Notice Calling for suggestions, views, comments etc from WTO- SPS Committee members within a period of 60 days on the draft notification related to adoption of 46 BIS Standards for food additives.

F.No. 1/Additives/Stds/BIS Notification/FSSAI/2016.- In the Food Safety and Standards (Food Product Standard and Food Additives) Regulations, 2011, in regulation 3.2 relating to "standards of Additives",-

(i) in sub-regulation 3.2.1 after clause 15, the following clause shall be inserted, namely:-

"16. Beta-apo-8'-carotenal:

Beta-apo-8'-carotenalshall be deep violet crystals with metallic lustre. The material for commerce may be solutions in oil, fat or organic solvents or water-dispersible forms such as powders, granules or capsules and shall be orange to red in colour. Beta-apo-8'-carotenal is described below, namely:-

Common Name	Beta-apo-8'-carotenal.
Colour Index (DFG Lebensmittel)	Orange 8
INS No.	160e
C.A.S No.	1107-26-2
Chemical Name	Trans-beta-apo-8'-carotenal.
Empirical Formula	$C_{30}H_{40}O$
Molecular Weight	416.65

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Beta-apo-8'-carotenal

SI. No.	Characteristic	Requirement
1	Purity, as $C_{30}H_{40}O$ percent by weight, Min	96
2	Sulphated ash, percent by weight, Max	0.1
3	Melting range, 0^0C	136 - 140
4	Arsenic , mg/kg, Max	3.0
5	Lead, mg/kg, Max	2.0

17. Ethylester of Beta-apo-8'-carotenoic acid

Ethyl ester of Beta-apo-8'-carotenoic acid shall be in the form of red crystals. The material for commerce may be solution in oil, fat or organic solvent or water-dispersible forms such as, powders, granules or capsules and shall be yellow to orange in colour. Ethyl ester of Beta-apo-8'-carotenoic acid, is described below, namely:-

Common Name	Ethyl ester of beta-apo-8'-carotenoic acid.
Colour Index (DFG Lebensmittel)	Orange 9
INS No.	160f
C.A.S No.	1109-11-1
Chemical Name	Trans-beta-apo-8'-carotenoic acid, ethyl ester.
Empirical Formula	$C_{22}H_{44}O_8$
Molecular Weight	460.70

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Ethyl ester of Beta-apo-8'-carotenoic acid

SI.No.	Characteristic	Requirement
1	Purity as $C_{22}H_{44}O_8$,percent by mass, *Min*	96
2	Sulphated ash, percent by mass, *Max*	0.1
3	Melting range, ^{0}C	134 - 138
4	Arsenic , mg/kg, *Max*	3.0
5	Lead, mg/kg, *Max*	2.0

18. Titanium dioxide

Titanium Dioxide shall be a white, tasteless, odourless, infusible powder. Titanium Dioxide is described below, namely:-

Common Name	Titanium dioxide
INS No.	171
C.A.S No.	13463-67-7
Chemical Name	Titanium Dioxide
Empirical Formula	TiO_2
Molecular Weight	79.88

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Titanium Dioxide

SI. No.	Characteristic	Requirement
1	Purity as TiO_2, percent by mass, Min	99
2	Loss on drying at 1O5 0C for 3 hours,percent by mass, Max	0.5
3	Loss on ignition (at 800 ^{0}C), percent by mass. Max	0.5
4	Acid soluble substances, percent by mass, Max	0.35
5	Water soluble substances, percent by mass, Max	0.25
6	Aluminium oxide and/or silicon dioxide (either singly or combined), percent by mass, Max	2.0
7	Mercury, mg/kg, *Max*	1.0
8	Antimony, mg/kg, *Max*	2.0
9	Zinc, mg/kg, *Max*	50.0
10	Arsenic, mg/kg, *Max*	1.0
11	Lead, mg/kg, *Max*	2.0
12	Barium compounds, mg/kg, *Max*	3.0
13	Aluminium, mg/kg, *Max*	1.0"

(ii) after sub-regulation 3.2.8 relating to "Potassium Metabisulphite", the following sub-regulation shall be inserted, namely:-

"3.2.9 Preservatives

1. Sodium benzoate

Sodium benzoate shall be a white, almost odourless, crystalline powder or flakes. Sodium benzoate is described below, namely:-

Common Name	Sodium benzoate
INS No.	211
C.A.S No.	532-32-1
Chemical Name	Sodium salt of benzene carboxylic acid, and sodium salt of phenyl carboxylic acid
Empirical Formula	$C_7H_50_2Na$
Molecular Weight	144.11

The material shall conform to the requirements prescribed in Table below:-

TABLE
Requirements for Sodium benzoate

SI. No.	Characteristic	Requirement
1	Purity, expressed as $C_7H_5O_2Na$, percent by mass, Min	99.0
2	Melting range of liberated benzoic acid	121.5°C- 123.5°C
3	Moisture, percent by mass, Max	1.5
4	Acidity or alkalinity	To conform to test*
5	Readily carbonizable substances	To conform to test*
6	Readily oxidizable substances	To conform to test*
7	Chlorinated organic compounds	To conform to test*
8	Arsenic, mg/kg, *Max*	3.0
9	Lead, mg/kg, Max	2.0

*** Test as per BIS Standard**

2. Benzoic acid

Benzoic acid shall be in the form of white crystals, scales or needles. Benzoic acid is described below, namely:-

Common Name	Benzoic acid
INS No.	210
C.A.S No.	65-85-0
Chemical Name	benzene carboxylic acid, and phenyl carboxylic acid
Empirical Formula	$C_7H_6O_2$
Molecular Weight	122.12

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Benzoic acid

SI.No.	Characteristic	Requirement
1	Purity, as $C_7H_6O_2$, percent by mass, Min	99.5
2	Melting range	121.5°C - 123.5°C
3	Sulphated ash, percent by mass, *Max*	0.05

4	Readily carbonizable substances	To conform to test *
5	Readily oxidizable substances	To conform to test*
6	Loss on drying (for 3 hours over sulphuric acid or silica gel at ambient temperature in a dessicator) percent by mass, *Max*	0.5
7	Chlorinated organic compounds	To conform to test*
8	Arsenic, mg/kg, *Max*	3.0
9	Lead, mg/kg, Max	2.0

***Test as per BIS Standard**

3. Potassium nitrate

Potassium nitrate shall be colourless, odourless and shall have a salty taste. The material for commerce may be in the form of transparent prisms or white granules or a crystalline powder.

Potassium nitrate is described below, namely:-

Common Name	Potassium nitrate
INS No.	252
C.A.S No.	7757-79-1
Chemical Name	Potassium nitrate
Empirical Formula	KNO_3
Molecular Weight	101.11

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Potassium nitrate

SI.No.	Characteristic	Requirement
1	Purity, as KNO_3, percent by mass, Mi*n*	99
2	Moisture percent by mass, *Max*	1
3	Matter insoluble in water	To pass the test*
4	Chlorates	To pass the test*
5	Sulphates (as K_2SO_4), percent by mass, Max	0.10
6	Arsenic, mg/kg, *Max*	3.0
7	Lead, mg/kg, Max	2.0
9	Nitrite, mg/kg, *Max*	20.0

***Test as per BIS Standard**

4. Sorbic acid

Sorbic Acid shall be Colourless needles or white free flowing powder, having a slight characteristic odour. Sorbic acid is described below, namely:-

Common Name	Sorbic acid
INS No.	200
C.A.S No.	110-44-1
Chemical Name	Sorbic acid; trans, all trans 2, 4-hexadienoic acid.
Empirical Formula	$C_6H_8O_2$
Molecular Weight	112.13

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sorbic Acid

SI.No.	Characteristic	Requirement
1	Purity, as $C_6H_8O_2$, percent by mass(on dry basis), *Min*	99
2	Moisture, percent by mass, *Max*	0.5
3	Sulphated ash, percent by mass, Max	0.2
4	Aldehydes, percent by mass, Max	0.1
5	Melting range, ^0C	132 - 135
6	Arsenic, mg/kg, *Max*	3.0
7	Lead, mg/kg, Max	2.0

5. Potassium nitrite

Potassium nitrite shall be in the form of small white or yellowish deliquescent granules or cylindrical sticks. Potassium nitrite is described below, namely:-

Common Name	Potassium nitrite
INS No.	249
C.A.S No.	7758-09-0
Chemical Name	Potassium nitrite
Empirical Formula	KNO_2
Molecular Weight	85.11

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Potassium Nitrite

SI.No.	Characteristic	Requirement
1	Purity, as (KNO_2), on dry basis, percent by mass, *Min*	97
2	Loss on drying when dried over silica gel for four	1

	hours, percent by mass, Max	
3	Arsenic, mg/kg, *Max*	3.0
4	Lead, mg/kg, Max	2.0

6. Sodium propionate

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.

Sodium propionate is described below, namely:-

Common Name	Sodium propionate
INS No.	281
C.A.S No.	137-40-6
Chemical Name	Sodium Propionate
Empirical Formula	C_3H5O_2Na
Molecular Weight	96.06

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Propionate

SI.No.	Characteristic	Requirement
1	Purity as $C_3H_5O_2Na$, percent by mass, on dry basis, *Min*	99
2	Moisture, percent by mass, *Max*	1
3	Matter insoluble in water, percent by mass, Max	0.1
4	Iron, mg/kg, *Max*	30
5	Arsenic, mg/kg, *Max*	3.0
6	Lead, mg/kg, Max	5.0

7. Sulphur dioxide

Sulphur dioxide shall be a colourless, non-flammable gas, with a strong, pungent suffocating odour. Sulphur Dioxide is described below, namely:-

Common Name	Sulphur dioxide
INS No.	220
C.A.S No.	7446-09-5
Chemical Name	Sulphur dioxide, sulphurous acid anhydrate
Empirical Formula	SO_2
Molecular weight	64.007

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sulphur Dioxide

SI. No.	Characteristic	Requirement
1	Purity (as SO2), percent by mass, on dry basis, Min	95
2	Non-volatile residue	To conform to test*
3	Moisture, percent by mass, Max	0.05
4	Selenium, mg/kg, Max	20.0
5	Arsenic, mg/kg, Max	3.0
6	Lead, mg/kg, Max	5.0

***Test as per BIS Standard**

3.2.10 Acidity regulator

1. Ammonium hydrogen carbonate

Ammonium hydrogen carbonate shall be in the form of white crystals or a fine white crystalline powder. Ammonium hydrogen carbonate is described below, namely:-

Common Name	Ammonium bicarbonate
INS No.	503(ii)
C.A.S No.	1066-33-7
Chemical Name	Ammonium hydrogen carbonate
Empirical Formula	CH_5NO_3
Molecular Weight	79.06

The material shall conform to the requirements prescribed in Table below:-

TABLE
Requirements for Ammonium Hydrogen Carbonate

SI.No.	Characteristic	Requirement
1	Ammonium Hydrogen Carbonate, percent by mass, *Min*	98.0
2	Chlorides (as Cl), percent by mass, *Max*	0.2
3	Sulphates (as SO_4), percent by mass, *Max*	0.1
4	Non-volatile matter, percent by mass, *Max*	0.1
5	Iron (as Fe), percent by mass, Max	0.004
6	Non-volatile matter, percent by mass, *Max*	0.1

7	Arsenic, mg/kg, *Max*	0.6
	Lead, mg/kg, Max	2.0
8	Copper, mg/kg, *Max*	5.0

2. Sodium citrate

Sodium citrate shall be in the form of colourless crystals or white crystalline powder. Sodium citrate is described below, namely:-

Common Name	Sodium citrate
INS No.	331 (iii)
C.A.S No.	68-04-2
Chemical Name	Sodium citrate
Empirical Formula	$C_6H_5Na_3O_7.2H_2O$
Molecular Weight	294.10

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Citrate

SI.No.	Characteristic	Requirement
1	Purity, (as$C_6H_5Na_3O_7$), on dry basis, percent by mass, *Min*	99
2	Moisture, percent by mass, *Max* a) Anhydrous b) Dihydrate	 1 13
3	Alkalinity	To pass the test*
4	Arsenic, mg/kg, *Max*	3.0
5	Lead, mg/kg, Max	2.0

***Test as per BIS Standard**

3. Fumaric acid

Fumaric acid shall be in the form of white, odourless granules or as a crystalline powder with characteristic acid taste. Fumaric acid is described below, namely:-

Common Name	Fumaric acid
INS No.	297
C.A.S No.	110-17-8
Chemical Name	trans-butenedioic acid, and trans-1,2

	ethylene dicarboxylic acid
Empirical Formula	$C_4H_4O_4$
Molecular Weight	116.07

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Fumaric acid

SI. No.	Characteristic	Requirement
1	Purity as $C_4H_4O_4$, percent by mass, (on anhydrous basis), Min	99.5
2	Moisture, percent by mass, Max	0.5
3	Sulphated ash, percent by mass, Max	0.1
4	Maleic acid, percent by mass, Max	0.1
5	Arsenic, mg/kg, Max	3.0
6	Lead, mg/kg, Max	2.0

4. L (+) - Tartaric acid

L (+) - Tartaric acid shall be either in the form of colorless or translucent crystals, or a white, fine to granular, crystalline powder. It shall be odourless, acidic in taste and stable in air.

L (+) - Tartaric Acid is described below, namely:-

Common Name	L (+) - Tartaric acid
INS No.	334
C.A.S No.	87-69-4
Chemical Name	Tartaric acid - 2,3-dihydroxy succinic acid
Empirical Formula	$C_4H_6O_6$
Molecular Weight	150.09

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for L (+) - Tartaric Acid

SI. No.	Characteristic	Requirement
1	Purity as (C4H6O6), percent by mass (on dry basis), Min	99.5
2	Loss on drying, percent by mass, on drying at 1O5 0C for 3 hours over P3O4,Max	0.5
3	Sulphated ash, percent by mass, Max	0.1

4	Oxalate	To pass the test*
5	Sulphate	0.05
6	Arsenic, mg/kg, *Max*	3.0
7	Lead, mg/kg, Max	2.0

***Test as per BIS Standard**

5. Dicalcium phosphate

Dicalcium phosphate shall be white crystals or granules, granular powder or powder. Dicalcium Phosphate is described below, namely:-

Common Name	Calcium hydrogen phosphate, dibasic calcium phosphate.
INS No.	341 (ii)
C.A.S No.	7757-93-9
Chemical Name	Secondary calcium phosphate, calcium hydrogen orthophosphate, calcium hydrogen phosphate.
Empirical Formula	$CaHP0_4$ (Anhydrous) $CaHPO_4.2H_2O$ (Dihydrate)
Molecular Weight	136.06 (Anhydrous) 172.09 (Dihydrate)

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Dicalcium Phosphate

SI. No.	Characteristic	Requirement
1	Purity as (CaHP04), after drying at 200 0C for 3 h, percent by mass	98 to 102
2	Loss on drying, percent by mass, after drying at 200 ^{0}C for 3 h	
	a) Anhydrous, Max	2
	b) Dihydrate	18 to 22
3	Fluoride, mg/kg, *Max*	50.0
4	Arsenic, mg/kg, *Max*	3.0
5	Lead, mg/kg, Max	4.0

6. Phosphoric Acid

Phosphoric Acid shall be a clear, colour-less, odourless viscous liquid. Phosphoric Acid is described below, namely:-

Common Name	Phosphoric Acid
INS No.	338
C.A.S No.	7664-38-20

Chemical Name	Phosphoric acid, orthophosphoric acid
Empirical Formula	H_3PO_4
Molecular Weight	98.0

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Phosphoric Acid

SI. No.	Characteristic	Requirement
1	Purity as H_3PO_4, percent by mass, Min	85
2	Nitrates, mg/kg, Max	5
3	Volatile acids, mg/kg, Max	10
4	Chlorides, mg/kg, Max	200
5	Sulphates percent by mass, Max	0.15
6	Chloride, mg/kg, Max	200.0
7	Fluoride, mg/kg, *Max*	10.0
8	Arsenic, mg/kg, *Max*	2.0
9	Lead, mg/kg, Max	4.0

7. Citric Acid

Citric Acid shall be white or colourless, odourless, crystalline solid; the monohydrate form effloresces in dry air. Citric Acid is described below, namely:-

Common Name	Citric Acid
INS No.	330
C.A.S No.	77-92-9(anhydrous) 5949-29-1 (monohydrate)
Chemical Name	2-hydroxyl-l,2,3-propanetricarboxylic acid; B-hydroxytricarboxylic acid.
Empirical Formula	$C_6H_8O_7$ (anhydrous) $C_6H_8O_7.H_2O$(monohydrate)
Molecular Weight	192.13 (anhydrous) 210.15 (monohydrate)

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Citric Acid

SI. No.	Characteristic	Requirement
1	Water insoluble matter, ppm, Max	30

2	Chloride (as Cl), ppm, Max	5
3	Phosphate (as P_2O_5), ppm, Max	5
4	Calcium, ppm, Max	25
5	Tridodecylamine, ppm, Max	0.1
6	Arsenic, mg/kg, Max	3.0
7	lead, mg/kg, Max	0.5
8	Calcium, ppm,Max	25

8. Malic acid

Malic acid shall be a white to nearly white, crystalline powder or granules having a strong acid taste. Malic Acid is described below, namely:-

Common Name	Malic Acid
INS No.	296
C.A.S No.	6915-15-7
Chemical Name	dl-malic acid and hydroxyl succinic acid
Empirical Formula	$C_4H_6O_5$
Molecular Weight	134.09

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Malic Acid

SI. No.	Characteristic	Requirement
1	Purity as $C_4H_6O_5$ (on dry basis), percent by mass, Min	99.0
2	Moisture, percent by mass, Max	0.3
3	Residue on ignition (on dry basis), percent by mass, Max	0.1
4	Water insolube matter, percent by mass, Max	0.1
5	Fumaric acid, percent by mass, Max	1.0
6	Maleic acid, percent by mass, Max	0.05
7	Lead, mg/kg, Max	2.0
8	Arsenic, mg/kg, *Max*	3.0

9. Sodium Hydroxide

Sodium Hydroxide shall be available in the form of white or nearly white pellets, flakes, sticks, fused masses and other forms. Sodium Hydroxide is described below, namely:-

Common Name	Caustic soda, lye, sodium hydrate
INS No.	524
C.A.S No.	1310-73-2
Chemical Name	Sodium hydroxide
Empirical Formula	NaOH
Molecular Weight	40.0

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Hydroxide

SI. No.	Characteristic	Requirement
1	Purity as NaOH, percent by mass, Min	95
2	Carbonate, percent by mass as Na_2CO_3, Max	3
3	Lead, mg/kg, Max	2.0
4	Mercury, mg/kg, Max	1.5

3.2.11 Gelling agent/Thickener/stabilizer

1.Sodium alginate

Sodium Alginate shall be white, yellowish or pale brown, fibrous or granular powder. Sodium Alginate is described below, namely:-

Common Name	Sodium alginate
INS No.	401
C.A.S No.	9005-38-3
Chemical Name	Sodium alginate
Empirical Formula	$(C_6H_7O_6Na)_n$
Equivalent Weight (average)	222.00

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Alginate

SI.No.	Characteristic	Requirement
1	Purity as ($C_6H_7O_6Na$), percent by mass	91 to 106
2	Moisture, percent by mass, *Max*	15
3	Matter insoluble in water, percent by mass, *Max*	1
4	Viscosity of a one percent solution (m/m), in centipoise, Min	30
5	Ash(on dry basis), percent by mass, Max	18 to 27
6	Acid insoluble ash (on dry basis), percent by mass, Max	0.5
7	Lead, mg/kg, *Max*	5.0
8	Arsenic, mg/kg, *Max*	3.0

2. Sodium Carboxymethyl Cellulose

Sodium Carboxymethyl Cellulose shall be a white or slightly yellowish powder consisting of very fine particles, fine granules or fine fibers with hygroscopic nature. Sodium Carboxymethyl Cellulose is described below, namely:-

Common Name	Sodium Carboxymethyl Cellulose
INS No.	466
C.A.S No.	9004-32-4
Chemical Name	Sodium salt of carboxy methyl ether of cellulose.
Empirical Formula	$[C_6H_7O_2(OH)$ x $(OCH_2COONa)y]n$
Molecular Weight	178.14

x = 2.00 to 2.80

y = 0.20 to 1.00 = degree of substitution or 3.00 - x

x + y = 3.00

Structural units with degree of substitution of 0.20 178.14

Monosubstituted structural units: 242.16

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Carboxymethyl Cellulose

SI. No.	Characteristic	Requirement

1	Purity, as sodium carboxy methyl cellulose percent by mass, Min	99.5 [D]
2	Degree of substitution, Max	0.20 to 1.00
3	Loss on drying, percent by mass, Max	10
4	Sodium chloride, on dry basis, percent by mass, Max	0.5
5	Free glycolate, on dry basis, percent by mass, Max	0.1
6	pH of 1 percent colloidal solution	6 to 8.5
7	Combined sodium chloride and free glycolate (on dry basis), percent by mass, Max	0.5 [a]
8	Lead, mg/kg, Max	2.0
9	Arsenic, mg/kg, Max	3.0

[D] Purity is determined by subtracting from 100, the percentage of combined sodium chloride and free glycolate

[a] :Obtained by the simple addition of values obtained at SI No. (iv& v).

3. Sodium Carboxymethyl Cellulose, enzyme hydrolysed

Enzyme hydrolysed Sodium Carboxymethyl Cellulose shall be a White or slightly yellowish or greyish, odourless, slightly hygroscopic granular or fibrous powder. Enzyme hydrolysed Sodium Carboxy methyl Cellulose is described below, namely:-

Common Name	Enzymatically hydrolyzed carboxy methyl cellulose
INS No.	469
Chemical Name	Carboxymethyl cellulose, sodium, partially enzymatically hydrolyzed
Empirical Formula	$[C_6H_7O_2(OH)_x(OCH_2COONa)_y]_n$
Molecular Weight	178.14

x = 1.50 to 2.80

y = 0.20 to 1.50 = degree of substitution or 3.00 - x

x + y = 3.00

Structural units with degree of substitution of 0.20 178.14

Mono substituted structural units: 242.16

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Carboxymethyl Cellulose, Enzyme hydrolysed

SI. No.	Characteristic	Requirement

1	Loss on drying, percent, Max	12
2	pH	6 - 8.5
3	Sodium chloride and sodium glycolate, percent, Max	0.5
4	Degree of substitution	0.2 - 1.5
5	Residual enzyme activity	Passes test*
6	Lead, mg/kg, Max	3.0

***Test as per BIS Standard**

4. Agar

Agar shall be a dried hydrophylic, colloidal polygalactoside extracted from red algae of the class *Rhodophyceae*, such as *Gelidiella* species and *Gracilaria* Species. The material for commerce may be available in bundles consisting of thin, membranous strips or in cut, flaked, granulated, or powdered forms and shall be white to pale yellow in colour. Agar is described below, namely:-

Common Name	Agar-agar, gelose, Japanese isinglass
INS No.	406
C.A.S No.	9002-18-0

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Agar

SI. No.	Characteristic	Requirement
1	Water absorption	Topass the test*
2	Moisture, percent by mass, Max	20
3	Total ash, percent by mass, Max	6.5
4	Acid insoluble ash, percent by mass, Max	0.5
5	Gelatin	To pass the test*
6	Insoluble matter, percent by mass, Max	1
7	Starch and dextrines	To pass the test*
8	Arsenic, mg/kg, Max	3.0
9	Lead, mg/kg, Max	5.0

***Test as per BIS Standard**

5. Gum Arabic

Acacia gum shall be a dried gummy exudation obtained from the stems and branches of *Acacia senegal* (L) Wild, *Acacia seya*/ (L) Wild, or of related species of Acacia (Fam. Leguminosae). Items of commerce may contain extraneous matter like pieces of bark which shall be removed before use in foods. Acacia gum (*A. senegal*) is a pale white to orange brown solid, which breaks with a glassy fracture. The best grades are in the form of whole, spheroidal tears of varying sizes with a matt surface texture. When ground the pieces are paler and have a glassy appearance. It shall also available in the form of white to yellowish-white flakes, granules, powder, roller dried or spray dried material. Gum Arabic is described below, namely:-

Common Name	Acacia gum
INS No.	414
C.A.S No.	9000-01-5

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Gum Arabic

SI. No.	Characteristic	Requirement
1	Loss on drying, percent by mass, Max a) Granular material b) Spray dried material	 15 10
2	Total ash, percent by mass, Max	4
3	Acid insoluble ash, percent by mass, Max	0.5
4	Insoluble matter, percent by mass, Max	1
5	Starch and dextrins	To pass the test*
6	Tannin-bearing gums	To pass the test*
7	Salmonella per g, Max	Negative
8	Escherichia coli per g, Max	Negative
9	Arsenic, mg/kg, *Max*	2.0
10	Lead, mg/kg, Max	3.0

***Test as per BIS Standard**

6. Tragacanth gum

Tragacanth gum is dried gummy exudation obtained from *Astragalus strobiliferus* or other species of *Astragalus* (Fam, Leguminosae).Tragacanth gum is a white to yellowish-white, nearly odourless powder. Powdered Tragacanth shall be in white to yellowish-white colour. Un-ground Tragacanth Occurs as flattened, lamellated, frequently curved fragments or straight or spirally tested linear pieces from 0.5 to 2.5 mm in thickness with white to pale yellow in colour, translucent, horny in texture and having a short fracture. It is odourless and has an insipid mucilaginous taste. Tragacanth Gum is described below, namely:-

Common Name	Tragacanth gum
INS No.	413
C.A.S No.	9000-65-1

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Tragacanth gum

SI. No.	Characteristic	Requirement
1	Loss on drying, percent by mass, Max	10
2	Total ash, percent by mass, Max	4
3	Acid insoluble ash, percent by mass, Max	0.5
4	Starch and dextrins	To pass the test*
5	Tannin-bearing gums	To pass the test*
6	Viscosity of a 1 percent solution, Min	250
7	Karaya gum test, percent by mass, Min	To pass the test*
8	*Salmonella* per g, Max	Negative
9	*Escherichia coli* per g, Max	Negative
10	Lead, mg/kg, *Max*	2.0
11	Arsenic, mg/kg, *Max*	3.0

***Test as per BIS Standard**

7. Gum Ghatti

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. 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. Gum Ghatti is described below, namely:-

Common Name	Indian gum, ghatti gum, gum ghati
INS No.	419
C.A.S No.	9000-28-6

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Gum Ghatti

SI. No.	Characteristic	Requirement
1	Loss on drying, percent by mass, Max	14
2	Total ash, percent by mass, Max	6
3	Acid insoluble ash, percent by mass, Max	0.5
4	Insoluble matter, percent by mass, Max	10
5	Starch and dextrins	To pass the test*
6	Tannin-bearing gums	To pass the test*
7	Salmonella per g, Max	Negative
8	Escherichia coli per g, Max	Negative
9	Lead, mg/kg, *Max*	5.0
10	Arsenic, mg/kg, *Max*	3.0

***Test as per BIS Standard**

8. Calcium Alginate

The calcium salt of alginic acid shall be a white to yellowish, fibrous or granular powder. Calcium Alginate is described below, namely:-

Common Name	Calcium Alginate
INS No.	404
C.A.S No.	9005-35-0
Chemical Name	Calcium alginate
Empirical Formula	$[(C_6H_7O_6)_2Ca]$
Equivalent Weight (average)	219.00

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Calcium Alginate

SI. No.	Characteristic	Requirement
1	Purity as $[(C_6H_7O_6)_2Ca]$, percent by mass, on dry basis, Min	90
2	Moisture, percent by mass, (on drying at 105°C for 4 h), Max	15
3	Insoluble matter, percent by mass, Max	0.2
4	Ash, percent by mass, Max	18-27
5	Total plate count per g, Max	5000
6	Yeasts and moulds per g, Max	500
7	Arsenic, mg/kg, *Max*	3.0
8	Lead, mg/kg, *Max*	5.0

9. Alginic acid

Alginic acid shall be the hydrophilic colloidal carbohydrate extracted by the use of dilute alkali from various species of brown seaweed (Phaeophyceae). It may be described chemically as a linear glycurono glycan consisting mainly of B (1-4) linked D-mannuronic and L-guluronic acid units in the pyranose ring forms. It occurs as a white to yellowish-white, fibrous powder. Alginic Acid is described below, namely:-

Common Name	Alginic Acid
INS No.	400
C.A.S No.	9005-32-7
Chemical Name	Alginic acid
Empirical Formula	$(C_6H_8O_6)_n$
Equivalent Weight (average)	200.00

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Alginic Acid

SI. No.	Characteristic	Requirement
1	Purity as $(C_6H_8O_6)_n$, percent by mass, Min	91
2	Moisture, percent by mass, on drying at 105°C for 4 h, Max	15
3	Insoluble matter, percent by mass, Max	0.2
4	Ash (on dry basis), percent by mass, Max	4
5	Acid insoluble ash (on dry basis), percent by mass, Max	0.5
6	*Escherichia coli*	Absent (in 1 g)
7	*Salmonella*	Absent (in 1 g)
8	Arsenic, mg/kg, *Max*	3.0
9	Lead, mg/kg, *Max*	5.0

10. Guar Gum

Guar Gumshall be a white to yellowish white powder with a characteristic guar odour. Guar Gumis described below, namely:-

Common Name	Guar Gum
INS No.	412
C.A.S No.	9000-30-0
Chemical Name	Galactomannan

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Guar Gum

SI. No.	Characteristic	Requirement
1	Purity as galactomannans, percent by mass, Min	77.5
2	Acid insoluble matter, percent by mass, Max	3.0
3	Total ash, percent by mass, Max	1.5
4	Protein (N x 5.7), percent by mass, Max	6.0
5	Starch	Passes the test*
6	Loss on drying at 105 ^{0}C for 5 h, Max	12.0
7	Mould and yeast count per g, Max	500
8	*Escherichia coli*, per g, Max	Absent
9	*Salmonella* per g, Max	Absent
10	Total plate count per g, Max	5000
11	Arsenic, mg/kg, *Max*	3.0
12	Lead, mg/kg, *Max*	2.0

***Test as per BIS Standard**

11. Gum Karaya

Gum Karaya shall be a dried gummy exudation obtained from the stems and branches of *Sterculiaurens Roxb and S. Villosa* Roxb of family Sterculiaceae. The material shall be a white to amber colour in the form of tears of variable size or in broken irregular pieces. Gum Karaya is described below, namely:-

Common Name	Karaya, Gum Karaya, Sterculia, Gum Sterculia, Kadaya, Katilo, Kullo, Kuterra
INS No.	416
C.A.S No.	9000-36-6

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Gum Karaya

SI. No.	Characteristic	Requirement
1	Loss on drying, percent by mass, Max	16
2	Starch	Nil

3	Total ash, percent by mass (on dry basis), Max	8
4	Acid insoluble ash, percent by mass (on dry basis), Max	1
5	Acid insoluble matter, percent by mass (on dry basis), Max	3
6	Chlorides	Nil
7	Sulphates	Nil
8	Volatile acid (as acetic acid),percent by mass, Min	10
9	Swelling property, ml, Min	200
10	Water absorption, ml, Min	75
11	Freedom from animal filth	To pass test*
12	Salmonella	Negative (on 1 g)
13	E. coli	Negative (on 1 g)
14	Arsenic, mg/kg, *Max*	3.0
15	Lead, mg/kg, *Max*	2.0

***Test as per BIS Standard**

12. Polyglycerol esters of fatty acids

Polyglycerol esters of fatty acids shall be yellowish to amber unctuous liquids, semi-solids or waxy solids. Polyglycerol esters of fatty acids is described below, namely:-

Common Name	Polyglycerol esters of fatty acids
INS No.	475
Chemical Name	polyglycerol fatty acid ester and glyceran fatty acid esters

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Polyglycerol Esters of Fatty Acids

SI. No.	Characteristic	Requirement
1	Total fatty acid ester content, percent by mass, Min	90
2	Free fatty acids (estimated as oleic acid),percent by mass ,Max	6
3	Total glycerol and polyglycerol, percent by mass	18-60
4	Free glycerol and polyglycerol, percent by mass, Max	7

5	Sulphated ash, percent by mass, Max	0.5
6	Lead, mg/kg, *Max*	2.0
7	Zinc, mg/kg, *Max*	25
8	Copper and zinc, mg/kg, *Max*	50
9	Arsenic, mg/kg, *Max*	3.0

13. Polyglycerol Esters of Interesterified Ricinoleic Acid

Polyglycerol Esters of Interesterified Ricinoleic Acid shall be a highly viscous liquids having yellowish to brown in colour and with a typical fat-related odour. Polyglycerol Esters of Interesterified Ricinoleic Acid is described below, namely:-

Common Name	glyceran ester of condensed castor oil fatty acids and polyglycerol esters of polycondensed fatty acids from castor oil
INS No.	476
Chemical Name	Polyglycerol Esters of Interesterified Ricinoleic Acid

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Polyglycerol Esters of Interesterified Ricinoleic Acid

SI. No.	Characteristic	Requirement
1	Hydroxyl value	80-100
2	Refractive index	1.4630 to 1.4665
3	Acid value, Max (mg KOH per g)	6
4	Iodine value, Wijs	72-103
5	Lead, mg/kg, *Max*	2.0
6	Zinc, mg/kg, *Max*	25
7	Copper and zinc, mg/kg, *Max*	50
8	Arsenic, mg/kg, *Max*	3.0

14. Glycerol Esters of Wood Rosin

Glycerol Esters of Wood Rosin shall be a hard pale amber coloured resin produced by the esterification of pale wood rosin with food grade glycerin. Glycerol Esters of Wood Rosin is described below, namely:-

Common Name	Ester Gums
INS No.	445(iii)

C.A.S No.	8050-30-4
Chemical Name	Glycerol Esters of Wood Rosin

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Glycerol Esters of Wood Rosin

SI. No.	Characteristic	Requirement
1	Acid value (mg KOH/g)	3-9
2	Drop softening point, ^{0}C	15-45
3	Hydroxyl number	To pass test*
4	Lead, mg/kg, *Max*	1.0
5	Arsenic, mg/kg, *Max*	3.0

***Test as per BIS Standard**

15. Pectin

Pectin shall be available as white, yellowish, light greyish or light brownish powder. Pectin is described below, namely:-

Common Name	Pectin
INS No.	440
C.A.S No.	9000-69-5
Chemical Name	Pectin

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Pectin

SI. No.	Characteristic	Requirement
1	Loss on drying, percent by mass, Max	12
2	Sulphur dioxide, mg/kg, Max	50
3	Methanol, percent by mass, Max	1
4	Ethanol, percent by mass, Max	1
5	2-propanol, percent by mass, Max	1
6	Methanol, ethanol and 2-propanol, percent by mass, Max	1
7	Acid insoluble ash, percent by mass, Max	1
8	Total insolubles, percent by mass, Max	3
9	Nitrogen, percent by mass, Max	2.5
10	Galacturonic acid, percent by mass on ash-free and dried basis, Min	65
11	Degree of amidation, percent by mass of total	25

	carboxyl groups of pectin, Max	
12	Lead, mg/kg, *Max*	2.0
13	Copper, mg/kg, *Max*	300
14	Arsenic, mg/kg, *Max*	5.0

16. Carrageenan

Carrageenan shall be yellowish or tan to white, coarse to fine powder that is practically odourless. Carrageenan is described below, namely:-

Common Name	Carrageenan
INS No.	407
C.A.S No.	9000-07-1

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Carrageenan

SI. No.	Characteristic	Requirement
1	Loss on drying, percent by mass, on drying at 105 ^{0}C till constant weight, Max	12
2	pH(1 in 100 suspension)	8-11
3	Viscosity, at 75^0 C (1.5% solution), Min	5 cp
4	Sulfate, (as SO_4) on the dried basis, percent	15 to 40
5	Total ash, on the dried basis, percent	15 to 40
6	Acid-insoluble ash, percent, Max	1
7	Acid-insoluble matter, percent, Max	2
8	Residual solvents, percent of ethanol, isopropanol, or methanol, singly or in combination, Max	0.1
9	Total (aerobic) plate count, cfu/g, Max	5000
10	*Salmonella spp.*	Negative (per test)
11	*Escherichia coli*	Negative (in 1 g)
12	Cadmium, mg/kg, *Max*	1.5
13	Mercury, mg/kg, *Max*	1.0
14	Arsenic, mg/kg, *Max*	3.0
15	Lead, mg/kg, *Max*	5.0

3.2.12 Antioxidants

1. Butylated hydroxyanisole

Butylated hydroxy anisole shall be in the form of white or slightly yellow waxy crystalline solid with an aromatic odour. Butylated Hydroxy anisole is described below, namely:-

Common Name	BHA
INS No.	320
C.A.S No.	25013-16-5
Chemical Name	A mixture of 3- and 2-tertiary butyl-4-hydroxyanisole; a mixture of 3- and 2-tertiary butyl-4-methoxyphenol.
Empirical Formula	$C_{11}H_{16}O_2$
Molecular Weight	180.24

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Butylated Hydroxyanisole

SI. No.	Characteristic	Requirement
1	a) Purity as $C_{11}H_{16}O_2$, percent by mass, Min b) 3 tertiary butyl4-hydroxyanisole, percent by mass, Min	98.5 85
2	Melting point, ^0C	48 to 63
3	Sulphated ash, percent by mass, Max	0.05
4	Phenolic impurities, percent by mass, Max	0.5
5	Specific absorption E 1 percent (1 cm cell) in ethanol at a) 290 nm b) 228 nm	 190 Min 210 Max 326 Min 345 Max
6	Lead, mg/kg, *Max*	2.0
7	Arsenic, mg/kg, *Max*	3.0
9	Iron, mg/kg, *Max*	5.0

2. Dodecyl gallate

Dodecyl gallate shall be a creamy white waxy solid, which may have a slightly bitter taste. Dodecyl gallateis described below, namely:-

Common Name	Lauryl gallate
INS No.	312
C.A.S No.	1166-52-5

Chemical Name	Dodecyl gallate, n-dodecyl (or lauryl) ester of 3,4,5-trihydroxybenzoic acid
Empirical Formula	$C_{19}H_{30}O_5$
Molecular Weight	338.45

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Dodecyl gallate

SI. No.	Characteristic	Requirement
1	Purity as $C_{19}H_{30}O_5$, percent by mass, Min	98.5
2	Moisture, percent by mass, Max	0.5
3	Sulphated ash, percent by mass, Max	0.05
4	Chlorinated organic compounds (as Cholrine) mass, mg/kg, Max	100
5	Free acid (as gallic acid), percent by mass, Max	0.5
6	Specific absorption at 275 nm, Min Max	 300 325
7	Lead, mg/kg, *Max*	2.0
8	Arsenic, mg/kg, *Max*	3.0

3. Propyl gallate

Propyl gallate shall be a white to creamy-white crystalline, odourless solid with a slightly bitter taste. Propyl gallate is described below, namely:-

Common Name	Propyl gallate
INS No.	310
C.A.S No.	121-79-9
Chemical Name	Propyl gallate, and n-propyl ester of 3,4,5-trihydroxybenzoic acid
Empirical Formula	$C_{10}H_{12}O_5$
Molecular Weight	212.21

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Propyl Gallate

SI. No.	Characteristic	Requirement
1	Purity as $C_{10}H_{12}O_5$, percent by mass, Min	99
2	Moisture, percent by mass, Max	0.5
3	Sulphated ash, percent by mass, Max	0.05
4	Melting range, ^0C	146-150

5	Chlorinated organic compounds (as cholrine), mg/kg, Max	100
6	Free acid (as gallic acid), percent by mass, Max	0.5
7	Lead, mg/kg, *Max*	2.0
8	Arsenic, mg/kg, *Max*	3.0

4. Octyl gallate

Octyl gallate shall be a white to creamy-white odourless solid which may have a slightly bitter taste. Octyl gallate is described below, namely:-

Common Name	Octylgallate
INS No.	311
C.A.S No.	1034-01-01
Chemical Name	Octyl gallate and n-octyl ester of 3, 4, 5-trihydroxybenzoic acid
Empirical Formula	$C_{15}H_{22}O_5$
Molecular Weight	282.34

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Octyl gallate

SI. No.	Characteristic	Requirement
1	Purity as $C_{15}H_{22}O_5$, percent by mass, Min	98.5
2	Moisture, percent by mass, Max	0.5
3	Sulphated ash, percent by mass, Max	0.05
4	Melting range, ^0C	99-102
5	Chlorinated organic compounds (as cholrine), mg/kg, Max	100
6	Free acid (as gallic acid), percent by mass, Max	0.5
7	Lead, mg/kg, *Max*	2.0
8	Arsenic, mg/kg, *Max*	3.0

5. Ascorbyl palmitate

Ascorbyl palmitate shall be a white or yellowish white solid, with a citrus like odour. Ascorbyl palmitate is described below, namely:-

Common Name	Vitamin C palmitate

INS No.	304
Chemical Name	L-ascorbylpalmitate, 8-palmitoyl-3- keto-L-gulofuranolactone, 2, 3-dehydro-L threo-hexono-1, 4-lactone-6-palmitate.
Empirical Formula	$C_{22}H_{38}O_7$
Molecular Weight	414.55

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Ascorbyl Palmitate

SI. No.	Characteristic	Requirement
1	Purity as $C_{22}H_{38}O_7$, percent by mass (on dry basis), Min	95
2	Sulphated ash, percent by mass (on dry basis), Max	0.1
3	Loss on drying, percent by mass, after drying in a vacuum oven at 56-60 ^{0}C for one hour, Max	2
4	Lead, mg/kg, *Max*	2.0
5	Arsenic, mg/kg, *Max*	3.0

6. Sodium ascorbate

Sodium Ascorbate shall be a white to yellowish crystalline solid. Sodium ascorbate is described below, namely:-

Common Name	Sodium ascorbate
INS No.	301
C.A.S No.	134-03-2
Chemical Name	Vitamin C sodium, and sodium L-ascorbate.
Empirical Formula	$C_6H_7Na0_6$
Molecular Weight	198.11

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sodium Ascorbate

SI. No.	Characteristic	Requirement
1	Assay as $C_6H_7Na0_6$ (on dry basis), percent by	99 to 101

	mass	
2	Loss on drying, percent by mass, Max, after drying in vacuum over phosphorus pentoxide at 60^0C for 4 hours	0.25
3	Lead, mg/kg, *Max*	2.0
4	Arsenic, mg/kg, *Max*	3.0

3.2.13 Flavour enhancers

1. Monosodium L-glutamate

Monosodium L-glutamate shall be in the form of white, practically odourless crystals or crystalline powder. It may have either a slightly sweet or a slightly salty taste. Monosodium L-glutamate is described below, namely:-

Common Name	Sodium glutamate, MSG
INS No.	621
C.A.S No.	142-47-2
Chemical Name	monosodium L-glutamate monohydrate, sodium glutamate, MSG
Empirical Formula	$C_5H_80_4NNaH_20$
Molecular Weight	187.13

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Monosodium L-glutamate

SI. No.	Characteristic	Requirement
1	Purity as ($C_5H_80_4NNaH_20$), percent by mass, Min	99
2	Loss on drying, percent by mass, at 98 ^{0}C for 5h, Max	0.5
3	Chloride, percent by mass, Max	0.2
4	Lead, mg/kg, *Max*	1.0
5	Arsenic, mg/kg, *Max*	2.0

3.2.14 Glazing Agent

1. Mineral Oil /Medium viscosity

Mineral oil, food grade is a mixture of liquid hydrocarbons, essentially parafinic and napthenic in nature, obtained from petroleum, refined by the use of oleum. This shall

exclude mineral oils produced by the hydrogenation process unless they have been subsequently refined by the use of oleum and exclude other types of white mineral oils to which antioxidants may have been added for technological purposes. Mineral oil, food grade shall be colourless, transparent and oily liquid and free from fluorescence. It is odourless and tasteless. Mineral Oil (low viscosity) is described below, namely:-

Common Name	Liquid paraffin, liquid petrolatum, food grade mineral oil, white mineral oil
INS No.	905e
C.A.S No.	8012-95-1

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Mineral Oil (low viscosity)

SI. No.	Characteristic	Requirement
1	Acidity or alkalinity	To Pass the test*
2	Readily carbonizable substances	To Pass the test*
3	Polynuclear aromatic hydrocarbons, absorbance at wave lengths between 260-350 nm, Max	0.10
4	Solid paraffins	To Pass the test*
5	Sulphurs (as SO_4)	To Pass the test*
6	Lead, mg/kg, *Max*	1.0
7	Arsenic, mg/kg, *Max*	1.0

***Test as per BIS Standard**

2. Mineral Oil (High viscosity)

A mixture of highly refined paraffinic and naphthenic liquid hydrocarbons with boiling point above 350^0 ; obtained from mineral crude oils through various refining steps (e.g. distillation, extraction and crystallization) and subsequent purification by acid and/or catalytic hydro treatment; may contain antioxidants approved for food use. Mineral oil, food grade shall be colourless, transparent and oily liquid and free from fluorescence. It is odourless and tasteless.

Mineral Oil (High viscosity)*is described below, namely:-

Common Name	Liquid paraffin, liquid petrolatum, food grade mineral oil, white mineral oil
INS No.	905a, (905d)
C.A.S No.	8012-95-1

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Mineral Oil (High viscosity)

SI. No.	Characteristic	Requirement
1	Acidity or alkalinity	To Pass the test*
2	Readily carbonizable substances	To Pass the test*
3	Polynuclear aromatic hydrocarbons, absorbance at wave lengths between 260-350 nm, Max	0.10*
4	Solid paraffins	To Passthe test*
5	Sulphurs (as SO_4)	To Pass the test*
6	Lead, mg/kg, *Max*	1.0
7	Arsenic, mg/kg, *Max*	1.0

***Test as per BIS Standard**

3.2.15 Humectant/Wetting Agent/ Dispersing Agent

1.Propylene glycol

Propylene Glycol shall be a clear, colourless, practically odourless, viscous liquid having a slight characteristic taste. Propylene glycol is described below, namely:-

Common Name	Propylene glycol
INS No.	1520
C.A.S No.	57-55-6
Chemical Name	1, 2-propanediol, 1, 2 dihydroxypropane and methyl glycol
Empirical Formula	$C_6H_80_2$
Molecular Weight	76.1

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Propylene Glycol

SI. No.	Characteristic	Requirement
1	Purity as $C_6H_80_2$, percent by mass, Min	99.5
2	Moisture, percent by mass, Max	0.2
3	Acidity	To pass test*
4	Sulphated ash (on dry basis), percent by mass, Max	0.007
5	Presence of other polyhydroxy compounds	Absent
6	Ethylene glycol	Absent
7	Lead, mg/kg, *Max*	2.0
8	Arsenic, mg/kg, *Max*	3.0

***Test as per BIS Standard**

3.2.16 Sweetner/Humectant/Sequestrant

1. Sorbitol

Sorbitol shall be white hygroscopic powder having a sweet taste. Sorbitol is described below, namely:-

Sorbitol is described below, namely:-

Common Name	Sorbitol
INS No.	420
C.A.S No.	50-70-4
Chemical Name	d-sorbitol, d-glucitol, d-sorbite, d-sorbol, and 1,2,3,4,5,6-hevanehexal
Empirical Formula	$C_6H_{14}O_6$
Molecular Weight	182.17

The material shall conform to the requirements prescribed in Table below:-

TABLE

Requirements for Sorbitol

SI. No.	Characteristic	Requirement
1	Purity, as d sorbitol $C_6H_{14}O_6$, percent by mass. Mi*n*	91 or 99[D]
2	Moisture percent by mass, *Max*	1
3	Melting range a) Metastable b) Stable	 92.5 ^{0}C to 93.5 ^{0}C 96 ^{0}C to 97.5 ^{0}C
4	Reducing sugars, percent by mass, *Max*	0.2
5	Sulphated ash, percent by mass, Max	0.1
6	Sulphates (as SO_4) percent by mass, Max	0.01
7	Chlorides (as Cl) percent by mass *Max*	0.005
8	Arsenic , mg/kg, *Max*	3.0
9	Lead , mg/kg, *Max*	1.0
10	Nickel, mg/kg, *Max*	2.0

[D] Depending on the method of test used for analysis."