



 **FIREWALL**
RENNER ITALIA'S FIRE-RETARDANT COATINGS

Endless ways to project the world and just one big imperative: safety

Renner Italia Firewall fire-retardant coatings were born to protect the safety of objects and people. An efficient coating system can delay the onset of a fire and save a life.

It's strictly forbidden to compromise over safety. That's why it's necessary to rely on specialists and choose the Firewall range, Renner Italia fire-retardant coatings.

Fire-retardant coatings that combine safety and beauty

Wood has always fascinated the most important international architects. It's a light and resistant material. It has high earthquake-resistances and is the heart of the modern bioarchitecture. Wood fills in the places where we live with beauty, but it's also an inflammable material. Especially places, where lots of people are hosted, must be protected from fire. Cinemas, shopping centres, schools, offices, restaurants, hospitals, residential buildings. . .

Firewall coating systems slow down the onset of fire; delay flame propagation; limit the emission of toxic gases and respect the complex standards. But that is not all. Renner Italia fire-retardant coatings keep unchanged the wood features, fixing in time the aesthetics needs of contemporary designers. Using Firewall coatings means choosing endless ways to decorate and enhance the wood, considering the safety as a must.

Without compromises.





A recent achievement

Concerning fire-retardant coating systems, the beauty-safety couple is a recent achievement. In this match Firewall plays a leading role. During the past, applying a fire-retardant coating meant gaining safety, but losing beauty. This was the price to pay to resist to fire, because a high grammage of coating was needed.

With Firewall range, Renner Italia laboratories developed state of the art formulas, that can realise endless special effects, colours, premium finishings even in the field of fire-retardant coatings.

Firewall coating is recommended for its elegance and flexible beauty, but above all, in addition to all these features, includes the maximum resistance to fire, reaching Class 1.

Firewall coatings reduce toxicity of smoke

Firewall fire-retardant coatings create a barrier, that limits the combustion of the substrate. How do the additives contained in the formulas react to a strong heat source? They activate chemical processes, that release water, decreasing the temperature of the object. At the same time the coatings deprive the flames of oxygen, producing carbon dioxide.

In some cases they create a vitrified barrier. In other cases, the coating film considerably swells up (intumescence), producing a compact foam. The aim of the fire-retardant fillers is to stop the self-feeding combustion cycle, reducing the speed of chemical and/or physical reactions, which take place in one or more constitutive phases. The last effect of a fire-retardant product, whatever its mechanism of action is, is reducing the speed of heat transfer to the polymer under the required minimum value for the combustion self-feeding.

The problem comes out when these efficient fire-retardant additives start the process of flame and combustion inhibition, releasing toxic substances. The best fire-retardant products are the greater producers of toxic and corrosive gases. We know for certain that the most of the victims of fire is caused by the smoke and not by flames (from 55 to 75%).

Unfortunately only some standards consider the analysis of smoke toxicity, some tests consider only the quantity of emitted smoke or its opacity. All Firewall fire-retardant coating systems eliminated from their formulas every substance with halogen basis, reducing the phosphatic fillers and using mainly nitrous fillers.



The spaces under fire-retardant regulations

The Firefighters (Italian, Vigili del Fuoco) are the Italian corps, that can release the Certificate of fire prevention (Italian, CPI - Certificato di prevenzione incendi). In their analysis, the Firefighters identify the risks coming from the quantity of existing combustible material (fire load) and people flow.

Depending on these considerations the Firefighters classify spaces in ascending order of riskiness:

- A. Business at low risk of fire such as offices or professional studios
- B. Business at average risk of fire such as shops or furniture factories
- C. Business at high risk of fire such as airports, hospitals, schools, big hotels

After the risk evaluation, designers and builders must adopt one or more measures in order to reduce the probability of a fire onset.

These measures apply active protective devices and passive protective devices.

Active protective devices

Human intervention is required.

E.g. sprinklers, fire extinguishers, emergency exits, ventilators, smoke detectors, etc.

Passive protective devices

Their aim is the reduction of fire consequences by slowing down fire and smoke diffusion without human intervention.

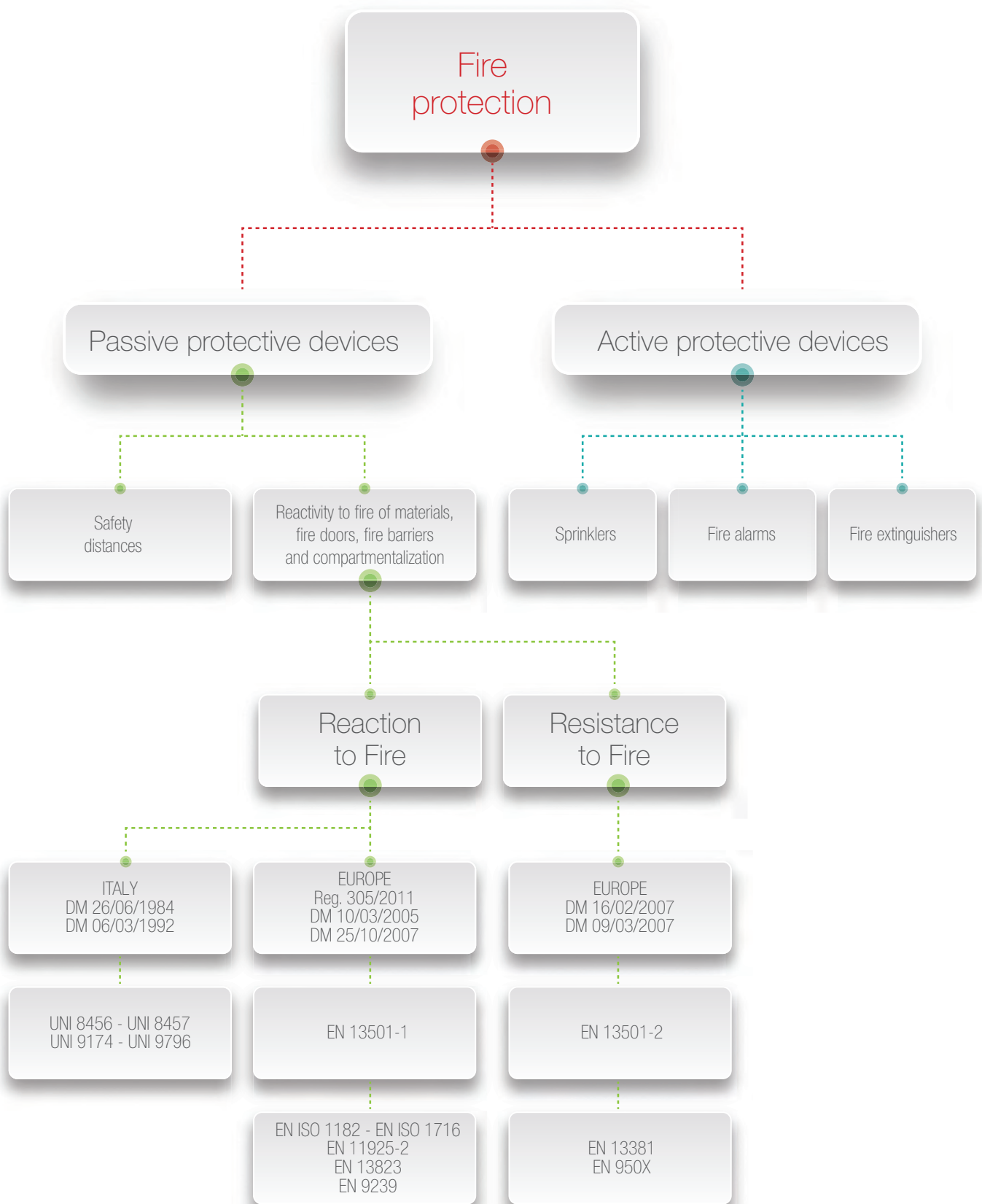
E.g. fire-retardant and intumescent coatings, plasters, slabs, fire doors, etc.

Every object, made of a material classifiable as a passive protective device, requires a certain Class of Resistance or Reaction to Fire.

The Resistance to Fire is a feature of structural elements, compartmentalization or fire doors.

The Reaction to Fire is a feature of coverings and furniture.

The standards



UNI = Italian National Unification

DM = Ministerial Decree

Reaction to Fire

The fire-retardant standards, that in Italy regulate the passive protective devices of Reaction to Fire, refer to DM 26/06/84 and next DM 03/09/01 “Classification of Reaction to Fire and certification of materials in order to prevent fire” and specifically for woods DM 06/03/92 “Technical and procedural standards for the Classification of Reaction to Fire and certification of fire-retardant coating products applied on wooden objects”.

The definition of Reaction to Fire is the level of participation to the fire of a combustible material.

Italian classification Reaction to Fire					
0	1	2	3	4	5
incombustible	hardly flammable	flammable	easily flammable	highly flammable	unclassifiable

The standards are supported by the new European Regulation n. 305/2011 – “Regulation of building products” highly linked to DM 10/03/2005 and DM 25/10/2007 concerning “Classes of Reaction to Fire for building products, that must be used in works, where the fire safety is required”, that set the procedure to classify in Reaction to Fire the objects (CE branding) inside buildings, forced to release CPI (Certificate of fire prevention).

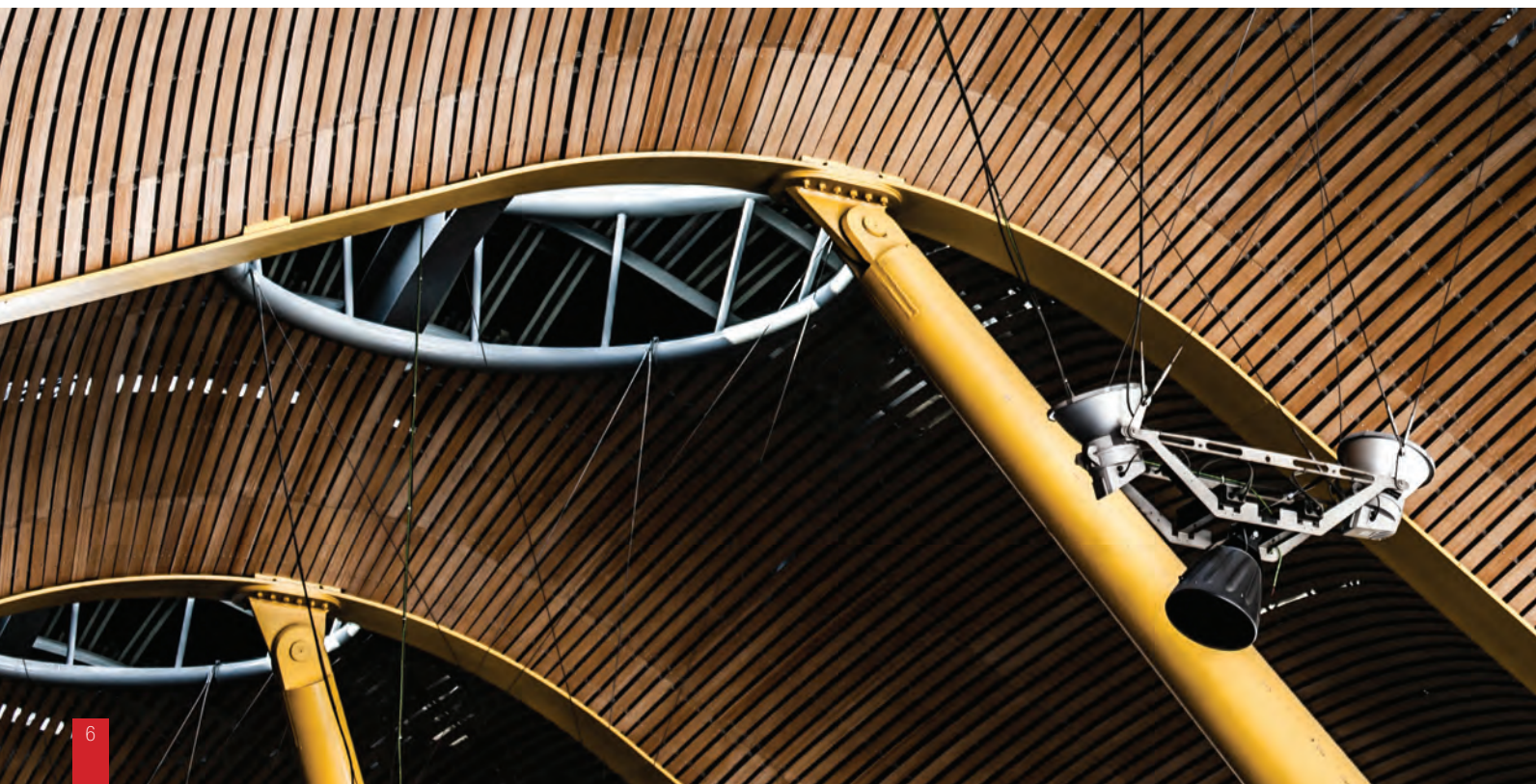
European classification Reaction to Fire						
A1	A2	B	C	D	E	F
incombustible	combustible unflammable	hardly flammable	flammable	easily flammable	highly flammable	unclassifiable
S Smoke: level of smoke emissions from 1 (missing/weak) to 3 (high)			D Flaming droplets and/or particles: dripping of flaming particles. The values go from 0 (missing) to 2 (high)			

The application of the European Regulation n. 305/2011 is restricted only to building materials, i.e. to every product in order to be assembled or fitted permanently in buildings and in other civil engineering works (houses, industrial and commercial buildings, offices, hospitals, schools, leisure centres, accomodation centres, churches and rural buildings, etc. i.e. businesses forced to release CPI).

National standards are still disciplining furniture, exhibition booths, show business centres or maintenance works.

The European Regulation n. 305/2011 didn't completely replace the previous standards of every single country, but did upset the process of the access to CPI, because the test doesn't include the parameter of the speed of flame propagation, but includes the most complicated aspect about the heat and smoke quantity that developed during combustion.

The tests referring to the Reaction to Fire are divided in application on wall/ceiling or floor.



Firewall obtained European certifications for floors (oak wood floorings) and wall/ceiling (veneered MDF panels with coverings). Water-based and solvent-based coating systems, even with UV technology, are created in collaboration with great factories in the field of coverings. In addition to the compliance with the strict European standards about fire protection, they boast excellent technical and aesthetic performances.

Charts of DM 15/03/2005 completed with changes of DM 16/02/2009

Comparison: European classification and national standards

The comparative chart is useful, when an object certified by the European regulation must be restored with coating products, that are approved by the national standards.

Products installed along emergency exits

	Use	European classes (instead of class 1)
a)	Floor	(A2FL-s1), (BFL-s1), (CFL-s1)
b)	Wall	(A2-s1,d0), (A2-s2,d0), (A2-s1,d1), (B-s1,d0), (B-s2,d0), (B-s1,d1)
c)	Ceiling	(A2-s1,d0), (A2-s2,d0), (B-s1,d0), (B-s2,d0)

Products installed in other spaces (floor)

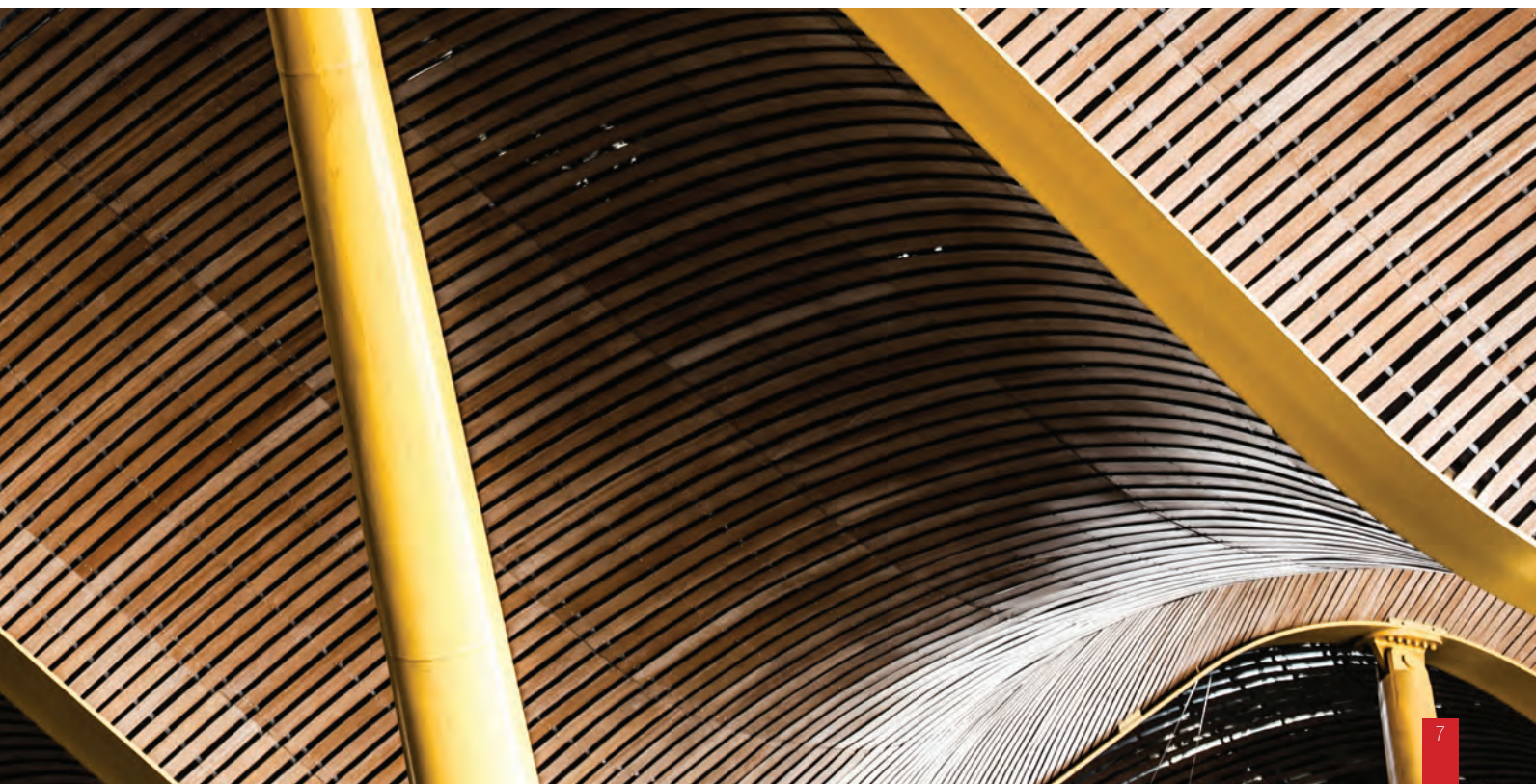
	Italian class	European classes
I	Class 1	(A2FL-s1), (A2FL-s2), (BFL-s1), (BFL-s2), (CFL-s1)
II	Class 2	(CFL-s2), (DFL-s1)
III	Class 3	(DFL-s2)

Products installed in other spaces (wall)

	Italian class	European classes
I	Class 1	(A2-s1,d0), (A2-s2,d0), (A2-s3,d0), (A2-s1,d1), (A2-s2,d1), (A2-s3,d1), (B-s1,d0), (B-s2,d0), (B-s1,d1), (B-s2,d1)
II	Class 2	(A2-s1,d2), (A2-s2,d2), (A2-s3,d2), (B-s3,d0), (B-s3,d1), (B-s1,d2), (B-s2,d2), (B-s3,d2), (C-s1,d0), (C-s2,d0), (C-s1,d1), (C-s2,d1)
III	Class 3	(C-s3,d0), (C-s3,d1), (C-s1,d2), (C-s2,d2), (C-s3,d2), (D-s1,d0), (D-s2,d0), (D-s1,d1), (D-s2,d1)

Products installed in other spaces (ceiling)

	Italian class	European classes
I	Class 1	(A2-s1,d0), (A2-s2,d0), (A2-s3,d0), (A2-s1,d1), (A2-s2,d1), (A2-s3,d1), (B-s1,d0), (B-s2,d0), (B-s3,d0)
II	Class 2	(B-s1,d1), (B-s2,d1), (B-s3,d1), (C-s1,d0), (C-s2,d0), (C-s3,d0)
III	Class 3	(C-s1,d1), (C-s2,d1), (C-s3,d1), (D-s1,d0), (D-s2,d0)



Resistance to Fire

The old Italian Circular M.I.S.A. no. 91 of 14/09/61 has already been replaced by DM 16/02/2007 "Classification of Resistance to Fire of building products and elements for building works" and by DM 09/03/2007 "Performances of Resistance to Fire of constructions in activities, which are under the control of the National Corps of Firefighters".

The reference standard is EN 13501-2 "Fire classification of building products and elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services".

This standard analyses all the structural elements, supporting and non-supporting, such as walls, beams, slabs, pillars, false ceilings, coatings, plasters, overhead floors, fire doors, exterior facades, etc.

The standard of Eurocodes is EN 199x-1-7 "How to plan structures made of steel, concrete, wood, brickwork and aluminium according to proof procedures, specified in standards EN 13381-1-7".

DM 16/02/2007 provides the following classes of Resistance to Fire: 15, 20, 30, 45, 60, 90, 120, 180, 240, 360 (expressed in minutes).

They represent the time, under which the structural element can maintain and ensure its function under the heating action, in a specific area of use.

Meaning of REI acronym

R = Stability Aptitude of a building element to preserve its mechanical resistance under the fire action

E = Resistance Aptitude of a building element neither to let pass nor to produce flames, hot steams or gases on the unexposed side

I = Insulation Aptitude of a building element to contain, within a certain limit, the heat transfer from the opposite side to the exposed one

Supporting brickworks and beams (structures planned to support an applied load): requisite REI.

Non-supporting brickworks or fire doors (elements and structures, not subject to any load, except for their own weight): requisite EI.

The substrates can be numerous, from steel to wood, obviously the wood is the best material in the structural field. In addition to an incomparable aesthetic result, it is extremely flexible, light and is a bad heat conductor.

Even if flammable, the wood organic composition remains the best guarantee during a fire. As a matter of fact, the superficial carbonization is a barrier against flames and high temperatures.

Marine Equipment Directive (MED) 96/98/EC

Since 1958 the International Maritime Organization (IMO) has been defending through strict standards thousands of boats all around the world.

The materials on boats are submitted to a proof method indicated in the IMO resolution MSC.307 (88) Fire Testing Procedures Code (2010 FTP Code) Annex 1 - Part 5 and Part 2. It is a mix between Italian and European test, because it considers both the flame propagation and the heat peak and release through flame primer and heating panel, and determines the toxicity and the optical density of the developed smokes.

Concerning boats, as opposed to Reaction to Fire of building materials, every single element is examined individually, that is why an object to be coated must be tested separately: object and coating. The "coating" test is done on unflammable material. The quantity of emitted calories is to be added to the calories of the unrefined object to be coated.

In 2015 Renner developed two water-based and solvent-based products, transparent and pigmented, suitable for a great variety of substrates. The solvent-based system (RAF-PET NAV and RAF-PEP NAV) is particularly recommended for wooden objects, while the water-based system (RAF-ATB NAV and RAF-A MULTICOLOR NAV) has been created for the use on big cruise boats, where it is necessary to treat different types of supports such as plastic, aluminium, iron, plaster, polyurethane etc. without the use of a primer.



EXIT ↑

Fire-retardant coatings and intumescent coatings

The fire-retardant coatings and the intumescent coatings limit the fire, heat and smoke propagation of combustible or structural materials in spaces, controlled by the fire prevention standards. These coatings are used in spaces, where there's a big flow of people such as shopping centres, accommodation centres, schools or cinemas. These spaces must release the Certificate of fire prevention (CPI) for flammable materials such as furniture and structural elements (e.g. wooden, steel or concrete beams).

The difference between a fire-retardant coating and an intumescent coating is the chemical composition. The first one contains fire-retardant or anti-flame additives (Latin, *ignis*, fire, and *fugo*, "letting escape"); the second one is composed by intumescent additives (Latin, *intumescens*, present participle of the verb *intumescere*, i.e. blow up). When the temperatures are between 200 and 300°C the fire-retardant additives release substances, that inhibit the oxygen: they develop carbon dioxide or steam, decreasing the combustion temperature. Between 300 and 400°C the fire-retardant coatings start the crystallization process. In other words, an inflammable vitrified layer creates a barrier for the wood.

By a temperature of 200°C the intumescent additives react blowing up the coating film. In this way, they create a protective and insulating barrier, retarding both the combustion and the temperature raising. Usually the anti-flame additives are used on systems, applied on furniture, while intumescent additives, which are more reactive, but less transparent, are part of coatings, which are used to paint supporting structures.

Thus, a fire-retardant coating certified in Class 1 of Reaction to Fire contains anti-flame additives and it performs better, concerning the chemical resistance and the abrasion, while an intumescent coating certified in Class 1 of Resistance to Fire will be more sensible to humidity and stress.



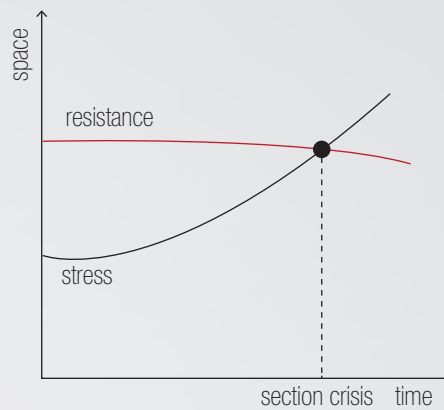
The supporting structures

Wood is a combustible material, but also a bad heat-conductor. That's why it is used for the creation of supporting structures not only because it is aesthetically fascinating and cheap, but also, above all, because in case of fire it has a great mechanical resistance, that can be useful to increase the necessary time, in order to rescue all the people inside the room.



Steel - Concrete

The temperature increase reduces the material mechanical features, but leaves unchanged the geometry of the section



Wood

The temperature increase leaves (almost) unchanged the material mechanical features, but reduces the geometry of the section

The chart shows the trend of the two components, wood and steel/concrete in front of a potential fire.

WOOD

The fire penetrates with an average speed of 0,7-0,9 mm/minute, creating a burned carbonic layer, that limits the flame development. The temperature, inside the wooden beam of only few centimetres, is only 40°C against 1000°C outside.

The fire and the heat don't change the mechanical resistance. The collapse occurs when the combustion reduces the geometry of the left cross section, so that it can be no more a supporting structure. The duration is proportional to its own thickness, so that it is possible to support high loads and resistances only with an oversized beam, without a treatment with fire-retardant or intumescent coatings, plasters or silicon calcium slabs.

STEEL

Steel is considered incombustible material and this is true, but steel is also a good heat conductor. If submitted to a drastic increase of temperature, as in case of fire, the steel loses its stability.

After only 5 minutes of exposure to fire, the steel reaches more or less 500°C. This represents the critical temperature for this material. After 10 minutes of fire the steel construction becomes enervated and collapses on itself like a house of cards. Steel expands about 0,012 mm per every meter of length and temperature degree. In case of a temperature of 500°C, that means a lengthening of 6mm per meter. It is compulsory the use of intumescent coatings or other types of protection.

CONCRETE

Because of its composition, also reinforced concrete or concrete is classified as a not combustible building material. The capacity to be a heat conductor of concrete is 2,1 W/mK, against 60 W/mK of steel; this is an important factor to be considered, when there are components such as reinforced concrete and, in particular, pre-cast concrete.

The calcareous aggregates don't lose in mechanical resistance, if not above 750°C, when the heat decay of limestone in lime and carbon dioxide starts. The problem is the inner content of steel and the main role is the heat protection of concrete cover. In fact, in structures with reinforced concrete, the high temperature has a relevant importance towards steel, that above 500°C loses the major part of its features.

These weaknesses become "fast tracks" for the heat flow, provoking a localised temperature increase, that can exceed 500°C in a very short time. Even in this case the fire trend is similar to a steel beam, that's why it is compulsory the use of intumescent coatings or other types of protection.

The fire door

Every place with a big flow of people, where it is compulsory the release of CPI (Certificate of fire prevention), must be fitted out with emergency exits and fire doors.

The great part of doors and windows, fitted in hotels, hospitals, schools, care homes, etc. are conformed to Resistance to Fire, i.e. they're certified as fire doors. Their function is to seal off a room, so as to create a barrier against potential flames, heat and smoke, that developed during a fire, and to avoid the spreading to next rooms.

According to their position, they must keep the EI features, i.e. heat and smoke insulation for many minutes, that may be 15', if used as door of a hotel room, or 120', if fitted along an emergency exit.

Nowadays the corridors, already "disquieting", become deadly traps in case of fire, because immediately invaded by the smoke of a fire, which started for example in a hotel room in which there are furniture and covering certified in Class 1 of Reaction to Fire, but however they're combustible materials. It is necessary to create a way out free from toxic and corrosive smokes, emitted by the materials inside the rooms.

The problem occurs when it is necessary to change the standard doors in a hotel and make them fire doors.

The fire-retardant or intumescent coating is not enough to "certify" a standard door as a fire door; inner structure, gasket, hinge, handle, frame, etc. must be tested and certified in Resistance to Fire, moreover a self-closing device must be fitted.

Of course if the door is coated, the use of a fire-retardant coating is compulsory. In this way the class of the door doesn't get worse through the application of a standard combustible coating system.



The tourism and the fire prevention systems in Italian hotels

Since the postwar years Italy is the dream destination of every tourist. Not by chance: beautiful landscapes, historical heritage unique in the world for its monuments, architecture and art. It is worth asking if the quality of services, offered by the local tertiary sector, lives up to Italy. Does the accommodation respect the international safety standards?

Let's start with a concrete fact. The adaption to standards for fire prevention in hotels are defined by DM (Italian Ministerial Decree) 09/04/1994 and concern all tourism infrastructure such as hotels, hostels, bed and breakfasts, boarding houses.

Hotels, built before 1994, avail themselves of a 20-year-old fire prevention system. To be exact, an extension of the original certificate of 1994 is given to these structures. This is not valid for hotels of the latest generation or built after that year, which must comply with the last standard of fire prevention. Because of the recent building crisis, it is necessary to consider that the majority of the accommodation centres in Italy were built before 1994. Using a system, that complies with 20-year-old standards, means using not compliant products, such as the used fire-retardant coatings. Permitting the adaption to old and obsolete standards, no hotel manager will invest in modern and safe fire prevention systems.

Vice versa, companies use energy and investments in the realization of more and more technologic fire prevention systems. Thanks to the research, nowadays the creation of safe and reliable buildings is possible. In the same way it is possible to make safer already existing buildings. But still on the national territory there are hotels, hostels and boarding houses less safe than the maximum standards, than can be reached with new regulations and technology.

The consequence on tourism? Outside our Peninsula people do not turn a blind eye. Abroad the travel agencies remark to tourists the singular Italian juridical system and explain in details the features of fire prevention systems in most of the Italian hotels. People, who travel, above all today, want every type of guarantee for their safety.





The safety during exhibitions and shows

Areas, designated to exhibitions, shows and temporary exhibits, must comply with safety and fire prevention systems, planned ad hoc for the kind of event, morphology of the structure, capacity in terms of participants or visitors. As these are temporary events, often the structures are built just for this occasion, for design reason or for the durability of building materials. Even in structures used in temporary exhibitions, the fire prevention standards, that regulate the use of wooden panels, provide the application of fire-retardant coatings.

Which products of the Firewall range should be used? 1k pigmented system RAF-AP (IT-EU-UK) is particularly recommended for the application on wood, intended for exhibitions and temporary shows. The substrates and objects, fitted in exhibitions, shows and temporary events are the business card of the event itself: that's why a high protection concerning safety and a perfect performance concerning aesthetics are necessary. Moreover, on the strength of the last obtained certifications, Firewall fire-retardant coatings can be applied on honeycomb cardboard, that, thanks to its ductility, is often used in structures for events and exhibitions.

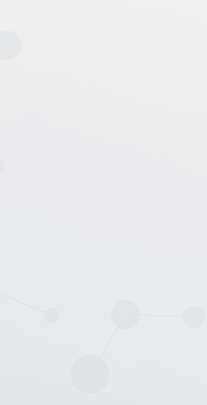


The design of honeycomb cardboard innovation to be protected

With Firewall range the application of fire-retardant coatings is not limited to wood. Renner Italia fire-retardant coating systems achieved the certification, to be applied on a material, that is becoming popular in the modern commerce, the honeycomb cardboard. Using honeycomb cardboard is more and more widespread in the field of furniture. It is a flexible, light and multipurpose material. It was born as a packaging material, until it captured the attention of shop designers, that started using it for the realization of shelves.

It is a material, that can be customized through coating and satisfies the creativity of designers. Recently it is very frequent to find furniture made of honeycomb cardboard: bookcases, shelves, night tables.

Like the wood, with which it is very often combined in the furniture field, it is a highly combustible material. Applying a fire-retardant coating on furniture made of honeycomb cardboard means increasing the quality of the object from an aesthetic point of view and make it a fire-resistant material.



The coating systems

OBJECT > WALL AND CEILING					
COATING SYSTEM	STANDARD		CLASS AND CERTIFICATION	G/M²	NOTES
	REFERENCE	COUNTRY			
RAF-ATB FM1	NF P 92-501	FR	M1	400	BARELY COMBUSTIBLE SUBSTRATE
RAF-ATB M1	NF P 92-501	FR	M1	200	BARELY COMBUSTIBLE SUBSTRATE
RAF-AP	UNI 9796	IT	1	400	*
	EN 13501-1	EU	B-s1-d0		MDF
	BS 476 PART 7	UK	1		4 AND 20 MM MDF
	BS 476 PART 6	UK	0	BARELY COMBUSTIBLE MDF	
	UNI 8457 - UNI 9174	IT	1	600	HONEYCOMB CARDBOARD
RAF-AP1	UNI 8457 - UNI 9174	IT	1	400	13 MM PLASTERBOARD
	EN 13501-1	EU	B-s2, d0	400	18 MM MDF
RAF-AP2	UNI 9796	IT	1	400	*
	EN 13501-1	EU	B-s2, d0	400	18 MM MDF
RAF-APB WHITE	UNI 9796	IT	1	400	*
	BS 476 PART 7	UK			4 AND 20 MM MDF
RAF-APB1 WHITE	UNI 9796	IT	1	400	*
RAF-APB WHITE M1	NF P 92-501	FR	M1	200	BARELY COMBUSTIBLE MDF
RAF-ATB	UNI 9796	IT	1	520	*
RAF-ATB CAR	UNI 8457 - UNI 9174	IT	1	600	HONEYCOMB CARDBOARD
RAF-ATB1	UNI 9796	IT	1	400	*
	BS 476 PART 7	UK			VENEERED MDF
RAF-ATB2	UNI 9796	IT	1	400	*
	BS 476 PART 7	UK			VENEERED MDF
RAF-ATB NAV	MED 96/98/CE	INT	B & D	150	EVERY KIND OF SUBSTRATE
RAF-A MULTICOLOR NAV	MED 96/98/CE	INT	B & D	150	EVERY KIND OF SUBSTRATE
RAF-A MULTICOLOR	UNI 9796	IT	1	400	*
RAF-A MULTICOLOR B	UNI 9796	IT	1	400	*
RAF-A MULTICOLOR M1	NF P 92-501	FR	M1	200	BARELY COMBUSTIBLE MDF
RAF-PEP	UNI 9796	IT	1	930	*
	ASTM-E84	U.S.	B		VENEERED MDF
RAF-PEP NAV	MED 96/98/CE	INT	B & D	480	EVERY KIND OF SUBSTRATE
RAF-PET	ASTM-E84	U.S.	B	930	VENEERED MDF
RAF-PET NAV	MED 96/98/CE	INT	B & D	480	EVERY KIND OF SUBSTRATE
RAF-P MULTICOLOR	UNI 9796	IT	1	450	*
	EN 13501-1	EU	B-s1-d0		BARELY COMBUSTIBLE MDF
RAF-P MULTICOLOR B	UNI 9796	IT	1	450	*
	EN 13501-1	EU	B-s1-d0		BARELY COMBUSTIBLE MDF
RAF-P MULTICOLOR M1	NF P 92-501	FR	M1	160	BARELY COMBUSTIBLE MDF
RAF-P MULTICOLOR B M1	NF P 92-501	FR	M1	160	BARELY COMBUSTIBLE MDF
RAF-P MULTICOLOR UK	BS 476 PART 7	UK	1	420	5 AND 20 MM MDF
RAF-P WHITE	UNI 9796	IT	1	450	*
	EN 13501-1	EU	B-s2, d0		BARELY COMBUSTIBLE MDF
RAF-T	UNI 9796	IT	1	450	*
	BS 476 PART 7	UK	1	450	
RAF-AC	EN 13501-1	EU	C-s1, d0	240	VENEERED MDF
	NF P 92-501	FR	M1	240	BARELY COMBUSTIBLE MDF
OBJECT > FLOOR					
RAF-ATB PAV	UNI 9796	IT	1	120	*
	EN 13501-1	EU	BFL-s1		DURMAST NOT IN ADHERENCE
RAF-ATB OIL PAV	UNI 9796	IT	1	80	*
RAF-ATB2	UNI 9796	IT	1	300	*
RAF-AC	EN 13501-1	EU	BFL-s1	240	DURMAST NOT IN ADHERENCE
	UNI 9796	IT	CFL-s1		*
RAF-AC UV PAV	EN 13501-1	EU	BFL-s1	183	DURMAST NOT IN ADHERENCE
RAF-AC UV1 PAV	EN 13501-1	EU	BFL-s1	158	BIRCH/DURMAST IN ADHERENCE
	UNI 9796	IT	1		*

TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM

Certificates and validations	Substrate
System certified in Class M1 of Reaction to Fire in accordance with DM 21/11/02 - NF P 92-501 CSTB test report no. RA14-102 of 20/05/2014	*For all MDF substrates certified in Class M1

Top coat versions	
YO1020	Matt
YO7020	Semi-glossy

Recommended use	Wall, ceiling and furniture	All types of wood* for interior use
Application method	Brush and spray gun	
Product preparation	Dilute up to a maximum of 10% with water	

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 200 g/m ²	
	YL0510	YOXX20	YC1112		RAF-ATB FM1
Solid content (%)	46	25	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,130	1,040	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 45	DIN 4 = 50	-	Overcoating	4 hours
Pot-life	-	2 hours	-	Sandable	4 hours

Application system in order to obtain Class M1 of Reaction to Fire	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Top coat preparation for the application	Mixing by weight: Transparent matt and semi-glossy top coat YOXX20 100% Catalyst YC1112 20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Brush and spray gun
Product application	Apply one coat of transparent base coat YL0510 with a grammage of 200 g/m ² . Let it dry off at least for 4 hours and sand lightly with 320 grit sandpaper. Apply one coat of transparent water-based top coat YOXX20 with a grammage of 200 g/m ² . Total quantity to be applied: 400 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water after use. When dry films must be removed, use AY---M460, leaving it to work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the container and homogenize the product well before use. Not cold-resistant: do not store at temperatures below 5°C. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
NF P 92-501	FR	M1	Certificate no. RA18-0062 of 30/03/18	Wall/Ceiling

Top coat versions

YO1021	Matt 10 gloss
YO7021	Semi-glossy 70 gloss

Recommended use	Wall, ceiling, furniture and floorings
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YOXX21	YC1112		RAF-ATB M1
Solid content (%)	30	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,030	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	2 hours		Sandable	6 hours

Application system in order to obtain Class M1 of Reaction to Fire in accordance with NF P 92-501

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. When recoating, always check the condition of the old coating film and its compatibility; completely remove the old films if necessary.		
Top coat preparation for the application	Mixing by weight:		
	Transparent base coat-top coat	YOXX21	100%
	Catalyst	YC1112	20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	Apply one coat of transparent base coat-top coat YOXX21 with a grammage of 100 g/m ² . Let it dry off at least for 6/8 hours and sand lightly with 240/320 grit sandpaper. Apply one coat of transparent water-based base coat-top coat YOXX21 with a grammage of 100 g/m ² . Total quantity to be applied: 200 g/m ² .		

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- During the application the temperature of the product, the substrate and the environment should never fall below 15°C.
- Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- Application tools must be cleaned with water after use. When dry films must be removed, use AY---M460, leaving it to work overnight, and then rinse with water.
- After long storage periods, always check for any presence of sediment at the bottom of the container and homogenize the product well before use.
- Not cold-resistant: do not store at temperatures below 5°C.
- The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so it is recommended always to recalculate the exact amount that will be lost. The same procedure must be applied when spraying, as the gun may reach up to 50% over spraying. Please note that the best solution will be to weigh the article during application, but as this is not always feasible, it is recommended to assess the surface to be painted and weigh the product in the cup.

WHITE FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00001 of 07/02/06	All types of wood*
UNI 8457 - UNI 9174	IT	1	Test report no. 11320 of 19/09/2014	Honeycomb cardboard
BS 476 part 7	UK	1	Certificate no. 27/03441/02/15 and 27/03441J/02/15 of 26/02/2015	Standard 4 and 20 mm MDF
BS 476 part 6	UK	0	Certificate no. 27/04697C/07/18 of 05/09/2018	MDF Class 0
EN 13501/EN 13823	EU	B-s1-d0	Test report no. 333603 of 10/05/2016	Standard 18 mm MDF
UNI 8457 - UNI 9174	IT	1	Test report no. 10462 of 28/07/2017	13 mm plasterboard

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 20% with water

Chemical-physical characteristics (23°C)		General information on the system Drying at 20°C and UR% between 45 and 65: 200 g/m ²	
	Y00511		RAF-AP
Solid content (%)	50	Dust free	30 minutes
Specific weight (g/cm ³)	1,140	Touch free	60 minutes
Viscosity (seconds)	DIN 8 = 18	Overcoating	6 hours
pH	From 7 to 8	Sandable	8 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796, UNI 8457, UNI 9174, BS 476 part 7 and Class B-s1,d0 of Reaction to Fire in accordance with EN 13501/EN 13823	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating films completely.
Cardboard substrate preparation	No measures required.
Preparation of the base coat-top coat for the application	Dilute up to a maximum of 20% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Manual roller, brush and spray gun
Product application	<p>Application to obtain Class 1 - UNI 9796, BS 476 part 7 and 6 Class B-s1,d0 - EN 13501/EN 13823 - UNI 8457/UNI 9174 on plasterboard: Apply two coats of white matt water-based base coat-top coat Y00511, separated by a gap of 6 hours, with a grammage of 200 g/m². Sand lightly with 320 grit sandpaper between coats. Total quantity to be applied: 400 g/m².</p> <p>Application to obtain Class 1 - UNI 8457/UNI 9174 on honeycomb cardboard: Apply three coats of white matt water-based base coat-top coat Y00511 with 6 hours drying time between the coats, with a grammage of 200 g/m². Sand lightly with 320 grit sandpaper between coats. Total quantity to be applied: 600 g/m².</p>

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY--M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. It is possible to add thixotropic additive AY--M454 in the percentage from 0,5% up to 1%, when it is necessary to apply more than 200 g/m² of Y00511 on a vertical surface. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

WHITE FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
EN 13501/EN 13823	EU	B-s2,d0	Test report no. 346355 of 31/10/2017	Standard 18 mm MDF
UNI 9796	IT	1	Validation no. B02476PVI100030 of 23/04/2018	All types of wood*

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Base coat-top coat version

Y00600	White matt
Recommended use	Wall, ceiling and furniture
Application method	Spray gun, manual roller and brush
Product preparation	Dilute up to a maximum of 20% with water

Chemical-physical characteristics (23°C)

	Y00600	YC1112		
Solid content (%)	50	70		RAF-AP1
Specific weight (g/cm ³)	1,200	1,100	Dust free	30 minutes
Viscosity (seconds)	DIN 8 = 18	-	Touch free	60 minutes
pH	From 7 to 8		Overcoating	4 hours
			Sandable	8 hours

General information on the system

 Drying at 20°C and UR% between 45 and 65: 200 g/m²
Application system in order to obtain Class B-s2-d0 in accordance with EN 13501/EN 13823 and Class 1 of Reaction to Fire in accordance with DM 06/03/92

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat-top coat preparation for application	Y00600 can be used as 1k base coat-top coat. To improve chemical resistance, it is recommended to catalyse up to a maximum of 20%. Mixing by weight: White matt base coat-top coat Y00600 100% Catalyst YC1112 from 5 to 20%
Base coat-top coat preparation for application	Dilute up to a maximum of 20% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun, manual roller and brush
Product application	Apply two coats of white matt water-based base coat-top coat Y00600, separated by a gap of 4 hours, with a grammage of 200 g/m ² . Sand lightly with 240/320 grit sandpaper between coats. Total quantity to be applied: 400 g/m ² .

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- During the application the temperature of the product, the substrate and the environment should never fall below 15°C.
- Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- Application tools must be cleaned with water after use. When dry films must be removed, use AY---M460, leaving it to work overnight, and then rinse with water.
- After long storage periods, always check for any presence of sediment at the bottom of the container and homogenize the product well before use.
- It is possible to add thixotropic additive AY---M454 in the percentage from 0,5% to 1% when it is necessary to apply more than 200 g/m² of Y00511 on a vertical surface.
- Not cold-resistant: do not store at temperatures below 5°C.
- The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

WHITE FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PV100031 of 28/08/2018	*Wall and ceiling
EN 13501/EN 13823	EU	B-s2,d0	Test report no. 349999 of 16/03/2018	Standard 18 mm MDF
EN 13501/EN 13823	EU	B-s1,d0	Test report by Istituto Giordano	Rock wool

*For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials.

Base coat-top coat version

Y00600	White matt
Recommended use	Rock wool or MDF panelling and panelling in general
Application method	Spray gun, manual roller and brush
Product preparation	Dilute up to a maximum of 20% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 200 g/m ²	
	Y00600	YC1115		RAF-AP2
Solid content (%)	50	80	Dust free	30 minutes
Specific weight (g/cm ³)	1,200	1,135	Touch free	60 minutes
Viscosity (seconds)	DIN 8 = 24	-	Overcoating	4 hours
pH	From 7 to 8		Sandable	4 hours

Application system in order to obtain Class B-s1,d0 or B-s2,d0 of Reaction to Fire in accordance with EN 13501/EN 13823

Wooden substrate preparation	Clean the surface and remove old coating films before the application.		
Base coat-top coat preparation for application	Mixing by weight:	Y00600	100%
	White matt base coat-top coat		
	Cross-linker	YC1115	From 2 to 4%
Base coat-top coat preparation for application	Ready to use. For roller or brush application, dilute up to a maximum of 20% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Spray gun, manual roller and brush		
Product application	<p>Application on rock wool panelling: Apply two coats of white matt water-based base coat-top coat Y00600, separated by a gap of 4 hours, with a grammage of 150 g/m². Sand lightly with 240/320 grit sandpaper between coats. Total quantity to be applied: 300 g/m².</p> <p>Application on MDF panelling or other materials: Apply two coats of white matt water-based base coat-top coat Y00600, separated by a gap of 4 hours, with a grammage of 200 g/m². Sand lightly with 240/320 grit sandpaper between coats. Total quantity to be applied: 400 g/m².</p>		

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- During the application the temperature of the product, the substrate and the environment should never fall below 15°C.
- Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY--M460, leaving it work overnight, and then rinse with water.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- It is possible to add thixotropic additive AY--M454 in the percentage from 0,5% up to 1%, when it is necessary to apply more than 200 g/m² of Y00511 on a vertical surface.
- Not cold-resistant: do not store at temperatures below 5°C.
- The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.
- The product may also be applied to outdoor articles, in which case its durability depends on the substrate type, exposure, cross-linking and performed routine maintenance. For a better adherence and durability, use white impregnating stain YM--S050--C02 for the first coat (80 g/m² max), and wait 4 hours before applying the fire-retardant base coat-top coat Y00600.

Certificates and validations	Substrate
IT - System certified for Class 1 of Reaction to Fire in accordance with DM 06/03/92 UNI 9796 - Validation no. B02476PVI00017 of 14/05/2015 UK - System certified for Class 1 of Reaction to Fire in accordance with BS 476 part 7 Certificate no. 27/03441A/02/15 and 27/03441B/02/15 of 26/02/15	IT - For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials UK - 4 and 20 mm MDF

Top coat version	
YO1061	White matt

Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)					General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YL0611	YOX061	YC1100	YC1112		RAF-APB WHITE
Solid content (%)	40	40	80	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,200	1,200	1,150	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 40	DIN 6 = 55	-	-	Overcoating	4 hours
Pot-life	6 hours	2 hours			Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796 and BS 476 part 7		
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.	
Base coat preparation for the application	Mixing by weight: White base coat Activator	YL0611 100% YC1100 10%
Top coat preparation for the application	Mixing by weight: White matt top coat Catalyst	YOX061 100% YC1112 20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.	
Application method	Manual roller, brush and spray gun	
Product application	Apply one coat of white base coat YL0611 with a grammage of 200 g/m ² . Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply one coat of white water-based top coat YOX061 with a grammage of 200 g/m ² . Total quantity to be applied: 400 g/m ² .	

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During application, keep the product, the substrate and the environment within the temperature range from 15°C to 40°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY--M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

2K WHITE FIRE-RETARDANT WATER-BASED SYSTEM

Certificates and validations	Substrate
IT - System certified for Class 1 of Reaction to Fire in accordance with DM 06/03/92 UNI 9796 - Validation no. BO2476PVI00028 of 02/11/2017	IT - For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials

Base coat-top coat version	
YO1061	White matt
Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Dilution	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YOX061	YC1112		RAF-APB1 WHITE
Solid content (%)	40	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,200	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	2 hours		Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796							
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.						
Base coat-top coat preparation for application	Mixing by weight: <table border="0" style="width: 100%;"> <tr> <td style="width: 40%;">Matt white top coat</td> <td style="width: 20%;">YO1061</td> <td style="width: 40%;">100%</td> </tr> <tr> <td>Catalyst</td> <td>YC1112</td> <td>20%</td> </tr> </table>	Matt white top coat	YO1061	100%	Catalyst	YC1112	20%
Matt white top coat	YO1061	100%					
Catalyst	YC1112	20%					
Base coat-top coat dilution for application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.						
Application method	Manual roller, brush and spray gun						
Product application	Apply one coat of white base coat-top coat YOX061 with a grammage of 200 g/m ² . Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply one coat of white water-based base coat-top coat YOX061 with a grammage of 200 g/m ² . Total quantity to be applied: 400 g/m ² .						

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C or above 40°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold and heat-resistant: do not store at temperatures below 5°C and above 40°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so we recommend always recalculating the exact amount that will be lost. The same procedure must be applied when spraying, as the gun may reach up to 50% over spraying. Please note that the best solution will be to weigh the object during application, but as this is not always feasible, we recommend assessing the surface to be painted and weighing the product in the cup.

Standard	Country	Class	Certificates and validations	Substrate
NF P 92-501	FR	M1	Certificate no. RA18-0063 of 30/03/18	Wall/Ceiling

Top coat versions

Y01022	Matt 10 gloss
Y07022	Semi-glossy 70 gloss

Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)

	YOXX22	YC1112	General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
				RAF-APB WHITE M1
Solid content (%)	40	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,200	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	2 hours		Sandable	6 hours

Application system in order to obtain Class M1 of Reaction to Fire in accordance with NF P 92-501

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove old coating films completely.		
Base coat-top coat preparation for application	Mixing by weight: White base coat-top coat Catalyst	YOXX22 YC1112	100% 20%
Base coat-top coat dilution for application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	Apply one coat of white base coat-top coat YOXX22 with a grammage of 100 g/m ² . Let it dry off at least for 6/8 hours and sand lightly with 320 grit sandpaper. Apply one coat of white water-based base coat-top coat YOXX22 with a grammage of 100 g/m ² . Total quantity to be applied: 200 g/m ² .		

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- During application, keep the product, the substrate and the environment within the temperature range from 15°C to 40°C.
- Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- Not cold and heat-resistant: do not store at temperatures below 5°C or above 40°C.
- In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.
- The system can be pigmented by adding up to 3% water-based pastes EY---M460/--XXX or EY---M690/--XXX.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so we recommend always to recalculate the exact amount that will be lost. The same procedure must be applied when spraying, as the spray gun may reach up to 50% over spraying. Please note that the best solution will be to weigh the object during application, but as this is not always feasible, we recommend to assess the surface to be painted and weigh the product in the cup.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
EN 13501/EN 13823	EU	B-s2,d0	Certificate no. 1104079-04 of 04/05/2011	Fire-retardant MDF
DM 06/03/92/UNI 9796	IT	1	Validation no. B02476PVI00012 of 21/11/07	Wall*
Circ. 91	IT	R90/R120	Test report no. 226818/2966FR of 13/06/2007 and no. 229549/2997FR of 27/08/2007	30x20 cm spruce beam

*For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials.

Top coat versions	
Y01012	Transparent larch
Y01013	Colourless

Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)				General information on the system	
				Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YL0512	Y0101X	YC1112		RAF-ATB
Solid content (%)	30	30	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,030	1,100	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 45	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	4 hours	2 hours		Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796, Class B-s2-d0 in accordance with EN 13501-1, and Class R90 and R120 in accordance with Circ. 91 of 14/09/1961

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.				
Base coat preparation for the application	Mixing by weight:				
	Transparent base coat	YL0512	100%		
	Catalyst	YC1112	10%		
Top coat preparation for the application	Mixing by weight:				
	Matt top coat	Y0101X	100%		
	Catalyst	YC1112	20%		
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.				
Application method	Manual roller, brush and spray gun				
Product application	<p>Application in order to obtain Class 1 - UNI9796 and Class B-s2,d0 - EN 13501/EN 13823</p> <p>Apply one coat of transparent base coat YL0512 with a grammage of 120 g/m². Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply two coats of matt water-based top coat Y0101X, separated by a gap of 16 hours, with a grammage of 200 g/m². Between the two coats sand lightly with 320 grit sandpaper. Total quantity to be applied: 520 g/m².</p> <p>Application in order to obtain Class R90 and R120 - Circ. 91</p> <p>Apply one coat of transparent base coat YL0512 with a grammage of 120 g/m². Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply three (R90) or four (R120) coats of matt transparent water-based top coat Y0101X, separated by a gap of 16 hours, with a grammage of 200 g/m². Between the two coats sand lightly with 320 grit sandpaper. Total quantity to be applied in order to obtain Class R90: 720 g/m². Total quantity to be applied in order to obtain Class R120: 920 g/m².</p>				

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

2K COLOURLESS TRANSPARENT FIRE-RETARDANT WATER-BASED BASE COAT-TOP COAT

Certificates and validations	Substrate
System certified for Class 1 of Reaction to Fire in accordance with UNI 8457 and UNI 9174 on honeycomb cardboard Test report no. 11320 of 19/09/2014	For all types of honeycomb cardboard

Base coat-top coat version	
YO1000	Colourless matt
Recommended use	Wall, ceiling and furniture All types of honeycomb cardboard for interior use
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YO1000	YC1100		RAF-ATB CAR
Solid content (%)	36	80	Dust free	45 minutes
Specific weight (g/cm ³)	1,100	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 40	-	Overcoating	4 hours
Pot-life	6 hours		Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 8457 and 9174			
Wooden substrate preparation	No measures required.		
Base coat-top coat preparation for application	Mixing by weight:		
	Colourless base coat-top coat	YO1000	100%
	Activator	YC1100	10%
Base coat-top coat dilution for application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	Apply three coats of colourless transparent base coat-top coat YO1000 with a grammage of 200 g/m ² , separated by a gap of 4 hours. Total quantity to be applied: 600 g/m ² .		

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold and heat-resistant: do not store at temperatures below 5°C or above 50°C. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM

Certificates and validations	Substrate
System certified for Class 1 of Reaction to Fire in accordance with DM 06/03/92 UNI 9796 (IT) and BS 476 part 7 (UK) UNI - Validation no. B02476PVI00016 of 14/05/15 BS - Certificate no. 27/03441D/02/15 of 26/02/2015	IT - For all type of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials UK - Veneered MDF

Top coat versions	
Y01012	Coloured transparent
Y01013	Colourless

Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)					General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YL0509	Y0101X	YC1100	YC1112		RAF-ATB1
Solid content (%)	36	30	80	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,100	1,100	1,150	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 40	DIN 6 = 55	-	-	Overcoating	4 hours
Pot-life	6 hours	2 hours			Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796 and BS 476 part 7		
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. When recoating, always check the condition of the old coating film and its compatibility. Completely remove the old films if necessary.	
Base coat preparation for the application	Mixing by weight: Transparent base coat Activator	YL0509 100% YC1100 10%
Top coat preparation for the application	Mixing by weight: Matt top coat Catalyst	Y0101X 100% YC1112 20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.	
Application method	Manual roller, brush and spray gun	
Product application	Apply one coat of transparent base coat YL0509 with a grammage of 200 g/m ² . Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply one coat of matt water-based top coat Y0101X with a grammage of 200 g/m ² . Total quantity to be applied: 400 g/m ² .	

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00027 of 02/11/17	Wall/Ceiling*
BS 476 part 7	UK	1	Test report no. 27/04660°/06/18 of 27/06/18	Solid wood wall
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00029 of 14/02/18	Floor*

*For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials.

Top coat versions

Y01012	Transparent matt larch
Y01013	Matt colourless

Recommended use	Wall, ceiling, furniture and floorings
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)

	Y0101X	YC1112	General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
Solid content (%)	30	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,100	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	2 hours	-	Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. When recoating, always check the condition of the old coating film and its compatibility. Completely remove the old films if necessary.		
Top coat preparation for the application	Mixing by weight: Matt base coat-top coat Catalyst	Y0101X YC1112	100% 20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	<p>For use on wall/ceiling: Apply one coat of transparent base coat-top coat Y0101X with a grammage of 200 g/m². Let it dry off at least for 4/6 hours and sand lightly with 240/320 grit sandpaper. Apply one coat of transparent water-based base coat-top coat Y0101X with a grammage of 200 g/m². Total quantity to be applied: 400 g/m².</p> <p>For use on floors: Apply one coat of transparent base coat-top coat YOX01X with a grammage of 150 g/m². Let it dry off at least for 4/6 hours and sand lightly with 240/320 grit sandpaper. Apply one coat of transparent base coat-top coat YOX01X with a grammage of 150 g/m². Total quantity to be applied: 300 g/m².</p>		

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- During the application the temperature of the product, the substrate and the environment should never fall below 15°C.
- Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- Not cold-resistant: do not store at temperatures below 5°C.
- In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.
- The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so we recommend always recalculating the exact amount that will be lost. The same procedure must be applied when spraying, as the gun may reach up to 50% over spraying. Note that the best solution will be to weigh the object during application, but as this is not always feasible, we recommend assessing the surface to be painted and weighing the product in the cup.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM FOR BOATS

Certificates and validations	Substrate
INT - Marine Equipment Directive MED 96/98 EC - Module B Certificate N.MED-171 (IG-008-2016) Rev.0 of 25/01/2016 and Module D N.MED-177 (IG-014-2016) Rev.0 of 28/01/2016 - ISTITUTO GIORDANO	INT - For all substrates such as wood, plastic, aluminium, galvanised iron, etc.

Base coat-top coat versions	
YO2050	Matt transparent 20 gloss
YO5050	Semi-glossy transparent 50 gloss
YO8050	Glossy transparent 80 gloss

Recommended use	Wall, ceiling and floor	All types of substrate for interior use
Application method	Manual roller, brush and spray gun (cup, airmix and airless)	
Product preparation	The product is ready to use. If necessary, dilute up to a maximum of 10% with water	

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YOXX50	YC5000		RAF-ATB NAV
Solid content (%)	32 ± 3	51 ± 1	Dust free	20 minutes
Specific weight (g/cm ³)	1,040 ± 0,030	1,060 ± 0,030	Touch free	1 hour
Viscosity (seconds)	DIN 6 = 50 ± 10	-	Overcoating	4 hours
Pot-life	2 hours	-	Sandable	10 hours

Application system to obtain the Marine Certificate Module B and D (INT)			
Wooden substrate preparation	If the rough substrate is metallic, it is necessary to wash the area to be treated with pickling product AG---500 or possibly a degreaser, while for plastic substrates it is better to thoroughly sand with 320/400 grit sandpaper before the application, or clean the surfaces with AG---M500. If the substrate is already coated, sand with 120/150 grit sandpaper, removing old films completely. Because of the wide range of substrates used in boats, it is preferable to be cautious and make a preventive test of the application system in order to be sure that it is suitable.		
Base coat-top coat preparation for application	Mixing by weight:		
	Transparent base coat-top coat	YOXX50	100%
	Catalyst	YC5000	10%
Base coat-top coat preparation for application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	Clean the substrates thoroughly. Spray gun: Apply one coat of transparent base coat-top coat YOXX50 with a grammage of 150 g/m ² . Roller/brush: Apply two coats of transparent base coat-top coat YOXX50 with a grammage of 75 g/m ² , separated by a gap of 2 hours, without sanding. Sanding is required if the drying time between the two coats is more than 4 hours. Total quantity to be applied: 150 g/m ² .		

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water after use. When dry films must be removed, use AY---M460, leaving it to work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the container and homogenize the product well before use. Not cold-resistant: do not store at temperatures below 5°C. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Certificates and validations	Substrate
INT - Marine Equipment Directive MED 96/98 EC - Module B Certificate N.MED-172 (IG-009-2016) Rev.0 of 25/01/2016 and Module D N.MED-177 (IG-014-2016) Rev.0 of 28/01/2016 - ISTITUTO GIORDANO	INT - For all substrates such as wood, plastic, aluminium, galvanised iron, etc.

Base coat-top coat versions			
YO2050	Transparent matt 20 gloss	YO2060	White matt 20 gloss
YO5050	Transparent semi-glossy 50 gloss	YO5060	White semi-glossy 50 gloss
YO8050	Transparent glossy 80 gloss	-	-

Recommended use	Wall, ceiling and floor	All types of interior substrate
Application method	Manual roller, brush and spraygun (cup, airmix and airless)	
Product preparation	The product is ready to use. If necessary, dilute up to a maximum of 10% with water	

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YOXX50	YOXX60	YC5000		RAF-A MULTICOLOR NAV
Solid content (%)	32 ± 3	42 ± 3	51 ± 1	Dust free	20 minutes
Specific weight (g/cm ³)	1,040 ± 0,030	1,200 ± 0,030	1,060 ± 0,030	Touch free	1 hour
Viscosity (seconds)	DIN 6 = 50 ± 10	DIN 6 = 30 ± 3	-	Overcoating	4 hours
Pot-life	2 hours	2 hours	-	Sandable	10 hours

Application system to obtain the Marine Certificate Module B and D (INT)																						
Wooden substrate preparation	If the bare substrate is metallic, wash the area to be treated with pickling agent AG---M500 or eventually a degreaser, while for plastic substrates it is better to sand with 320/400 grit sandpaper before the system application, or clean the surfaces with AG---M500. If the substrate has already been coated, sand with 120/150 grit sandpaper to remove the old film completely. Because of the wide range of substrates used in boats, it is preferable to do a preventive application test to verify the suitability of the system.																					
Base coat-top coat preparation for application	Mixing by weight: <table border="0"> <tr> <td>Transparent base coat-top coat</td> <td>YOXX50</td> <td>100%</td> </tr> <tr> <td>Pigmented paste</td> <td>EY---M460 or EY---M690</td> <td>max 10%</td> </tr> <tr> <td>Catalyst</td> <td>YC5000</td> <td>10%</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>White base coat-top coat</td> <td>YOXX60</td> <td>100%</td> </tr> <tr> <td>Pigmented paste</td> <td>EY---M460 or EY---M690</td> <td>max 3%</td> </tr> <tr> <td>Catalyst</td> <td>YC5000</td> <td>10%</td> </tr> </table>	Transparent base coat-top coat	YOXX50	100%	Pigmented paste	EY---M460 or EY---M690	max 10%	Catalyst	YC5000	10%				White base coat-top coat	YOXX60	100%	Pigmented paste	EY---M460 or EY---M690	max 3%	Catalyst	YC5000	10%
Transparent base coat-top coat	YOXX50	100%																				
Pigmented paste	EY---M460 or EY---M690	max 10%																				
Catalyst	YC5000	10%																				
White base coat-top coat	YOXX60	100%																				
Pigmented paste	EY---M460 or EY---M690	max 3%																				
Catalyst	YC5000	10%																				
Base coat-top coat preparation for application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.																					
Application method	Manual roller, brush and spray gun																					
Product application	Clean the substrates carefully. Spray gun: Apply one coat of transparent base coat-top coat YOXX50 or YOXX60 with a grammage of 150 g/m ² . Roller/brush: Apply two coats of pigmented base coat-top coat YOXX50 or YOXX60 with a grammage of 75 g/m ² each at least 2 hours apart, without sanding. Sanding is required if the drying time between the two coats is longer than 4 hours. Total quantity to be applied: 150 g/m ² .																					

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Certificates and validations	Substrate
IT - System certified for Class 1 of Reaction to Fire in accordance with DM 06/03/92 UNI 9796 - Validation no. B02476PVI00021 of 24/10/2016	IT - For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials

Top coat version	
Y01013	Colourless matt
Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)					General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YL0509	YOX013	YC1100	YC1112		RAF-A MULTICOLOR
Solid content (%)	36	30	80	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,100	1,100	1,150	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 40	DIN 6 = 55	-	-	Overcoating	4 hours
Pot-life	6 hours	2 hours			Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: Transparent base coat YL0509 100% Activator YC1100 10%
Top coat preparation for the application	Mixing by weight: Matt top coat YOX013 90% Pigmented pastes EY---M460/XXX 8-10%* EY---M690/XXX 6-8%* Catalyst YC1112 20% *The percentage of paste varies according to the pigment coverage degree
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Manual roller, brush and spray gun
Product application	Apply one coat of transparent base coat Y00509 with a grammage of 200 g/m ² . Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply one coat of transparent water-based top coat YOX013 + pigmented paste EY--M460/XXX max 10% or EY---M690/XXX max 8% with a grammage of 200 g/m ² . Total quantity to be applied: 400 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY--M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Certificates and validations	Substrate
IT - System certified for Class 1 of Reaction to Fire in accordance with DM 06/03/92 UNI 9796 - Validation no. B02476PVI00022 of 24/10/2016	IT - For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials

Top coat version	
Y01061	White matt

Recommended use	Wall, ceiling and furniture
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)					General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YL0611	Y0X061	YC1100	YC1112		RAF-A MULTICOLOR B
Solid content (%)	40	40	80	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,200	1,200	1,150	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 40	DIN 6 = 55	-	-	Overcoating	4 hours
Pot-life	6 hours	2 hours			Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat YL0611 100% Activator YC1100 10%
Top coat preparation for the application	Mixing by weight: White matt top coat Y0X061 97% Pigmented pastes EY---M460/XXX 3% EY---M690/XXX Catalyst YC1112 20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Manual roller, brush and spray gun
Product application	Apply one coat of white base coat YL0611 with a grammage of 200 g/m ² . Let it dry off at least for 6 hours and sand lightly with 320 grit sandpaper. Apply one coat of white matt water-based top coat Y0X061 + pigmented paste EY---M460/XXX or EY---M690/XXX max 3%, with a grammage of 200 g/m ² . Total quantity to be applied: 400 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY---M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Standard	Country	Class	Certificates and validations	Substrate
NF P 92-501	FR	M1	Certificate no. RA18-0062 of 30/03/18	Wall/Ceiling

Top coat versions	
YO1021	Matt 10 gloss
YO7021	Semi-glossy 70 gloss

Recommended use	Wall, ceiling, furniture and flooring
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YOXX21	YC1112		RAF-ATB M1
Solid content (%)	30	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,030	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	2 hours		Sandable	6 hours

Application system in order to obtain Class M1 of Reaction to Fire in accordance with NF P 92-501	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. In case of overapplication, always check the condition of the old coating film and its compatibility; completely remove the old films if necessary.
Base coat-top coat preparation for application	Mixing by weight: Transparent top coat YOXX21 90% Pigmented pastes EY--M460/XXX 8-10%* EY--M690/XXX 6-8%* Catalyst YC1112 20% *The percentage of paste varies according to the pigment coverage degree
Dilution	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Manual roller, brush and spray gun
Product application	Apply one coat of transparent water-based base coat-top coat YOXX21 + pigmented paste EY--M460/XXX max 10% or EY--M690/XXX max 8% with a grammage of 100 g/m ² . Let it dry off for at least 6/8 hours and sand lightly with 240/320 grit sandpaper. Apply one coat of transparent water-based base coat-top coat YOXX21 + pigmented paste EY--M460/XXX max 10% or EY--M690/XXX max 8% with a grammage of 100 g/m ² . Total quantity to be applied: 200 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY--M460, leaving it work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not cold-resistant: do not store at temperatures below 5°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so it is always recommended to recalculate the exact quantity that will be lost. The same procedure must be applied when spraying, because the spray gun may reach up to 50% of overspraying. Please note that the best solution will be to weigh the object during the application, but as this is not always feasible, it is recommended to evaluate the surface to be painted and weigh the product in the cup.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM FOR FLOORING

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92	IT	1	Validation no. B02476PVI00014 of 25/08/14 and no. B02476PVI00019 of 18/02/16	Floor*
EN 13501/EN 9239	EU	BFL-s1	Certification no. 343353 of 27/6/2017	Floor panels not in adherence, made of birch plywood veneered with common oak

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Top coat versions	Validation	
Y00040	Matt 0 gloss	B02476PVI00019
Y02040	Matt 20 gloss	B02476PVI00014
Y05040	Semi-glossy 50 gloss	B02476PVI00014

Recommended use	Flooring
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 120 g/m ²	
	YOXX40	YC1112		RAF-ATB PAV
Solid content (%)	30 ± 1	70	Dust free	60 minutes
Specific weight (g/cm ³)	1,030	1,100	Touch free	90 minutes
Viscosity (seconds)	DIN 4 = 60 ± 10	-	Overcoating	4 hours
Viscosity 0 Gloss (seconds)	DIN 4 = 23 ± 5	-	Sandable	16 hours
Pot-life	3-4 hours	-	Trampling	24 hours
pH	From 7 to 8	-	Practicable	3 days

Application system in order to obtain Class 1 Reaction to Fire in accordance with UNI 9796 and Class BFL-s1 in accordance with EN 13501-1			
Wooden substrate preparation	For rough wood, sand with 150/180 grit sandpaper and thoroughly clean off any residues before coating. For restoration, always check compatibility with previously applied coatings, sand with 400 grit sandpaper and clean thoroughly.		
Base coat-top coat preparation for the application	Mixing by weight:		
	Transparent base coat-top coat	YOXX40	100%
	Catalyst	YC1112	10%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	Spray gun: Apply one coat of transparent base coat-top coat YOXX40 with a grammage of 120 g/m ² . Roller or brush: Apply one coat of transparent base coat YOXX40 with a grammage of 60 g/m ² . Wait 4 hours and sand with 280/320 grit sandpaper. Apply one coat of transparent base coat YOXX40 with a grammage of 60 g/m ² . Total quantity to be applied: 120 g/m ² .		

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water after use. When dry films must be removed, use AY---M460, leaving it to work overnight, and then rinse with water. After long storage periods, always check for any presence of sediment at the bottom of the container and homogenize the product well before use. Not cold-resistant: do not store at temperatures below 5°C. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Taber test UNI 9115/87 on a larch panel			
A weight of 500 g was applied for the test on grinders covered with S42 grit sandpaper			
GA Wear level	RA Wear resistance		UNI class
45	175		4

Routine maintenance
For the cleaning and the maintenance of surfaces, coated with fire-retardant systems, it is recommended to use a damp cloth and neutral water-based detergents SOLIDSUPERCLEAN XD4010 or SOLIDCLEAN XD4050; dry thoroughly the surface after cleaning. To maintain and protect the fire-retardant coating, use a damp cloth to apply water-based oil with beeswax YS---M009, diluted with 50-60% water, every 2/3 months. Applying this product regularly will help delaying the need for extraordinary maintenance.

Extraordinary maintenance
After a certain period, which will depend on the performed routine maintenance, and above all on the frequency and influx of people, you may notice surface wear that can be restored by sanding with 400 grit sandpaper and applying a light coat of YOXX40 with 10% of YC1112 catalyst. If the coating peels, restore the damaged part by sanding with 150/180 grit sandpaper and follow the procedure as for rough wood. To keep the object certified, we recommend periodically checking the condition of the coating film. In any case, do not use strong or abrasive detergents, nor those containing ammonia, abrasive or silicone.

2K TRANSPARENT MATT FIRE-RETARDANT WATER-BASED OIL FOR FLOORING

Certificates and validations	Substrate
IT - Class 1 of Reaction to Fire in accordance with DM 06/03/92 UNI 9796 - Validation no. BO2476PVI00018 of 18/02/2016	IT - For all types of interior wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials

Oil versions	
YO0030	Colourless transparent
YO9430	Transparent natural effect

Recommended use	Flooring
Application method	Manual roller, brush and spray gun
Product preparation	If necessary, dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 120 g/m ²	
	YOXX30	YC1112		RAF-ATB OIL PAV
Solid content (%)	25 ± 1	70	Dust free	30 minutes
Specific weight (g/cm ³)	1,010 ± 0,02	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 4 = 16 ± 3	-	Overcoating	1-4 hours
Viscosity cat. (seconds)	DIN 4 = 17 ± 3	-	Sandable	2-4 hours
Pot-life	4 hours	-	Trampling	24 hours
pH	From 7 to 8	-		

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796							
Wooden substrate preparation	For rough wood, sand with 150/180 grit sandpaper and thoroughly clean off any residues before coating. For restoration, always check compatibility with previously applied coatings, sand with 400 grit sandpaper and clean thoroughly.						
Base coat-top coat preparation for the application	Mixing by weight: <table border="0" style="width: 100%;"> <tr> <td>Transparent base coat</td> <td>YOXX30</td> <td>100%</td> </tr> <tr> <td>Catalyst</td> <td>YC1112</td> <td>5%</td> </tr> </table>	Transparent base coat	YOXX30	100%	Catalyst	YC1112	5%
Transparent base coat	YOXX30	100%					
Catalyst	YC1112	5%					
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.						
Application method	Manual roller, brush and spray gun						
Product application	Apply one coat of product YOXX30 with a grammage of 40 g/m ² . After 4-6 hours, sand with 320/400 grit sandpaper and apply one coat of YOXX30 with a grammage of 40 g/m ² . Total quantity to be applied: 80 g/m ² .						

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. During the application the temperature of the product, the substrate and the environment should never fall below 15°C. Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. Application tools must be cleaned with water after use. When dry films must be removed, use AY---M460, leaving it to work overnight, and then rinse with water. Attention: do not store at temperatures below 5°C or above 35°C.

2K TRANSPARENT FIRE-RETARDANT WATER-BASED SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00027 of 02/11/17	Wall/Ceiling*
BS 476 part 7	UK	1	Test report no. 27/04660°/06/18 of 27/06/18	Solid wood wall
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00029 of 14/02/18	Floor*

*For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials.

Top coat versions

YO1012	Transparent matt larch
YO1013	Matt colourless

Recommended use	Wall, ceiling, furniture and floorings
Application method	Manual roller, brush and spray gun
Product preparation	Dilute up to a maximum of 10% with water

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150/200 g/m ²	
	YO101X	YC1112		RAF-ATB2
Solid content (%)	30	70	Dust free	45 minutes
Specific weight (g/cm ³)	1,100	1,100	Touch free	60 minutes
Viscosity (seconds)	DIN 6 = 55	-	Overcoating	4 hours
Pot-life	2 hours		Sandable	6 hours

Application system in order to obtain Class 1 of Reaction to Fire in accordance with UNI 9796

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. When recoating, always check the condition of the old coating film and its compatibility. Completely remove the old films if necessary.		
Top coat preparation for the application	Mixing by weight:		
	Matt base coat-top coat	YO101X	100%
	Catalyst	YC1112	20%
Base coat and top coat preparation for the application	Dilute up to a maximum of 10% with water. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Application method	Manual roller, brush and spray gun		
Product application	<p>For use on wall/ceiling: Apply one coat of transparent base coat-top coat YO101X with a grammage of 200 g/m². Let it dry off at least for 4/6 hours and sand lightly with 240/320 grit sandpaper. Apply one coat of transparent water-based base coat-top coat YO101X with a grammage of 200 g/m². Total quantity to be applied: 400 g/m².</p> <p>For use on floors: Apply one coat of transparent base coat-top coat YOX01X with a grammage of 150 g/m². Let it dry off at least for 4/6 hours and sand lightly with 240/320 grit sandpaper. Apply one coat of transparent base coat-top coat YOX01X with a grammage of 150 g/m². Total quantity to be applied: 300 g/m².</p>		

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- During the application the temperature of the product, the substrate and the environment should never fall below 15°C.
- Coating films, formed below this temperature, have lower properties of chemical and mechanical resistance than standard performance that can be achieved in normal conditions.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- Application tools must be cleaned with water immediately after the use. In case dry coating films must be removed, use AY--M460, leaving it work overnight, and then rinse with water.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- Not cold-resistant: do not store at temperatures below 5°C.
- In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.
- The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so we recommend always recalculating the exact amount that will be lost. The same procedure must be applied when spraying, as the gun may reach up to 50% over spraying. Note that the best solution will be to weigh the object during application, but as this is not always feasible, we recommend assessing the surface to be painted and weighing the product in the cup.

BRIGHT PIGMENTED FIRE-RETARDANT SYSTEM

Certifications and validations	Substrate
U.S. - Class B ASTM-E84 - Test report no. 480.P14 of 15/04/2014 - LAPI IT - Class 1 UNI 9796 - Class certificate no. 3303/11281/14 of 16/12/2014 - C.S.E.	U.S. - For all MDF substrates IT - For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials

Recommended use	Wall, ceiling not in adherence	For interior use
Application method	Spray gun	

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²		
	FIF041	PLF025/C02	FBF025/NTR		RAF-PEP	
Solid content (%)	16	78	52	Dust free	45 minutes	
Specific weight (g/cm ³)	0,890	1,450	1,010	Touch free	3 hours	
Viscosity (seconds)	DIN 4 = 12	DIN 6 = 45	DIN 6 = 40	Overcoating	48 hours	
Pot-life	2 hours	25 minutes	4 hours	Sandable	72 hours	

Application system in order to obtain Class B (ASTM) and Class 1 (UNI) on MDF																																		
Wooden substrate preparation	Clean the surface and sand with 150/180 grit sandpaper.																																	
Sealer, base coat and top coat preparation for application	<table border="0"> <tr> <td>Mixing by weight:</td> <td></td> <td></td> </tr> <tr> <td>Transparent sealer</td> <td>FIF041</td> <td>100%</td> </tr> <tr> <td>Catalyst</td> <td>FCF041</td> <td>100%</td> </tr> <tr> <td>White PE base coat</td> <td>PLF025/C02</td> <td>100%</td> </tr> <tr> <td>Accelerator</td> <td>PC---M002</td> <td>2%</td> </tr> <tr> <td>Catalyst</td> <td>PC---M012</td> <td>2%</td> </tr> <tr> <td>Diluent</td> <td>DP---M040</td> <td>20%</td> </tr> <tr> <td>PU bright converter top coat</td> <td>FBF025/NTR</td> <td>75%</td> </tr> <tr> <td>Pigmented paste</td> <td>EF---M060/CXX</td> <td>25%</td> </tr> <tr> <td>Catalyst</td> <td>FCF025</td> <td>100%</td> </tr> <tr> <td>Diluent</td> <td>DF---M600</td> <td>20%</td> </tr> </table>	Mixing by weight:			Transparent sealer	FIF041	100%	Catalyst	FCF041	100%	White PE base coat	PLF025/C02	100%	Accelerator	PC---M002	2%	Catalyst	PC---M012	2%	Diluent	DP---M040	20%	PU bright converter top coat	FBF025/NTR	75%	Pigmented paste	EF---M060/CXX	25%	Catalyst	FCF025	100%	Diluent	DF---M600	20%
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Base coat and top coat preparation for the application	The recommended dilution is 20%. If you use a higher dilution, recalculate the amount of product to be applied.																																	
Application method	Spray gun																																	
Product application	<p>Apply one coat of transparent barrier FIF041 with a grammage of 60 g/m². Let it dry off at least for 3 hours and sand lightly with 320 grit sandpaper.</p> <p>Apply three coats of white PE base coat PLF025/C02 with a grammage of 250 g/m², separated by a gap of 30 minutes. Let it dry off at least for 8 hours and sand lightly with 400 grit sandpaper.</p> <p>Apply one coat of PU top coat FBF025/NTR + pigmented paste EF---M060/CXX max 25% with a grammage of 120 g/m². Total quantity to be applied: 930 g/m².</p>																																	

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> The products expire 12 months from the manufacturing date. Check for any sediment at the bottom of the container and homogenize the product well before use. Do not allow accelerators (cobalt salts) to come into contact with hardeners (peroxides and reducing agents in general) as they may generate hazardous exothermic reactions. These products are subject to an increase in viscosity over time.

PIGMENTED FIRE-RETARDANT SOLVENT-BASED SYSTEMS FOR BOATS

Certificates and validations	Substrate
INT - Marine Equipment Directive MED 96/98 EC - Module B N.MED-173 (IG-010-2016) Rev.0 of 25/01/2016 and Module D N.MED-177 (IG-014-2016) Rev.0 of 28/01/2016 - ISTITUTO GIORDANO	INT - For all substrates

Recommended use	Wall, floor and ceiling in adherence	For interior use
Application method	Spray gun	

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²	
	FIF041	PLF025/C02	FBF025/NTR		RAF-PEP NAV
Solid content (%)	16	78	52	Dust free	45 minutes
Specific weight (g/cm ³)	0,890	1,450	1,010	Touch free	3 hours
Viscosity (seconds)	DIN 4 = 12	DIN 6 = 45	DIN 6 = 40	Overcoating	48 hours
Pot-life	2 hours	25 minutes	4 hours	Sandable	72 hours

Application system to obtain the Marine Certificate Module B and D (INT)																																		
Wooden substrate preparation	Clean the surface and sand with 150/180 grit sandpaper.																																	
Sealer, base coat and top coat preparation for application	<table border="0"> <tr> <td>Mixing by weight:</td> <td></td> <td></td> </tr> <tr> <td>Transparent PU sealer</td> <td>FIF041</td> <td>100%</td> </tr> <tr> <td>Catalyst</td> <td>FCF041</td> <td>100%</td> </tr> <tr> <td>White PE base coat</td> <td>PLF025/C02</td> <td>100%</td> </tr> <tr> <td>Accelerator</td> <td>PC---M002</td> <td>2%</td> </tr> <tr> <td>Catalyst</td> <td>PC---M012</td> <td>2%</td> </tr> <tr> <td>Diluent</td> <td>DP---M040</td> <td>20%</td> </tr> <tr> <td>PU converter top coat</td> <td>FBF025/NTR</td> <td>70%</td> </tr> <tr> <td>Pigmented paste</td> <td>EF---M060/CXX</td> <td>max 30%</td> </tr> <tr> <td>Catalyst</td> <td>FCF025</td> <td>100%</td> </tr> <tr> <td>Diluent</td> <td>DF---M600</td> <td>20%</td> </tr> </table>	Mixing by weight:			Transparent PU sealer	FIF041	100%	Catalyst	FCF041	100%	White PE base coat	PLF025/C02	100%	Accelerator	PC---M002	2%	Catalyst	PC---M012	2%	Diluent	DP---M040	20%	PU converter top coat	FBF025/NTR	70%	Pigmented paste	EF---M060/CXX	max 30%	Catalyst	FCF025	100%	Diluent	DF---M600	20%
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Catalyst	FCF025	100%																																
Diluent	DF---M600	20%																																
Base coat and top coat preparation for the application	The recommended dilution is 20%. If you use a higher dilution, recalculate the amount of product to be applied.																																	
Application method	Spray gun																																	
Product application	<p>Apply one coat of transparent sealer FIF041 with a grammage of 60 g/m². Let it dry off at least for 3 hours and sand lightly with 320 grit sandpaper. Apply two coats of white PE base coat PLF025 with a grammage of 150 g/m², separated by a gap of 30 minutes. Let it dry off at least for 8 hours and sand lightly with 400 grit sandpaper. Apply one coat of pigmented PU top coat FBF025/NTR with a grammage of 120 g/m². Total quantity to be applied: 480 g/m².</p>																																	

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> The products expire 12 months from the manufacturing date. Check for any sediment at the bottom of the container and homogenize the product well before use. Do not allow accelerators (cobalt salts) to come into contact with hardeners (peroxides and reducing agents in general) as they may generate hazardous exothermic reactions. These products are subject to an increase in viscosity over time.

BRIGHT TRANSPARENT FIRE-RETARDANT SYSTEM

Certificates and validations	Substrate
U.S. - Class B ASTM-E84 - Test report no. 481.P.14 of 15/04/2014 - LAPI	U.S. - For all veneered MDF substrates

Recommended use	Wall, ceiling not in adherence	For interior use
Application method	Spray gun	

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²	
	FIF041	PLF025	JBF025		RAF-PET
Solid content (%)	16	93	50	Dust free	45 minutes
Specific weight (g/cm ³)	0,890	1,150	0,950	Touch free	6 hours
Viscosity (seconds)	DIN 4 = 12	DIN 6 = 30	DIN 4 = 16	Overcoating	48 hours
Pot-life	2 hours	30 minutes	2 hours	Sandable	24 hours

Application system in order to obtain Class B (ASTM-E84)	
Wooden substrate preparation	Clean the surface and sand with 150/180 grit sandpaper.
Sealer, base coat and top coat preparation for application	Mixing by weight: Transparent sealer FIF041 100% Catalyst FCF041 100% Transparent PE base coat PLF025 100% Accelerator PC---M002 2% Catalyst PC---M012 2% Diluent DP---M040 20% Transparent acrylic top coat JBF025 100% Catalyst FCF025 100%
Base coat preparation	The recommended dilution is 20%. If you use a higher dilution, recalculate the amount of product to be applied.
Application method	Spray gun
Product application	Apply one coat of transparent sealer FIF041 with a grammage of 60 g/m ² . Let it dry off at least for 3 hours and sand lightly with 320 grit sandpaper. Apply three coats of transparent PE base coat PLF025 with a grammage of 250 g/m ² , separated by a gap of 30 minutes. Let it dry off at least for 8 hours and sand lightly with 400 grit sandpaper. Apply one coat of acrylic transparent top coat JBF025 with a grammage of 120 g/m ² . Total quantity to be applied: 930 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> The products expire 12 months from the manufacturing date. Check for any sediment at the bottom of the container and homogenize the product well before use. Do not allow accelerators (cobalt salts) to come into contact with hardeners (peroxides and reducing agents in general) as they may generate hazardous exothermic reactions. These products are subject to an increase in viscosity over time.

TRANSPARENT FIRE-RETARDANT SOLVENT-BASED SYSTEMS FOR BOATS

Certificates and validations	Substrate
INT - Marine Equipment Directive MED 96/98 EC - Module B Certificate no. MED-173 (IG-010-2016) Rev.0 of 25/01/2016 and Module D no. MED-177 (IG-014-2016) Rev.0 of 28/01/2016 - ISTITUTO GIORDANO	INT - For all substrates

Recommended use	Wall, floor and ceiling in adherence	For interior use
Application method	Spray gun	

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²	
	FIF041	PLF025	JBF025		RAF-PET NAV
Solid content (%)	16	93	50	Dust free	45 minutes
Specific weight (g/cm ³)	0,890	1,150	0,950	Touch free	6 hours
Viscosity (seconds)	DIN 4 = 12	DIN 6 = 30	DIN 4 = 16	Overcoating	48 hours
Pot-life	2 hours	30 minutes	2 hours	Sandable	24 hours

Application system to obtain the Marine Certificate Module B and D (INT)																												
Wooden substrate preparation	Clean the surface and sand with 150/180 grit sandpaper.																											
Sealer, base coat and top coat preparation for the application	<table border="0"> <tr> <td>Mixing by weight:</td> <td></td> <td></td> </tr> <tr> <td>Transparent PU sealer</td> <td>FIF041</td> <td>100%</td> </tr> <tr> <td>Catalyst</td> <td>FCF041</td> <td>100%</td> </tr> <tr> <td>Transparent PE base coat</td> <td>PLF025</td> <td>100%</td> </tr> <tr> <td>Accelerator</td> <td>PC---M002</td> <td>2%</td> </tr> <tr> <td>Catalyst</td> <td>PC---M012</td> <td>2%</td> </tr> <tr> <td>Diluent</td> <td>DP---M040</td> <td>20%</td> </tr> <tr> <td>Transparent acrylic top coat</td> <td>JBF025</td> <td>100%</td> </tr> <tr> <td>Catalyst</td> <td>FCF025</td> <td>100%</td> </tr> </table>	Mixing by weight:			Transparent PU sealer	FIF041	100%	Catalyst	FCF041	100%	Transparent PE base coat	PLF025	100%	Accelerator	PC---M002	2%	Catalyst	PC---M012	2%	Diluent	DP---M040	20%	Transparent acrylic top coat	JBF025	100%	Catalyst	FCF025	100%
Mixing by weight:																												
Transparent PU sealer	FIF041	100%																										
Catalyst	FCF041	100%																										
Transparent PE base coat	PLF025	100%																										
Accelerator	PC---M002	2%																										
Catalyst	PC---M012	2%																										
Diluent	DP---M040	20%																										
Transparent acrylic top coat	JBF025	100%																										
Catalyst	FCF025	100%																										
Base coat preparation	The recommended dilution is 20%. If you use a higher dilution, recalculate the amount of product to be applied.																											
Application method	Spray gun																											
Product application	<p>Apply one coat of transparent sealer FIF041 with a grammage of 60 g/m². Let it dry off at least for 3 hours and sand lightly with 320 grit sandpaper.</p> <p>Apply two coats of transparent PE base coat PLF025 with a grammage of 150 g/m², separated by a gap of 30 minutes. Let it dry off at least for 8 hours and sand lightly with 400 grit sandpaper.</p> <p>Apply one coat of transparent acrylic top coat JBF025 with a grammage of 120 g/m². Total quantity to be applied: 480 g/m².</p>																											

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> The products expire 12 months from the manufacturing date. Check for any sediment at the bottom of the container and homogenize the product well before use. Do not allow accelerators (cobalt salts) to come into contact with hardeners (peroxides and reducing agents in general) as they may generate hazardous exothermic reactions. These products are subject to an increase in viscosity over time.

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00013 of 06/05/14	Wall/Ceiling*
EN 13501-1/EN 13823	EU	B-s2,d0	Test report no. 1104079-01/02 of 04/05/11	18 mm fire-retardant MDF for wall/ceiling

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Top coat versions	
F01010 and F02510	Matt
F07510	Semi-glossy
F09510	Glossy

Recommended use	Wall and ceiling objects, furniture
Application method	Spray gun
Product preparation	Dilute up to a max of 20% with PU diluent

Chemical-physical characteristics (23°C)					General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²		
	FL0511	FC1110	FOXX10	F09510		FL0511	FOXX10
Solid content (%)	77	26	49	50	Dust free	20 minutes	30 minutes
Specific weight (g/cm ³)	1,250	0,950	0,994	0,950	Touch free	50 minutes	60 minutes
Viscosity (seconds)	-	-	DIN 4 = 90	DIN 4 = 50	Overcoating	50 minutes	24 hours
Viscosity Brookfield (cPs)	6000	-	-	-	Sandable	24 hours	
Pot-life	90 minutes	n.a.	90 minutes	60 minutes			

Application system in order to obtain Class 1 Reaction to Fire in accordance with DM 06/03/92 and Class B-s2,s0 in accordance with EN 13501-1	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat FL0511 100% Catalyst FC1110 50%
Top coat preparation for the application	Mixing by weight: Transparent matt and semi-glossy top coat FOXX10 75% Pigmented paste EF---M060/CXX 25% Catalyst FC1110 50% or Transparent glossy top coat F09510 75% Pigmented paste EF---M060/CXX 25% Catalyst FCF025 100%
Base coat and top coat preparation for the application	Dilute up to a maximum of 20% with PU diluent. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun
Product application	Apply two coats of white base coat FL0511 with a grammage of 150 g/m ² per coat. Let it dry off for 24 hours and sand lightly with 320 grit sandpaper. Apply one coat of transparent top coat FOXX10 + pigmented paste EF---M060/CXX max 25% with a grammage of 150 g/m ² . Total quantity to be applied: 450 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not heat-resistant: do not store at temperatures over 55°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00015 of 26/01/15	Wall/Ceiling*
EN 13501-1/EN 13823	EU	B-s2,d0	Test report no. 1104079-01/02 of 04/05/11	18 mm fire-retardant MDF Wall/Ceiling

*For all types of wood except for: materials veneered with thermoplastic resin-based adhesives, assembled with cellular or strip structures with air cavities (e.g. rattan, braided rush) filled with heterogeneous materials

Top coat versions

F01011	Deep matt
F02511	Matt
Recommended use	Wall and ceiling objects, furniture
Application method	Spray gun
Product preparation	Dilute up to a max of 20% with PU diluent

Chemical-physical characteristics (23°C)

	FL0511	FC1110	FOXX11
Solid content (%)	77	26	49
Specific weight (g/cm ³)	1,250	0,950	1,340
Viscosity (seconds)	-	-	DIN 6 = 48
Viscosity Brookfield (cPs)	6000	-	-
Pot-life	90 minutes	n.a.	90 minutes

General information on the system
Drying at 20°C and UR% between 45 and 65: 150 g/m²

	FL0511	FOXX11
Dust free	20 minutes	30 minutes
Touch free	50 minutes	60 minutes
Overcoating	50 minutes	24 hours
Sandable	24 hours	

Application system in order to obtain Class 1 Reaction to Fire in accordance with DM 06/03/92 and Class B-s2-d0 in accordance with EN 13501-1

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat FL0511 100% Catalyst FC1110 50%
Top coat preparation for the application	Mixing by weight: White pigmented top coat FOXX11 95% Pigmented paste EF---M060/--CXX 5% Catalyst FC1110 50%
Base coat and top coat preparation for the application	Dilute up to a maximum of 20% with PU diluent. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun
Product application	Apply two coats of white base coat FL0511 with a grammage of 150 g/m ² per coat. Let it dry off for 24 hours and sand lightly with 320 grit sandpaper. Apply one coat of white top coat FOXX10 + pigmented paste EF---M060/--CXX max 5% with a grammage of 150 g/m ² . Total quantity to be applied: 450 g/m ² .

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- Not heat-resistant: do not store at temperatures above 55°C.
- In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.
- The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

Standard	Country	Class	Certificates and validations	Substrate
NF P 92-501	FR	M1	Certificate no. RA17-0320 of 24/11/17	Wall/Ceiling

Top coat versions

FO-10M060/--NTR	Deep matt
FO-25M060/--NTR	Matt
FO-60M060/--NTR	Semi-glossy
FO-80M200/--NTR	Glossy

Recommended use	Wall and ceiling objects, furniture
Application method	Spray gun
Product preparation	Dilute up to a max of 20% with PU diluent

Chemical-physical characteristics (23°C)

	FL---M720/--C02	FC---M045	FC---M040
Solid content (%)	75 ± 3	37 ± 1	26 ± 1
Specific weight (g/cm ³)	1,560	0,990	0,950
Viscosity Brookfield (cPs)	8000 ± 1000	-	-
Pot-life	120 minutes	-	-
	FO-XXM060/--NTR	AF---M006	AF---M666
Solid content (%)	50 ± 3	100	72 ± 2
Specific weight (g/cm ³)	0,990	1,400	1,260
Viscosity Brookfield (cPs)	1600 ± 50	-	-
Pot-life	180 minutes	-	-

General information on the system

Drying at 20°C and UR% between 45 and 65: 150 g/m²

	FL---M720/--C02	FO-XXM060
Dust free	20 minutes	10 minutes
Touch free	2 hours	1 hour
Overcoating	12 hours	6 hours
Sandable	12 hours	6 hours

Application system in order to obtain Class M1 of Reaction to Fire in accordance with NF P 92-501

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat FL---M720/--C02 80% Fire-retardant additive AF---M666 20% Catalyst FC---M045 20%
Top coat preparation for the application	Mixing by weight: Transparent top coat FO-XXM060/--NTR 80% Pigmented paste EF---M060/--CXX 10% Fire-retardant additive AF---M006 10% Catalyst FC---M045 50%
Base coat and top coat preparation for the application	Dilute up to a maximum of 100% with PU diluent such as DF---M005. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun
Product application	Apply one coat of white base coat FL---M720/--C02 with a grammage of 80 g/m ² . Let it dry off for 24 hours and sand lightly with 320 grit sandpaper. Apply one coat of pigmented top coat FO-XXM060 with a grammage of 80 g/m ² . Total quantity to be applied: 160 g/m ² .

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- Not heat-resistant: do not store at temperatures above 55°C.
- In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so we recommend always recalculating the exact amount that will be lost. The same procedure must be applied when spraying, as the gun may reach up to 50% over spraying. Note that the best solution will be to weigh the object during application, but as this is not always feasible, we recommend assessing the surface to be painted and weighing the product in the cup.

RAF-P MULTICOLOR B M1

PIGMENTED FIRE-RETARDANT PU SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
NF P 92-501	FR	M1	Certificate no. RA17-0167 of 24/11/17	Wall/Ceiling

Top coat versions	
FO-05M060/--BNC	Deep matt
FO-10M060/--BNC	Deep matt
FO-25M060/--BNC	Matt
FO-60M200/--BNC	Semi-glossy
FO-80M200/--BNC	Glossy
Recommended use	Wall and ceiling objects, furniture
Application method	Spray gun
Product preparation	Dilute up to a max of 100% with PU diluent

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²		
	FL---M720/--C02	FC---M045	FC---M040		FL---M720/--C02	FO-XXM060
Solid content (%)	75 ± 3	37 ± 1	26 ± 1	Dust free	20 minutes	10 minutes
Specific weight (g/cm ³)	1,560	0,990	0,950	Touch free	2 hours	1 hour
Viscosity Brookfield (cPs)	8000 ± 1000	-	-	Overcoating	12 hours	6 hours
Pot-life	120 minutes	-	-	Sandable	12 hours	6 hours
	FO-XXM060/--BNC	AF---M006	AF---M666			
Solid content (%)	68 ± 3	100	72 ± 2			
Specific weight (g/cm ³)	1,340	1,400	1,260			
Viscosity (seconds)	DIN 6 = 48 ± 3	-	-			
Pot-life	180 minutes	-	-			

Application system in order to obtain Class M1 of Reaction to Fire in accordance with NF P 92-501	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat FL---M720/--C02 80% Fire-retardant additive AF---M666 20% Catalyst FC---M045 20%
Top coat preparation for the application	Mixing by weight: White top coat FO-XXM060/--BNC 85% Pigmented paste EF---M060/--CXX 5% Fire-retardant additive AF---M006 10% Catalyst FC---M045 50%
Base coat and top coat preparation for the application	Dilute up to a maximum of 100% with PU diluent such as DF---M005. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun
Product application	Apply one coat of white base coat FL---M720/--C02 with a grammage of 80 g/m ² . Let it dry off for 24 hours and sand lightly with 320 grit sandpaper. Apply one coat of pigmented top coat FO-XXM060 with a grammage of 80 g/m ² . Total quantity to be applied: 160 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not heat-resistant: do not store at temperatures above 55°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Diluting, sanding and spraying

Fire-retardant systems must comply with the certified application grammage. Diluting or sanding products means reducing the product weight on the object, so we recommend always recalculating the exact amount that will be lost. The same procedure must be applied when spraying, as the gun may reach up to 50% over spraying. Note that the best solution will be to weigh the object during application, but as this is not always feasible, we recommend assessing the surface to be painted and weighing the product in the cup.

Version 01/2019

Standard	Country	Class	Certificates and validations	Substrate
BS 476 part 7	UK	1	Test report no. 27/03015E01/14 and 27/03015F/01/14 of 14/02/14	5 and 20 mm MDF

Recommended use	Wall and ceiling objects, furniture
Application method	Spray gun
Product preparation	Dilute up to a max of 20% with PU diluent DF---M005

Chemical-physical characteristics (23°C)				General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²		
	FL0511	FC1110	F02510		FL0511	F02510
Solid content (%)	77	26	49	Dust free	20 minutes	30 minutes
Specific weight (g/cm ³)	1,250	0,950	0,994	Touch free	50 minutes	60 minutes
Viscosity (seconds)	-	-	DIN 4 = 90	Overcoating	50 minutes	24 hours
Viscosity Brookfield (cPs)	6000	-	-	Sandable	24 hours	
Pot-life	90 minutes	n.a.	90 minutes			

Application system in order to obtain Class 1 of Reaction to Fire in accordance with BS 476 part 7

Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat Catalyst FL0511 100% FC1110 50%
Top coat preparation for the application	Mixing by weight: Transparent top coat White paste Catalyst F02510 75% EF---M060/C02 25% FC1110 50%
Base coat and top coat preparation for the application	Dilute up to a maximum of 20% with PU diluent DF---M005. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun
Product application	Apply two coats of white base coat FL0511 with a grammage of 150 g/m ² per coat. Let it dry off for 24 hours and sand lightly with 320 grit sandpaper. Apply one coat of transparent top coat F02510 + white pigmented paste EF---M060/C02 max 25% with a grammage of 120 g/m ² . Total quantity to be applied: 420 g/m ² .

Maintenance

The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information

- Mix the product well before the use.
- Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system.
- After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use.
- Not heat-resistant: do not store at temperatures above 55°C.
- In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces.

Standard	Country	Class	Certificates and validations	Substrate
DM 06/03/92 - UNI 9796	IT	1	Validation no. B02476PVI00003 of 07/02/06	Wall/Ceiling*
EN 13501-1/EN 13823	UK	1	Test report no. 1104079-01 CL and no. 1104079-03m2CL of 04/05/11	18mm MDF Wall/Ceiling

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Recommended use	Wall, ceiling and furniture
Application method	Spray gun
Product preparation	Dilute up to a maximum of 20% with PU diluent

Chemical-physical characteristics (23°C)			General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²	
	FL0511	F02511		RAF-P WHITE
Solid content (%)	77	49	Dust free	45 minutes
Specific weight (g/cm ³)	1,250	1,340	Touch free	60 minutes
Viscosity (seconds)	-	DIN 6 = 48	Overcoating	12 hours
Viscosity Brookfield (cPs)	6000	-	Ready to use	24 hours
Pot-life	90 minutes	90 minutes	Sandable	24 hours

Application system in order to obtain Class 1 of Reaction to Fire according to UNI 9796	
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.
Base coat preparation for the application	Mixing by weight: White base coat FL0511 100% Hardener FC1110 50%
Top coat preparation for the application	Mixing by weight: White top coat F02511 100% Hardener FC1110 50%
Base coat and top coat preparation for the application	Dilute up to a maximum of 20% with PU diluent. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Spray gun
Product application	Apply two coats of white base coat FL0511 with a grammage of 150 g/m ² per coat. Let it dry off at least for 24 hours and sand lightly with 320 grit sandpaper. Apply one coat of white top coat F02511 with a grammage of 150 g/m ² . Total quantity to be applied: 450 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not heat-resistant: do not store at temperatures above 55°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

TRANSPARENT FIRE-RETARDANT PU SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
UNI 9796	IT	1	Validation no. B02476PVI00002 of 07/02/06	All types of wood*
BS 476 part 7	UK	1	Certificate no. 2701403/08/08 of 28/08/2008	Standard 18 mm MDF
EN 13501/EN 13823	EU	B-s2-d0	Test report no. 1104079-03 of 04/05/2011	Fire-retardant 18 mm MDF

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Top coat versions	Standards
F01010	IT - EU
F02510	IT - UK - EU
F07510	IT - EU
F09510	IT

Recommended use	Wall, ceiling and furniture
Application method	Spray gun
Product preparation	Dilute up to a max of 20% with PU diluent

Chemical-physical characteristics (23°C)					General information on the system Drying at 20°C and UR% between 45 and 65: 150 g/m ²	
	FL0510	FOXX10	F09510	FC1110		RAF-T
Solid content (%)	75	49	50	26	Dust free	45 minutes
Specific weight (g/cm ³)	1,213	0,994	0,950	0,950	Touch free	60 minutes
Viscosity (seconds)	-	DIN4 = 90	DIN4 = 16	-	Overcoating	12 hours
Viscosity Brookfield (cPs)	1400 cPs	-	-	-	Sandable	24 hours
Pot-life	60 minutes	90 minutes	60 minutes	n.a.		

Application system in order to obtain Class 1 of Reaction to Fire according to UNI 9796, BS 476 part 7 and Class B-s2-d0 in accordance with EN 13501-1			
Wooden substrate preparation	Clean the surface and sand with 120/150 grit sandpaper. Remove the old coating film completely.		
Base coat preparation for the application	Mixing by weight:		
	Transparent base coat	FL0510	100%
Top coat preparation for the application	Catalyst	FC1110	50%
	Mixing by weight:		
	Matt/Semi-glossy transparent top coat	FOXX10	100%
	Catalyst	FC1110	50%
Base coat and top coat preparation for the application	or		
	Transparent glossy top coat	F09510	100%
	Catalyst	FCF025	100%
Application method	Dilute up to a maximum of 20% with PU diluent. Please note that the amount of product to be applied must be recalculated based on the dilution.		
Product application	Spray gun		
	Apply two coats of transparent base coat FL0510 with a grammage of 150 g/m ² per coat. Let it dry off for 24 hours and sand lightly with 320 grit sandpaper.		
	Apply one coat of transparent top coat FOXX10 with a grammage of 150 g/m ² .		
	Total quantity to be applied: 450 g/m ² .		

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> Mix the product well before the use. Coating leftover (washing water, water from spray cabin, used coatings) must be disposed of in accordance with local regulations. Never dispose of leftovers directly in the drainage system. After long storage periods, always check for any presence of sediment at the bottom of the can and homogenize the product well before the use. Not heat-resistant: do not store at temperatures over 55°C. In particular environmental conditions, the product can develop sensitivity to humidity. Avoid using it in very damp spaces. The standards also require the application of fire-retardant products on hidden surfaces if there are air gaps between the object and the wall or floor.

2K TRANSPARENT FIRE-RETARDANT ACRYLIC SYSTEM

Standard	Country	Class	Certificates and validations	Substrate
EN13501/EN 9239	EU	BFL-s1 e CFL-s1	Certificate no. 235/13-fl of 31/05/2013	Oak floors in adherence
EN13501/EN 13501	EU	C-s1-d0	Certificate no. PK-1-01-16-020-E-0 of 25/4/2016	Veneered MDF wall not in adherence
NF P 92-501	FR	M1	Certificate no. RA16-0161 of 12/07/2016	Class M1 chipboard
UNI 9796	IT	1	Validation no. B02476PVI00011 of 18/02/2016	Floor*

*For all types of wood except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials.

Top coat versions	Standard	
JL-05M375	Deep matt	FR - EU wall - IT
JL-25M375	Matt	FR - EU wall and floor - IT
JL-80M375	Semi-glossy	FR - EU wall - IT

Recommended use	Flooring (EU and IT) and floor/wall/ceiling (FR)	Wood for interior use
Application method	Spray gun and curtain coater	
Product preparation	Dilute up to a maximum of 40% with diluent DF-M002	

Chemical-physical characteristics (23°C)				General information on the system	
	JL-XXM375	FC---M070	AF---M666	Drying at 20°C and UR% between 45 and 65: 120 g/m ²	
Solid content (%)	27	36	100	RAF-AC	
Specific weight (g/cm ³)	0,920	0,940	1,400	Dust free	15 minutes
Viscosity (seconds)	DIN 4 = 28 ± 3	-	-	Touch free	40 minutes
Pot-life	16 hours	-	-	Sandable	3 hours
				Overcoating	3 hours
				Stackable	3 hours
				Ready for use	24 hours

Application system to obtain Class BFL-s1 and Class CFL-s1 of Reaction to Fire in accordance with EN 13501/EN 9239, Classe BFL-s1 of Reaction to Fire in accordance with EN 13501/EN 13823, Class M1 of Reaction to Fire in accordance with NF P 92-501 and Class 1 of Reaction to Fire in accordance with UNI 9796 - DM 06/03/92																
Wooden substrate preparation	Clean the surface and sand with 240/280 grit sandpaper. Remove the old coating film completely.															
Base coat-top coat preparation for the application	<p>Mixing by weight to obtain Class BFL-s1 - EN 13501/ EN 9239 (EU) and Class C-s1-d0 - EN 13501/EN 13823 (EU):</p> <table border="0"> <tr> <td>Transparent base coat-top coat</td> <td>JL-25M375</td> <td>100%</td> </tr> <tr> <td>Flame-retardant additive</td> <td>AF---M666</td> <td>20%</td> </tr> <tr> <td>Catalyst</td> <td>FC---M070</td> <td>10%</td> </tr> </table> <p>Mixing by weight to obtain Class CFL-s1 - EN 13501/EN 9239 (EU), M1 - NF P 92-501 (FR) and Class 1 - UNI 9796 DM 06/03/92 (IT):</p> <table border="0"> <tr> <td>Transparent base coat-top coat</td> <td>JL-XXM375</td> <td>100%</td> </tr> <tr> <td>Catalyst</td> <td>FC---M070</td> <td>10%</td> </tr> </table>	Transparent base coat-top coat	JL-25M375	100%	Flame-retardant additive	AF---M666	20%	Catalyst	FC---M070	10%	Transparent base coat-top coat	JL-XXM375	100%	Catalyst	FC---M070	10%
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Transparent base coat-top coat	JL-XXM375	100%														
Catalyst	FC---M070	10%														
Base coat and top coat preparation for the application	Dilute up to a maximum of 40% with diluent DF---M002. Please note that the amount of product to be applied must be recalculated based on the dilution.															
Application method	Spray gun or curtain coater															
Product application	Apply one coat of transparent base coat-top coat JL-XXM375 with a grammage of 120 g/m ² . Let it dry off at least for 3 hours and sand lightly with 320 grit sandpaper. Apply one coat of transparent base coat-top coat JL-XXM375 with a grammage of 120 g/m ² . Total quantity to be applied: 240 g/m ² .															

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> It is possible to increase the surface hardness of the product, the film toughness and its resistance to removal by increasing the quantity of catalyst FC---M070 to 20%. In this case drying will be slightly slower and the dry film will have a slightly higher level of gloss. Pot-life will also be slightly shorter. When applying to whitened woods, wait at least 48 hours since the whitening treatment. The product is resistant to yellowing. However, if the support needs to be protected from yellowing (light or whitened woods), it is recommended to add 3-5% of UV absorber AF---M900 to the product. When using the product follow the recommended application quantities rigorously: as for all base coat-top coats, if the recommended grammage for the coats are not complied with, or when using them as a top coat in closed pore coating systems, there may be an irregular emergence of the opacifier (cell structure). Does not expire. After long storage periods, always check for any presence of sediment at the bottom of the container and homogenize the product well before use.

Standard	Country	Class	Certificates and validations	Substrate
EN 13501/EN 9239	EU	BFL-s1	Test report no. 235/13-fl of 31/05/2013	Flooring
UNI 9174-UNI 9177-UNI 8457	IT	1	Test report no. 7996 of 24/06/2016	Poplar wall

Recommended use	Flooring and wall	Wood for interior use
Application method	Roller coater, reverse	
Product preparation	Dilute up to a maximum of 4% with diluent DF---M052	

Chemical-physical characteristics (23°C)				
	UL---M710	UL---M730	UO-XXM730	
Solid content (%)	98 ± 2	98 ± 2	99 ± 1	
Specific weight (g/cm ³)	1,070	1,400	1,280	
Viscosity (seconds)	DIN 6 = 55 ± 4	DIN 8 = 120 ± 5	DIN 6 = 60 ± 4	
Tunnel drying	1 high power UV lamp	2-3 high power UV lamps	2-3 high power UV lamps	

Application system in order to obtain Class BFL-s1 of Reaction to Fire in accordance with EN 9239 and Class 1 in accordance with UNI 9174-UNI 9177-UNI 8457	
Wooden substrate preparation	Clean the surface and sand with 240/280 grit sandpaper. Remove the old coating film completely.
Base coat and top coat preparation for the application	Dilute up to a maximum of 4% with diluent DF---M052. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Roller coater, reverse
Product application	Apply one coat of transparent primer UL---M710 with a grammage of 15 g/m ² . Prejellify. Apply one coat of transparent base coat UL---M730 with a grammage of 30 g/m ² . Apply two coats of transparent base coat UL---M730 with a grammage of 65 g/m ² . Sand lightly and apply one coat of transparent top coat UO-XXM730 with a grammage of 8 g/m ² . Total quantity to be applied: 183 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> When working with exotic or particularly resinous types of wood, a preventive application of a suitable sealer is recommended. If necessary to dilute with DU---M052, do not exceed 4% of dilution, to avoid compromising the drying process. Always perform regular checks on the efficiency of the UV lamps. UV lamps usually have a useful life of 2000 hours. After this time there can be a drop in efficiency, compromising the correctly drying process of UV products. Expiry: 6 months.

Certificates and validations	Substrate
EU - Class BFL-s1 of Reaction to Fire in accordance with EN 13501-1 - DM 13/03/2015 EU - Class 1 of Reaction to Fire in accordance with UNI 9796 DM 06/03/92 - DM 13/03/2015	EU - Birch/Oak not in adherence IT - For all types of wood not in adherence except for: materials veneered through thermoplastic glue, assembled in cellular or slat structure including air (e.g. rattan or cane marrow) and filled with heterogeneous materials

Recommended use	Wooden flooring
Application method	Roller coater, reverse
Product preparation	Dilute up to a maximum of 4% with diluent DF---M052

Chemical-physical characteristics (23°C)				
	UL---M106	FC---M076	UL---M730	UO-XXM126
Solid content (%)	98 ± 2	90 ± 2	98 ± 2	99 ± 1
Specific weight (g/cm ³)	1,120	0,950	1,400	1,140
Viscosity (seconds)	DIN 6 = 40 ± 4	-	DIN 8 = 120 ± 5	DIN 6 = 32 ± 3
Pot-life	36 hours	-	-	-
Tunnel drying	1 high power UV lamp	-	2-3 high power UV lamps	2-4 high power UV lamps

Application system to obtain Class BFL-s1 of Reaction to Fire in accordance with EN 13501-1 and Class 1 of Reaction to Fire in accordance with UNI 9796	
Wooden substrate preparation	Clean the surface and sand with 240/280 grit sandpaper. Remove the old coating film completely.
Primer, base coat and top coat preparation for the application	Dilute up to a maximum of 4% with diluent DF---M052. Please note that the amount of product to be applied must be recalculated based on the dilution.
Application method	Roller coater, reverse
Product application	Apply one coat of transparent primer ULM106 catalysed at 10% with FC---M076 with a grammage of 15 g/m ² . Prejellify. Apply one coat of transparent base coat ULM730 with a grammage of 35 g/m ² . Apply two coats of transparent base coat ULM730 with a grammage of 50 g/m ² . Sand lightly and apply one coat of transparent top coat UO-XXM126 with a grammage of 8 g/m ² . Total quantity to be applied: 158 g/m ² .

Maintenance
The use of a wet cloth and mild detergents is recommended to clean and maintain the surfaces, coated by fire-retardant systems, drying the surface well after cleaning. To keep the product certified it is recommended to check periodically the condition of the coating film. If the support must be restored, apply the same validated quantities.

General information
<ul style="list-style-type: none"> When working with exotic or particularly resinous types of wood, the preventive application of a suitable sealer is recommended. If it is necessary to dilute with DU---M052, do not exceed 4% of dilution, to avoid compromising the drying process. Always perform regular checks on the efficiency of the UV lamps. UV lamps usually have a useful life of 2000 hours. After this time there can be a drop in efficiency, compromising the correctly drying process of UV products. Expiry: 6 months.



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