

#WeKnowWood

Fire protection and flame retardance

The taller and larger a building is, the more stringent are the requirements for the fire behavior of the building materials thereby utilized. In addition, special constructions such as schools, hospitals or hotels are generally subject to strict fire-protection regulations. We develop industry-oriented fire-protection solutions for wood and wood-based materials as well as novel bio-composites. This also encompasses the determination of material parameters for building-material classification. Our expertise can also be applied to the interior outfitting of vehicles.

Fire-protection coatings

With “intumescent” coatings, which form a protective insulating layer in the event of fire, the combustibility of building materials can be reduced. If a certain limit temperature is exceeded, the coating foams (intumesces) and forms a voluminous carbon-containing layer that insulates the building material. Our research focuses are hereby directed at transparent and weather-resistant fire-protection coatings that enable wood and wood-based materials for interior and exterior use to be upgraded to the building-material class “flame retardant”.

Non-combustible plywood

Building with wood is becoming increasingly popular, but has its limitations as a result of fire regulations. In many areas, a drywall made from plywood, for example, cannot

be manufactured. In collaboration with an industry partner, we are developing a highly fire-retardant drywall made from wood with a fire-resistance duration of at least 60 minutes. In order to achieve this, we are developing a non-combustible plywood panel as planking. This panel can also be used for the interior outfitting of ships.

Non-smoldering insulation materials made from renewable raw resources

We develop non-smoldering insulation materials and improve their building-material class. In addition to the development, we have utilized diverse methods in order to characterize the smolder behavior of these insulation materials and have analyzed the cause-and-effect.

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