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भारतीय मानक
Indian Standard

IS 1712 : 2022

पशु आहार घटक के रूप में कपास के बीज की खली — विशिष्टि

(तीसरा पुनरीक्षण)

Cottonseed Oilcake as Livestock Feed Ingredient — Specification

(Third Revision)

ICS 65.120

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Animal Husbandry, Feeds and Equipment Sectional Committee, FAD 5

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Animal Husbandry, Feeds and Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

The oilcake derived from cottonseed (*Gosssypium sp*) is a feed of high nutritive value. The formulation of this standard was undertaken in accordance with the programme planned for preparation of Indian Standards for the various ingredients used in compounding feed mixtures. This standard was first published in 1960 and subsequently revised in 1970 and 1982. In the second revision, the requirements were modified considering the developments in the manufacturing, trading, storing and consumption pattern of the product and the test methods for various requirements were aligned with IS 7874 (Part 1).

In this revision, the standard has been updated considering latest technological developments and manufacturing practices. Following major changes have been made in this revision:

a) Grade 2 for both decorticated and undecorticated cottonseed oilcakes has been removed considering its poor quality as feed ingredient.
b) Requirement for aflatoxin B1 has been introduced in the standard.
c) Methods of tests prescribed for determination of crude protein, crude fat, crude fibre & acid insoluble ash have been updated.
d) For determination of Acid insoluble ash, the test method prescribed in Annex A of this standard has been derived from Appendix XVI, Methods of feed analysis, FAO.

The composition of the Committee responsible for formulation of the standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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Indian Standard

COTTONSEED OILCAKE AS LIVESTOCK FEED INGREDIENT — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and tests for cottonseed oilcake for use as livestock feed ingredient.

1.2 This standard does not cover the solvent-extracted cottonseed oilcake meant as livestock feed ingredient.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1070 : 1992	Reagent grade water (*third revision*)
2052 : 2009	Compounded feeds for cattle — Specification (*fourth revision*)
7874 (Part 1) : 1975	Methods of tests for animal feeds and feeding stuffs: Part 1 General methods
IS/ISO 5983 (Part 1) : 2005	Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content: Part 1 Kjeldahl method
5983 (Part 2) : 2021/ ISO 5983-2 : 2009	Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content: Part 2 Block digestion and steam distillation method (*first revision*)
IS/ISO 6492 : 1999	Animal feeding stuffs — Determination of fat content
IS/ISO 6865 : 2000	Animal feeding stuffs — Determination of crude fibre content — Method with intermediate filtration
14826 : 2021/ISO 5985 : 2002	Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid (*first revision*)
IS/ISO 14718 : 1998	Animal feeding stuffs — Determination of aflatoxin B_1 content of mixed feeding stuffs — Method using high-performance liquid chromatography
ISO 17375 : 2006	Animal feeding stuffs — Determination of aflatoxin B_1

3 TYPES

3.1 The material shall be of any of the following two types:

a) Decorticated cottonseed oilcake — It shall be the product obtained from clean cottonseed only, composed principally of the kernel with such unavoidable portions of the hull and fibre which may be left during the extraction of oil.

b) Undecorticated cottonseed oilcake — It shall be the product obtained from whole, clean and wherever necessary, delinted (especially in the case of fuzzy seeds) cottonseed only, after extraction of oil.

4 REQUIREMENTS

4.1 General

The material shall be free from harmful constituents, castor oilcake, husk and *mahua* oilcake. It shall also be free from rancidity, adulterants, insect or visible fungus infestation and from fermented, musty or other objectionable odours. It shall further be free from dirt and extraneous matter including iron or other metallic pieces.

4.2 The limit for free-gossypol content in the material shall be as agreed to between the purchaser and the vendor.

4.3 The material shall also conform to the requirements prescribed in Table 1.

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Table 1 Requirements for Cottonseed Oilcake as Livestock Feed Ingredient
(*Clause 4.2*)

Sl No.	Characteristic	Requirement		Method of Test, Ref to
		Decorticated Cottonseed Oilcake	Undecorticated Cottonseed Oilcake	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, *Max*	8.0	8.0	**4** of IS 7874 (Part 1)
ii)	Crude Protein (N x 6.25), percent by mass, *Min*	40.0	24.0	IS/ISO 5983 (Part 1)* or IS 5983 (Part 2)
iii)	Crude fat, percent by mass, *Min*	7.0	7.0	IS/ISO 6492
iv)	Crude fibre, percent by mass, *Max*	12.0	22.0	IS/ISO 6865
v)	Acid insoluble ash, percent by mass, *Max*	2.0	2.0	Annex A or IS 14826*
vi)	Castor husk, oil cake	Absent	Absent	**11** of IS 7874 (Part 1)
vii)	*Mahua* cake	Absent	Absent	**12** of IS 7874 (Part 1)
viii)	Aflatoxin B_1, ppb, *Max*	20.0	20.0	IS/ISO 14718* or ISO 17375 or AOAC 2003.02

NOTES
1 The values specified for requirements at Sl No. ii) to viii) are on moisture-free basis.
2 In case of dispute, the test methods given above and wherever indicated by '*' shall be the referee method.
3 For crude fibre, the manual method given in IS/ISO 6865 shall be the referee method.

5 PACKING AND MARKING

5.1 Packing

Unless otherwise agreed to between the purchaser and the manufacturer, the material shall be packed in clean, dry and sound jute or HDPE bags. The mouth of each bag shall be either machine-stitched or rolled over and hand stitched with strong twine.

5.2 Marking

5.2.1 Each bag shall be legibly and indelibly marked with the following information:

a) Name and type of the material;
b) Name and address of the manufacturer;
c) Batch or code number;
d) Net mass in kg;
e) Date of packing;
f) Best before date in month and year format; and
g) Any other requirements as specified under the *Legal Metrology* (*Packaged Commodities*) *Rules*, 2011.

5.2.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.

6 SAMPLING

Representative samples of the material for ascertaining conformity to this standard shall be determined according to the method prescribed in Annex H of IS 2052.

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7 TESTS

7.1 Tests shall be carried out as prescribed in col 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

ANNEX A

[*Table* 1, *Sl. No.* v)]

DETERMINATION OF ACID INSOLUBLE ASH

A-1 REAGENTS AND APPARATUS

- Hydrochloric acid (1 to 2.5 v/v)
- Filter paper, ashless
- Dishes, procelain

A-2 PROCEDURE

Use the residue obtained from ash determination as per Clause 9 of IS 7874 (Part 1). Boil with 25 ml hydrochloric acid, taking care to avoid spattering, filter through ashless paper and wash with hot water until acid free. Place filter paper and residue into a dry, tared porcelain dish and place in a muffle furnace at 600 °C for 2 hours or until carbon free.

A-3 CALCULATION

$$\text{Acid Insoluble Ash (\%)} = \frac{\text{Weight of acid – Treated ash}}{\text{Weight of sample}} \times 100$$

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ANNEX B
(*Foreword*)

COMMITTEE COMPOSITION

Animal Husbandry, Feeds and Equipment Sectional Committee, FAD 05

Organization	*Representative(s)*
In Personal Capacity (Former Director, Indian Veterinary Research Institute, Izzatnagar)	DR R. K. SINGH (***Chairman***)
All India Poultry Breeders Association, New Delhi	DR A.K. RAJPUT
Animal Welfare Board of India, Faridabad	DR PRACHI JAIN DR DEBALINA MITRA (*Alternate*)
Association of Indian Pet Food Manufacturers, New Delhi	DR AKANKSHA SINGH SHRI MANISH SINGH (*Alternate*)
Centre for Science and Environment, New Delhi	SHRI AMIT KHURANA
Centre of Analysis and Learning in Livestock and Food, Anand	DR RAJESH NAIR DR RAJEEV CHAWLA (*Alternate*)
Chhattisgarh Kamdhenu Vishwavidyalaya, Raipur	DR SANJAY SHAKYA DR MANOJ KUMAR GENDLEY (*Alternate*)
Compound Livestock Feed Manufacturers Association of India, Navi Mumbai	MS CHANDRIKA VENKATESH SHRI SURESH DEORA (*Alternate*)
CSIR - Central Drug Research Institute, Lucknow	DR D. S. UPADHYAY DR DHANANJAY HANSDA (*Alternate*)
Department of Animal Husbandry and Dairying, Panchkula	DR BIRENDER SINGH LAURA DR RAJIV BANGER (*Alternate*)
Federation of Indian Animal Protection Organizations, New Delhi	MS SIRJANA NIJJAR MS VARNIKA SINGH (*Alternate*)
Food Safety and Standards Authority of India, New Delhi	DR K. ABIRAMI MS MANPREET KOUR (*Alternate*)
Guru Angad Dev Veterinary and Animal Sciences, University, Ludhiana	DR J. S. LAMBA DR JASMINE KAUR (*Alternate*)
ICAR-Central Avian Research Centre, Bareilly	DIRECTOR CARI DR S. K. BHANJA (*Alternate*)
ICAR-Central Institute for Research on Buffaloes, Hisar	DR P. C. LAILER DR AVIJIT DEY (*Alternate*)

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Organization	*Representative(s)*
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ICAR - Directorate of Poultry Research, Hyderabad	DR R. N. CHATTERJEE DR S. V. RAMA RAO (*Alternate*) DR M.V.L.N. RAJU (*Alternate*)
ICAR - Indian Veterinary Research Institute, Izzatnagar	DR A. K. VERMA
ICAR-National Research Centre on Equines, Hisar	DR S. C. MEHTA DR R. A. LEGHA (*Alternate*)
ICAR-National Research Centre on Pig, Guwahati	DR KESHAB BARMAN DR SANTANU BANIK (*Alternate*)
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National Egg Coordination Committee, New Delhi	SHRI AJIT SINGH SHRI BHAGWATI SINGH (*Alternate*)
National Institute of Animal Nutrition and Physiology, Bengaluru	DR RAGHAVENDRA BHATTA DR D. T. PAL (*Alternate*)
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Poultry Federation of India, Sonipat	SHRI VIJAY SARDANA
Tamil Nadu Veterinary and Animal Sciences University, Chennai	DR A. NATRAJAN DR R. RAJENDRAN (*Alternate*)

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MS NITASHA DOGER
Scientist 'D', (FAD), BIS

Panel for reviewing the Indian Standards on feed and feed ingredients, FAD 05/Panel 11

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Centre of Analysis and Learning in Livestock and Food, Anand	DR RAJESH NAIR
Compound Livestock Feed Manufacturers Association of India, Navi Mumbai	MR R. S. MASALI
ICAR - Indian Veterinary Research Institute, Izzatnagar	DR A.K. VERMA
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