

Candle Testing

Informational Sheet



Valued Quality. Delivered.



Candles are not regulated under a specific piece of legislation in Europe. However, they do need to comply with General Product Safety Regulation. The General Product Safety Regulation (GPSR) dictates that all products must be fit for the purpose for which they are intended and safe at the point of sale.

The British Standards below have been developed to help demonstrate compliance to GPSR for fire safety, product safety labels and specification for sooting behaviour. The following are outside the scope:

Outdoor candles - If there is no specific retailer requirement, we test to the Intertek protocol. If there is a specific retailer requirement, we test to the retailer's own specification.

Container from containerised candles - The following tests apply to containers: surface temperature, thermal

shock, annealing, etc. The candle is assessed to BS EN 15493.

Candles holders and accessories (aromatherapy burners and more) - If there is no specific retailer requirement, we test to the Intertek protocol. This covers stability and surface temperature. If the items are made of glass, testing would include thermal shock and annealing. If the items are made of metal, testing would include corrosion testing, if requested. Flare up tests are conducted on tea light holders. If there is a retailer requirement, we test to the retailer's specification. Aromatherapy burners are also physically assessed using the recommendations given in Consumer Safety Research DTI report "Fires associated with the use of night lights and ceramic burners", (July 1996).

Multi-wick candles - Candles with more than one wick fall outside the scope of EN 15426 and therefore can not be reported as compliant with this Standard. However, if specifically requested, it may be possible to conduct the soot test method in EN 15426 upon multi-wick candles, depending on sample dimensions.

3 British standards have been issued to help demonstrate compliance to GPSR, but these standards are not mandatory:

- BS EN 15493: Candles – Specification for Fire Safety
- BS EN 15494: Candles – Product Safety Labels
- BS EN 15426: Candles – Specification for Sooting Behaviour



The candle testing standards cover flame height, self-extinguishing, stability, secondary ignition, and afterglow/ re-ignition.

The standards do not cover all safety aspects. For example, they do not cover:

- Safety: clubbing, wax pool temperature and flammability
- Quality: wick curvature, guttering, wax spillage, smoke emission (visual assessment)

The use of non-EU standards to cover containerised candles and accessories is allowed if it helps to demonstrate that an item is safe under the GPSR.

Candle Testing Requirements

Items can be tested to:

- **Retailer specification** (comprehensive) - Includes the standards + other safety aspects. Other requirements (e.g. surface temperature, flame height) tend to be different from one retailer to another.
- **Intertek protocol** (comprehensive) - Includes the standards + other safety aspects
- **The 3 candle testing standards** (limited)

Glossary of Candle Testing Terms

- **Afterglow** – White glow / smoke emission from the wick after being extinguished.
- **Annealing** – A process of subjecting glass to heating and slow cooling in order to remove internal stress and/or to reduce brittleness. Testing will determine if the item has been annealed correctly.
- **Burn Time** – The actual burning duration from being lit at the start, until it is extinguished.
- **Clubbing** – The accumulation of carbon deposit on the tip of the wick, typically takes the shape of a “club” or shamrock.
- **Guttering** – Periods of instability of the flame, leading to flickering and pulsating growth and shrinkage of the flame. This behaviour frequently gives rise to puffs of smoke.
- **Specification** – Detailed description of requirements stating parameters / limits for a product / item; using specific test methods / standards.
- **Wax Pool** – Portion of the wax or fuel pool of a candle that is in liquid / molten form when the candle is burning.
- **Wick** – The component that delivers the fuel / molten wax to the flame by the process of capillary action, through a porous, normally fibrous material such as cotton.

Further Information

Retailers have their own testing procedures: number of candles tested, distance between candles, duration of cycles.

Containers are different from candle holders. A containerised candle is a wax filled candles, sold as a unit. A candle holder can be sold by itself and can be reused.

Containers without candles from containerised candles should be tested for physical aspects such as thermal shock endurance and annealing.

Other Requirements

In addition to the physical testing required, we advise clients to ensure their items comply with other pieces of legislation such as REACH (Substances of Very High Concern also known as SVHC Annex XIV of EC Regulation 1907/2006). The European Union’s REACH Regulation (Registration, Evaluation and Authorization of Chemical Substances – EC1907/2006) was enacted to regulate chemicals and their safe use for the protection of human health and the environment.

It is also important for clients to be confident that the substances used in the manufacture of their candles such as additives, fragrance and colorants are safe. We advise them to perform a toxicological assessment which Intertek can also offer.

Intertek

Asia Pacific
T: +852 2173 8888

North America
T: +1 630 481 3111

Latin America
T: +1 305 513 3000

Europe, Africa, Middle East
T: +33 2 32 09 36 36