

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

© BIS 2022



भारतीय मानक ब्यूरो  
BUREAU OF INDIAN STANDARDS  
मानक भवन, 9 बहादुर शाह ज़फ़र मार्ग, नई दिल्ली - 110002  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI - 110002  
[www.bis.gov.in](http://www.bis.gov.in) [www.standardsbis.in](http://www.standardsbis.in)

## 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 (*Gossypium 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.

*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:

<i>IS No.</i>	<i>Title</i>
1070 : 1992	Reagent grade water ( <i>third revision</i> )
2052 : 2009	Compounded feeds for cattle — Specification ( <i>fourth revision</i> )
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 ( <i>first revision</i> )
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 ( <i>first revision</i> )

*IS No.**Title*

IS/ISO 14718 : 1998	Animal feeding stuffs — Determination of aflatoxin B <sub>1</sub> content of mixed feeding stuffs — Method using high-performance liquid chromatography
ISO 17375 : 2006	Animal feeding stuffs — Determination of aflatoxin B <sub>1</sub>

**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.

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

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

## NOTES

1 The values specified for requirements at SI 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.

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 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:

- Name and type of the material;
- Name and address of the manufacturer;
- Batch or code number;
- Net mass in kg;

### 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.

**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, porcelain

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-2 PROCEDURE**

Use the residue obtained from ash determination as per Clause 9 of IS 7874 (Part 1). Boil with 25 ml

**A-3 CALCULATION**

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

**ANNEX B**  
(Foreword)

**COMMITTEE COMPOSITION**

Animal Husbandry, Feeds and Equipment Sectional Committee, FAD 05

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

<i>Organization</i>	<i>Representative(s)</i>
ICAR-Central Sheep and Wool Research Institute, Avikanagar	DR RANDHIR SINGH BHATT DR SROBANA SARKAR ( <i>Alternate</i> )
ICAR - Directorate of Poultry Research, Hyderabad	DR R. N. CHATTERJEE DR S. V. RAMA RAO ( <i>Alternate</i> ) DR M.V.L.N. RAJU ( <i>Alternate</i> )
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 ( <i>Alternate</i> )
ICAR-National Research Centre on Pig, Guwahati	DR KESHAB BARMAN DR SANTANU BANIK ( <i>Alternate</i> )
Indian Council of Agricultural Research, New Delhi	DR A. K. TYAGI DR V. K. SAXENA ( <i>Alternate</i> )
Indian Federation of Animal Health Companies, Mumbai	DR P. G. PHALKE DR TANWEER ALAM ( <i>Alternate</i> )
Ministry of Fisheries, Animal Husbandry and Dairying	DR H. R. KHANNA DR SUJIT NAYAK ( <i>Alternate</i> )
Department of Animal Husbandry and Dairying, New Delhi	DR ANIBENCOI JACOB ( <i>Alternate</i> )
National Dairy Development Board, Anand	DR V. SRIDHAR DR PANKAJ SHERASIA ( <i>Alternate</i> )
National Dairy Research Institute, Karnal	DR NITIN TYAGI DR SACHIN KUMAR ( <i>Alternate</i> )
National Egg Coordination Committee, New Delhi	SHRI AJIT SINGH SHRI BHAGWATI SINGH ( <i>Alternate</i> )
National Institute of Animal Nutrition and Physiology, Bengaluru	DR RAGHAVENDRA BHATTA DR D. T. PAL ( <i>Alternate</i> )
PETA India, Mumbai	DR MANILAL VALLIYATE MS SWATI SUMBLY ( <i>Alternate</i> )
People for Animals, New Delhi	MS GAURI MAULEKHI MS SHREYA PAROPKARI ( <i>Alternate</i> )
Poultry Federation of India, Sonipat	SHRI VIJAY SARDANA
Tamil Nadu Veterinary and Animal Sciences University, Chennai	DR A. NATRAJAN DR R. RAJENDRAN ( <i>Alternate</i> )

## IS 1712 : 2022

<i>Organization</i>	<i>Representative(s)</i>
BIS Directorate General	SHRIMATI SUNEETI TOTEJA, Scientist 'E' And Head (FAD)[Representing Director General ( <i>Ex-Officio</i> )]

*Member Secretary*  
MS NITASHA DOGER  
Scientist 'D', (FAD), BIS

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

<i>Organization</i>	<i>Representative(s)</i>
National Dairy Development Board, Anand	DR V. SRIDHAR, ( <b>Convenor</b> )
CSIR - Central Drug Research Institute, Lucknow	DR DHANANJAY HANSDA
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
Indian Federation of Animal Health Companies, Mumbai	DR TANWEER ALAM
National Dairy Development Board, Anand	DR PANKAJ SHERASIA
National Dairy Research Institute, Karnal	DR NITIN TYAGI
Tamil Nadu Veterinary and Animal Sciences University, Chennai	DR A. NATRAJAN





## Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 2016* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

### Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Head (Publication & Sales), BIS.

### Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-[www.bis.gov.in](http://www.bis.gov.in) or [www.standardsbis.in](http://www.standardsbis.in).

This Indian Standard has been developed from Doc No.: FAD 05 (16675).

### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

## BUREAU OF INDIAN STANDARDS

### Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: [www.bis.gov.in](http://www.bis.gov.in)

### Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower -1, 6 <sup>th</sup> Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 <sup>th</sup> Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	{ 2367 0012 2320 9474
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	{ 265 9930
Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	{ 2254 1442 2254 1216
Western : Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	{ 2821 8093

**Branches :** AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. CHANDIGARH. CHENNAI. COIMBATORE. DEHRADUN. DELHI. FARIDABAD. GHAZIABAD. GUWAHATI. HIMACHAL PRADESH. HUBLI. HYDERABAD. JAIPUR. JAMMU & KASHMIR. JAMSHEDPUR. KOCHI. KOLKATA. LUCKNOW. MADURAI. MUMBAI. NAGPUR. NOIDA. PANIPAT. PATNA. PUNE. RAIPUR. RAJKOT. SURAT. VISAKHAPATNAM.