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**उत्पाद मैनुअल
पशुओं के लिए लिश्रित आहार
IS 14325: 2013 के अनुसार**

**PRODUCT MANUAL FOR
BYPASS PROTEIN FEED FOR CATTLE — SPECIFICATION
ACCORDING TO IS 14325: 2013**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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 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 14325: 2013
	शीर्षक Title	:	पशुओं के लिए लिश्रित आहार BYPASS PROTEIN FEED FOR CATTLE
	संशोधन संख्या No. of Amendments	:	0
2	नमूना दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	For compliance to clause 3.2 declaration shall be obtained from the manufacturer. Test certificate from supplier(s) may be accepted.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	NA
c)	नमूने का आकार Sample Size	:	500 g
3	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृपया Annex-A देखें Please refer ANNEX A
4	निरीक्षण और परीक्षण स्कीम Scheme of Inspection and Testing	:	कृपया Annex-B देखें Please refer ANNEX B
5	एक दिन में संभावित परीक्षण Possible tests in a day :		
	i. Description ii. Moisture iii. Crude Protein		



	iv. Acid-insoluble ash.	
6	लाइसेन्स का कायष क्षेत्र/Scope of the Licence :	
	Licence is granted for use of the Standard Mark as per IS 14325: 2013 with the following scope:	
	उत्पाद का नाम Name of the product	BYPASS PROTEIN FEED FOR CATTLE

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002



ANNEX – A

TO THE PRODUCT MANUAL FOR BYPASS PROTEIN FEED FOR CATTLE — SPECIFICATION AS PER IS 14325: 2013

LIST OF TEST EQUIPMENTS

Major test equipment required to test as per requirements of Indian Standard

S. No.	Tests used in with Clause Reference	Test Equipment
1	Preparation of test sample	Grinding arrangement to grind sample, 1.00 mm IS sieve or ASTM sieve 18 or BS sieve 16 or Tyler sieve 16, Well stoppered glass bottle
2	Moisture Cl 3.4 & Table 1	Weighing balance, LC 1 g Aluminium dish with cover, at least 50 mm diameter and about 40 mm depth, Air oven, LC 2 ⁰ C, Desiccator
2	Crude protein Cl 3.4 & Table 1	Kjeldhal flask, 500 ml capacity Distillation assembly Potassium Sulphate or anhydrous Sodium Sulphate, Copper Sulphate, Conc. Sulphuric Acid, Sodium Hydroxide, Standard Sulphuric acid, Standard Sodium Hydroxide solution, Methyl Red Indicator, Boric Acid, Magnesium Oxide. Weighing balance, round bottom flask, burette
3	Crude fat Cl 3.4 & Table 1	Air oven, LC 2 ⁰ C Weighing balance, LC 0.5 g Soxhlet apparatus Steam bath Desiccator Petroleum ether in the boiling range of 40 ⁰ C to 60 ⁰ C Hexane, food grade conforming to IS 3470
4	Crude fibre Cl 3.4 & Table 1	Weighing balance, LC 1 g Soxhlet apparatus Petroleum ether in the boiling range of 40 ⁰ C to 60 ⁰ C Hexane, food grade, One litre conical flask, Beaker, Dilute Sulphuric Acid, Sodium hydroxide solution, Hot plate, Litmus paper, Sodium Hydroxide, Gooch crucible, Ethyl alcohol, air oven LC 1 ⁰ C, Thin but compact layer of ignited asbestos, Muffle furnace, Reflux water condenser, Fine linen filter Funnel



5	Acid-insoluble ash Cl 3.4 & Table 1	Weighing balance, LC 1 mg Porcelain, silica or platinum dish, Meker burner, Muffle furnace, Electric air oven, LC 2°C, Dilute Hydrochloric acid, Watch glass, Water bath, Whatman filter paper no. 42 or equivalent, Silver Nitrate, Desiccator
6	Rumen undegradable protein (UDP) Cl 3.4 & Table 1	<u>Nylon Bag Technique</u> Nylon Bag, Plastic Tube, Rubber Band/Nylon Thread, Hot Air Oven, Washing Machine, Rumen Cannulated Animal, Weighing Balance, Incubator, Bucket OR <u>Near Infrared Analyzer (NIR) Technique</u>
7	Common Salt (as NaCl), Cl 3.4 & Table 1	Ferric Sulphate solution, Ammonium Hydroxide solution, Concentrated Nitric acid, Ferric Sulphate Indicator solution, Standard Silver Nitrate solution, Standard Potassium Thiocyanate solution, Analytical Balance, Graduated flask, Beaker, Pipette, Whatman filter paper No. 41 or its equivalent
8	Calcium, Cl 3.4 & Table 1	<u>Titrimetric method</u> Hydrochloric Acid, Nitric Acid, Sulphuric Acid, Ammonia Solution, Ammonium Oxalate, Citric Acid Monohydrate, Ammonium Chloride, Bromocresol Green, Potassium Permanganate, Electric Muffle Furnace, Incineration Dish, Sintered Glass Filter Crucible, Boiling Water-Bath, Beakers, Volumetric Flask, Analytical Balance OR <u>Atomic Absorption Spectrometric method</u> Hydrochloric Acid, Lanthanum Chloride, Calcium, Electrical Heated Muffle Furnace, Incineration Dishes, Atomic Absorption Spectrometer, Ashless Filter Paper, Beaker, Volumetric Flask, Pipettes, Sand Bath or Hot Plate, Analytical Balance
9	Available Phosphorus (as P), Cl 3.4 & Table 1	Aminonaphtholsulphonic Acid, Calcium Chloride Solution, Hydrochloric Acid, Ammonium Molybdate, Sulphuric Acid, Phenolphthalein Indicator Solution, Sodium Hydroxide Solution, monopotassium phosphate, Trichloroacetic Acid, Colorimeter, Sodium Bisulphite, Sodium Sulphite, Glasswares
10	Vitamin A , Cl 3.4 & Table 1	Potassium hydroxide solution (KOH), Ethanol, 2-Propanol, Light petroleum, boiling range 40 °C to 60 °C, Vitamin A standard substances, All-trans-retinyl acetate, vitamin A acetate, All-trans-retinol, vitamin A alcohol, Methanol, HPLC grade, membrane filter, Sodium sulfate, Sodium ascorbate solution, Inert gas e.g. nitrogen, High-performance liquid chromatograph, Pump, HPLC injection device, Column, length 250 mm, internal diameter 4.6 mm, Detector, UV (or UV-Visible) spectrometer, Boiling water bath, Rotary vacuum evaporator, with water bath at 40 °C, Extraction apparatus consisting of cylinder of 1 litre capacity fitted with a ground glass neck and stopper, ground glass joint, fitting the cylinder and



		equipped with an adjustable tube passing through the centre, and a side-arm, Membrane filter, 0.45 µm pore size
11	Vitamin D3, Cl 3.4 & Table 1	Amber coloured vial, Diethyl ether, Acetone, methyl chloride, methanol, phosphate buffer, Water bath or oven, Nitrogen Gas, 0.22 µ filter paper, HPLC
12	Vitamin E, Cl 3.4 & Table 1	Amber coloured vial, ethanol, KOH, water bath, Ice bath, Petroleum Ether, water bath shaker, Na ₂ SO ₄ or phase separator filter paper, distilled water, Nitrogen Gas, 0.22 µ filter paper, HPLC
13	Aflatoxin B1, Cl 3.4 & Table 1	Chloroform, stabilized with ethanol n-Hexane, Acetone, Methanol, Diethyl ether(anhydrous) Benzene/Acetonitrile Chloroform/methanol Chloroform/acetone Silica gel, for column chromatography, of particle size 0.06 to 0.20 mm Silica gel, G-HR or equivalent, for thin-layer chromatography Diatomaceous earth (Hyflosupercel), acid-washed Sodium sulfate, anhydrous granules Trifluoroacetic acid Inert gas, for example nitrogen Sulfuric acid Aflatoxin B1 Grinder/mixer Sieve, of aperture size 1.0 mm Shaking apparatus or magnetic stirrer Chromatographic tubes, made of glass (internal diameter 22 mm, length 300mm), with a polytetrafluoroethylene tap and a 250 ml reservoir, plugged at the bottom end with cotton or glass wool Rotary vacuum evaporator, with a 600 ml round bottomed Flask Apparatus for thin-layer chromatography (TLC) TLC plate, 200mm x 200mm Long-wavelength (360 nm) ultraviolet lamp Spectrometer Fluorodensitometer (optional) Fluted filter paper Graduated tube, of capacity (10.0ml), with a polyethylene stopper Conical flask, of capacity 600ml, with a ground glass stopper Pipette, of capacity 60ml Balance OR Acid-washed Celite 545 Florisil Sep-Pak style cartridge, Waters No. 51960 C ₁₈ Sep-Pak style cartridge, Waters No. 51910

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



ANNEX-B
TO THE PRODUCT MANUAL FOR CERTIFICATION OF
BYPASS PROTEIN FEED FOR CATTLE
ACCORDING TO IS 14325: 2013

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 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 stencilled/printed on each bag of BYPASS PROTEIN FEED FOR CATTLE or printed on the label applied to it, as the case may be, provided always that the material in each bag to which this mark is thus applied, conform to every requirement of the specification.

3.1 Each bag shall be legibly marked or labelled to give the information as per clause 4.2 of IS 14325. 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”.

3.2 Bypass protein feed shall be packed in clean, dry and sound jute bags with or without polythene lining. The mouth of the each bag shall be machine shielded.

4. CONTROL UNIT –For the purpose of this Scheme, the entire quantity of material manufactured continuously in a day 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 2.0 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 the test results, decision, regarding conformity or otherwise of a control unit shall be made as follows:



5.2.1 Three Samples shall be taken from each control unit as per Table-1 at equal intervals at the time of filling of bags. These samples shall be tested separately for crude protein and all the samples shall pass.

5.2.2 A composite sample shall be prepared by mixing equal proportion from the three samples drawn under 5.2.1 and tested for all the requirements (except crude protein).

5.2.3 The control unit shall be accepted as conforming to the requirements of the specification if all the individual samples meet the crude protein requirement and the composite sample passes in the relevant requirements. If the sample fails to meet one or more of the requirements the control unit shall not be marked. However, the material may be suitably reprocessed and the defect(s) rectified. Such reprocessed material when tested again as per clause 5.2.1, 5.2.2 above, shall conform to all the requirements of the specification, before it is marked.

In case of failure of samples in Sl. No. 8 to 13 (of Table 1 to SIT), samples from first two batches manufactured after taking corrective actions shall be tested for the next three months and in case all are passing, original frequency shall be restored.

6. 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



IS 14325: 2013
TO THE PRODUCT MANUAL FOR BYPASS PROTEIN FEED FOR CATTLE
TABLE 1 - LEVELS OF CONTROL
(Clause 5.0 OF SIT)

S. No.	(1) Test Details				(2) Test equipment requirement R: required (or) S: Sub-contracting permitted	(3) Recommended Levels of Control		
	Cl.	Requirement	Test Method Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
1.	3.1	Description	3.1	IS 14325	R	-	-	Entire material shall conform.
2.	3.2	Ingredients	3.2	-do-	S	One	Each consignment	Records to be maintained indicating the test results, the quantity added, etc. If the product is accompanied with test certificate from the supplier(s), the same shall be accepted
3.	3.4 & Table 1	Moisture	4	IS 7874 (Pt 1)	R	One	Each control unit	Composite sample from three samples
4.	-do-	Crude protein	5	-do-	R	Three	-do-	See cl. 5.2.1 of SIT
5.	-do-	Crude fat	7	-do-	R	One	-do-	Composite sample from three samples
6.	-do-	Crude fibre	8	-do-	R	-do-	-do-	-do-
7.	-do-	Acid-insoluble ash	10	-do-	R	-do-	-do-	-do-
8.	3.4 & Table 1	Rumen undegradable protein (UDP)	Annex C	IS 14325	S	-do-	Once in 6 months	Composite sample from three samples
9.	-do-	Common Salt (as NaCl)	4	IS 7874 (Pt 2)	S	-do-	Once in a month	do-



10.	-do-	Calcium	-	IS 13433 (Pt 1/Pt 2)	S	-do-	-do-	-do-
11.	-do-	Available Phosphorus (as P)	Annex F	IS 1374	S	-do-	-do-	-do-
12.	-do-	Vitamin A	-	IS 15120	S	-do-	Once in a month	-do-
13.	-do-	Vitamin D3	Annex E	IS 2052	S	-do-	-do-	-do-
14.	-do-	Vitamin E	Annex F	-do-	S	-do-	-do-	-do-
15.	-do-	Aflatoxin B1		IS 13427 or IS 14718	S	-do-	-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 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