

FIRE REACTION ADHESIVE PRODUCTS

A building on fire is a much more threatening situation than a fire in a building. In the event of a fire in a building, the construction is still reliable, in a building on fire this is not always the case.

In that case, in addition to the inventory, the construction materials of the building are also heavily burdened by the fire. The fire service will mainly be deployed outside the building, opting for a defensive approach that focuses on protecting the environment and abandoning the building. When a building is on fire, there is often also fire spread through the facade.

Fire performance requirement for facades applies to the entire façade construction part and not to the assessment of individual building products of which it is composed.

In the European Standard 13501-1, the requirement is set that the entire façade construction part must be tested in such a way that the specific application is simulated as well as possible, because the fire behavior does not only depend on the (composite) properties of the test building products themselves and the thermal load caused by the fire, but also to a large extent of that specific application ('end use application') or the manner of placing and mounting the construction part.

With regard to the facade construction, the objective of the so-called passive fire prevention is to slow down the development of fire and to prevent its rapid spread by using a non - or low combustible facade construction. In the event that the fire could develop completely, it should be avoided that the fire would spread at high speed.

The reaction to fire is the behavior of a facade construction that, by its own dissolution, worsen the fire to which it has been exposed to fire in specific circumstances. The European reaction classification distinguishes seven main classes (A1, A2, B, C, D, E and F) with additions of a classification (s1 and s2) for the smoke development a classification (d0, d1 and d2) for the formation of burning droplets.

The protection against fire is comparable to "dealing in time" during a certain fire development. The minimum required fire resistance of a facade construction mainly depends on the height of the building. Referring to the required escape-routes, for the facade cladding construction for high buildings ($h \leq 25$ m: fire resistance 120 minutes) and medium-high buildings ($10 \text{ m} \leq h \leq 25$ m): fire resistance 60 minutes; 120 minutes for cellars) that the entire façade construction part must at least comply with fire reaction class B (EN-13501-1). A requirement as followed in e.g. the Netherlands, Belgium and Germany.

Standards, confirmed by practice and testing, shows that the fire reaction of the TWEHA adhesive products does not need to be taken into account or evaluate individually in case of assessing the fire reaction of the facade construction as underlying layer when:

- they are protected by a building element which has an adequate fire protection capacity or a minimum fire resistance.
- it is shielded from fire, both inside and outside.
- when the mass per unit of area is $1,0 \text{ kg/m}^2$; or if the thickness is 1,0 mm; or if it is less than 5% of the whole facade assembly.