PRODUCT MANUAL
FOR COMPOUNDED FEEDS FOR CATTLE
ACCORDING TO IS 2052 : 2009

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.	**Product**	:	IS 2052 : 2009
	Title	:	Compounded Feeds for Cattle
	No. of Amendments	:	03
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	No specific requirement.
b)	**Grouping Guidelines**	:	NA
c)	**Sample Size**	:	500g
3.	**List of Test Equipment**	:	Please refer ANNEX A
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX B
5.	**Possible tests in a day :**		
	i. Description ii. Moisture iii. Crude iv. Protein v. Acid-insoluble ash.		
6.	**Scope of the Licence :**		
	Licence is granted for use of the Standard Mark as per IS 2052 : 2009 with the following scope:		
	Name of the product	Compounded Feeds for Cattle	
	Type	-Type I -Type II -Type III	

ANNEX – A
TO PRODUCT MANUAL
FOR COMPOUNDED FEEDS FOR CATTLE
ACCORDING TO IS 2052 : 2009

LIST OF TEST EQUIPMENTS

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

S. No.	Test Equipment	Tests used in with Clause Reference
1.	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	Preparation of test sample
2	Weighing balance, LC 1 g Aluminium dish with cover, atleast 50 mm diameter and about 40 mm depth Air oven, LC 2^0C, Deiccator.	Moisture Cl 4.3 & 7.1, Table 1
2	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.	Crude protein Cl 4.3 & 7.1, Table 1 and Total Nitrogen Cl 4.2.2
3	Air oven, LC 2^0C Weighing balance, LC 0.5 g Soxhlet apparatus Steam bath Desiccator Petroleum ether in the boiling range of 40^0C to 60^0C Hexane, food grade conforming to IS 3470	Crude fat Cl 4.3 & 7.1, Table 1
4	Weighing balance, LC 1 g Soxhlet apparatus Petroleum ether in the boiling range of 40^0C to 60^0C Hexane, food grade, One litre conical flask, Beaker, Dilute Sulphuric Acid, Sodium hydroxide solution, Hot plate Reflux water condenser, Fine linen filter Funnel, Litmus paper, Sodium Hydroxide Gooch crucible, Ethyl alcohol, air oven LC 1^0C, Thin but compact layer of ignited asbestos, Muffle furnace	Crude fibre Cl 4.3 & 7.1, Table 1
5	Weighing balance, LC 1 mg Porcelain, silica or platinum dish	Acid-insoluble ash Cl 4.3 & 7.1, Table 1

	Meker burner, Muffle furnace, Electric air oven, LC 2^0C, Dilute Hydrochloric acid Watch glass, Water bath, Whatman filter paper no. 42 or equivalent, Silver Nitrate, Desiccator	
6	Weighing balance, LC 1 g Kjeldhal flask, 500 ml capacity Distillation assembly with round bottom flask of 1000 ml capacity Conical flask of 500 ml, Methyl Red indicator, Diglycol Stearate, Benzene Alcohol, Dubutyl Phthalate, Urease Hydrochloric acid, Calcium Chloride Sulphuric acid, Sodium Hydroxide Magnesium Oxide	Urea Cl 4.3 & 7.1, Table 2
7	Magnetic stirrer, Spectrophotometer Measuring spoon (0.2 to 0.3 ml) 250 ml flasks, Stirring bars, Glyserol Conditioning solution, Barium Chloride Standard Sulphur solution	Total sulphur Cl 4.2.2
8	Kjaldahl flask, Atomic Absorption Spectrophotometer, Hydride Generation Vessel Accessory, Potentiometric Recorder, Nitric Acid, Perchloric Acid, Sulphuric Acid Hydrochloric Acid, Metal Free Water, Sodium Sulphate Sodium Borohydride Pellets, Potassium Chloride Standard Cadmium Solution.	Cadmium Cl 4.3 & 7.1 and Table 2 (Cl 15 of IS 1699)

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

ANNEX-B
SCHEME OF INSPECTION AND TESTING

FOR COMPOUNDED FEEDS FOR CATTLE ACCORDING TO IS 2052 : 2009

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 stenciled/printed on each bag of Compounded Feeds 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 Marking – Each bag shall be legibly marked or labelled to give the information as per clause 5.2 of IS 2052. 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 Packing – Compounded cattle feeds shall be packed in clean and sound plain or polyethylene lined jute or laminated paper bags. The mouth of each bag shall be machine stiched.

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 of Sl. No. 1 to 9 of Table 1 of SIT (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. 10 to 13 & 15 to 19 (of Table 1 to SIT), samples from first two batches manufactured after taking corrective actions shall be tested. Two samples shall be sent 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.

TABLE 1
LEVELS OF CONTROL

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.	4.1	Description	4.1	IS 2052	R	-	-	Entire material shall conform.
2.	4.2	Ingredients	4.2	-do-	R	One	Each consignment	Records to be maintained indicating the test results, the quantity added, etc, (easily digestable carbohydrates when urea is added)
3.	4.3 & 7.1, 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.	4.2.2	Total Nitrogen	5	IS 7874 (Pt 1)	R	-do-	-do-	To be tested when urea is added
9.	4.2.2	Total Sulphur	Annex B	IS 1664	R	-do-	-do-	-do-

10.	4.3 & 7.1, Table 2	Salt	4	IS 7874 (Pt 2)	S	-do-	Once in a month	Composite sample from three samples
11.	-do-	Calcium	-	IS 13433 (Pt 2)	S	-do-	-do-	-do-
12.	-do-	Total Phosphorus	6	IS 7874 (Pt 2) or IS 14828	S	-do-	-do-	-do-
13.	-do-	Available Phosphorus	Annex C	IS 1374	S	-do-	-do-	-do-
14.	-do-	Urea	-	IS 7874 (Pt 1)	R	-do-	Each control unit	-do-
15.	-do-	Vitamin A	-	IS 15120	S	-do-	Once in a month	-do-
16.	-do-	Vitamin D	Annex E	IS 2052	S	-do-	-do-	-do-
17.	-do-	Vitamin E	Annex F	-do-	S	-do-	-do-	-do-
18.	-do-	Aflatoxin B_1	Annex G	IS 13427	S	-do-	-do-	-do-
19.	-do-	Cadmium	15	IS 1699	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.