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21 Authors

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22 Date of Revision

4 May 2017.

Aluminum Monostearate

1 Nonproprietary Names

BP: Aluminium Stearate
JP: Aluminum Monostearate
PhEur: Aluminium Stearate
USP–NF: Aluminum Monostearate

2 Synonyms

Aluminii stearas; aluminum stearate; aluminum, dihydroxy (octadecanoate-*O*-); dihydroxyaluminum monostearate; octadecanoic acid aluminum salt; stearic acid aluminum salt; stearic acid aluminum dihydroxide salt; *Synpro*.

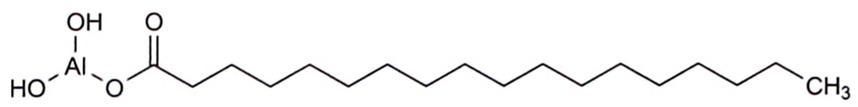
3 Chemical Name and CAS Registry Number

Aluminum monostearate [7047-84-9]

4 Empirical Formula and Molecular Weight

$C_{18}H_{37}AlO_4$ 344.50

5 Structural Formula



6 Functional Category

Emollient; emulsion stabilizing agent; gelling agent; opacifier; viscosity-increasing agent.

7 Applications in Pharmaceutical Formulation or Technology

Aluminum monostearate is mainly used in microencapsulation[1-5] and in the manufacture of ointments. Aluminum monostearate produces a high gel strength and is used as a thixotropic agent and viscosity-increasing agent in nonaqueous cosmetic and pharmaceutical formulations.

8 Description

Aluminum monostearate is an aluminum compound of stearic acid and palmitic acid. The USP–NF states that aluminum monostearate contains the equivalent of not less than 14.5% and not more than 16.5% of Al_2O_3, calculated on the dried basis. The JP states that it contains not less than 7.2% and not more than 8.9% of aluminum. The value given by the PhEur is not less than 3.0% and not more than 9.0% of Aluminum (dried substance).

Aluminum monostearate occurs as a white, fine, bulky powder with a slight odor of fatty acid. It is a solid material.

9 Pharmacopeial Specifications

See Table I. *See also* Section 18.

10 Typical Properties

See Table II.
Melting point 220–225°C
Solubility Practically insoluble in water. Soluble in ethanol (95%) and benzene.
Specific gravity 1.14

11 Stability and Storage Conditions

Aluminum monostearate should be stored in a well-closed container in a cool, dry, place. It is stable under ordinary conditions of use and storage.

12 Incompatibilities

Aluminum monostearate is incompatible with oxidizing agents.

13 Method of Manufacture

Aluminum monostearate is prepared by reacting aluminum with stearic acid.