (50 ml capacity) • Separating funnels • Stirrers • Stop watch

		• pH indicators/ analyzers • Pipette: 10 ml capacity • Measuring cylinders (50 ml, 100 ml, 1000 ml) • Filter paper <u>Chemical/Reagents:</u> • Sulphuric acid • H₂S gas/ sodium sulphide solution • Nitric acid • Standard lead solution • Lead Nitrate powder • Distilled water (Lab Grade) • Dilute ammonium hydroxide (1 N) • Reagent A (Triammonium citrate + hydroxylamine hydrochloride) • Dithizone (Diphenyl thiocarbazon or Phenylazothionoformic Acid) • Thymol blue indicator solution (1 %, m/v)
3.	pH, Clause 3.2, Sl. No. (iii) of Table 1	<u>Apparatus:</u> • Weighing balance (L.C :0.1 gram) • Heating assembly (100±5°C) • Stirrers • pH meter • Distillation set up • Measuring Cylinders • Beakers <u>Chemical/Reagents:</u> • Buffer Tablets (pH 4.0 / 7.0 / 9.2) • Distilled water (Lab Grade)

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

ANNEX B
TO PRODUCT MANUAL FOR
CHELATED ZINC (Zn-EDTA), AGRICULTURAL GRADE
ACCORDING TO IS 13921: 1994
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 and implement 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 the Schedule of the licence, shall be marked or printed on the label applied on each package, provided always that the product so marked conform to requirements of the specification.

3.1 Packing - The material shall be packed in 100 g to 500 g packing or as agreed between the purchaser and the manufacturer, in line with the provisions of Clause 4.1 of and 4.1.1 IS 13921: 1994.

3.2 Marking - The containers shall bear legibly and indelibly the information as mentioned under clause 4.2 of IS 13921: 1994. In addition, the following details shall be mentioned on each container:

i) BIS Licence No. (CM/L.....)

ii) For details of BIS certification details please visit www.bis.gov.in.

4. CONTROL UNIT – For the purpose of this Scheme, the total material of Chelated Zinc (Zn-EDTA), Agricultural Grade obtained in one mix (blending), in a day shall be considered as 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.

6. REJECTION-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)
(Para 5 of Scheme of Inspection and Testing)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
3.1	Description	3.1	IS 13921: 1994	R	One	Each Control Unit	
3.2	Zinc content (expressed as Zn), in the form of Zn-EDTA	Annex A	IS 13921: 1994	R	One	Each Control Unit	
3.2	Lead (as Pb) percent by mass	Annex B	IS 13921: 1994	R	One	Each Control Unit	
3.2	pH	Annex C	IS 13921: 1994	R	One	Each Control Unit	

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.