

WAXES



Over the centuries, candle waxes have been developed from a variety of fats, oils and waxy-like substances derived from animals, insects, plants and rocks. Scientists consider “wax” to be a generic term for classifying materials that have the following characteristics:

- Solid at room temperature; liquid at higher temperatures
- Primarily hydrocarbon in structure
- Water repellent; insoluble in water
- Smooth texture; buffable under slight pressure
- Low toxicity; low reactivity
- Low odor

Waxes are widely used throughout the world for a range of applications, including packaging, coatings, cosmetics, foods, adhesives, inks, castings, crayons, chewing gum, polishes and – of course – candles.

DEVELOPMENT OF CANDLE WAXES

Early civilizations depended largely on the raw materials at hand to create candle wax. Ancient Egyptians and the Early Romans relied largely on tallow rendered from animals.

“A tallow candle, to be good, must be half Sheep’s Tallow and half Cow’s; that of hoggs mekes ‘em gutter, give an ill smell, and a thick black smoak”

- Anonymous, 18th Century

In China, beeswax was used for candles as early as the Tang Dynasty (618-907 A.D.), and candle wax derived from the *Coccus pella* insect had been developed by the 12th century. Extracts from tree nuts were used to make candle wax in early Japan, while in India they boiled the fruit of the cinnamon tree for candle wax.

Beeswax was introduced to Europe in the Middle Ages, but was rarely used in homes because of its great expense.

Over the centuries, the development of new waxes for candles has hinged on the availability of the raw material, the ease and economy of processing the raw material into a wax suitable for candle use, and the desirability of the wax in comparison to other available candle waxes.

Tallow was the typical everyday candle wax used in Europe and the Americas until the 18th century, when the whaling industry stimulated the development of spermaceti wax, a clean-burning, low-odor wax derived from the head oil of the sperm whale.

Spermaceti remained the primary candle wax until the mid-1800s, when stearin wax and then paraffin wax were developed. Stearin wax, based on extracting stearic acid from animal fatty acids, was widely used in Europe. Paraffin wax, developed after chemists found a way to remove the naturally-occurring waxy substance from petroleum during refining, became the standard candle wax in the Western Hemisphere.

During the latter half of the 20th century, several synthetic and chemically synthesized waxes, including gels, were developed largely for specialty candle uses. Two vegetable-based candle waxes – soy wax and palm wax – were developed for commercial use in the candle market during the late 1990s by hydrogenating soybean and palm oils, respectively.

Paraffin is by far the most frequently used candle wax on a worldwide basis today. Beeswax is also used around the globe, although in significantly smaller quantities. Stearin candle wax is largely limited to European use. Soy wax, palm wax, gels, synthetic waxes, and synthesized waxes are also now used in

candles, as are a variety of wax blends and customized wax formulations.



CANDLE WAX FACTS

- Prior to the 19th century, a “wax” candle typically referred to a beeswax candle.
- All waxes are primarily hydrocarbons, whether the wax is of animal, vegetable, or petroleum origin. The chemical composition of all waxes used for candle-making is similar, and all candle waxes burn in the same manner.
- An estimated 1 billion pounds of wax are used in the candles sold each year in the United States.
- Candles account for the second largest use of waxes in North America, after packaging and package coatings.
- Paraffin is the most commonly used candle wax today. Beeswax, soy wax, palm wax, gels, and synthesized waxes are also used in candle-making for the U.S. market, as are blends of waxes.
- Waxes burn with a yellow flame due to the presence of carbon.
- No specific type of wax or wax blend is considered “best” for candlemaking. All candle waxes – when provided in high-quality format – have been shown to burn cleanly, safely and in the same manner.
- No candle wax has ever been shown to be toxic or harmful to human health.
- There is no such thing as a soot-free wax. All organic compounds when burned will emit some carbon (soot) due to incomplete combustion. Sooting is primarily a factor of wick length and flame disturbance.
- Reputable candle manufacturers use only high-quality waxes in their formulations.