

Stearic Acid Encyclopedia Article

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Stearic Acid

Stearic acid (or n-octadecanoic acid) has a chemical formula of $\text{CH}_3(\text{CH}_2)_{16}\text{COOH}$ and is a straight chain **molecule**. It is one of the most commonly found saturated **fatty acids** and it occurs as glycerides in the majority of animal and vegetable fats. It can account for 25% of the composition of animal fat. Stearic acid was isolated and named by French chemist Michel-Eugène Chevreul (1786-1889), who also isolated palmitic acid and oleic acid.

Stearic acid is particularly abundant in the harder fats with higher melting points. Pure stearic acid has a melting point of 158°F (70°C) and a **boiling point** of 709°F (376°C) at which **temperature** it shows thermal decomposition. Stearic acid, along with palmitic acid, can be used to make candles. Stearic acid is also used in the manufacture of suppositories. Like all fatty acids stearic acid is insoluble in **water**, but is soluble in **ether** and hot **alcohol**.

The **sodium** and **potassium** salts of stearic acid are soaps, sodium or potassium stearate. Stearic acid can be utilized in the Krebs tricarboxylic acid cycle where it can yield some 180 molecules of ATP (compared to sugar which will yield only 38 molecules).