

STEARYL CITRATE

Prepared at the 17th JECFA (1973), published in FNP 4 (1978) and in FNP 52 (1992). Metals and arsenic specifications revised at the 55th JECFA (2000). An ADI of 0-50 mg/kg bw was established at the 17th JECFA (1973)

SYNONYMS

INS No. 484

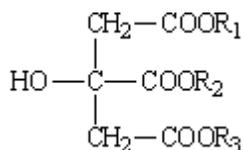
DEFINITION

Formed by esterifying citric acid with commercial stearyl alcohol, which consists essentially of n-octadecanol and up to 50% of n-hexadecanol and conforms to the following specifications.

The article of commerce can be further specified by saponification value, total content and composition of stearyl alcohol, iodine value, acid value, and citric acid content.

Structural formula

(approximate composition)



where

R₁, R₂ and R₃ each may be C₁₈H₃₇ (stearyl), C₁₆H₃₃ (palmityl) or H

DESCRIPTION

Cream-coloured unctuous substance

FUNCTIONAL USES Emulsifier, sequestrant

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)

Insoluble in water and in cold ethanol. Soluble in hot ethanol

Test for stearyl alcohol

Hydrolyse approximately 2 g of the sample by heating with 50 ml sodium hydroxide TS under reflux for 1 h. Cool and extract the aqueous solution with petroleum ether, evaporate the petroleum ether in an evaporating dish. The residue has a melting range of 43° to 58°.

Test for citrate

To 5 ml of the aqueous solution obtained in the Test for stearyl alcohol, add 1 ml of calcium chloride TS and 3 drops of bromothymol blue TS and slightly acidify with dilute hydrochloric acid TS. Add sodium hydroxide TS until the colour changes to a clear blue, then boil the solution for 3 min, agitating it gently during the heating period: a white crystalline precipitate appears which is insoluble in sodium hydroxide TS but is soluble in acetic acid TS.

To 10 ml of the aqueous solution obtained in the Test for stearyl alcohol, add 1 ml of mercuric sulfate TS. Heat the mixture to boiling, and add a few

drops of potassium permanganate TS: a white precipitate of the acetone dicarboxylic acid salt of mercury is formed.

PURITY

Other acids and alcohols Acids other than citric and alcohols other than those present in commercial stearyl alcohol must not be present

Chloroform insoluble matter Not more than 0.5%
Dissolve about 50.0 g of sample in 400 ml chloroform. Filter the solution through a sintered glass filter of porosity 3 previously weighed to the nearest 0.001 g. Keep the filter warm and wash the residue in the filter with chloroform, then dry at 100°.

Lead (Vol. 4) Not more than 2 mg/kg
Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, "Instrumental Methods."