AMOTHERM® WOOD 450 SB

Fire-protection system for wood

Rev. March 2020

Transparent paint coating consisting of a primer and topcoat

Characteristics: paint coating consisting of a primer formulated with special solvent-based polyurethane resins and specific reactive substances which, when exposed to the action of flames or the heat of a fire, decompose chemically, generating inert gases and other extinguishing compounds which reduce flame propagation and slow down carbonisation of the wood.
The protective topcoat, an integral part of the system, is formulated with special solvent-based polyurethane resins and is available in different degrees of gloss. It must be applied to ensure the integrity of the layer underneath.
Applications: special protective system to protect indoor wooden structures from fire and to reduce the reaction to fire of items in wood or its derivatives, such as wall- or ceiling-mounted matchboard, furniture and fittings, scenery, stands, etc..
The system may be used outdoors with a hardener that is suitable for outdoor use.
Technical performance: the paint coating is classified:

- ***REACTION TO FIRE:***
  - *EUROCLASS B-s1,d0* in accordance with EN 13501- part 1. The classification is valid for the protection of all wood-based materials on walls or ceilings as required by the technical criteria indicated in the standards EN 13823 reaction to fire tests for building products exposed to thermal attack by a single burning element and EN ISO 11925 reaction to fire tests for building products - part 2: ignitability when exposed to a small flame
  - *CLASS 1* in accordance with UNI 9796/90 pursuant to Italian Ministerial Decree 6/3/92 approved with no. BL158PVI100021. The classification is valid for the protection of all wood-based materials for all uses, the only restrictions being those indicated in UNI 9796 and referring to materials with air cavities or assembled with thermoplastic adhesives.
  - *ASTM E84 FLAME SPREAD INDEX (FSI): 115 and SMOKE-DEVELOPED INDEX (SDI): 400* – corresponds to CLASS C of the International Building Code (IBC) 2018, Section 803.1.2.

Technical data

Characteristics	PRIMER	TOPCOAT
Protective system:	AMOTHERM WOOD 450 SB	AMOTHERM WOOD 450 SB TOP
Components:	Dual-component product	Dual-component product
Colour:	Transparent, colourless	Transparent, colourless
Gloss:	---	opaque (12 - 18 GLOSS) satin (57 - 63 GLOSS) high gloss (> 85 GLOSS)
Mass by volume:	➢ 1.11 +/- 0.02 g/cm^3 comp. “A” ➢ 0.99 +/- 0.02 g/cm^3 comp. “B”	➢ 1.10 +/- 0.02 g/cm^3 comp. “A” ➢ 0.99 +/- 0.02 g/cm^3 comp. “B”
Test viscosity:	➢ 600 – 900 mPa s (BROOK) comp. “A” ➢ 50 – 60 s (DIN 2) comp. “B” ➢ 55 – 65 s (DIN 2) comp. “B” outdoor use	➢ 1500 – 2500 mPas (BROOKFIELD) comp. “A” ➢ 50 – 60 s (DIN 2) comp. “B” ➢ 50 – 60 s (DIN 2) comp. “B” outdoor use
Dry residue in weight:	➢ 70 – 74 % comp. “A” ➢ 28 – 32 % comp. “B”	➢ 65 – 69 % comp. “A” ➢ 28 – 32 % comp. “B”
Catalysis ratio:	1:1	1:1

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Pot life	90 min (2 hours with catalyser for outdoor use)	At least 3 hours
Drying time:	▪ dust dry 20' ▪ sanding 12 hours ▪ through-dry 12 hours	▪ dust dry 25' ▪ through-dry 24 hours ▪ dry to handle 24 hours
Recoatable:	after 1-4 hours with same product	---
Topcoat:	• after 8 hours max. from the last coat without sanding • after 12 hours min. from the last coat, sanding between coats	---
Storage:	at least 1 year in the original closed container at a temperature of >5°C	
Packaging:	as per price list	

The technical data given above refer to the results obtained for the transparent formula in the opaque version. The product application details were obtained in normal environmental conditions (temperature 20 °C and relative humidity 60%) and refer to the application of a wet film of thickness 150 micron. Application of different thicknesses and/or in different environmental conditions may lead to considerable variations in the technical features given above.

How to apply

Detailed information about the use of AMOTHERM WOOD 450 SB at all operative stages in the life cycle of the product, can be found on the Safety Data Sheet (SDS). Further information and instructions for applying the protective system can be found in the USER MANUAL. The technical product documentation is available on the company website and can be downloaded at www.amonncolor.com.

A summary of the standard operating conditions for the correct application of this protective system is given below.

Surface preparation: the primer must be applied directly to raw wood or wood treated with a non-film-forming primer but not with wax or water-repellent products.

The surfaces to be treated must be clean and dry; we recommend carefully removing dust and any traces of oil and grease.

As the fire-protection system is a film-forming treatment (closed pore), it is important to check that the moisture content of the surface does not exceed 15% before it is applied.

The paint coating can also be applied to old wood or wood which has been pre-treated with other products, even if they are not fire retardants, only after testing its compatibility, adhesion and final appearance (we recommend carrying out preliminary tests on small areas of the surface to be treated).

Application quantity: the amount of product to be applied is determined by the reaction to fire requirements.

- **REACTION TO FIRE:**
  - *EUROCLASS B-s1,d0*: 200 g/m^2 of AMOTHERM WOOD 450 SB primer + 160 g/m^2 of AMOTHERM WOOD 450 TOP SB protective topcoat. If the surface has to be sanded between the primer and topcoat, the quantity of primer must be increased to 300 g/m^2
  - *CLASS 1*: minimum 200 g/m^2 of AMOTHERM WOOD 450 SB primer + 150 g/m^2 of AMOTHERM WOOD 450 TOP SB protective topcoat. If the surface has to be sanded between the primer and topcoat, the quantity of primer must be increased to 300 g/m^2

Product preparation: stir component "A" carefully then add the catalyser and continue stirring until the components are completely mixed in.

Dilution: the products are supplied ready to use. If dilution is necessary, follow the instructions in the table below.

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Application methods: The product can be applied using a curtain coater or a conventional or airless spray. A brush may be used but the quality of the finish will not be of the same standard.
When using a curtain coater, it is important to take pot life into account, as this tends to be shorter due to the solvent evaporating (make sure the product does not remain in the machine). The viscosity of the product as supplied is suitable for curtain coating.
Use the quantities indicated and avoid varnish build-up as it may become cloudy.

Follow these instructions and quantities for the best aesthetic results (furniture, etc..):

- One coat of min. 150 g/m^2 of AMOTHERM WOOD 450 SB
- After at least one hour and before 4 hours, apply a second coat of min. 150 g/m^2 of AMOTHERM WOOD 450 SB without sanding (if more than 4 hours elapse, the surface will have to be sanded as per the following point)
- After at least 12 hours, sand down with medium grain (220-240) sandpaper and apply a coat of min. 160 g/m^2 of AMOTHERM WOOD 450 SB TOP protective topcoat.

For other applications, please follow these instructions and quantities:

- Apply 200 g/m^2 of AMOTHERM WOOD 450 SB in one or two coats (apply vertically).
- After at least one hour and before 8 hours, apply one coat of min. 160 g/m^2 of AMOTHERM WOOD 450 SB TOP without sanding (if more than 8 hours elapse, the surface will have to be sanded and approx. 100 g/m^2 more product added).

The product will adhere between coats if the over-painting times and sanding stages are respected. Sanding must be particularly thorough. Using hot air during application speeds up hardening times.
We recommend working in an ambient and product temperature of at least 10°C with relative humidity below 60%.

METHOD	% dilution	pressure	nozzle
Brush/roller	*0 - 5%* *(PU thinner or PU retardant thinner**)*	---	---
Air spray (cup spray gun)	*0 - 5%* *(PU thinner or PU retardant thinner**)*	*2.5 – 3.0 bar*	*1.5 – 2.0 mm*
*Airless spray**	---	*80 – 120 bar*	*0.011 - 0.015 inch*

* Use an airless pump for spray application:
  - Pneumatic pump with a compression ratio of 15:1
  - Electric pump with motor power of at least 1.9 KW

** with an ambient temperature of >25°C

Tool cleaning: with Stufex 003 thinner (or nitro thinner) immediately after use.

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Warnings:

- When stored for a long time, the fire-retardant substances in the product tend to settle at the bottom of the tin. Always mix the product thoroughly with a paddle mixer or metal rod before using it.
- Applying more product per coat than indicated in this data sheet can cause problems, such as the varnish becoming cloudy or turning white, dripping, etc…
- Humidity during the application and drying stages can affect the product, so we do not recommend applying it in very damp and humid conditions.
- Applying this product to oily woods (iroko, rosewood, mahogany, Tanganyika walnut veneers, etc.) can lead to common defects such as air bubbles, cloudy finish, etc.. Always carry out preliminary tests and/or apply a coat of polyurethane insulating primer on these types of wood.
- The system does not offer biological protection or protection against UV rays, so an appropriate impregnating primer must be used for this.
- If this product is used in outdoor environments, it is important to monitor the condition of the finish and, should it deteriorate, promptly restore protection.

The instructions provided in this document are consistent with the most recently available information on the development and use of our product. Because we have no control over the onsite use and application of the product, we may only be held liable for the quality of the product as supplied.