

इंटरनेट

मानक

### Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 6030 (1997): Sodium Propionate, Food Grade [FAD 8: Food Additives]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



भारतीय मानक

सोडियम प्रोपायोनेट, खाद्य ग्रेड — विशिष्ट

( पहला पुनरीक्षण )

*Indian Standard*

**SODIUM PROPIONATE, FOOD GRADE —  
SPECIFICATION**

*( First Revision )*

ICS 67.220.20 ; 71.080.99

© BIS 1997

**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## FOREWORD

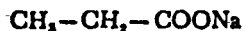
This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Food Additives Sectional Committee had been approved by the Food and Agriculture Division Council.

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, etc of the processed foods. As certain impurities in these substances have been found to be harmful, it is necessary to have a strict quality control of these food additives. A series of standards was, therefore, prepared to cover purity and identification of these substances. These standards would help in checking purity, which requires to be checked at the stage of manufacture, for it is extremely difficult to detect the impurity once these substances have been added to the processed foods. Besides, these standards are intended to guide the indigenous manufacturers in making their product conform to specifications that are accepted by scientists, health authorities and international bodies.

Sodium propionate is an anti-roping agent and a mould inhibitor. It is permitted for bread under the *Prevention of Food Adulteration Rules, 1955*. These rules, *inter-alia* prescribe:

'The listed food additives permitted for use in certain foods shall be sold only under the BIS Certification Mark.' Sodium propionate, food grade is one among the listed additives.

**Chemical Names and Formula** — Sodium propionate or sodium propionate. Its empirical formula is  $C_3H_5O_2Na$ . Its molecular weight is 96.06. Structural formula is:



This standard was first published in 1971 and is being revised to incorporate the following additions/changes:

- a) to provide description clause, including solubility, separately from requirements to keep it in line with Food Chemical Codex, NRC.
- b) to upgrade the standard by bringing down the limit for moisture and iron.
- c) to substitute the requirement of lead by heavy metals and corresponding change in test method.
- d) to provide for 'directions for storage' and 'Best before date'.

Considerable assistance has been derived from the following publications in preparing this standard:

- a) Specification for Identity and Purity of Food Additives, Volume I: Antimicrobial Preservatives and Antioxidants, 1962.
- b) Food Chemical Codex, Third Edition. Pub. National Academy of Science, National Research Council, Washington, DC.

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

## SODIUM PROPIONATE, FOOD GRADE — SPECIFICATION

( First Revision )

### 1 SCOPE

1.1 This standard prescribes the requirements and methods of tests for sodium propionate, food grade.

### 2 REFERENCES

The following Indian 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 ( <i>third revision</i> )
1699 : 1995	Methods of sampling and test for synthetic food colours ( <i>second revision</i> )
2362 : 1993	Method for determination of water by the Karl Fischer Method ( <i>second revision</i> )
6031 : 1997	Calcium propionate, food grade

### 3 DESCRIPTION

3.1 Sodium propionate shall be colourless and in the form of transparent crystals or a granular crystalline powder. It shall be odourless or has a faint acetic butyric odour. It shall be deliquescent in moist air and freely soluble in water and soluble in ethanol.

NOTE — The solubility is intended only as information regarding approximate solubility and is not to be considered as a quality requirement and is of minor significance as a means of identification or determination of purity, and dependence must be placed on other specifications.

### 4 REQUIREMENTS

#### 4.1 Identification Tests

4.1.1 Five percent solution of material gives positive test for sodium. A solution of sodium propionate acidified with dilute acetic acid, filtered,

if necessary, and treated with uranyl zinc acetate, shall yield a yellow crystalline precipitate, indicating the presence of sodium.

4.1.2 Upon ignition, the material shall yield an alkaline residue which effervesces with acids.

4.1.3 Warm a small sample with sulphuric acid. Propionic acid evolved shall be recognized by its odour.

4.2 The pH of the 10 percent (*m/v*) solution of the material at  $25 \pm 2^\circ\text{C}$ , shall be between 7.5 and 10.

4.3 The material shall also comply with the requirements given in Table 1.

**Table 1 Requirements for Sodium Propionate,  
Food Grade**

Sl No.	Characteristic	Limit	Method of Test, Ref to	
			Annex of This Standard	Other Standard
(1)	(2)	(3)	(4)	(5)
i)	Purity as $\text{C}_3\text{H}_5\text{NaO}_2$ , percent by mass, on dry basis, <i>Min</i>	99	A	—
ii)	Moisture, percent by mass, <i>Max</i>	1	—	Annex B of IS 6031
iii)	Matter insoluble in water, percent by mass, <i>Max</i>	0.1	—	Annex C of IS 6031
iv)	Arsenic (as As), mg/kg, <i>Max</i>	3	—	15 of IS 1699
v)	Heavy metals (as Pb), mg/kg, <i>Max</i>	10	—	16 of IS 1699
vi)	Iron (as Fe), mg/kg, <i>Max</i>	30	B	—

### 5 PACKING, STORAGE AND MARKING

#### 5.1 Packing

The material shall be securely packed in well-filled containers so as to preclude contamination of the contents.

#### 5.2 Storage

The material shall be stored in a cool and dry place so as to avoid 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 words 'Food Grade';
- b) Name and address of the manufacturer;
- c) Net content when packed;
- d) Batch or code number;
- e) Instructions for storage;
- f) Expiry/Best before date; and
- g) Any other requirements as specified under the *Standards of Weights and Measures (Packaged Commodities) Rules, 1977 and Prevention of Food Adulteration Rules, 1955.*

#### 5.3.1 BIS Certification Marking

The containers may also be marked with the BIS Standard Mark.

5.3.1.1 The use of the Standard Mark is governed by the provisions of *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 Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

### 6 SAMPLING

6.1 The 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 results of analysis.

## ANNEX A

[Table 1, Sl No. (i)]

### DETERMINATION OF SODIUM PROPIONATE CONTENT

#### A-0 METHODS

A-0.1 Two methods have been specified. Either could be used depending upon the facilities available.

#### A-1 METHOD I

Proceed as per Method I of Annex A of IS 6031 except for the fact that each millilitre of 1 N sodium hydroxide corresponds to 0.096 07 g of sodium propionate.

#### A-2 METHOD II

##### A-2.1 Reagents

##### A-2.1.1 Glacial Acetic Acid

##### A-2.1.2 Methylrosaniline Chloride

Dissolve 100 mg of methylrosaniline chloride in 10 ml of glacial acetic acid.

##### A-2.1.3 Perchloric Acid — 0.1 N.

#### A-3 PROCEDURE

A-3.1 Weigh accurately about 250 mg of the sample and dissolve it in 40 ml of glacial acetic acid, warming if necessary to effect solution. Cool to room temperature, add 2 drops of methylrosaniline chloride. Titrate with perchloric acid. Perform blank and make necessary correction. Each millilitre of 0.1 N perchloric acid is equivalent to 9.606 mg of  $C_3H_5NaO_2$ .

## ANNEX B

[Table 1, Sl No. (vi)]

### DETERMINATION OF IRON

B-1 Proceed as per Annex D of IS 6031 except that at D-3.1.2 use 6 ml of the standard iron solution (equivalent to 60  $\mu$ g of iron ion) in the comparison test.

## Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 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 Director (Publication), 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 latest issue of 'BIS Handbook' and 'Standards Monthly Additions'.

This Indian Standard has been developed from Doc: No. **FAD 8 (715)**.

#### 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: 323 01 31, 323 33 75, 323 94 02

Telegrams: Manaksanstha  
(Common to all offices)

### Regional Offices:

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 76 17, 323 38 41
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola CALCUTTA 700054	{ 337 84 99, 337 85 61 337 86 26, 337 91 20
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 60 38 43 60 20 25
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 235 02 16, 235 04 42 235 15 19, 235 23 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 832 92 95, 832 78 58 832 78 91, 832 78 92

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.  
COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI.  
HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR.  
PATNA. PUNE. THIRUVANANTHAPURAM.



**AMENDMENT NO. 1 FEBRUARY 2005**  
**TO**  
**IS 6030 : 1997 SODIUM PROPIONATE,**  
**FOOD GRADE — SPECIFICATION**

( *First Revision* )

[ *Page 1, Table 1, Sl No. (ii), col 3* ] — Substitute '4' for '1'.

( *Page 1, Table 1* ) — Insert the following at the end of the table:

Sl No.	Characteristic	Limit	Method of Test, Ref to	
			Annex of This Standard (4)	Other Standard (5)
(1)	(2)	(3)		
vii)	Lead (as Pb), mg/kg, <i>Max</i>	5	—	15 of IS 1699
viii)	Fluoride (as F), mg/kg, <i>Max</i>	10	—	Annex E of IS 6031