



PM/ IS 6031/ 1/ June 2019

**PRODUCT MANUAL FOR
CALCIUM PROPIONATE, FOOD GRADE
According to IS: 6031:1997**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS : 6031:1997
	Title	:	CALCIUM PROPIONATE, FOOD GRADE
	No. of amendments	:	1
2.	Sampling Guidelines		
a)	Raw material	:	No specific requirement
b)	Grouping Guidelines	:	Not Applicable
c)	Sample Size	:	1000 gm
3.	List of Test Equipment	:	Please refer Annex – A
4.	Scheme of Inspection and Testing	:	Please refer Annex - B
5.	Possible tests in a day	:	<ul style="list-style-type: none">• Identification• Purity• Moisture
6.	Scope of the Licence	:	Licence is granted to use Standard Mark as per IS 6031:1997 with the following scope.
	Name of the product		CALCIUM PROPIONATE, FOOD GRADE

Annex –A
TO PRODUCT MANUAL
FOR CALCIUM PROPIONATE, FOOD GRADE
According to IS: 6031:1997
List of Test Equipment

Sr. No.	Test Equipment	Tests used in with Clause Reference
1	a) Ammonium Oxalate solution b) Burner for heating purpose. c) Suitable containers/flasks d) Sulphuric acid e) pH meter for measurement of Ph. Thermometer range 0 to 30 degree Celsius and least count of 1 degree.	Identification test Description as per Clauses 4.1.1, 4.1.2, 4.1.3 and Clause 4.2.
2	a) Phosphoric acid---50 percent b) Sodium hydroxide solution -1 N c) Phenolphthalein Indicator d) Distillation flask of suitable volume. e) Balance	Purity percentage by mass, Clause 4.3 & Table 1 (i). Note: Out of three methods given in standard equipments for Method I have been listed here.
3	a) Drying oven capable of operating at 110 degree Celsius. b) Flat bottom dish—made of nickel or other suitable material, 7 to 8 cm in diameter, not more than 2.5 cm deep. c) Balance	Moisture percentage by mass, Clause 4.3, & Table 1 (ii). Note: One alternative method is Karl Fischer apparatus as per IS 2362.
4	a) Crucible—sintered glass or porcelain of porosity G 4. b) Balance 0.2mg c) Oven	Matter insoluble in water, % by mass, Clause 4.3 & Table 1 (iii).
5	a) Kjeldahl open flask 150 ml capacity as given in Fig 4 of IS 1699:1995. b) Atomic Absorption Spectrometer c) Nitric Acid d) Perchloric Acid e) Sulphuric Acid f) Hydrochloric Acid g) Sodium Sulphate h) Sodium Borohydride Pellets i) Potassium Chloride j) Standard Arsenic Solution - Arsenous Oxide, Sodium	Arsenic, Lead Clause 4.3, Table 1 (iv) & (ix)

	<p>hydroxide, Phenolphthalein Indicator, Sodium Hydrogen Carbonate</p> <p>k) Standard Lead Solution – Lead Nitrate, Nitric Acid</p> <p>l) One-mark Graduated Flask</p>	
6	<p>a) Ammonia solution (pl refer IS 1699 for details)</p> <p>b) Hydrochloric acid 10 percent.</p> <p>c) Lead nitrate stock solution.</p> <p>d) Standard lead solution</p> <p>e) Nitric acid 10 percent.</p> <p>f) Sulphuric acid 94.5 to 95.5 percent</p> <p>g) Hydrogen sulphide.</p> <p>h) Nessler Tubes</p> <p>i) Steam Bath</p> <p>j) Acetic Acid</p>	Heavy metals mg/kg, Clause 4.3 & Table 1 (v)
7	<p>m) Nessler Cylinders—50 ml, two matched.</p> <p>n) Crucible.</p> <p>Following reagents are also required:</p> <p>a) Nitric acid concentrated sp gr 1.42 free from iron.</p> <p>b) Hydrochloric acid approx 1 N solution</p> <p>c) Hydroxylammonium Chloride Solution 10g/L</p> <p>d) 2,2 –bipyridal solution</p> <p>e) Ammonium Acetate</p> <p>f) Ammonium Ferrous Sulphate</p> <p>g) Concentrated Sulphuric acid</p> <p>h) Balance, Hotplate</p>	Iron content mg/kg Cl 4.3 & Table (vi)
8	<p>a) Thermometer range 0 to 150 degree Celsius, LC 1 degree celcius</p> <p>b) Suitable distillation apparatus.</p> <p>c) Sodium hydroxide solution, dilute sulphuric acid and distilled water for conditioning above apparatus for use.</p> <p>d) Perchloric acid</p> <p>f) Silver nitrate solution</p> <p>g) Sodium Alizarin Sulphonate Solution (1 in 1000) Hydroxylamine .</p>	<p>Test for fluoride. Clause 4.3 & Table 1 (vii)</p> <p>Note: Of the two available methods equipments required for Thorium Nitrate Colorimetric Method have been listed here.</p>

	<p>Hydrochloride solution (1 in 4000).</p> <p>h) Sodium hydroxide – 0.05 N or 1 N.</p> <p>i) Hydrochloric acid –0.1 N</p> <p>j) Thorium nitrate solution (1 in 4000)</p> <p>k) Sodium fluoride solution (10 micro gram F per ml).</p> <p>l) Dilute sulphuric acid (1:2)</p> <p>Nessler Tubes</p>	
9	<p>a) Dilute hydrochloric acid</p> <p>b) Beaker of suitable volume.</p> <p>c) Hot plate of suitable size.</p> <p>d) Volumetric flask 100 ml</p> <p>e) Sodium hydroxide</p> <p>f) Sodium hydrochloride</p> <p>g) Titan yellow solution (clayton yellow) 1 in 1000.</p>	Magnesium content, Clause 4.3 & Table 1 (viii)



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ANNEX-B
TO PRODUCT MANUAL FOR
CALCIUM PROPIONATE, FOOD GRADE
According to IS : 6031:1997
(SCHEME OF INSPECTION AND TESTING)

- 1. LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.
 - 1.1** The manufacturer shall prepare a calibration plan for the test equipments.
- 2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.
- 3. PACKING AND MARKING** – The Standard, as given in the Schedule of the licence, shall be marked on each bag or container of Calcium Propionate, Food Grade or printed on the label applied to the bag or container as the case may be provided always that the product so marked conform to every requirement of the specification.
 - 3.1** Packing and marking shall be done as per the provision of IS 6031:1997. In addition, the Following details shall be mentioned on each container/package :-
 - i) Licence No. (CM/L.....)
 - ii) BIS website details i.e. – “For details of BIS Certification please visit www.bis.gov.in”
- 4. CONTROL UNIT** – For the purpose of the scheme, the quantity of the material dried and blended at a time, shall constitute a control Unit (batch)
- 5. LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.
 - 5.1** All the production which conforms to the Indian Standards and covered by the licence shall be marked with Standard Mark.
 - 6.0** Hygienic condition: Calcium Propionate, food grade shall be processed and packed under Hygienic conditions and the manufacturing premises shall be maintained in clean and hygienic manner. All workers shall use clean, washed clothing, including head covers. Incidental contamination of the product from soiled equipment or from personnel suffering from injuries, eruptions or boils shall be avoided.
 - 7.0 REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**Table 1 (Levels of Control)
CALCIUM PROPIONATE, FOOD GRADE
According to IS: 6031:1997
(Scheme of Inspection and Testing)**

(1) Test Details				(2) Test equipment requirement R: required (or)S: Sub-contracting permitted	(3) Recommended Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
3	Description	3	IS 6031:97	R	One	Each control unit	
4.1	Identification	4.1	IS 6031:97	R	One	Each control unit	
4.2	pH	4.2	IS 6031:97	R	One	Each control unit	
4.3 & Table 1	i) Purity	Annexure A	IS 6031:97	R	One	Each control unit	
	ii) Moisture percent by mass	Annexure B	IS 6031:97	R	One	Each control unit	
	iii) Matter insoluble in water	Annexure C	IS 6031:97	R	One	Each control unit	
	iv) Arsenic (as As)	15	IS 1699	R	One	Each control unit	
	v) Heavy metals (as Pb)	16	IS 1699	R	One	Each control unit	
	vi) Iron (as Fe)	Annexure D	IS 6031:97	R	One	Each control unit	
	vii) Fluoride	Annexure E	IS 6031:97	R	One	Each control unit	
	viii) Magnesium	Annexure F	IS 6031:97	R	One	Each control unit	
	ix) Lead	15	IS 1699	R	One	Each control unit	

Note-1: Sub- contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau

Note-2: The control Unit and levels of control as decided by the Bureau are obligatory, to which the licensee shall comply with.

OR

Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control and submit his own levels of control in column 3 with proper justification for approval by BO Head.