

**20 General References**

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Gattefossé. Product literature: *Compritol 888 ATO*, 2012.

Hamdani J, et al. Physical and thermal characterization of *Precirol* and *Compritol* as lipophilic glycerides used for the preparation of controlled-release matrix pellets. *Int J Pharm* 2003; 260(1): 47–57.

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**22 Date of Revision**

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# Glyceryl Laurate

**1 Nonproprietary Names**

None adopted.

**2 Synonyms**

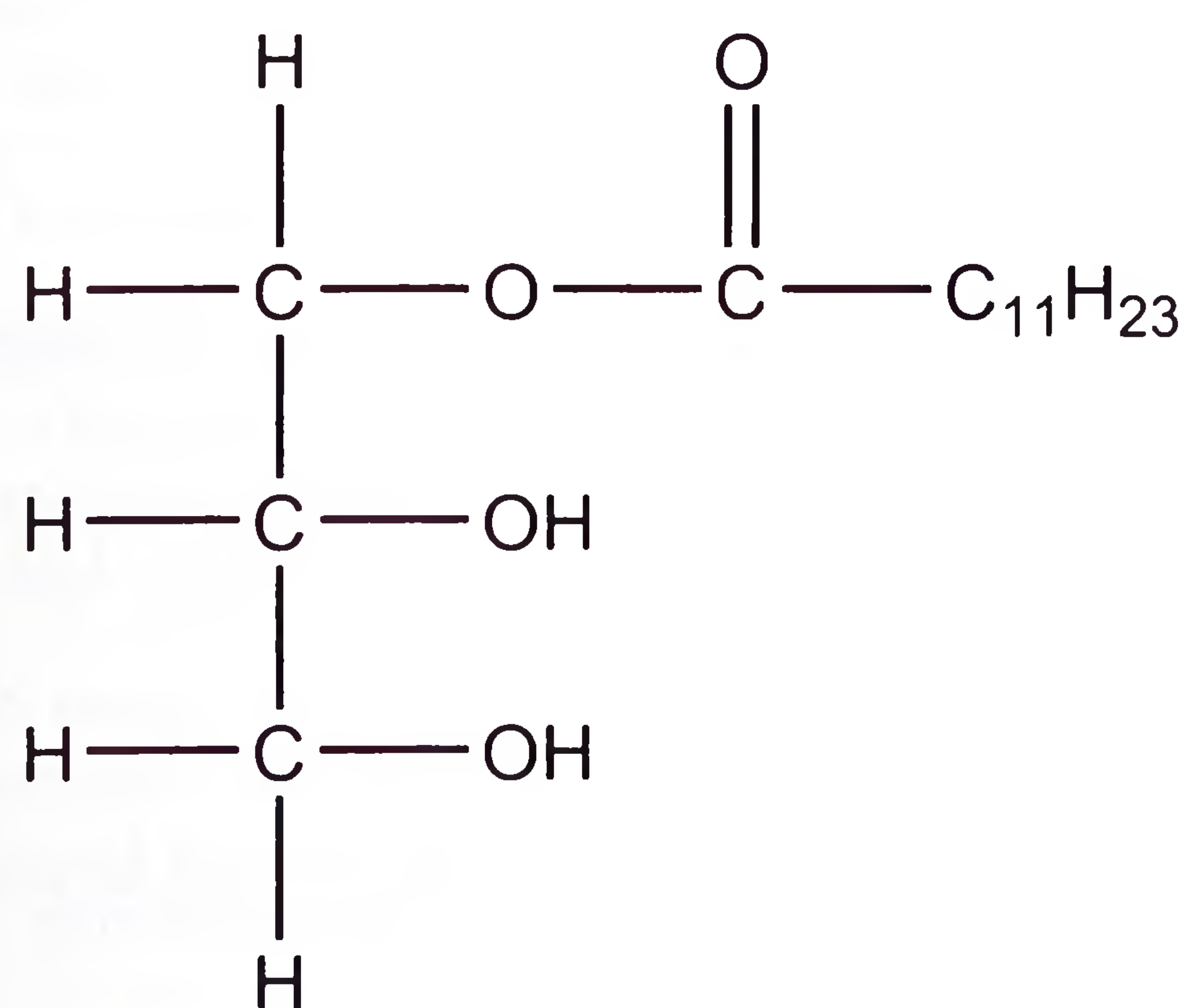
*Aldo MLD KFG*; *Cithrol GML*; *Colonial Monolaurin*; dodecanoic acid, 2,3-dihydroxypropyl ester; dodecanoic acid, monoester with 1,2,3-propanetriol; glycerol laurate; glycerol monolaurate; glycerin 1-monolaurate; glyceryl monolaurate; GML; *Imwitor 312*; *lauricidin*; 1-lauroyl-rac-glycerol; *Lumulse GML K*; 1-monolaurin; monolaurin; *Ultrapure GML*.

**3 Chemical Name and CAS Registry Number**

2,3-dihydroxypropyl dodecanoate [142-18-7]

**4 Empirical Formula and Molecular Weight**

$C_{15}H_{30}O_4$  274.40

**5 Structural Formula****6 Functional Category**

Emollient; emulsifying agent; emulsion stabilizing agent; solubilizing agent; nonionic surfactant; viscosity-increasing agent.

**7 Applications in Pharmaceutical Formulation or Technology**

Glyceryl laurate is used as a nonionic emulsifier, stabilizer, emollient, and thickener in topical pharmaceutical applications. Glyceryl laurate is reported to have some antimicrobial activity,<sup>(1-7)</sup> and penetration enhancing effect.<sup>(8,9)</sup> The absorption enhancing effect of glyceryl laurate<sup>(10,11)</sup> and its chitosan copolymers<sup>(12)</sup> has also been investigated, and is attributed to the ability of glyceryl laurate to increase the solubility of the active drug.<sup>(10)</sup>

Glyceryl laurate is available in both nonemulsifying (n/e) and self-emulsifying (s/e) grades, the self-emulsifying grade containing some sodium and/or potassium laurate.

**8 Description**

Glyceryl laurate occurs as a white to off-white powder, granules, pastilles, waxy beads, or cream-colored paste, with a faint fatty odor.

**9 Pharmacopeial Specifications****10 Typical Properties**

*Acidity/alkalinity* pH = 8–8.6

*Acid value*  $\geq 3$

*Density* 0.98 g/cm<sup>3</sup>

*Flash point* 182°C<sup>(13)</sup>

*HLB value* 5.2

*Hydroxyl value* 395

*Iodine value* <1

*Melting point* 23–27°C (see also Section 13)

*Saponification value* 200–210

*Solubility* Soluble in chloroform, methanol, ethanol, toluene, naphtha and mineral oil; practically insoluble in water but may be dispersed in water at 60°C. The self-emulsifying grade is dispersible in water.

*Specific gravity* 0.96<sup>(13)</sup>

**11 Stability and Storage Conditions**

Glyceryl laurate should be stored in a closed container in a cool, dry environment away from strong oxidizing and reducing agents. Avoid excessive heat and light.

**12 Incompatibilities**

Glyceryl laurate is incompatible with strong oxidising agents, acids, alkalis, and spontaneously flammable products.

Glyceryl laurate's antimicrobial action is inactivated by ethoxylated and propoxylated nonionics such as polysorbate 80 (see also Polyoxyethylene Sorbitan Fatty Acid Esters), and sodium lauryl sarcosine.<sup>(14)</sup>

**13 Method of Manufacture**

Glyceryl laurate is a monoester prepared by the direct esterification of glycerin and lauric acid derived from vegetable sources. Commercially a transesterification glycerolysis reaction is used for the production of monoglycerides.<sup>(14)</sup> The composition and, therefore, the physical properties of glyceryl laurate may vary considerably