DILAURYL THIODIPROPIONATE

Prepared at the 17th JECFA (1973), published in FNP 4 (1978) and FNP 52 (1992). Metals and arsenic specifications revised at the 61st JECFA (2003). An ADI of 0-3 mg/kg bw was established at the 17thJECFA (1973)

SYNONYMS INS No. 389

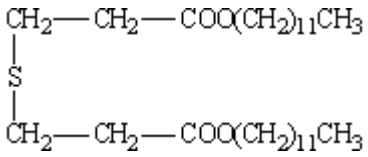
DEFINITION Ester of thiodipropionic acid and a food grade lauryl alcohol

Chemical names Didodecyl 3,3'-thiodipropionic acid, dilauryl ester of ß,ß'-thiodi-propionic acid

C.A.S. number 123-28-4

Chemical formula $C_{30}H_{58}O_4S$

Structural formula



Formula weight 514.86

Assay Not less than 99%

DESCRIPTION White crystalline flakes having a characteristic sweetish ester-like odour

FUNCTIONAL USES Antioxidant

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Insoluble in water, soluble in ethanol and ether

Solidification point (Vol. 4) Not below 40°

Saponification value (Vol. 4) 205 - 215

PURITY

Acidity Not more than 0.2% (as thiopropionic acid)
To 50 ml of a mixture of 1 part of methanol and 3 parts of benzene, add 5 drops of phenolphthalein TS and neutralize with ethanolic potassium hydroxide. Add 2 g, accurately weighed, of the sample, swirl to dissolve and titrate with 0.1 N ethanolic potassium hydroxide. Each ml of 0.1 N ethanolic potassium hydroxide is equivalent to 8.91 mg $C_6H_{10}O_4S$.

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.”

METHOD OF ASSAY

Weigh out 0.700 g of the sample, transfer to a 250-ml Erlenmeyer flask, add 100 ml of acetic acid and 50 ml of ethanol, and heat the mixture gently until the sample dissolves completely. Add 3 ml of hydrochloric acid and 4 drops of p-ethoxy-chrysoidin TS and immediately titrate with 0.1 N bromide-bromate TS. As the end-point is approached (pink colour), add 4 more drops of the indicator solution and continue the titration, dropwise, to a colour change from red to pale yellow. Perform a blank determination and make any necessary correction. Each ml of 0.1 N bromide-bromate TS is equivalent to 25.74 mg of $C_{30}H_{58}O_4S$. Convert to percentage and subtract thiodipropionic acid content determined in the Acidity test to obtain percentage of $C_{30}H_{58}O_4S$.