

Squalene Market Size, Share, Trends and Forecast by Source Type, Application, and Region, 2025-2033

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Report description:

The global squalene market size was valued at USD 154.98 Million in 2024. Looking forward, IMARC Group estimates the market to reach USD 263.04 Million by 2033, exhibiting a CAGR of 6.84% from 2025-2033. Europe currently dominates the market, holding a market share of over 34.8% in 2024. The growing demand for effective skin and personal care products, rising popularity of nutraceuticals and functional foods, and increasing awareness about the beneficial aspects of incorporating dietary supplements to prevent the occurrence of various chronic ailments are some of the major factors propelling the market.

The global squalene market is witnessing significant growth due to rising demand across industries such as cosmetics, pharmaceuticals, and dietary supplements. Squalene, a natural hydrocarbon, typically obtained from certain plants, oil extracted from shark liver, and synthetic processes, is acknowledged for its exceptional anti-inflammatory, moisturizing, and antioxidant attributes. The trend towards the use of organic and bio cosmetic products has significantly boosted the use of bioactive compounds in creams, but more specifically in anti-aging creams and moisturizers. Additionally, its immunomodulatory properties have enhanced the market potential of nutraceuticals and dietary supplements. Application in the pharmaceutical sector is also growing as squalene is being used in the new adjuvant for vaccines, to boost the body's immune systems. This move has added impetus to increasing the output of plant-based and synthetic squalene for various applications which create a symbiotic growth in the market due to sustainability and regulatory issues on animal-based sources.

In the United States, the squalene market is expanding steadily, driven by increasing consumer demand for natural and sustainable personal care products. Leading cosmetic brands are incorporating squalene into formulations due to its exceptional emollient and antioxidant properties. The country's strong pharmaceutical sector is also a key contributor, as squalene-based adjuvants play an essential role in vaccine development and production. Additionally, rising health consciousness and the demand for dietary supplements containing squalene are boosting market growth. Moreover, the shift toward plant-derived and synthetic squalene is prominent in the U.S., aligning with sustainability goals and ethical sourcing practices. For instance, in August 2024, researchers at Michigan State University successfully engineered poplar trees to produce squalene, a compound used in

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cosmetics and biofuels. This innovation offers a sustainable alternative to shark-derived squalene and enhances poplar's economic viability as a biofuel feedstock.

Squalene Market Trends:

Increasing Demand for Effective Skin and Personal Care Products

At present, the rising need for efficient skin care products among the masses is impelling the growth of the market. People are actively seeking skin and personal care items that provide superior hydration, anti-aging benefits, and overall skin nourishment to combat various skin diseases. This demand for efficient products is encouraging key market players to develop various types of skin care products integrated with squalene. Squalene is an effective ingredient that provides nourishment and hydration to dull and damaged skin. As a result, it is emerging as a popular skin care ingredient offering beneficial results. Moreover, a study conducted by Giorgia Condro, Roberta Sciortino, and Paola Perugini, completed in November 2023, highlighted the potential role of squalene peroxidation in acne-prone skin. Their research mentioned the correlation between squalene levels and biophysical skin parameters, offering valuable insights into acne treatment strategies. Squalene market price trends show an upward trajectory driven by rising demand and sustainability initiatives in the cosmetics industry.

Rising Advancements in Pharmaceutical Production

The focus on bringing improvements in the production of various pharmaceutical products is driving the demand for squalene in the medical industry. According to an industrial report, the worldwide pharma market, excluding vaccines, is expected to reach USD 2,030 Billion by 2027 at a CAGR of 7%. Moreover, the ongoing advancements in the manufacturing processes of various novel drugs are facilitating the employment of squalene as a crucial component in various drug formulations. Apart from this, there is a paradigm shift towards more sustainable and ecofriendly practices in the pharmaceutical industry which is encouraging key market players to manufacture squalene sustainably. This is further driving the demand for plant-based squalene, which can be extracted from various renewable sources like sugar cane, amaranth seeds, and yeast fermentation. For example, Synshark and Phylloceuticals joined forces in a strategic partnership in 2022, leveraging plant-based sources like Lemna sp. and Nicotiana benthamiana for pharmaceutical squalene production.

Growing Popularity of Nutraceuticals and Functional foods

The growing popularity of nutraceuticals and functional foods is bolstering the growth of the market. People are increasingly seeking natural and health-promoting ingredients in their dietary choices. According to an industrial article, India's nutraceutical sector is prepped to be a global leader at USD 4-5 Billion. By 2025, it is anticipated to grow around USD 18 Billion. Nutraceuticals and functional foods are designed to provide specific health benefits beyond basic nutrition. Squalene, derived from natural sources, such as shark liver oil and olive oil, is recognized for its potential health advantages, including its antioxidant and immune-boosting properties. As a result, squalene is becoming a crucial component in the formulation of nutraceutical items and functional foods. Several companies are also diversifying or expanding their product offerings to cater to various consumer preferences and dietary requirements. For example, NutriLeads announced that BeniCaros, which is a prebiotic fiber with immune support benefits is available in five specific formats to cater to diverse formulation requirements. The squalene market overview reflects heightened demand driven by pharmaceutical advancements and sustainability initiatives, fostering innovation and growth.

Squalene Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global squalene market, along with forecast at the global, regional, and country levels from 2025-2033. The market has been categorized based on source type and application.

Analysis by Source Type:

- Animal
- Vegetable
- Synthetic

Animal-derived squalene is a natural organic compound that can be found in various animal sources, primarily in the liver of sharks and some other deep-sea fish. It is used in cosmetics and skin care items for its moisturizing and skin-softening properties.

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Furthermore, it is also used as an adjuvant in some vaccines to enhance the immunological reaction. According to Bloom Association, an ocean conservancy and advocacy organization in Hong Kong, highlights that 90% of shark liver oil production serves the cosmetic industry, showcasing high demand and versatility of squalene.

Analysis by Application:

- Cosmetics
- Food
- Pharmaceuticals
- Others

Cosmetics lead the market with around 73.4% of market share in 2024. Squalene is widely used in cosmetics due to its effective emollient properties. It can be particularly useful for dry and rough skin, providing a smooth texture. Moreover, it possesses antioxidant properties and can safeguard the skin from damage caused by free radicals and ultraviolet (UV) radiation. This can effectively lower the signs of premature aging and protect against environmental stressors. In addition to this, squalene possesses anti-inflammatory properties, making it beneficial for soothing irritated or sensitive skin. Furthermore, the study conducted by Vichy Laboratories (L'Oreal) suggests that M89PF, which contains squalene, effectively reduces squalene oxidation by 50% compared to ellagic acid when exposed to pollution and ultraviolet A (UVA) radiation.

Regional Analysis:

- North America
 - United States
 - Canada
- Asia-Pacific
 - China
 - Japan
 - India
 - South Korea
 - Australia
 - Indonesia
 - Others
- Europe
 - Germany
 - France
 - United Kingdom
 - Italy
 - Spain
 - Russia
 - Others
- Latin America
 - Brazil
 - Mexico
 - Others
- Middle East and Africa

In 2024, Europe accounted for the largest market share of over 34.8%. Europe held the biggest market share due to the rising awareness about the beneficial aspects of maintaining a proper skincare routine among the masses. Besides this, increasing consumer preferences for natural and sustainable ingredients is offering a favorable squalene market outlook. The European Academy of Dermatology and Venereology (EADV) conducted a population-based study across 27 European countries known as the Burden of Skin Disease survey, which states that approximately 43.35% of respondents experienced at least one skin disease.

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This heightened occurrence of skin diseases among the masses is driving the demand for various skincare products containing squalene for its skin improving properties.

Apart from this, the rising focus on the adoption of eco-friendly squalene sources, driven by the need for green and clean beauty products, is contributing to the market growth. Additionally, increasing efforts to combat infectious diseases and the development of new vaccines are strengthening the squalene market growth. For example, Evonik launched GMP-quality plant-based squalene for commercial and clinical usage.

Key Regional Takeaways:

United States Squalene Market Analysis

In 2024, United States accounted for 80.00% of the market share in North America. Growing demand in the nutritional supplement, pharmaceutical, and cosmetics industries is propelling the U.S. market. The use of plant-derived squalene in skincare formulations has increased due to growing consumer awareness of natural and sustainable beauty products. It is especially popular as a high-end emollient with moisturizing and anti-aging qualities. Squalene's non-toxic and environmentally friendly qualities make it a popular option for companies aiming to appeal to health-conscious consumers as the clean beauty trend gains momentum.

Squalene's usage as an adjuvant in vaccines, such as those for influenza and other emerging infectious illnesses, has piqued the interest of the pharmaceutical industry. For example, squalene-based adjuvants became popular during the COVID-19 epidemic, generating a lot of demand. At least USD 31.9 Billion was spent by the US government to create, manufacture, and acquire mRNA COVID-19 vaccines, with significant expenditures made from the three decades prior to the pandemic until March 2022.

Furthermore, the usage of squalene in nutraceuticals, especially omega-3 supplements, which improve cardiovascular health, has increased due to the growing emphasis on preventative healthcare. The strong research and development environment in the US encourages innovation in substitute squalene sources, lowering dependency on conventional shark-derived techniques. The U.S. market is well-positioned for growth in squalene applications derived from plants and fermentations because of FDA regulations that favor safe and sustainable practices and the growing popularity of vegan products.

Europe Squalene Market Analysis

Europe leads the world in squalene sales principally due to strict laws that encourage ethical and environmental sourcing. Because of its moisturizing and anti-aging properties, squalene is widely used in the region's cosmetics and personal care business, which is worth over Euro 96 Billion (USD 101 Billion), according to Cosmetics Europe (European trade association for the cosmetics and personal care industry). Key contributors include France, Germany, and Italy, as the market for natural and clean-label components continues to develop.

Squalene's use in pharmaceutical formulations, especially as an adjuvant in vaccines, increases demand for it. Squalene-based adjuvants have been approved by the European Medicines Agency, increasing their usage in influenza and other vaccinations. Squalene is also used for its antioxidant qualities in the region's booming dietary supplement industry. Moreover, bio-fermentation technology for the manufacture of squalene have seen a surge in investment due to the European Union's sustainability policies and customers' desire for plant-based products. This supports the region's efforts to lessen its reliance on goods derived from animals and guarantees the continued expansion of applications for ethical squalene.

Asia Pacific Squalene Market Analysis

Growing disposable income and the cosmetics sector are driving the squalene market in Asia-Pacific. The beauty market is dominated by nations like China, South Korea, and Japan, and there is a sizable demand for high-performance skincare products enhanced with squalene. Its acceptance in high-end formulations is further accelerated by the popularity of K-beauty and J-beauty trends. According to an industrial report, Asia holds the largest market share in beauty products sales globally with 41% market share, valued at USD 190 Billion in 2023, with more than 6% CAGR during 2023-2027.

The pharmaceutical sector in the area is growing quickly, and squalene is frequently utilized in drug delivery systems and vaccine adjuvants. Squalene-containing dietary supplements are also becoming more popular, particularly in China and India, where people who are concerned about their health are looking for natural antioxidants. In addition, by investing in plant-derived and bio-fermentation technologies, Asia-Pacific is also becoming a major player in the manufacture of sustainable squalene. Moreover, long-term market growth is ensured by the move away from shark-derived sources, which is consistent with global sustainability

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trends.

Latin America Squalene Market Analysis

The expanding pharmaceutical and cosmetics industries are driving the squalene market in Latin America. The largest beauty market in the region, Brazil, has a high demand for anti-aging and moisturizers containing squalene. Squalene is used in vaccine formulations in pharmaceuticals, which increases demand for it during continuous immunization campaigns. Less than 4% of diagnostics and 15% of vaccines were produced locally in Latin American countries during the COVID-19 pandemic, but this led to national and regional governments to invest in increasing their production capabilities. Leading the way and laying the groundwork for a more resilient health care future in Latin America are nations with robust manufacturing sectors, such as Brazil, Argentina, and Cuba. Moreover, with more than 20 vaccine manufacturers?including formulation, fill, and finish producers as well as bulk producers?Latin America offers enormous potential for vaccine production growth.

Due to growing consumer demand for items high in omega-3 fatty acids, the market for dietary supplements is also growing which is positively impacting the squalene market. Furthermore, concerns about sustainability are affecting procurement methods, with a growing emphasis on plant-based squalene to conform to international moral norms. Emerging initiatives that could increase regional supply include investments in bio-fermentation technologies and local manufacturing facilities.

Middle East and Africa Squalene Market Analysis

The increased demand for premium skincare products and dietary supplements is driving growth in the Middle East and Africa squalene market. Luxury cosmetics containing squalene are becoming more and more popular in the Gulf Cooperation Council (GCC), especially in Saudi Arabia and the United Arab Emirates. Pharmaceutical uses are becoming more popular as governments improve healthcare infrastructure, especially in vaccine adjuvants. According to an industrial news data, African countries consume nearly 25% of the globally produced vaccines but imports 99% and 95% of its vaccines and medicines, respectively. Furthermore, the region's emphasis on sustainability is in line with worldwide movements towards the manufacturing of squalene from plants. Increased imports of ethical squalene and investments in biotechnological developments also contribute to the market's expansion in this area.

Competitive Landscape:

Key squalene market leaders are investing in research operations to improve extraction methods and develop innovative applications for squalene in different industries. They are also increasingly looking for sustainable and eco-friendly sources of squalene, such as plant-based squalene derived from olives or amaranth seeds, to meet consumer demand for environmentally responsible products. Leading companies are investing in marketing campaigns that highlight the benefits of squalene in skincare, health, and wellness products. They are also emphasizing the quality and purity of their squalene products. In addition, top squalene companies are ensuring that their products meet quality and safety requirements, as well as adhering to regulatory guidelines to maintain the proper formulation of their products. They are also investing in quality control processes and certifications to ensure that their squalene products meet the highest standards. At the end of 2022, SynShark LLC was able to produce squalene from American tobacco as an alternative to shark liver extraction. Using licensed technology, they engineered tobacco to express high squalene levels via photosynthesis.

The report provides a comprehensive analysis of the competitive landscape in the squalene market with detailed profiles of all major companies, including:

- []Amyris Inc.
- []Arbee Agencies
- []Arista Industries Inc.
- []Empresa Figueirense De Pesca Lda
- []Gracefruit Limited
- []Kishimoto Special Liver Oil
- []Maruha Nichiro Corporation
- []Nucelis Inc. (Cibus Ltd.)
- []SeaDragon Marine Oils Limited
- []Sophim

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Key Questions Answered in This Report

- 1.What is squalene?
- 2.How big is the squalene market?
- 3.What is the expected growth rate of the global squalene market during 2025-2033?
- 4.What are the key factors driving the global squalene market?
- 5.What is the leading segment of the global squalene market based on the source type?
- 6.What is the leading segment of the global squalene market based on application?
- 7.What are the key regions in the global squalene market?
- 8.Who are the key players/companies in the global squalene market?

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