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IS 7239 (2007): Gum Ghatti, Food Grade [FAD 8: Food Additives]
Indian Standard
GUM GHATTI, FOOD GRADE — SPECIFICATION
( First Revision )

ICS 67.220.20
FOREWORD

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

With the increased production of processed foods, manufacturers have started adding a large number of substances, generally in small quantities, to improve the appearance, flavour, texture or storage properties of the processed foods. As impurities in these substances have been found to be harmful, it is necessary to have a strict quality control of these food additives. Use of gums as thickening agent and stabilizer has been permitted under the Prevention of Food Adulteration Rules, 1955 for certain foods. This standard would help in checking the purity of Gum Ghatti which requires to be checked at the stage of manufacture, for it is extremely difficult (and in many cases impossible) to detect the impurity once these substances are added to the processed foods.

This standard was first published in 1974. This standard is being revised taking into consideration the latest publication for standard of Gum Ghatti issued by JECFA. In this revision the limits for heavy metal contaminants have been made more stringent, micro-biological requirements has been included to align with the international requirements and the methods of test have been revised and updated.

Due consideration has also been given to the Prevention of Food Adulteration Rules, 1955 and Standard of Weights & Measures (Packaged Commodities) Rules, 1977. However, this standard is subject to restrictions imposed under these, wherever applicable.

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: 1960 ‘Rules for rounding off numerical values (revised)’. 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
GUM GHATTI, FOOD GRADE —
SPECIFICATION
(First Revision)

1 SCOPE
This standard prescribes requirements and methods of
sampling and test for Gum Ghatti, food grade.

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:

<table>
<thead>
<tr>
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<td>7238:1997</td>
<td>Tragacanth gum, food grade — Specification (first revision)</td>
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3 DESCRIPTION
3.1 Definition
Gum Ghatti is a dried gummy exudation obtained from
Anogeissus latifolia Wall (family Combretaceae)
consisting mainly of a calcium salt (which on occasions
occur as a magnesium salt) of high molecular weight
polysaccharide which on hydrolysis yields arabinose,
galactose, mannose, xylose and glucuronic acid.

3.2 Gum Ghatti shall be amorphous translucent rounded
tears and have a glassy texture. The gum shall be light
brown to dark brown in colour with lighter colour giving
better grade of material. The powdered material shall
have grey to reddish grey colour.

4 REQUIREMENTS
4.1 Solubility
4.1.1 Water
When 1 g of the gum is dispersed in 5 ml of water it
forms a viscous, adhesive mucilage.

4.1.2 Ethanol
Insoluble.

4.2 Identification
4.2.1 Optical Rotation
A 1 in 50 solution of the sample filtered through
diatomaceous earth is levorotatory.

4.2.2 Gum Constituents
Identify D-galactopyranose, galactose, arabinose,
mannose, xylose and glucuronic acid by the method
given in Annex A of IS 7238.

4.2.3 When examined under a microscope its structure
shall be in the form of rounded tears having glassy
fracture.

4.2.4 Viscosity
It shall be between 40 to 300 centipoises when
determined by the method given in Annex C of IS 5306.

4.2.5 Precipitate Formation
To 10 ml of 1 percent solution of sample (filter through
diatomaceous earth if necessary), add 1 ml of Million’s
reagent. A fine precipitate is formed to 5 ml of 1 percent
solution of sample (filter through diatomaceous earth if
necessary), add 0.2 ml of dilute lead subacetate. A small
or no precipitate is formed, but an opaque flocculent
precipitate is produced upon further addition of 0.5 ml
of ammonia.

4.3 The material shall also conform to the requirements
given in Table 1.
Table 1 Requirements for Gum Ghatti

(Clauses 4.3)

<table>
<thead>
<tr>
<th>S1 No.</th>
<th>Characteristic</th>
<th>Requirement</th>
<th>Method of Test, Ref to</th>
</tr>
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<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>Annex of this Clause of Other Indian Standards</td>
</tr>
<tr>
<td>i)</td>
<td>Loss on drying, percent by mass, Max</td>
<td>14</td>
<td>A</td>
</tr>
<tr>
<td>ii)</td>
<td>Total ash, percent by mass, Max</td>
<td>6</td>
<td>B</td>
</tr>
<tr>
<td>iii)</td>
<td>Acid insoluble ash, percent by mass, Max</td>
<td>0.5</td>
<td>C</td>
</tr>
<tr>
<td>iv)</td>
<td>Insoluble matter, percent by mass, Max</td>
<td>10</td>
<td>D</td>
</tr>
<tr>
<td>v)</td>
<td>Starch and dextrins</td>
<td>To pass the test</td>
<td>E</td>
</tr>
<tr>
<td>vi)</td>
<td>Tannin-bearing gums</td>
<td>To pass the test</td>
<td>F</td>
</tr>
<tr>
<td>vii)</td>
<td>Arsenic (as As), mg/kg, Max</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>viii)</td>
<td>Lead (as Pb), mg/kg, Max</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>ix)</td>
<td>Heavy metals, mg/kg, Max</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>x)</td>
<td>Salmonella per g, Max</td>
<td>Negative</td>
<td>-</td>
</tr>
<tr>
<td>xi)</td>
<td>Escherichia coli per g, Max</td>
<td>Negative</td>
<td>-</td>
</tr>
</tbody>
</table>

4.4 The product shall be processed, packed, stored and distributed under hygienic conditions in licenced premises (see IS 2491).

5 PACKING, STORAGE AND MARKING

5.1 Packing

The product shall be securely packed in well-filled containers with minimum access to light and moisture. The containers shall be such as to preclude contamination of the contents with metals or other impurities.

5.2 Storage

The product shall be stored in a cool and dry place so as to avoid excessive exposure to heat.

5.3 Marking

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

a) Name of the material including the word ‘Food Grade’;
b) Name and address of the manufacturer;
c) Batch or Code number;
d) Net content when packed;
e) Instruction for storage to include ‘Store away from direct sunlight and heat’;
f) Best before date (Month and Year to be given by the manufacturer); and

g) Any other requirements as given under the Standards of Weights and Measures (Packaged Commodities) Rules, 1977 and Prevention of Food Adulteration Act, 1955 and Rules.

5.3.1 BIS Certification Marking

The product may also be marked with the Standard Mark.

5.3.1.1 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

Representative samples of the material shall be drawn according to the method prescribed in 4 of IS 1699.

7 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 result of analysis.
ANNEX A

[Table 1, SI No. (i)]
DETERMINATION OF LOSS ON DRYING

A-1 PROCEDURE
Weigh accurately about 5 g of the material in a tared weighing bottle. Place the bottle containing the sample (uncovered) in the oven maintained at 110 ± 1°C for 4 h. Remove the bottle from oven, close it and allow coming to room temperature in a desiccator and weigh. Calculate the loss on drying as percent by mass.

ANNEX B

[Table 1, SI No. (ii)]
DETERMINATION OF TOTAL ASH

B-1 PROCEDURE
Weigh accurately about 3 g of the material in a tared crucible, ignite at about 550°C not exceeding very dull redness, until free from carbon, cool in a desiccator, and weigh. If a carbon-free ash is not obtained, wet the charred mass with hot water, collect the insoluble residue on an ashless filter paper, and ignite the residue and filter paper until the ash is white or nearly so. Finally, add the filtrate, evaporate it to dryness, and heat the whole to a dull redness. If a carbon-free ash is still not obtained, cool the crucible, add 15 ml of alcohol, break up the ash with a glass rod, then burn off the alcohol, again heat the whole to a dull redness, cool and weigh. Calculate the percentage of ash from the mass of sample taken.

ANNEX C

[Table 1, SI No. (iii)]
DETERMINATION OF ACID INSOLUBLE ASH

C-1 PROCEDURE
Boil the ash obtained in B-1 with 25 ml of diluted hydrochloric acid for 5 min, collect the insoluble matter on a tared Gooch crucible or ashless filter paper, wash with hot water, ignite, and weigh. Calculate the percentage of acid insoluble ash from the mass of sample taken.

ANNEX D

[Table 1, SI No. (iv)]
DETERMINATION OF ACID INSOLUBLE MATTER

D-1 PROCEDURE
Weigh 4.5-5.5 g of the sample into a 250 ml beaker. Add about 200 ml of hot water (80-90°C), stir to dissolve, and allow the solution to cool to room temperature. Filter the solution through a tared Grade 4 sintered glass filter (sintered disk filters for laboratory use) and wash with cold water until the washings are colourless. Dry the filter and residue at 135°C until a constant weight is obtained. Express the weight of the residue as a percentage of the weight of sample taken.
ANNEX E

[Table 1, Sl No. (v)]
DETERMINATION OF STARCH AND DEXTRINS

E-1 REAGENT

E-1.1 Iodine Solution — Dissolve 14 g of iodine in a solution of 36 g of potassium iodide in 100 ml of water, add 3 drops of hydrochloric acid and dilute with water to 1000 ml.

E-2 PROCEDURE

Prepare 0.5 percent aqueous solution of the material, warm it to 40°C and add 2 drops of iodine solution. Where the drops fall a red-violet color shall appear. On mixing, the solution shall become golden brown and not blue or reddish in color.

ANNEX F

[Table 1, Sl No. (vi)]
DETERMINATION OF TANNIN-BEARING GUMS

F-1 REAGENT

F-1.1 Ferric Chloride — 0.5 N. Prepare 4.5 percent (m:v) solution of ferric chloride in water.

F-2 PROCEDURE

To 10 ml of 2 percent solution of the material add about 0.1 ml of ferric chloride. No blackish colouration or blackish precipitate shall form.
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Amendments Issued Since Publication

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