



FIRE SAFETY

COATING SOLUTIONS FOR
ARCHITECTURAL FREEDOM WITH WOOD

WOOD IN CONSTRUCTION

The construction sector is undergoing a transformation. An increasing awareness of earth's limited resources is driving a desire for sustainable building materials. What is their eco-friendly, structurally sound material of choice? Wood.

Designers, developers and manufacturers around the world are seeking increasingly inventive ways to use wood in their specifications. In doing so, they are positively impacting on climate change by lowering a building's emissions, increasing its insulation efficiencies and improving the environmental qualities of its end-of-life disposal.



FIRE SAFETY



We all hope to never experience the trauma of a building fire however designers must consider it as part of their specifications.

Though wood has naturally non-conductive properties it is combustible, as are many other construction materials. In the highly regulated environment of fire safety, designers must consider how materials will react to fire, against a backdrop of complex and often changing regulation.

In Europe the CPR (Construction Product Regulation) gives guidance on testing and documenting specifications for construction materials. Included in this is:

- Resistance to fire - how well a material survives in a fully developed fire
- Reaction to fire - how much a material will contribute to a developing fire

These critical functions direct the testing that Teknos carries out on its fire retardant coatings.

COATINGS AND FIRE

The primary function of TEKNOSAFE fire retardant coatings is to improve the coated wood's reaction to fire performance.

The first parameter in development of a fire retardant therefore, is that it meets the desired level of fire performance - usually class B for building materials. At Teknos however, we focus on solutions, meaning that every fire retardant is part of a full coating system that meets European fire classifications.

TEKNOSAFE waterborne FR coating systems include:

- Intumescent primers
- Translucent and opaque topcoats in all colours
- Interior and exterior wood-based products e.g. panels or solid wood.

Learn more about fire retardants in this e-book and let your designs in wood take flight.



Photo: Moelven

FIELDS OF APPLICATION FOR TEKNOSAFE FIRE RETARDANT COATING SOLUTIONS

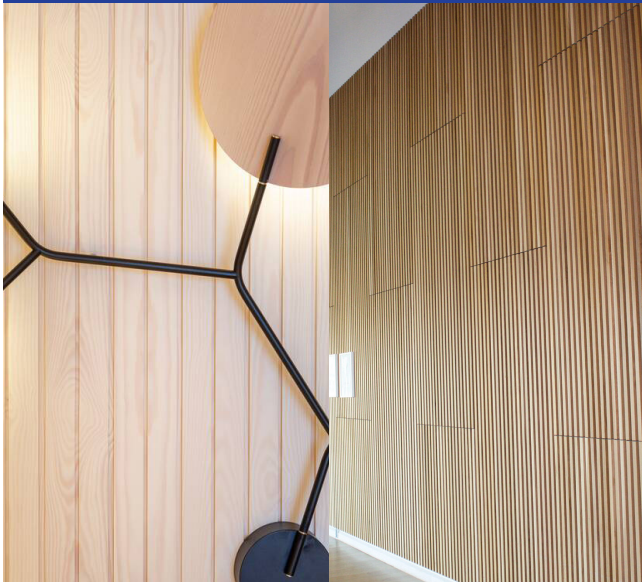
Interior and Exterior

All wood products in construction incl. glulam and CLT



Interior

Shopfittings, drywall linings, panelling, staircases



Exterior

Cladding, facades, balconies



FIRE CLASSIFICATIONS AND TESTS - WHAT DOES YOUR DESIGN NEED?

CLASSIFICATION / TEST	DESCRIPTION	APPLICATION EXAMPLES FOR WOOD	TEKNOS COATINGS
EN 13501-01 B s1,d0	<p>Reaction to fire</p> <p>'B' 'In the fire development phase no spread of fire from the area of the primary fire and very limited contribution to the fire' (Euroclass target safety level)</p> <p>'s1' Strict criteria (Euroclass assessment on the development of smoke)</p> <p>'d0' (Euroclass permits no dripping fire debris)</p>	All wood elements of the construction e.g. glulam, CLT	<p>TEKNOSAFE 2407</p> <p>TEKNOSAFE FLAME GUARD 2457</p> <p>TEKNOSAFE FLAME GUARD 2467</p>
INT1	Dry interiors	Plywood, acoustic panels, interior panelling, shop fittings, drywall linings, staircases	<p>TEKNOSAFE FLAME GUARD 2457</p> <p>TEKNOSAFE FLAME GUARD 2467</p>
INT2	Humid interiors or weather protected exteriors	Interior panelling, wall linings, balconies, exterior staircases	<p>TEKNOSAFE FLAME GUARD 2457</p> <p>TEKNOSAFE FLAME GUARD 2467</p>
EXT	Exterior and Interior	Exterior cladding	TEKNOSAFE 2407
EN 13501-2 K₁10 / K₂10	Fire resistance	Cladding, facades, balconies	TEKNOSAFE 2407
SP Fire 105	Simulates a fire out of a window with a fire load of 2.5 MJ	Cladding, facades	TEKNOSAFE 2407

For support with specifying full TEKNOSAFE fire retardant coating systems, contact your local Teknos FR coating expert

E: xxxx.xxxx@teknos.com

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Need some help understanding fire classification reports? Ask you local Teknos FR team for our helpful guide 'Fire Classifications Explained'





INDOOR AIR QUALITY

The drive to use more sustainable materials in construction in a safe way, goes even further than fire protection.

TEKNOSAFE fire retardant interior coatings have been independantly tested for emissions, meaning they are certified low emitting products and comply with a number of country-based programmes including A+ (France), M1 (Finland) and AgBB (Germany).

They can also help with projects under green schemes in the construction industry aimed at reducing the environmental impact of buildings, such as BREEAM and LEED.




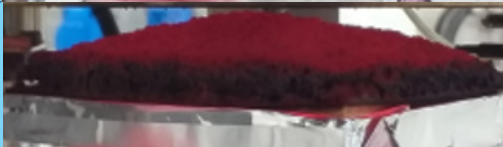


Certified for Indoor Air Quality
TEKNOSAFE Interior Fire Retardant Coating Solutions

				
Interior Systems INT 1 and INT 2 All colours				
TEKNOSAFE FLAME GUARD 2467-10	✓	✓	✓	✓
TEKNOSAFE FLAME PROTECT 2468	✓	✓	✓	Coming soon
TEKNOSAFE FLAME GUARD 2457-10	✓	✓	✓	✓

Photo: Moelven

HOW TEKNOSAFE WORKS

STAGE	WHAT IS HAPPENING?	WHAT DOES IT LOOK LIKE?
1	Coating starts to decompose. This initiates the foaming agent causing the paint film to expand	
2	A carbon layer is formed	
3	The carbon foam insulates the heat	
4	The fire properties of the wood are retained for longer	

How does a wood-fuelled fire burn?

Wood burns at a constant speed and in a predictable fashion.



For wood to burn, the moisture content must be reduced.



The temperature increase as the water evaporates.



Journey of a fire

100 - 105°C

Moisture content is reduced enough for the wood to burn.



110 - 230°C

Thermal decomposition begins & the wood discolours.



230 - 350°C

Light gases, like ethanol and formaldehyde, are released from the wood. Combustion cannot sustain itself during this temperature phase.



350 - 450°C

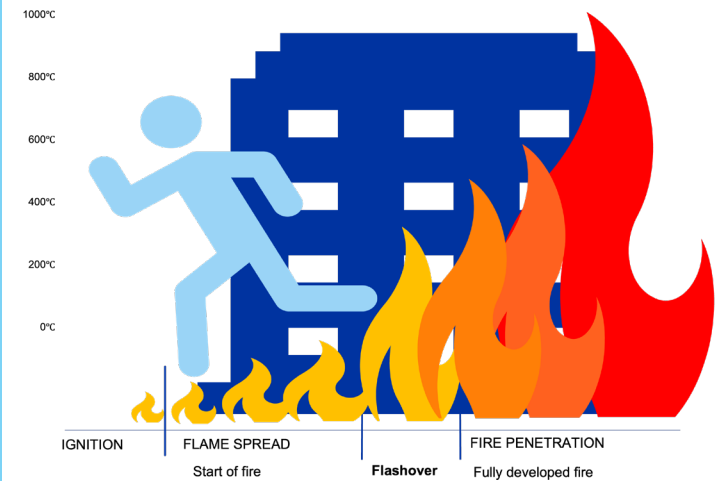
Wood burns and combustion is sustained.



Charring

At a speed of 0.8 mm/min = 48 mm per hour.

MAKING WOOD SAFER IN A FIRE



Contact us

To receive a full Teknos Fire Safety Pack (including information on Construction Products Regulation, service environments, understanding fire protection terminology) and for support with specifying TEKNOSAFE fire retardant coating solutions, contact your local Teknos FR coating expert

E: sales@teknos.fi

T: +358 9 506 091

Visit [teknos.com](https://www.teknos.com) for more information

WE MAKE THE WORLD LAST LONGER

Teknos is a global coatings company with operations in more than 20 countries in Europe, Asia, and the USA. The company employs approximately 1,800 people, and the net sales for 2020 was EUR 384 million. Teknos is one of the leading suppliers of industrial coatings with a strong position in retail and architectural coatings. Teknos wants to make the world last longer by providing smart, technically advanced paint and coating solutions to protect and prolong. Teknos always works in close cooperation with its customers. Teknos was established in 1948 and is one of Finland's largest family-owned businesses. For further information, visit www.teknos.com.

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