

# CANDLES

## The history of candle making:

It does not belong to any one country as it was developed independently in many countries. The Egyptians formed candles that were made out of beeswax as early as 3000 BC. The Chinese created candles from whale fat. This was during the Qin Dynasty (221-206 BC). In early China and Japan, tapers were made with wax from insects and seeds, wrapped in paper. In India, wax from boiling cinnamon was used for temple candles. During the first century AD, indigenous people of the Pacific Northwest fused oil from the eulachon, or "candlefish", for illumination. Excavations at Pompeii, Italy, revealed several candelabra, **candle** to be a light source that usually has an internal wick rising through the center of a column of solid fuel. Prior to the mid 19th century, candles were frequently made from tallow (a byproduct of beef-fat rendering). Nowadays, fuel is nearly always some form of wax, with paraffin wax being the most common. Candles made from gel, soy, beeswax, and vegetable products are also available.

A candle manufacturer is traditionally known as a chandler. Various devices have been invented to secure candles into place, from simple tabletop candle holders, to elaborate chandeliers.

Prior to the candle being ignited, the wick is saturated with the fuel in its solid form. The heat of the match or other flame being used to light the candle first melts and then vaporizes a small amount of the fuel. Once vaporized, the fuel combines with oxygen in the atmosphere to form a flame. This flame then provides sufficient heat to keep the candle burning via a self-sustaining chain of events: the heat of the flame melts the top of the mass of solid fuel, the liquefied fuel then moves upward through the wick via capillary action, and the liquefied fuel is then vaporized to burn within the candle's flame.

The burning of the fuel takes place in several distinct regions (as evidenced by the various colors that can be seen within the candle's flame). Within the bluer regions, hydrogen is being separated from the fuel and burned to form water vapor. The brighter, hotter, yellowier part of the flame is the remaining carbon being oxidized to form carbon dioxide.

As the mass of the solid fuel is melted and consumed, the candle grows shorter. Portions of the wick that are not evaporating the liquid fuel are, ideally, consumed in the flame, limiting the exposed length of the wick and keeping the temperature and rate of fuel consumption even. Some wicks require manual trimming with scissors or a wick trimmer for even burning

## History



Picture of a rectangular candle.

The candle was developed independently in many countries. In Rome, around the first century, candles were made out of tallow and the pith of rushes. The Egyptians and Cretans made the candle from beeswax, as early as 3000 BC. The early candle was made from various forms of natural fat, tallow, and wax. In the 18th century, spermaceti, oil produced by the sperm whale, was

used to produce a superior candle. Late in the 18th century, colza oil and rapeseed oil came into use as much cheaper substitutes. Paraffin was first distilled in 1830, and revolutionized candle-making, as it was an inexpensive material which produced a high-quality, odorless candle that burned reasonably cleanly. The industry was devastated soon after, however, by the distillation of kerosene (confusingly also called *paraffin oil* or just *paraffin*). This excellent fuel for lamps gave the candle its current status as a primarily decorative item. Recently resin based candles that are freestanding and transparent have been developed, with the claim that they burn longer than traditional paraffin candles.

## Usage



Picture of Candle birthday cakes.

Before the domestication of electricity, the candle was a common source of lighting, before, and later in addition to, the oil lamp. Due to local availability and the cost of resources, for several centuries up to the 19th century the candle was more common in northern Europe, and olive oil lamps more common in southern Europe and around the Mediterranean Sea. Candle makers were known as *chandlers*. Today, candles are most commonly used for their aesthetic value, particularly to set a soft, warm, or romantic ambiance, and for emergency lighting during electrical failures. The scented candle is common in aromatherapy. In fact, scented candles have become so popular that nearly all sizes and shapes of candles for sale in the USA are scented, with the notable exception of federals and tapers. The federals and tapers are traditionally used in a formal dinner table setting, where a scented candle would interfere with the aromas coming from the food. There is an attempt on the part of the candle makers to match the scent of the candle with the color of the candle, such as ivory colored candles with a vanilla scent. Many candle buyers search for the color they want, and disregard the scent. Others smell the candles, and choose the scent they like best, and disregard the color.

## Religion

The candle is used in the religious ceremonies of many different faiths.

### Sikhism

The candle is used in Sikhism on Diwali, the festival of light.

### Buddhism



A very large carved Thai candle, similar to those used in the Ubon Ratchathani Candle Festival

Candles are a traditional part of Buddhist ritual observances. Along with incense and flowers, candles (or some other type of light source, such as butter lamps) are placed before Buddhist shrines or images of the Buddha as a show of respect. They may also be accompanied by offerings of food and drink. The light of the candles is described as representing the light of the Buddha's

teachings, echoing the metaphor of light used in various Buddhist scriptures.<sup>[1]</sup> See *Ubon Ratchathani Candle Festival* for an example of a Buddhist festival that makes extensive use of candles.

## Hinduism

In almost all Hindu homes, lamps are lit daily before the altar of the Lord. In some houses, the lamps, or candles, at dawn, and in some, twice a day - at dawn and dusk - and in a few, it is maintained continuously.

A diya, or clay lamp, is frequently used in Hindu celebrations and forms an integral part in many social rites. It is a strong symbol of enlightenment and prosperity.

In its traditional and simplest form, the diya is made from baked clay or terracotta and holds oil or ghee that is lit via a cotton wick.

Traditional diyas have now evolved into a form wherein waxes are being used as replacements for oils.<sup>[2]</sup>

## Christianity



Candles are sometimes burnt in churches and cathedrals as a sign of remembrance. Small donations, such as those from this candle in Helsinki Cathedral often go towards missionary work or other charities.

In Christianity the candle is commonly used in worship both for decoration and ambiance, and as a symbol that represent the light of God or, specifically, the light of Christ. The altar candle is often placed on the altar, usually in pairs. Candles are also carried in processions, especially to either side of the processional cross. A Votive candle or taper may be lit as an accompaniment to prayer.

Candles are lit by worshippers in front of icons in Eastern Orthodox, Oriental Orthodox, Eastern Catholic and other churches. This is referred to as "offering a candle", because the candle is a symbol of the worshipper offering himself or herself to God (and proceeds from the sale of the candle are offerings by the faithful which go to help the church). Among the Eastern Orthodox, there are times when the entire congregation stands holding lit tapers, such as during the reading of the Matins Gospels on Good Friday, the Lamentations on Holy Saturday, funerals, Memorial services, etc.

In the Roman Catholic Church a liturgical candle must be made of at least 51% beeswax, the remainder may be parafin or some other substance. In the Orthodox Church, the tapers offered should be 100% beeswax, unless poverty makes this impossible. For this reason, the stumps from burned candles are usually saved and melted down to make new candles.

In some Western churches, a special candle known as the *Paschal candle*, specifically represents the Resurrected Christ and is lit only at Easter, funerals, and baptisms. In the Eastern Orthodox Church, during Bright Week (Easter Week) the priest holds a special Paschal trikirion (triple candlestick) and the deacon holds a large candle during all of the services at which they serve.

In Sweden (and other Scandinavian countries), St. Lucia Day is celebrated on December 13 with the crowning of a young girl with a wreath of candles

The **Candles** symbolize that Our LORD was the Light of the World. The Six "Standard Lights" have this meaning. Where two larger ones or "Eucharistic Lights" are used they represent CHRIST'S Divine and Human Natures. The Seven Branch or Vesper Lights tell of the Seven Gifts of the HOLY GHOST or the Seven Sacraments. There has always been large deviation as to the number of lights used at Services. A beautiful meaning attached to Candles in general when used in worship is that Wax... symbolizes Our LORD'S Body born of the Virgin Mary, the Wick His Soul, the Flame His Divinity, thus setting forth the Mystery of the Incarnation.

## Judaism



A yahrtzeit candle, lit on the Hebrew anniversary of a loved one's death

In Judaism, a pair of candles is lit on Friday evening prior to the start of the weekly Sabbath celebration. On Saturday night, a special candle with several wicks is lit for the *Havdalah* ritual marking the end of the Sabbath and the beginning of the new week.

The eight-day holiday of Hanukkah, also known as the Festival of Lights, is celebrated by lighting a special candelabrum or Hanukkiyah each night to commemorate the rededication of the Temple in Jerusalem.

A memorial candle is lit on the Yahrtzeit, or anniversary of the death of a loved one according to the Hebrew calendar. The candle burns for 24 hours. A memorial candle is also lit on Yom HaShoah, a day of remembrance for all those who perished in the Holocaust.

Candles are also lit prior to the onset of the Three Festivals ([Sukkot], [Passover] and [Shavuot]) and the eve of Yom Kippur.

## Kwanzaa

The Candle is also used in celebrations of Kwanzaa, which is an African American holiday which runs from December 26 to January 1. The kinara: has three red, one black, three green.

## Humanism

For some Humanists the candle is used as a symbol of the light of reason or rationality. The Humanist festival of Human Light often features a candle-lighting ceremony.

## Wicca

In Wicca and related forms of Neopaganism, the candle is frequently used on the altar to represent the presence of the God and Goddess, and in the four corners of a ritual circle to represent the presence of the four classical elements: Fire, Earth, Air, and Water. When used in this manner, lighting and extinguishing the candle marks the opening and closing of the ritual. The candle is also frequently used by Wiccans and other Neopagans for magical and meditative purposes. Altar candles are

traditionally thick tall candles which are available in many colours. Most popular though unless at certain Shabbats, are the black and white altar candles.

## Timekeeping



It is known that an advent candle burning on the fourth day of December.

With the fairly consistent and measurable burning of a candle, a common use was to tell the time. The candle designed for this purpose might have time measurements, usually in hours, marked along the wax. The Sung dynasty in China (960-1279) used candle-clocks. By the 18th century, candle-clocks were being made with weights set

into the sides of the candle. As the candle melted, the weights fell off and made a noise as they fell into a bowl. A form of candle-clock was used in coal-mining until the 20th century.

In the days leading to Christmas some people burn a candle a set amount to represent each day, as marked on the candle. The type of candle used in this way is called the *Advent candle*, although this term is also used to refer to a candle that decorates an Advent wreath.

## Oriental Dance

In oriental dance, candles are used as a complementary element in some dance styles. The candles can be either held on the dancer's hand or above her head, depending on what the choreography demands.

## Fuel and candle holders

The candle can be made of paraffin (a byproduct of petroleum refining), stearin (now produced almost exclusively from palm waxes), beeswax (a byproduct of honey collection), gel (a mixture of resin and mineral oil), some plant waxes (generally palm, carnauba, bayberry, or soy), or tallow (rarely used since the introduction of affordable wax alternatives). The candle is produced in various colors, shapes, sizes and scents. The most basic production method generally entails the liquefaction of the solid fuel by the controlled application of heat. This liquid is then poured into a mold to produce a pillar type candle, a fireproof jar to produce a candle container, or a wick is repeatedly immersed in the liquid to create a dipped taper. Often, fragrance oils are added to the liquid wax prior to pouring. Natural scents, in the form of essential oils, can also be used. The candle may also be colored by the addition of some sort of coloring agent. This is almost always an aniline-based dye, although pigments can be used in some circumstances.

A candle typically produces about 13 lumens of visible light and 40 watts of heat, although this can vary depending primarily on the characteristics of the candle wick. For comparison, note that a 40 watt incandescent light bulb produces approximately 500 lumens for the same amount of power. The modern SI unit of luminous intensity, the *candela*, was based on an older unit called the *candlepower*, which represented the luminous intensity emitted by a candle made to particular specifications (a "standard candle"). The modern unit is defined in a more precise



and repeatable way, but was chosen such that a candle's luminous intensity is still about one candela.



#### Floating candle

It is commonly believed that the candle made of beeswax burn more cleanly than petroleum based paraffin waxes. However highly-refined paraffin wax, can burn, as or more cleanly, (with regards to particulates created during combustion) than natural waxes. The type of wick and inclusion of any scents and/or dyes have a much greater impact on the release of compounds, particulates, and smoke, regardless of the base material. The cleanest burning candle will therefore be unscented, with no dye, and a well constructed candle burning in a draft free area. Furthermore, a candle will function well when formulated waxes are blended together (soy, paraffin and other waxes) and fragrance oils along with wick selections are balanced properly.



This candle holder uses a spike to keep the candle up.



#### A collection of lit wicks on ornate candlesticks

A smoke film can be a concern to those who frequently burn a candle indoors and is also referred to as ghosting, carbon tracking, carbon tracing. Smoke can be produced when a candle does not burn the wax fuel completely. A scented candle can be a source of candle smoke deposits. Trimming candle wicks to about 6 millimeters ( $\frac{1}{4}$  in) or shorter is recommended to keep smoking at a minimum.

A flickering flame will produce more smoke; therefore a candle should be burned in an area free from drafts. Additional debate on the use of wax in a candle exists on what is "natural". Proponents of the soy wax candle will note the material is biodegradable and "all natural". However, most soy beans that result in the ultimate manufacture of soy wax in the candle are genetically modified. Paraffin wax, as used in candle making, is also biodegradable. It also often meets the United States' Food and Drug Administration criteria for use in foods and in contact with food.

Decorative candle holders, especially those shaped as a pedestal, are called candlesticks; if multiple candle tapers are held, the term *candelabrum* is also used. The root form of *chandelier* is from the word for candle, but now usually refers to an electric fixture. The word *chandelier* is sometimes now used to describe a hanging fixture designed to hold multiple tapers.

Many candle holders use a friction-tight socket to keep the candle upright. In this case, a candle that is slightly too wide will not fit in the holder, and a candle that is

slightly too narrow will wobble. Any candle that is too large can be trimmed to fit with a knife; a candle that is too small can be fitted with aluminum foil. Traditionally, the candle and candle holders were made in the same place, so they were appropriately sized, but international trade has combined the modern candle with existing holders, which makes the ill-fitting candle more common. This friction tight socket is only needed for the federals and the tapers. For tea light candles, there are a variety of candle holders, including small glass holders and elaborate multi candle stands. The same is true for votives. Wall sconces are available for tea light and votive candles. For pillar type candles, the assortment of candle holders is broad. A fireproof plate, such as a glass plate or small mirror, is a candle holder for a pillar style candle. A pedestal of any kind, with the appropriate sized fire proof top, is another option. A large glass bowl with a large flat bottom and tall mostly vertical curved sides is called a hurricane. The pillar style candle is placed at the bottom center of the hurricane. A hurricane on a pedestal is sometimes sold as a unit.

Electric candle warmers are now being sold so that candle wax can be melted to release the fragrance without requiring an open flame.

The candle has long been used as a means of illumination, but it is also used as a Spiritual Emblem. At the Medieval Altar and Shrine it carried with it the idea of consecration, of making and keeping a promise, and of thanks for mercies received.

### **Candles in Freemasonry**

**In earlier days**, Craft Guilds maintained an Altar in a nearby chapel, and kept it supplied with candles paid for by fines and fees from members.

**The Lodge custom of burning three candles** has come from Church and Guild - whatever the modern interpretation might be:

**The burning of candles in Holy Places** was an outward sign of fidelity, and a symbol of that Light, of which we read in the psalm, "Thy Word is a Lamp unto my feet and a Light unto my path."

**In the 18th century**, the `Moderns' regarded their three big candles, carried in high candlesticks, as `The Three Great Lights'. Their purpose was not only to show the course of the Sun rising in the East, reaching the meridian in the South, and setting in the West, but as a light to represent the Sun, Moon and Master of the Lodge.

**To the Ancients and Accepted Masons**, the Three Great Lights were the Volume of the Sacred Law, the Square, and the Compasses, while the Three Lesser Lights were the Master and his Wardens. The temple must be enlightened during all the sitting and extinguished at the end.

**To the Moderns days**, the Volume of the Sacred Law, the Square, and the Compasses were known as the Furniture of the Lodge.