



## WOOD FR-BAR.45

Autoclave wood impregnation process for making wood permanently fire retardant

### PRODUCT DESCRIPTION

**WOOD FR-BAR.45** provides a permanent fire protection to wood for both inside and outside applications. Makes timber Fire-Retardant by impregnating the **WOOD FR-BAR.45** liquid under high pressure in an autoclave

**WOOD FR-BAR.45** is a one component, halogen- and salt-free liquid – proprietary mixture – that bonds with the cellular structure of wood leaving a transparent and dry original look to the treated wood.



Wood before treatment

### PRODUCT USE

According to the European legislation, all wood and plate material for inside and outside use in buildings accessible to public have to conform to a CE- fire safety class. Therefore, wood needs to be impregnated with fire protective products to lower combustion speed during fire.

To ensure that fire reaction of the treated material resists after WEATHERING CONDITIONS, the flame retardant treatment needs to be water INSOLUBLE. Even with hydrophobic post treatments, traditional “salts” will “leach out” due to moist exchange.

This rapid deterioration of the flame retardant properties won't ensure fire protection of the treated wood.



Green chemistry

### ADVANTAGES and CHARACTERISTICS

- Clear
- Dry touch
- Preserves natural look of wood
- Raises dimensional stability of the wood
- Dilutable with demineralised water
- FREE of organic halogens
- FREE of heavy metals
- FREE of Chlorinated- and Phosphate plasticisers
- LOW smoke
- NOT soluble nor hygroscopic
- Water resistant
- NOT Corrosive
- Coatable with products like WOOD VARNISH, WOOD OIL or WOOD HYDROSHIELD LIQ

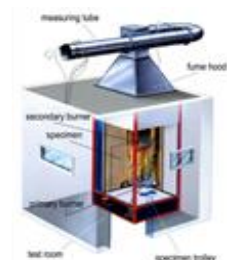


Intumescent Fire protection of WOOD FR-BAR.45

### TECHNICAL DATA

Treated under the right conditions, various wood types can result in passing the harmonised EU Standard EN 13501-1 class B / C and US Standard ASTM E84 Class 1 / Class A (Steiner Tunnel Test), by developing a self-extinguishing, intumescent reaction in contact with fire.

To guarantee the insoluble characteristic of the flame retardant in the treated wood, it should be completely dried (usually 5 days at 50 °C) and eventually cured. A simple immersion test will define weight loss and extra curing time.



Picture source [www.shz.de](http://www.shz.de)



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### APPLICATION

**WOOD FR-BAR.45** - dilution has to be applied under vacuum pressure in an autoclave according to following guidelines:

Dilute **WOOD FR-BAR.45** with demineralised water containing 5% of Phosphoric Acid 75% till the required dilution ratio. The phosphoric acid is mandatory to prevent any premature reaction.

Guidelines of dilution :

1. Dilute **WOOD FR-BAR.45** as described higher till the required solids  
Guidelines of dilution :

Wood type	WOOD FR-BAR.45	5% H <sub>3</sub> PO <sub>4</sub> in dem. water
Ayous (thermo)	90	10
Cedar	90	10
Douglas	75	25
Oak	100	0
Paduk	90	10
Pine Wood	65	35

2. Determine weight of dry conditioned wood
3. Pre-dry wood at 50 °C
4. Determine weight of dried wood
5. Put dry wood into autoclave
6. Vacuum pressure : -0,9 bar during 30 min (or less pressure according absorbing force of wood-type) during necessary time.
7. Add diluted or un-diluted FLAMAL BAR 30 in autoclave by keeping vacuum
8. Raise Pressure if necessary. Raising the temperature might be a solution for difficult penetrating wood types. Exposure time depends of the quality of the wood
9. Empty excess product from tank and filter for re-use
10. Pressure : -0.3 to -0.5 bar during 20 minutes if necessary
11. Weigh wet wood to determine absorbed quantity of product  
Wet add-on should be 5-40% depending on predetermined test results
12. Drying "under roof": best at 20 – 50 °C till moist <15%
13. Curing: 50 °C during 3 days. Product becomes insoluble.  
Add steam before exiting tender to allow re-hydration of wood and preventing curling
14. Quality Control : Add-on, dryness, weathering test, fire reaction,...  
Soaking test: FR treatment is permanent when less than 10% of total add-on is lost after full immersion in water during 24hrs. This ratio can get to 2% if cured longer
15. To prevent coagulation equipment should only be rinsed with demineralised water



Institutional Buildings  
İstanbul, Turkey  
Architects:  
Tabanlıoğlu Architects  
Photographs:  
Thomas Mayer



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### PACKAGING

- Jerry Cans of 25 kg
- IBC's of 1000 kg
- Bulk

### HANDLING AND STORAGE

- Keep stored between 5 and 30 °C in closed original recipient.
- As WOOD FR-BAR.45 is reactive it is recommended to check the pH regularly and H3PO4 should be added to maintain a pH lower than 2.3. Product shelf life is guaranteed only in those conditions up to six months after date of delivery.

### SECURITY

Please consult the safety data sheet.

### IMPORTANT NOTICE:

Our liability is limited to the product itself, its processing and application are excluded. Own tests must be carried out prior to each treatment. We reserve the right to change our products and their composition and to amend the associated technical notes without prior notice. Please ask our advisory service for the latest version of this technical note.