
पशु आहार घटक के रूप में विलायक निष्कर्षित
अनडिकार्टिकेटिड सूरजमुखी की खली —
विशिष्टि

(दूसरा पुनरीक्षण)

**Solvent Extracted Undecorticated
Sunflower Oilcake as Livestock Feed
Ingredient — Specification**

(*Second Revision*)

ICS 65.120

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FOREWORD

This Indian Standard (Second 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 Sunflower (*Helianthus* sp.) is a feed of high nutritive value. It may be manufactured by expeller or hydraulic pressed process or by solvent extraction process. Sunflower oilcake may be either undecorticated (with hull) or decorticated (without hull), depending upon the user's requirement.

Earlier, the requirements of sunflower oilcake as livestock feed ingredient were covered under separate standards, namely, IS 10147 : 1982 'Specification for undecorticated sunflower oilcake as livestock feed ingredient' and IS 10165 : 1982 'Specification for decorticated sunflower oilcake as livestock feed ingredient'. In 1999 these standards were revised and amalgamated into one standard, IS 14702 : 1999 considering unavailability of decorticated sunflower oilcake and meal in India. Subsequently, this standard was revised in 2014 (*first revision*) where requirements of crude protein, crude fat, crude fibre and acid insoluble ash for sunflower oilcake were updated.

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) Type I for undecorticated sunflower oilcake, expeller or hydraulic pressed variety has been removed has been removed considering its poor quality and non-availability in the market.
- 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.

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

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

SOLVENT EXTRACTED UNDECORTICATED SUNFLOWER OILCAKE AS LIVESTOCK FEED INGREDIENT — SPECIFICATION

(*Second Revision*)**1 SCOPE**

1.1 This Standard prescribes the requirements, methods of sampling and test for solvent extracted undecorticated sunflower oilcake (meal) as livestock feed ingredient.

1.2 This standard does not cover the sunflower oilcake manufactured by *Ghani* process.

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>)
1712 : 2022	Cottonseed oilcake as livestock feed ingredient — Specification (<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)	Animal feeding stuffs —

<i>IS No.</i>	<i>Title</i>
: 2021/ISO 5983-2 : 2009	Determination of nitrogen content and calculation of crude protein content: Part 2 Block digestion and steam distillation method (<i>first revision</i>)
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/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 REQUIREMENTS**3.1 General**

The material shall be free from rancidity, insects, visible fungus infestation and from fermented, musty or other objectionable odours. It shall also be free from dirt, adulterants and other extraneous matter.

3.2 Solvent for Extraction

Only Hexane of food grade conforming to IS 3470 shall be used for extracting oil from sunflower oil cake.

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

Table 1 Requirements for Solvent Extracted Undecorticated Sunflower Oilcake (Meal) as Livestock Feed Ingredient
(Clause 3.3)

SI No.	Characteristics	Requirements	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Moisture, percent by mass, <i>Max</i>	10.0	4 of IS 7874 (Part 1)
ii)	Crude protein (N×6.25), percent by mass, <i>Min</i>	28.0	IS/ISO 5983 (Part 1)* or IS 5983 (Part 2)
iii)	Crude fibre, percent by mass, <i>Max</i>	29.0	IS/ISO 6865
iv)	Acid insoluble ash, percent by mass, <i>Max</i>	2.0	Annex A of IS 1712 or IS 14826*
v)	Castor husk or oilcake	Absent	11 of IS 7874 (Part 1)
vi)	Mahua oil cake	Absent	12 of IS 7874 (Part 1)
vii)	Aflatoxin B1 (ppb), <i>Max</i>	20.0	IS/ISO 14718* or ISO 17375 or AOAC 2003.02

NOTES

1 The values specified for requirements at SI No. ii) to vii) 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.

- d) Net mass in kg;
- e) Date of packing;
- f) Best before date in month & year format and
- g) Any other requirements as specified under the *Legal Metrology (Packaged Commodities) Rules, 2011.*

4. PACKING AND MARKING

4.1 Packing

Unless agreed to otherwise between the purchaser and the vendor, 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 jute twine.

4.2 Marking

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

- a) Name of the material;
- b) Name and address of the manufacturer;
- c) Batch or code number;

4.2.2 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.

5 SAMPLING

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

6 TESTS

6.1 Tests shall be carried out as prescribed in col (4) of Table 1.

6.2 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
(Foreword)

COMMITTEE COMPOSITION

Animal Husbandry, Feeds and Equipment Sectional Committee, FAD 05

<i>Organization</i>	<i>Representative(s)</i>
In Personal Capacity (<i>Former Director, Indian Veterinary Research Institute, Izzatnagar</i>)	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 (<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>)
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National Dairy Research Institute, Karnal	DR NITIN TYAGI DR SACHIN KUMAR (<i>Alternate</i>)
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