

Squalene

Product Information

Name: 2,6,10,15,19,23-hexamethyl-2,6,10,14,18,22-tetracosahexaene

Chemical Formula: C₃₀H₅₀

CASN: 111-02-4

Hydrophobicity: Shows hydrophobic effect

Stability: Relatively stable under autoxidation conditions

Density: 0.8584

Boiling Point: About 330°C (normal pressure)

Solubility: Soluble in ether, petroleum ether, acetone, carbon tetrachloride, and n-hexane. Slightly soluble in ethanol and acetic acid. Insoluble in water.

Product Introduction

Squalene (CAS: 7683-64-9) is a colorless oily liquid that undergoes viscosity changes upon oxidation. It is an unsaturated triterpenoid compound consisting of 6 isoprenes linked together, serving as a crucial intermediate in the human body's cholesterol metabolism pathway. With 6 isoprene double bonds, squalene is a terpenoid compound known for its robust antioxidant and free radical scavenging effects, produced during metabolic processes like cholesterol synthesis.

Squalene exhibits diverse bioactive effects, including enhancing hypoxia tolerance, inhibiting microbial growth, acting as an antibacterial and anti-inflammatory agent, and regulating cholesterol metabolism. Moreover, it possesses the ability to quench singlet oxygen, effectively shielding the skin from lipid peroxidation and safeguarding cells against oxidative DNA damage. This substance plays a pivotal role in preventing cardiovascular diseases, boosting human immunity, and exhibiting anti-tumor properties.

The ingestion of squalene significantly enhances hypoxia tolerance. Mouse experiments have demonstrated prolonged survival times under normal pressure hypoxia and sodium nitrite poisoning conditions. A study by the Fujian Provincial Center for Disease Control and Prevention revealed that after administering squalene to mice for 30 days, the survival and panting times of the medium- and high-dose groups notably increased under sodium nitrite injection and acute cerebral ischemic hypoxia conditions, with no observed toxicity. Notably, dietary squalene boasts an absorption rate as high as 60% to 85%, making it a widely utilized functional ingredient in hypoxia-resistant health foods.

Applications

Squalene, an unsaturated hydrocarbon naturally occurring in animal and vegetable oils, boasts diverse properties that render it valuable across various industries, including cosmetics, food, and pharmaceuticals.

In the Daily Chemical Industry:

Squalene offers multiple skin health benefits, serving as a protective shield against UV radiation and functioning as an antioxidant. It enhances skin texture, diminishes pores and wrinkles, and moisturizes the skin without causing irritation. Studies on women over 50 have demonstrated that squalene intake significantly reduces facial wrinkles, improves facial rashes, and addresses pigmentation concerns. Moreover, squalene increases skin antioxidant enzyme activity, surpassing the effectiveness of vitamin E. Renowned cosmetic brands incorporate squalene into skin and hair care products such as facial creams, lotions, and skincare oils due to its outstanding emollient properties.

In the Food Industry:

As a food additive, squalene serves as an antioxidant, safeguarding food from spoilage. It is a safe, edible ingredient that enhances the texture and stability of food products. Beyond its preservative function, squalene holds nutritional value and is considered a potential anti-cancer agent. Its applications extend to various foods and beverages, including salad dressings and nutrition bars.

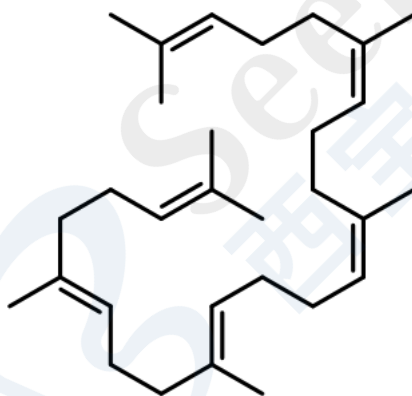
In the Pharmaceutical Industry:

Squalene, a terpenoid present in human skin surface lipids (SSLs), exhibits beneficial effects. However, the oxidation of squalene can lead to complications. Research analyzing the squalene monohydroperoxide (SQOOH) isomer revealed that singlet oxygen oxidation primarily causes squalene oxidation in human SSLs, while free radical oxidation is dominant in SLO. A method to estimate the oxidation mechanism by analyzing squalene monohydroperoxide isomers has been proposed, offering insights into the oxidation process and laying the groundwork for preventing skin diseases through squalene oxidation regulation.

In the pharmaceutical sector, squalene serves as an effective adjuvant, enhancing drug absorption and delivery. Its anti-inflammatory and anti-tumor properties position it as a potential treatment for various diseases, including cancer. Squalene finds applications in medicines such as vaccines, cancer treatments, and antibiotics.

Product List

Product	Grade	Purity	Packaging
Squalene	Medical aesthetic grade	99%	100g; 500g
Squalene	Daily chemical grade	80%	25Kg
Squalene	Pharmaceutical grade	99%	5g; 100g
Squalene	Food grade	>80%	25Kg
Squalene	Reagent grade	>98%	5g; 100g



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