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Draft Indian Standard

GUM GHATTI — SPECIFICATION

(Second Revision of IS 7395)

(ICS 83.180)

Plastics Sectional Committee,
PCD 12

Last date for receipt of
comment is **06 December 2022**

FOREWORD

(Formal clauses to be added later)

This standard was originally published in 1974 and subsequently revised in 1989. This revision has been undertaken to update the cross-referred standards in the standard and editorial changes.

Gum Ghatti (Indian gum) is a complex polysaccharide composed of *l*-arabinose, *d*-galactose, *d*-mannose, and *d*-glucuronic acid residues whose exact molecular structure and mass are undetermined. The gum has been used extensively in recent years both in the petroleum industry as a drilling mud conditioner and in the explosive industry as a preferential water absorbent or desiccant. It is used as an emulsifier, stabilizer, and thickener in ceramics, foods and pharmaceuticals.

Ghatti is an amorphous, translucent, water-soluble gum exuded by the tree *Anoqeissus latifoli* of the family combretaceae. The tree is quite large and can be found abundantly in the dry, deciduous forests of India. The gum has a glassy fracture and occurs in rounded tears, which are normally less than 1 cm in diameter, but more often occurs in larger vermiform masses. The colour of the exudate varies from very light to dark brown. Gum ghatti is used as a substitute of gum arabic in pharmaceutical preparations for stabilization of suspensions. It is also used as an additive in the suspension polymerization of ethanoid polymers along with polyacrylamide.

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.

1 SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for gum ghatti (Dhau or Dhawra) which is a dried gummy exudation obtained from *Anogeissus latifolia* wall family Combretaceae.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions 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 — Specification (<i>third revision</i>)
2631: 2020	<i>Iso</i> - Propyl Alcohol — Specification (<i>second revision</i>)
3434 : 1984	Glossary of terms for adhesives and pressure sensitive adhesive tapes (<i>first revision</i>)
7437 : 1974	Methods of sampling and test for vegetable adhesives

3 TERMINOLOGIES

For the purpose of this standard, the definitions given in IS 3434 shall apply.

4 GRADES

4.1 The material shall be classified into the following three grades, based on colour determined by visual examination:

Grade 1	Off-white to buff
Grade 2	Light amber to brown
Grade 3	Dark brown to near black

5 REQUIREMENTS

5.1 Description

The material shall be in the form of tears of variable size or in broken irregular pieces. it has a bland taste and practically no odour.

5.2 Solubility

5.2.1 *Water* — A minimum of 90 percent of the material shall be soluble in water and shall yield a colloidal solution of pH about 4.5.

5.2.2 *Ethanol* — A minimum of 90 percent, of the material shall be insoluble in ethanol.

5.3 Bark and Foreign Organic Matter

The material when tested according to the method prescribed in 23 of IS 7437 shall not contain more than 1.3, 2.5 and 5.0 percent by mass (*on dry basis*) of bark and foreign organic matter for Grade 1, Grade 2 and Grade 3 respectively.

5.4 The material shall also comply with the requirements given in Table 1 when tested according to the methods given in column 6 of the Table.

Table 1 Requirement for Gum Ghatti

SI No.	Characteristic	Requirement			Method of Test, Ref to
		Grade 1	Grade 2	Grade 3	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Volatile matter, percent by mass, <i>Max</i>	14	14	15	5 of IS 7437
ii)	Total ash, percent by mass, <i>Max</i>	2.2	3.0	4.0	6 of IS 7437
iii)	Acid-insoluble ash, percent by mass, <i>Max</i>	0.2	0.3	0.8	7 of IS 7437
iv)	Viscosity of 5 percent solution in centipoises at 27 °C, <i>Min</i>	1000	900	800	Annex A

6 PACKING AND MARKING

6.1 Packing

6.1.1 The material shall be securely packed in moisture proof bags or rigid containers, as agreed to between the purchaser and the supplier.

6.2 Marking

6.2.1 The packages and the drums or bags in which they are stored shall be marked with the following:

- a) Name and description of the material;
- b) Name of the manufacturer and/or the trade-mark, in any;
- c) Net mass, and gross mass;
- d) Batch number in code or otherwise to enable the batch of manufacture to be traced back from records;
- e) Year of manufacture; and
- f) Any other statutory requirements.

6.2.2 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.

7 SAMPLING

7.1 Representative samples of the material shall be drawn and conformity of the material to the requirement of this specification shall be determined according to the procedure prescribed in 4 of IS 7437.

7.2 Number of Tests

Tests for all the requirements given in **5** shall be conducted on the composite sample.

6.3 Criteria for Conformity

A lot shall be declared as conforming to this specification if the composite sample satisfies all the requirements given in **5.1, 5.2, 5.3** and **5.4**.

7 TESTS

7.1 Tests shall be carried out according to the methods given in IS 7437.

7.2 Quality of Reagents

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

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

ANNEX A

(Clause 5.4, Table 1, Sl No. iv)

DETERMINATION OF VISCOSITY

A-1 PRINCIPLE

A-1.1 The resistance to movement of a spindle is measured and expressed in terms of viscosity in seconds. The resistance being directly linked with viscosity can be expressed directly in terms of viscosity by previous calibration of the instrument.

A-2 APPARATUS

A-2.1 Brookfield Viscometer Type RVT or Equivalent

A-2.2 Mechanical Stirrer

A-2.3 Constant Temperature Bath, maintained at 27 ± 1 °C.

A-3 PROCEDURE

A-3.1 Weigh accurately 5.00 g of the material in a 250 ml beaker. Fix a stirrer and thermometer in it. Add 10 ml of isopropyl alcohol (*see* IS 2631) and mix it thoroughly so as to form a slurry. Add 80 ml of boiling water quickly while stirring the solution rapidly. If there are any lumps in the solution, discard and prepare the fresh solution until a clear solution is obtained. Cool and stir the solution till the temperature drops to 80 °C. Place the beaker on a water bath maintained at about 85 °C and stir frequently for 10 min. Remove the beaker and place it in a water bath maintained at 27 ± 1 °C. Stir the solution and add water so that the final weight of the beaker is 100 g more than the tare weight of the beaker. Adjust the temperature of the solution to 27 ± 1 °C and measure its viscosity with Brookfield viscometer RVF model, at 20 rev/min using spindle No. 4. Other viscometers may also be used provided they have been calibrated against Brookfield viscometer. Maintain the solution for 24 h at 27 ± 1 °C and again determine the viscosity at 27 ± 1 °C.

A-3.2 The limit prescribed in Table 1 shall be taken to have been satisfied if the viscosity of the solution both before and after 24 h period is not less than the prescribed value.