01/2005:1041

SORBITAN OLEATE

Sorbitani oleas

DEFINITION

Mixture usually obtained by esterification of 1 mole of sorbitol and its mono-and di-anhydrides per mole of oleic acid. A suitable antioxidant may be added.

CHARACTERS

Appearance: brownish-yellow, viscous liquid.

Solubility: practically insoluble but dispersible in water, soluble in fatty oils producing a hazy solution, miscible with alcohol.

Relative density: about 0.99.

IDENTIFICATION

A. It complies with the test for hydroxyl value (see Tests).

B. It complies with the test for iodine value (see Tests).

C. It complies with the test for composition of fatty acids (see Tests).

Margaric acid: maximum 0.2 per cent for oleic acid of vegetable origin and maximum 4.0 per cent for oleic acid of animal origin.

TESTS

Acid value (*2.5.1*): maximum 8.0, determined on 5.0 g.

Hydroxyl value (*2.5.3, Method A*): 190 to 210.

Iodine value (*2.5.4*): 62 to 76.

Peroxide value (*2.5.5*): maximum 10.0.

Saponification value (*2.5.6*): 145 to 160.

Carry out the saponification for 1 h.

Composition of fatty acids. Gas chromatography (*2.4.22, Method C*).

Composition of the fatty acid fraction of the substance:

– *myristic acid*: maximum 5.0 per cent,
– *palmitic acid*: maximum 16.0 per cent,
– *palmitoleic acid*: maximum 8.0 per cent,
– *stearic acid*: maximum 6.0 per cent,
– *oleic acid*: 65.0 per cent to 88.0 per cent,
– *linoleic acid*: maximum 18.0 per cent,
– *linolenic acid*: maximum 4.0 per cent,
– *fatty acids with chain length greater than* C_{18}: maximum 4.0 per cent.

Heavy metals (*2.4.8*): maximum 10 ppm.

2.0 g complies with limit test D. Prepare the standard using 2 ml of *lead standard solution (10 ppm Pb) R*.

Water (*2.5.12*): maximum 1.5 per cent, determined on 1.000 g.

Total ash (*2.4.16*): maximum 0.5 per cent, determined on 1.5 g.

STORAGE

Protected from light.

LABELLING

The label states:

– the name and concentration of any added antioxidant,
– the origin of the oleic acid used (animal or vegetable).

01/2005:1042

SORBITAN PALMITATE

Sorbitani palmitas

DEFINITION

Mixture usually obtained by partial esterification of sorbitol and its mono- and di-anhydrides with palmitic acid.

CHARACTERS

Appearance: yellow or yellowish powder, waxy flakes or hard masses.

Solubility: practically insoluble in water, soluble in fatty oils, slightly soluble in alcohol.

IDENTIFICATION

A. Melting point (*2.2.15*): 44 °C to 51 °C.

Introduce the melted substance into the glass capillary tubes and allow to stand at a temperature below 10 °C for 24 h.

B. It complies with the test for hydroxyl value (see Tests).

C. It complies with the test for composition of fatty acids (see Tests).

TESTS

Acid value (*2.5.1*): maximum 8.0, determined on 5.0 g.

Hydroxyl value (*2.5.3, Method A*): 270 to 305.

Peroxide value (*2.5.5*): maximum 5.0.

Saponification value (*2.5.6*): 140 to 155.

Carry out the saponification for 1 h.

Composition of fatty acids. Gas chromatography (*2.4.22, Method C*).

Composition of the fatty acid fraction of the substance:

– *palmitic acid*: minimum 92.0 per cent,
– *stearic acid*: maximum 6.0 per cent.

Heavy metals (*2.4.8*): maximum 10 ppm.

2.0 g complies with limit test D. Prepare the standard using 2 ml of *lead standard solution (10 ppm Pb) R*.

Water (*2.5.12*): maximum 1.5 per cent, determined on 1.00 g.

Total ash (*2.4.16*): maximum 0.5 per cent.

STORAGE

Protected from light.

01/2005:1916

SORBITAN SESQUIOLEATE

Sorbitani sesquioleas

DEFINITION

Mixture usually obtained by esterification of 2 moles of sorbitol and its mono- and di-anhydrides per 3 moles of oleic acid. A suitable antioxidant may be added.

CHARACTERS

Appearance: pale yellow or slightly brownish-yellow paste, which becomes a viscous, oily, brownish-yellow liquid at about 25 °C.

Solubility: dispersible in water, soluble in fatty oils, slightly soluble in ethanol.

Relative density: about 0.99.

IDENTIFICATION

A. It complies with the test for hydroxyl value (see Tests).

B. It complies with the test for iodine value (see Tests).

C. It complies with the test for composition of fatty acids (see Tests).

Margaric acid: maximum 0.2 per cent for oleic acid of vegetable origin and maximum 4.0 per cent for oleic acid of animal origin.

TESTS

Acid value (*2.5.1*): maximum 16.0, determined on 5.0 g.

Hydroxyl value (*2.5.3, Method A*): 180 to 215.

Iodine value (*2.5.4*): 70 to 95.

Peroxide value (*2.5.5*): maximum 10.0.

Saponification value (*2.5.6*): 145 to 166.

Carry out the saponification for 1 h.

Composition of fatty acids. Gas chromatography (*2.4.22, Method C*).

Composition of the fatty acid fraction of the substance:

– *myristic acid*: maximum 5.0 per cent,
– *palmitic acid*: maximum 16.0 per cent,
– *palmitoleic acid*: maximum 8.0 per cent,
– *stearic acid*: maximum 6.0 per cent,
– *oleic acid*: 65.0 per cent to 88.0 per cent,
– *linoleic acid*: maximum 18.0 per cent,
– *linolenic acid*: maximum 4.0 per cent,
– *fatty acids with chain length greater than* C_{18}: maximum 4.0 per cent.

Heavy metals (*2.4.8*): maximum 10 ppm.

2.0 g complies with limit test D. Prepare the standard using 2 ml of *lead standard solution (10 ppm Pb) R*.

Water (*2.5.12*): maximum 1.5 per cent, determined on 1.000 g.

Total ash (*2.4.16*): maximum 0.5 per cent, determined on 1.5 g.

STORAGE

Protected from light.

LABELLING

The label states:

– the name and concentration of any added antioxidant,
– the origin of the oleic acid used (animal or vegetable).

01/2005:1043

SORBITAN STEARATE

Sorbitani stearas

DEFINITION

Mixture usually obtained by partial esterification of sorbitol and its mono- and di-anhydrides with *Stearic acid 50 (1474)* or *Stearic acid 70 (1474)*.

CHARACTERS

Appearance: pale yellow, waxy solid.

Solubility: practically insoluble, but dispersible in water, slightly soluble in alcohol.

IDENTIFICATION

A. Melting point (*2.2.15*): 50 °C to 60 °C.
Introduce the melted substance into the capillary tubes and allow to stand at a temperature below 10 °C for 24 h.

B. It complies with the test for hydroxyl value (see Tests).

C. It complies with the test for composition of fatty acids (see Tests).

TESTS

Acid value (*2.5.1*): maximum 10.0, determined on 5.0 g.

Hydroxyl value (*2.5.3, Method A*): 235 to 260.

Peroxide value (*2.5.5*): maximum 5.0.

Saponification value (*2.5.6*): 147 to 157.

Carry out the saponification for 1 h.

Composition of fatty acids. Gas chromatography (*2.4.22, Method C*).

Composition of the fatty acid fraction of the subtance:

	Type of fatty acid used	Composition of fatty acids
Sorbitan stearate (type I)	Stearic acid 50	*Stearic acid*: 40.0 per cent to 60.0 per cent, *Sum of the contents of palmitic and stearic acids*: minimum 90.0 per cent.
Sorbitan stearate (type II)	Stearic acid 70	*Stearic acid*: 60.0 per cent to 80.0 per cent, *Sum of the contents of palmitic and stearic acids*: minimum 90.0 per cent.

Heavy metals (*2.4.8*): maximum 10 ppm.

2.0 g complies with limit test D. Prepare the standard using 2 ml of *lead standard solution (10 ppm Pb) R*.

Water (*2.5.12*): maximum 1.5 per cent, determined on 1.00 g.

Total ash (*2.4.16*): maximum 0.5 per cent.

STORAGE

Protected from light.

LABELLING

The label states the type of sorbitan stearate.

01/2005:1044

SORBITAN TRIOLEATE

Sorbitani trioleas

DEFINITION

Mixture usually obtained by esterification of 1 mole of sorbitol and its mono-anhydride per 3 moles of oleic acid. A suitable antioxidant may be added.

CHARACTERS

Appearance: pale yellow, light yellowish or brown solid, which becomes a viscous, oily, brownish-yellow liquid at about 25 °C.

Solubility: practically insoluble but dispersible in water, soluble in fatty oils, slightly soluble in alcohol.

Relative density: about 0.98.

IDENTIFICATION

A. It complies with the test for hydroxyl value (see Tests).

B. It complies with the test for iodine value (see Tests).

C. It complies with the test for composition of fatty acids (see Tests).

Margaric acid: maximum 0.2 per cent for oleic acid of vegetable origin and maximum 4.0 per cent for oleic acid of animal origin.