FIRE-RETARDANT COATINGS

SYNOPTIC TABLES

SAYERLACK®
INNOVATIVE WOOD SOLUTIONS

RESISTANCE AND REACTION TO FIRE: EFFECTIVE PROTECTION

When a fire breaks out, slowing down the spread of the fire is crucial: every minute gained can save human lives. The main task of fire-retardant coatings is to oppose the fire, delaying its spread as much as possible.

When it comes to wood, a living material that adds a touch of refined beauty to environments, fire-retardant coatings have a double responsibility: to guarantee protection from fire and to ensure an excellent aesthetic result. In other words, to satisfy safety and aesthetic/functional needs together.

This is the task that, right from the design phase, the technicians of the Sayerlack research laboratories have given themselves in formulating and producing fire-retardant coatings.

In cases where it is mandatory to comply with fire regulations (issuing of the Fire Prevention Certificate), the Provincial Fire Brigade Commands verify the fire load for each room (quantity in cubic meters of flammable material and relative calorific value), establishing the class to which each construction element belongs, based on emergency exits, fire-fighting systems or internal permanent safety services. The protective measures possibly required for active protection concern the installation of fire-fighting systems (sprinklers) and detection systems, smoke evacuators, fire extinguishers, etc., while the no less important passive protection is entrusted exclusively to certified coverings (panels), compartments and coatings, which have the task of slowing down and delaying the spread of flames.

PROTECTING YOURSELF FROM FIRE:
WHO IS OBLIGED TO DO IT?

- PUBLIC BUILDINGS
- DISCOS AND DANCE HALLS
- CREDIT INSTITUTIONS
- AIRPORTS AND RAILWAY STATIONS
- TOURIST HOTEL FACILITIES
- FAIRS AND CONFERENCE HALLS
- SHOPS
- SCHOOLS AND KINDERGARTENS
- AUDITORIUMS, THEATRES, CINEMAS AND MUSEUMS
- HOSPITAL FACILITIES
- GYMS AND FITNESS CENTERS
- CHURCHES
- CIVIL BUILDINGS OVER 24 M IN HEIGHT

SAYERLACK FIRE-RETARDANT COATING SYSTEMS CLASS 1 FIRE REACTION D.M. 6/3/92 (UNI 9796) - MINISTRY OF THE INTERIOR

Italian legislation divides materials into six classes relating to the restoration/refurbishment of cladding, paneling, flooring and false ceilings already installed, and furnishings. Each type of material is assigned a Fire Reaction Class, which ranges from 0 (non-combustible) to 5 (easily flammable).

During a fire in a closed environment, the temperature reaches very high levels. The wood-based materials begin to release gases that contribute significantly to the spread of the fire. Since wood is a combustible organic material, class 0 cannot be assigned to a coated wooden product; uncoated wood would be assigned class 4 or 5.

Class 1 is the best reaction class that a coated wooden product can obtain and identifies the one best suited to protecting the material involved in the fire.

The Sayerlack Class 1 fire-retardant systems effectively slow down the spread and advancement of fire, producing a barrier against the flame and reducing combustion and subsequent carbonization of the wood.

For example, a 4 mm thick MDF panel with reaction Class 4, after treatment with the Sayerlack fire-retardant system, acquires reaction Class 1.

Our certifications were carried out at the Department of Fire Brigade - Central Directorate for Prevention and Technical Safety of Rome Capannelle.

Class 1 (Italy)

Coating system name	Chemistry	g/mq	Clear	Standard	Class	Substrate
TA	PU	450	sealer TU0022/00 (2x150) hard. 50% TH0222/00 topcoat TZ22**/00 (1x150) hard. 50% TH0222/00	IT UNI 9796 (DM6/3/92)	1	MDF
TA-1	PU	390	sealer TU0022/00 (2x140) hard. 50% TH0222/00 topcoat TZ22**/00 (1x110) hard. 50% TH0222/00	IT UNI 9796 (DM6/3/92)	1	MDF
TE	Water	400	multi-coat AF 1105 (2x200) hard. 10% AH 111	IT UNI 9796 (DM6/3/92)	1	MDF
TM (FLOOR)	Water	100	multi-coat AF60**/00(1x100) hard. 10% AH1547/00	IT UNI 9796 (DM6/3/92)	1	MDF
			White			
TB	PU	450	sealer TU0022/13 (2x150) hard. 50% TH0333/00 topcoat TZ22**/13 (1x150) hard. 50% TH0333/00	IT UNI 9796 (DM6/3/92)	1	MDF
TB-1	PU	390	sealer TU0022/13 (2x140) hard. 50% TH0333/00 topcoat TZ22**/13 (1x110) hard. 50% TH0333/00	IT UNI 9796 (DM6/3/92)	1	MDF
TD	Water	400	multi-coat AF0022/13 (2x200)	IT UNI 9796 (DM6/3/92)	1	MDF
			Pigmented			
TC-BIANCO (white colour group)	PU	450	sealer TU 22/13 (2x150) hard. 50% TH 333 topcoat TZ 22** (1x150) hard. 50% TH 333 20% max. pigmented pastes TP 2009/XX	IT UNI 9796 (DM6/3/92)	1	MDF
TC-BLU (blu colour group)	PU	450	sealer TU0022/13 (2x150) hard. 50% TH0333/00 topcoat TZ22**/00 (1x150) hard. 50% TH0333/00 20% max. pigmented pastes TP2009/**	IT UNI 9796 (DM6/3/92)	1	MDF
TC-GIALLO (yellow colour group)	PU	450	sealer TU0022/13 (2x150) hard. 50% TH0333/00 topcoat TZ22**/00 (1x150) hard. 50% TH0333/00 20% max. pigmented pastes TP2009/**	IT UNI 9796 (DM6/3/92)	1	MDF
TC-NERO (black colour group)	PU	450	sealer TU0022/13 (2x150) hard. 50% TH0333/00 topcoat TZ22**/00 (1x150) hard. 50% TH0333/00 20% max. pigmented pastes TP2009/**	IT UNI 9796 (DM6/3/92)	1	MDF
TC-ROSSO (red colour group)	PU	450	sealer TU0022/13 (2x150) hard. 50% TH0333/00 topcoat TZ22**/00 (1x150) hard. 50% TH0333/00 20% max. pigmented pastes TP2009/**	IT UNI 9796 (DM6/3/92)	1	MDF
TC-VERDE (green colour group)	PU	450	sealer TU0022/13 (2x150) hard. 50% TH0333/00 topcoat TZ22**/00 (1x150) hard. 50% TH0333/00 20% max paste TP2009/**	IT UNI 9796 (DM6/3/92)	1	MDF
TE-R (red colour group)	Water	400	multi-coat AF1105/00 (2x200) hard. 10% AH0111/00 + 5% pigmented paste XA 2006/**	IT UNI 9796 (DM6/3/92)	1	MDF
TE-G (green colour group)	Water	400	multi-coat AF1105/00 (2x200) hard. 10% AH0111/00 + 5% pigmented paste XA 2006/**	IT UNI 9796 (DM6/3/92)	1	MDF
TE-B (white colour group)	Water	400	multi-coat AF1105/00 (2x200) hard. 10% AH0111/00 + 5% pigmented paste XA 2006/**	IT UNI 9796 (DM6/3/92)	1	MDF
TE-N (black colour group)	Water	400	multi-coat AF1105/00 (2x200) hard. 10% AH0111/00 + 5% pigmented paste XA 2006/**	IT UNI 9796 (DM6/3/92)	1	MDF

FIRE RETARDANT COATINGS SYSTEMS AND REACTION CLASSIFICATIONS

The European standard EN13501-1:2019 has been in force since 2005, in compliance with Directive 89/106/EC later became construction products regulation CPR (EU) 305/2011 “Construction Products”, which classifies the elements structurally inserted in the room and marketed in the countries of the European Community (CE Marking) based on the results of the fire reaction tests.

The products are tested and divided into two families: products used as wall and/or ceiling coverings and those used as floor coverings. The tests consist of determining the ignitability of a sample subjected to direct flame attack (EN ISO 11925-2:2020), the heat development/calorific value (EN ISO 1716:2018), the tendency to propagate the fire, the quantity of smoke and the dripping of incandescent particles (EN13823:2020, EN ISO 9239-1:2010). The different results classify the product according to the Euroclasses of reaction to fire for walls/ceilings (A1, A2, B, C, D, E, F) and for floors (A1fl, A2fl, Bfl, Cfl, Dfl, Efl, Ffl). In the case of both walls/ceilings and floors, however, there is a decreasing performance of the reaction to fire characteristics from A1 (or A1fl) to F (or Ffl).

The Euroclass A/Afl is assigned to products that do not contribute, or contribute minimally, to the development of fire. The Euroclass F/Ffl is attributed to all those products for which no reaction to fire performance has been determined or those results do not fall into other classes. The regulation also provides for the analysis of the quantity and transparency of the fumes developed by the combustion of the coated material, which are classified as follows: S1: limited quantity - S2: medium quantity - S3: without limit. Sayerlack technicians will be able to help and advise the customer to obtain the aforementioned Euroclass.

Please note that according to the EN13501-1:2019 norm there is no coating certification as such. The regulations put a demand on a producer of a building structure (like wall paneling or flooring) to test reaction to fire of their product. The test must be proceeded in conditions which are the same as when the item is mounted. The result of the test is a classification report which is valid only for the product produced by the manufacturer and installed exactly as the tested item (for example fixed directly to non-combustible wall).

European Standard - Wall position

Coating system name	Chemistry	g/mq	Clear	Standard	Class	Substrate
RESY IGF	PU/SIL	450	sealer FU 0303/00 (2x200) hard. 40% TH0784/00 topcoat FZ 10**/00 (1x50) hard. 10% FH0004/00	EN13501 (classification report)	Bs2d0	on MDF (20 mm)
					Bs1d0	on MDF (19 mm) Bs1d0
					Bs1d0	on MDF (15 mm) veneered with oak
			Pigmented			
RESY IGF	PU/SIL	560	sealer FU0303/00 (2x250) hard. 40% TH0784/00 + 3% TP2009/** topcoat FZ10**/00 (1x60) hard. 10% FH0004/00	EN13501 (classification report)	Bs2d0	on MDF (20 mm)

European Standard - Flooring position

Coating system name	Chemistry	g/mq	Clear	Standard	Class	Substrate
PAV (ciclo A)	PU	300	sealer TU0022/00 (1x150) hard. 50% TH0222/00 topcoat TZL3020/00 (1x150) hard. 20% TH0790/00	test report UNI EN ISO 9239 (classification report)	Bfls1	Oak
PAV (ciclo C)	PU	300	sealer AF1105/00 (1x150) hard. 10% AH0111/00 topcoat TZL3020/00 (1x150) hard. 20% TH0790/00	test report UNI EN ISO 9239 (classification report)	Bfls1	Oak

MED DIRECTIVE 2014/90/EU MARITIME EQUIPMENT MAXIMUM COMPLIANCE

Sayerlack fire-retardant coatings have passed the tests required by the European Directive for the naval sector (2014/90/EU), obtaining the famous “Steering Wheel”, the mark of conformity that allows the coatings to be marketed in the countries of the European Union and in the United States.

The specifications produced by shipyards require the use of fire-retardant coatings in most of the interiors of a ship, in compliance with the regulations on maritime safety.

Sayerlack has obtained certificates of conformity on fire-retardant, transparent and pigmented water-based systems, already in possession of Class 1 of reaction to fire according to the Italian regulation UNI 9796

Sayerlack coatings have obtained the MED certificate of conformity thanks to a series of strict tests that have been dedicated to the products (module B) and to quality (module D). The products have been tested for fire reaction and fume toxicity, according to international IMO regulations, while the quality has been tested with an inspection of the production process and control of the finished product at the Sayerlack production plants and will be checked in the future with periodic checks by the certifying body at the plants, which will guarantee the consistency of production of the coatings.

MED regulations (nautical)

Coating system name	Chemistry	g/mq	**Clear**	Standard	Class	Substrate
TE	Water	200	multi-coat AF1105/00 (1x200) hard. 10% AH0111/00	MED 96/98/CE (IMO FTP code annex1 part.2 and 5 A653(16)) module B and D	Pass	On surface materials and floor coverings with low flame-spread characteristics
			White			
TD	Water	210	multi-coat AF0022/13 (1x210)	MED 96/98/CE (IMO FTP code annex1 part.2 and 5 A653(16)) module B and D	Pass	On surface materials and floor coverings with low flame-spread characteristics
			Pigmented			
TE-X	Water	150	multi-coat AF1105/00 (1x150) hard. 10% AH0111/00 + 5% pigmented paste XA2006/**	MED 96/98/CE (IMO FTP code annex1 part.2 and 5 A653(16)) module B and D	Pass	On surface materials and floor coverings with low flame-spread characteristics

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