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21 Authors

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22 Date of Revision

21 April 2017.

Butyl Stearate

1 Nonproprietary Names

USP–NF: Butyl Stearate

2 Synonyms

Butyl octadecanoate; *Butyl Stearate*; *Crodamol BS*; *n*-butyl octadecanoate; *n*-butyl stearate; *Histar BS*; octadecanoic acid, butyl ester.

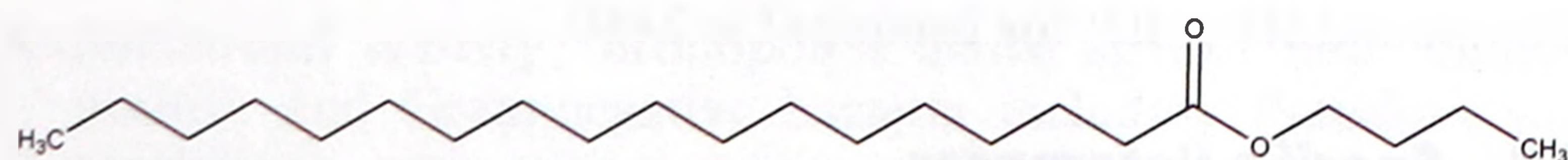
3 Chemical Name and CAS Registry Number

Butyl octadecanoate [123-95-5]

4 Empirical Formula and Molecular Weight

$C_{22}H_{44}O_2$ 340.58

5 Structural Formula



6 Functional Category

Emollient; plasticizing agent.

7 Applications in Pharmaceutical Formulation or Technology

Butyl stearate is used as an emollient in pharmaceutical preparations such as topical emulsions, lotions and creams, normally up to a concentration of 3.7%.⁽¹⁾ It can be used as a plasticizer in film-coating formulations of ethylcellulose.⁽²⁾

8 Description

The USP 40–NF 35 S1 states that butyl stearate consists of the esters of butyl alcohol and fatty acids composed chiefly of stearic acid ($C_{18}H_{36}O_2$) and a minor amount of palmitic acid ($C_{16}H_{32}O_2$).

At room temperature it is a practically odorless, colorless or yellowish liquid, and at lower temperatures it is an oily solid.

9 Pharmacopeial Specifications

See Table I.

10 Typical Properties

- Boiling point** 343–360°C
- Density** 0.86–0.88 g/cm³ at 20°C
- Flash point** Approx 160°C (closed cup); 196°C (open cup)
- Refractive index** $n_D^{20} = 1.442$
- Solubility** Soluble in acetone, ethanol, ether, mineral and vegetable oils; practically insoluble in water and propylene glycol.
- Specific gravity** 0.853–0.860 at 20°C
- Surface tension** 30 mN/m at 20°C
- Vapor density (relative)** 11.4 (air = 1)