

**Solubility** Soluble in water

**Comments** Used as an emulsifier for pharmaceutical emulsions and aids solubilization.

### 18 Comments

Sucrose palmitate has shown a promising stabilizing effect on the droplet size of a soya bean oil nanoemulsion when used in combination with phosphatidyl choline and sodium palmitate.<sup>(12)</sup> It has also been investigated for the formulation of niosomes for peroral vaccine delivery.<sup>(13)</sup>

Ryoto sugar ester is widely used in foods such as wheat products, dairy products, bread and bakery products, confectionery, and packed beverages.

The EINECS number of sucrose palmitate is 247-706-7. The PubChem Compound ID (CID) for sucrose palmitate is 518683.

### 19 Specific References

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- Szuts A, *et al.* Study of gel-forming properties of sucrose esters for thermosensitive drug delivery systems. *Int J Pharm* 2010; 383: 132–137.

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- FAO/WHO. Sucrose esters of fatty acids and sucroglycerides (WHO Food Additives Series 35). <http://www.inchem.org/documents/jecfa/jecmono/v35je06.htm> (accessed 19 October 2015).
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- Takegami S, *et al.* Preparation and characterization of a new lipid nanoemulsion containing two cosurfactants, sodium palmitate for droplet size reduction and sucrose palmitate for stability enhancement. *Chem Pharm Bull* 2008; 56: 1097–1102.
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### 20 General References

- Mitsubishi-Kagaku Foods Corporation. Product information: Sugar esters. <http://www.mfc.co.jp/english/index.htm> (accessed 19 October 2015).
- Sisterna BV. Product information: *Sisterna*. <http://www.sisterna.com> (accessed 19 October 2015).
- Stearinerie Dubois Fils. Product information: *DUB SE*. [http://www.stearinerie-dubois.com/gammes/template\\_e.php?gamme=4](http://www.stearinerie-dubois.com/gammes/template_e.php?gamme=4) (accessed 19 October 2015).

### 21 Authors

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### 22 Date of Revision

4 May 2017.

## Sucrose Stearate

### 1 Nonproprietary Names

BP: Sucrose Stearate

PhEur: Sucrose Stearate

USP–NF: Sucrose Stearate

### 2 Synonyms

*Crodesta F*; E473; sacchari stearas; saccharose stearate; *Sisterna SP*; *STELLIESTERS SE 5S*; sucrose monostearate; sucrose monostearic acid ester; sucrose octadecanoate; sucrose stearate ester; *Surfhope SE*; *Tegosoft PSE*.

### 3 Chemical Name and CAS Registry Number

Sucrose monostearate [25168-73-4]

Sucrose distearate [27195-16-0]

Sucrose tristearate [27923-63-3]

### 4 Empirical Formula and Molecular Weight

$C_{30}H_{56}O_{12}$  (sucrose monostearate) 608.72

$C_{48}H_{90}O_{13}$  (sucrose distearate) 875.22

$C_{66}H_{124}O_{14}$  (sucrose tristearate) 1141.68

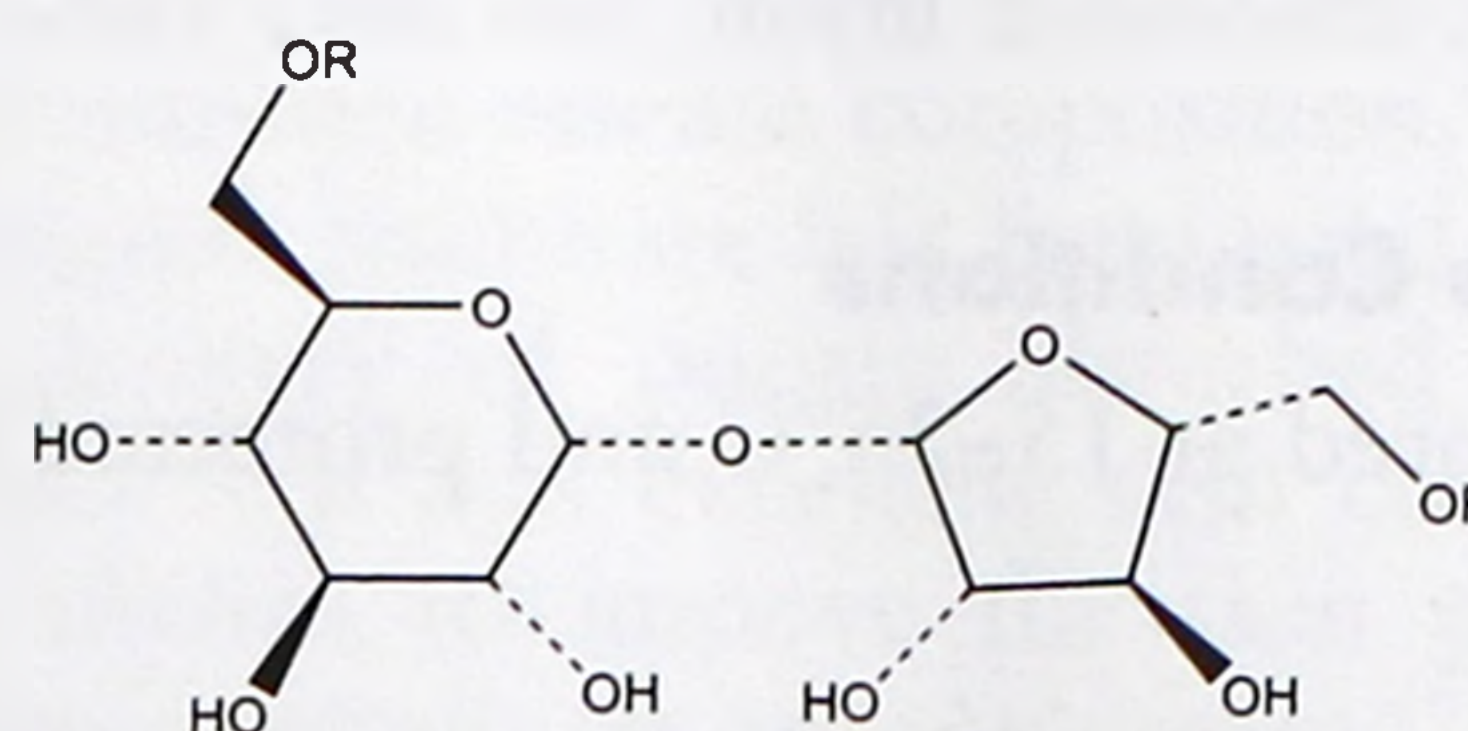
Sucrose stearate, a sucrose fatty acid ester, is a nonionic surfactant with a sugar substituent, sucrose, as the polar head

group and stearic acids as apolar groups. Sucrose has eight free hydroxyl groups and can therefore be esterified with up to eight fatty acids to form esters ranging from monoesters to octaesters.

The USP 40–NF 35 S1 and PhEur 9.2 describe sucrose stearate as a mixture of sucrose esters, mainly sucrose stearate, obtained by transesterification of stearic acid methyl esters derived from vegetable origin with sucrose. It contains variable quantities of mono-, di-, tri-, and polyesters.

The mono- and diesters requirements differ for Type I and Type II sucrose stearate in the USP–NF, and Type I, Type II, and Type III sucrose stearate in the PhEur.

### 5 Structural Formula



R = H or

