

# aquaris

Water-based coatings for outdoors





**PENNER**  
HOOD COATINGS



# AQUARIS

- 4 Renner Italia water-based products for outdoors
- 6 The main aggressors of wood placed outdoors
- 8 How to increase the natural durability of wood
- 10 Preservative wood stains
- 13 Intermediates
- 14 Range of intermediates
- 15 Sealers for end grain and “V” joints
- 16 Sealer for the protection of end grain
- 17 Sealer for the perfect joint
- 18 Thixo base coats
- 20 Thixo top coats
- 22 Range of products for exterior doors
- 23 Range of products for outdoor structures
- 24 Additives and auxiliary products
- 25 Tintometric tinting system
- 27 Renner Italia coating systems
- 34 Catas Quality Award Certifications
- 36 Cleaning and renewing outdoor joinery
- 38 General recommendations

# Aquaris, total protection

Renner Italia water-based products for outdoors, degradation can wait

The total protection for outdoor joinery that definitively says goodbye to the annoying problem of premature degradation.

The Aquaris water-based coatings are a concentration of creativity from the Research & Development Dept. of Renner Italia which, with this exceptional range of coatings, prevents the attacks of time without giving up beauty.





### **RESISTANT OUTDOOR**

The best raw materials are used for the production of Aquaris products. Carefully selected depending on their response to solar rays and humidity, the Renner Italia laboratories evaluate their elastic capacities and adhesion to the wood. Successively, the most sophisticated artificial accelerated ageing instruments are used to test resistance.

Finally, the coated samples are exposed outdoor to natural weathering, positioned on grids studied to reproduce an exasperated criticality.

The result is in front of everyone's eyes: the Aquaris coatings are always young and unassailable.

### **BEAUTIFUL TO SEE**

As soft as skin. As clear as the water with which they are composed. Coloured like nature.

With the Aquaris coatings, Renner Italia was not happy

just to propose ultra-resistant primers, base and top coats, but launched a range extremely careful of the aesthetic result. The most elegant coatings for the best windows.

### **EASY TO APPLY**

The extreme simplicity of use is a characteristic of the range that cannot be renounced. Aquaris is, without a word of a lie, a range of products suitable for all users. It has been tested by Renner Italia technicians inside sophisticated application rooms, equipped with modern industrial coating equipments composed of flow-coating, drying ovens, spray booths with pumps, airless/airmix, reciprocators with cold walls and overhead transport chains.

Renner Italia has not only controlled the very high performance of the finished product, but has also simplified the method of use.



# Degradation is the enemy

The main aggressors of wood exposed outdoors



Fungi, water and solar radiation are the main aggressors of wood and the coatings. Renner Italia has studied them in-depth and through the Aquaris range, it has zeroed the degrading action.

## FUNGI

They multiply in conditions of humidity exceeding 20%. Once attacked, the wood undergoes a relentless deterioration process.

Depending on the damage caused, these parasites can be divided into two classes.

**The chromogenic fungi** affect the colour of the wood. They alter it without damaging the mechanical properties. They feed on the substances inside the cell.

The chromogenic fungi are distinguished as *moulds* (with surface development) and *blue fungi* (with deep incision, only in the sapwood).

**Wood rotting fungi** feed on the cellulose and lignin, the cellular skeleton. With the membrane disintegrated, i.e. the structural essence of the individual cells, the wood collapses with very dangerous consequences.

## WATER

Wood is a hygroscopic material: it exchanges water with the environment. The cyclic release and absorption of water determine repeated dimensional changes. The alternating swelling and contraction reduces adhesion of the coating film.

The damage caused by humidity is more evident when:





- a top coat is used that is very permeable to water;
  - due to an inadequate draining system in the joinery design some water stagnation occurs;
  - a coating film that has points of discontinuity is attacked by infiltrations.
- Moreover, excessively humid wood accelerates the destructive reactions of ultra-violet radiation.

### **SOLAR RADIATION**

The spectrum of solar light radiations is composed of three categories.

**Ultraviolet radiation** represent approximately 5% of the spectrum. It penetrates deeply and It attacks both the wood and the coating.

**Visible radiation** (about 45%), alters the colour of the wood.

**Infra red radiation** (about 50%), transports heat that accelerates all degradation phenomena.

Solar radiations cause several problems:

- radicalic reactions are triggered in the film of coating which, among other things, lead to loss of elasticity and yellowing of the film;
  - photo-destructive reactions are triggered on the wood surface, involving supporting components such as lignin and favouring the detachment of the coating. Moreover, colour change is caused (browning or fading).
- The damage caused by the sun is more evident in the case of outdoor joinery coated with transparent colourless products.



# How to increase the natural durability of the wood



Some types of wood, especially softwoods, according to the UNI EN 350-2 Standard, are classified as “moderately durable” or worse “not very durable”. When attacked by biological agents, the outdoor joinery, mostly in softwood, allows the growth of fungi.

The Renner solution is the wood preservative primer to be applied by dipping or flow coating onto bare wood. The **YM M099** primer guarantees a prolonged and stable durability outdoors of wooden items.

## Main features of YM-M099

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It penetrates deeply into the wood thanks to its innovative formula

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It contains a high dose of a mixture of different fungicides with a wide range of action

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Reduces woodgrain lifting, thus making brushing and light sanding easier

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It contains UV absorbers and lignin protectors which, by fixing directly onto the wood fibre, assure high protection of the wood through time

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With the successive application of the coloured wood preservative stain, it ensures an excellent colour harmonising effect, reducing spotting and greying phenomena, typical of some types of softwoods.

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It improves the dimensional stability of the wood (it reduces contractions and swelling)

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Harmonises the surfaces treated, still keeping bright shades

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# Natural resistance of the main wood species to fungi and insects (EN 350-2 Standard)

Wood species	Scientific name	Common name	Origin	Specific weight (kg/m <sup>3</sup> )	Alburnum Width	Impregnability		LIGNIVOROUS FUNGI	HOUSE LONG HORN BEETLE (Hylotrupes bajulus)	WOODWORMS (Anobium punctatum)	TERMITES	LYCTIDAE (Lyctus brunneus)	LONG HORNED BEETLE (Hesperophanes cinereus)
				(1)	(2)	Duramen (3)	Alburnum (3)	(4)	(5)	(5)	(6)	(5)	(5)
WHITE FIR	<i>Abies alba</i>	D: Tanne	Europe - North America	440-460-480	x	2-3	2v	4	NRH	NRH	NR	R	R
RED FIR	<i>Picea abies</i>	E: Spruce; D: Fichte	Europe	440-460-470	x	3-4	3v	4	NRH	NRH	NR	R	R
CHESTNUT	<i>Castanea sativa</i>	D: Kastaine	Europe	540-590-650	s	4	2	2	R	NR	MR	R	NR
RED CEDAR	<i>Thuja plicata</i>		North America - Cultivated UK	330-370-390 330-370-390	s s	3-4 3-4	3 3	2 3	NR NR	NR NR	NR NR	R R	R R
DOUGLAS FIR	<i>Pseudotsuga menziesii</i>	D: Douglasie	North America Cultivated Europe	510-530-550 470-510-520	s s	4 4	3 2-3	3 3-4	NR NR	NR NR	NR NR	R R	R R
HEMLOCK	<i>Tsuga heterophylla</i>		North America Cultivated UK	470-490-510 470-490-510	x x	3 2	2 1	4 4	NR NR	NRH NRH	NR NR	R R	R R
IROKO	<i>Milicia excelsa</i>		West Africa East Africa	630-650-670	m	4	1	1-2	R	n/d	R	NR	R
LARCH	<i>Larix decidua</i>	D: Larche	Europe Japan	470-600-650	s	4	2v	3-4	NR	NR	NR	R	R
MERANTI Dark Red	<i>Shorea curtisii</i>		South-East Asia	600-680-730	s	4v	2	2-4	R	n/d	MR	R	R
MERANTI Light Red	<i>Shorea leprosula</i>		South-East Asia	490-520-550	m	4v	2	3-4	R	n/d	NR	R	R
MERANTI Yellow	<i>Shorea resina-nigra</i>		South-East Asia	560-630-660	m	3-4	2	4	R	n/d	NR	R	R
MERANTI White	<i>Shorea assamica</i>		South-East Asia	600-630-670	s	3v	2	5	R	n/d	NR	R	R
NIANGON	<i>Heritiera utilis</i>		West Africa	670-680-710	m	4	3	3	R	n/d	MR	R	R
PINE	<i>Pinus sylvestris</i>	E : Scots; D: Kiefer	Europe	500-520-540	s-m	3-4	1	3-4	NR	NR	NR	R	R
PITCH PINE	<i>Pinus palustris</i>		North America	650-660-670	m	3-4	1	3	NR	NR	MR-NR	R	R
OKOUME'	<i>Aucomea klaineana</i>		West Africa	430-440-450	s	3	n/d	4	R	n/d	NR	R	R
OAK	<i>Quercus robur</i>	D: Eiche	Europe	670-710-760	s	4	1	2	R	NR	MR	NR	NR
OAK Red American	<i>Quercus rubra</i>	D: Amerikanische Roteiche	North America	650-700-790	s	2-3	1	4	R	n/d	NR	NR	R
OAK White American	<i>Quercus alba</i>	D: Amerikanische Weißeiche	North America	670-730-770	s	4	2	2-3	R	NR	MR	NR	R
SAPELLI	<i>Entandrophragma cylindricum</i>		West Africa	640-650-700	m	3	2	3	R	n/d	MR	R	R
MFUMBI	<i>Entandrophragma utile</i>		West Africa East Africa	590-640-660	m	4	2	2-3	R	n/d	MR	R	R
TEAK	<i>Tectona grandis</i>		Asia Cultivated in other countries	650-680-750	s n/d	4 n/d	3 n/d	1 1-3	R R	n/d n/d	MR MR-NR	R R	R R
YELLOW PINE	<i>Pinus strobus</i>	D: Strobe	North America Cultivated Europe	400-410-420	a	2	1	4	NR	NRH	NR	R	R

In grey the softwoods

(1) Volumic mass; average values interval at 12% humidity

(2) X: No net distinction between alburnum and duramen; S: thin (from 2 to 5 cm); M: medium (from 5 to 10 cm)

(3) 1: Impregnable; 2: Moderately impregnable; 3: Not very impregnable; 4: Not impregnable

(4) The data refer only to duramen; the alburnum of all wood species is considered as belonging to class 5. 1: Very durable; 2: Durable; 3: Moderately durable; 4: Not very durable, 5: Not durable

(5) The data given refer to the alburnum; the duramen of all wood species is considered resistant, with exception of the species with alburnum classified with X, i.e. with non-differentiated duramen (e.g. Fir). In this case the duramen is given the durability class of the alburnum. R: Resistant; NR: Non resistant; NRH: Duramen is known as non-resistant.

(6) The resistance only refers to duramen; the alburnum of all wood species is not resistant. R: Resistant; MR: Moderately resistant; NR: Non resistant

Note: n/d: Data available insufficient, v: the species shows a very high level of variability



# Wood preservative stains

Characterised by good penetration capacity into the wood (about 3 mm), in the coating system the Renner Italia wood preservative stains are applied onto the bare wood with flow coating, dipping or shower methods.

The amount used in each individual system varies from 60-80 g/m<sup>2</sup> to 80-100 g/m<sup>2</sup> depending on the application system and the wood species.

## Main features of the Renner Italia WOOD PRESERVATIVE

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Excellent penetration capacity (about 3 mm)

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Colour harmonising effect

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High doses of fungicide: from 0.4 to 0.8% of IPBC depending on the formulation

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Bright colours, obtained with transparent iron oxides which, as well as not changing colour through time, lengthen the life of the wood joinery as they are a very efficient absorbers of ultraviolet radiation

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No colour return on the end grains

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## THE WOOD PRESERVATIVE STAIN RANGE

Primers		
YM M030	<b>Primer for semi-white and semi-opaque systems</b> Transparent	First coat for semi-white and semi-opaque systems on oak or fir
YM M031	<b>Primer for extra-harmonising systems</b> Transparent	As first coat, when great evenness of colour is required. For example on firs or finger-jointed softwoods, or again in the case of a no-grain-raising system (e.g. Meranti)
YM M099	<b>TOP QUALITY Primer</b> Transparent	Especially studied for softwoods, it has a special formulation able to guarantee an extremely high outdoor durability

Coloured			
	YM M034/Txx	<b>For construction sites</b> Transparent, T13, T15, T21, T22, T23, T27, T28, T30	Maintains a good performance level at a reasonable cost
CATAS	YM M040/Txx	<b>For softwoods</b> Transparent, T10, T13, T15, T16, T21, T22, T23, T24, T27, T28, T29, T30, T89	Renner Catas-QA certified product. High stability in flow-coating, formulated with light fast iron oxides and high dose of fungicides. Indicated for softwood and hardwood species with a low level of tannin
	YM S803/Txx	<b>For finger-jointed softwoods</b> Transparent, T13, T15, T20, T22, T30, T89	Especially studied for finger-jointed pine and lamellar fir. It confers a very high evenness of colour, able to hide joints. Excellent dripping properties and no end grain return
CATAS	YM M042/Txx	<b>For hardwoods</b> Transparent, T13, T15, T16, T21, T22, T27, T28, T29, T30	Renner Catas-QA certified product. High stability in flow-coating, formulated with light fast iron oxides and fungicides. Indicated for hardwoods rich in tannins
CATAS + EVERSUMMER	YM M090/Txx	<b>TOP QUALITY for softwoods</b> Transparent, T15, T21, T22, T28, T30	Renner Catas-QA and Eversummer certified product. Maximum stability in flow-coating, formulated with light fast iron oxides and with very high doses of fungicides combined with UV absorbers, which make it a Top Quality product. Indicated for softwoods and hardwoods species poor in tannin
CATAS + EVERSUMMER	YM M092/Txx	<b>TOP QUALITY for hardwoods</b> Transparent, T15, T21, T22, T28, T30	Renner Catas-QA and Eversummer certified product. Maximum stability in flow-coating, formulated with light fast iron oxides and with very high doses of fungicides combined with UV absorbers, which make it a Top Quality product. Indicated for hardwood species rich in tannins

Pigmented and Neutral		
YM M044/xxx	<b>Insulating pigmented primer</b> NTR, C02, C29	For general use, on softwoods and hardwoods species. Optimum insulation properties on Meranti and Hemlock. Excellent adhesion. High content of fungicides
YM M048/C02	<b>Primer for finger-joint</b> White	Especially studied to reduce swelling of the fibre in the case of finger-jointed softwoods. To be used as the first coat. High content of fungicides

## THE CHOICE OF WOOD PRESERVATIVE STAINS DEPENDING ON THE WOOD SPECIES

WOOD SPECIES							WOOD PRESERVATIVE STAINS								
Name	Softwoods	Hardwoods	Main substances contained in wood				Primers			Transparent products				Pigmented	
			Resin	Tannin	Oils	Rubbers	YMM030	YMM031	YMM099	YMM040/Txx YMM090/Txx	YMM042/Txx YMM092/Txx	YMM034/Txx	YMS803/Txx	YMM44/xxx	YMM048/C02
White Fir	▲						●	●	●	■		■	●	●	●
Red Fir	▲		*					●	●	■		■	●	●	●
Red Cedar	▲				*				●	●		■		●	
Douglas Fir	▲		*						●	●		■	■	●	
Hemlock	▲							●	●	●		■	●	●	
Larch	▲		*						●	●		■	■	●	
Pine	▲		*						●	●		■	●	●	●
Pitch Pine	▲		*							●		■	●		
Yellow Pine	▲		*									■	●		
Chestnut		▲		*										●	
Iroko		▲				*								●	
Meranti		▲						●		●	■			●	●
Niangon		▲			*					■	●			●	
Okumè		▲						●		●				●	●
Oak		▲		*			●				●			●	
Sapelli		▲								●	■			●	
Mfumbi		▲			*					■	●			●	
Teak		▲			*						●			●	

- ▲ FAMILY
- \* PROPERTIES
- RECOMMENDED PRODUCT
- OPTIONAL PRODUCT

The data given refer to the "Biocides effectiveness" test performed by Catas		YMM040/Txx	YMM042/Txx	YMM090/Txx	YMM092/Txx
ROT	Coniophora puteana (Brown rot)	Inhibited > 10 mm	Inhibited 8 mm	Inhibited > 10 mm	Inhibited > 10 mm
	Trametes versicolor (White rot)	Inhibited 2 mm	Inhibited 1 mm	Inhibited 6 mm	Inhibited 7 mm
BLUEING	Sclerophoma pythiophila + Aureobasidium pullulans	Inhibited > 10 mm	Inhibited > 10 mm	Inhibited > 10 mm	Inhibited > 10 mm



# Intermediate Base Coats

## Main features of the Renner Italia INTERMEDIATE BASE COATS

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High solids content

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Optimum dripping properties

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Formulated with acrylic resins especially studied to

- protect the wood from the action of water, reducing absorption
- improve the adhesion of the next coat of top or base coat

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Improved joinery finishing

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Deep penetration into the pore of the wood (in the case of hardwoods species) and into the capillaries of the end grain that greatly increases the duration outdoors

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Based on acrylic resins aimed at the reduction of water absorption and aggression by fungi, the Renner Italia intermediate base coats improve adhesion of the top coat.

In the coating system they are used with flow coating, dipping or shower methods in quantities that vary from 60-80 g/m<sup>2</sup> to 80-100 g/m<sup>2</sup> depending on the application system and the wood species.

## Range of intermediate base coats

YL M150	<b>For general use</b> Transparent	For general use, with high solids content
YL M153	<b>Extra-sandable</b> Transparent	Specific for mechanical sanding/brushing
YL M154/xxx	<b>For finger-joints</b> NTR, T13	Studied for finger-jointed lamellar softwoods, enormously reduces swelling of the fibre
YL M160	<b>For semi-white systems</b> Transparent	Greatly reduces colour changes in semi-white or semi-opaque systems
YL M190/T12	<b>Top quality</b> Douglas Fir	Owing to its high content of fungicides and UV absorbers it is an integral part of the Top Quality range





## Sealers for end grains and “V” joints

The end grain is very porous and rough and often, due to the construction methods of joinery, is situated in positions that are difficult to reach by the coating with spray application.

Owing to this problem, the coating system alone may

not ensure hermetic waterproofing, thus allowing the absorption of water and the consequent rapid deterioration of the items.

In outdoor joinery the end grain is found in the:

Heads of the uprights	E.g. in the exterior shields such as blinds and slatted shutters
“V” joints between uprights and cross-members	E.g. window, doors-windows, exterior counter-frames, blinds

**Renner Italia has produced two specific sealers to remedy the vulnerability of end grains and “V” joints.**

# Sealer for protection of the end grain

**AY M422** is a single-component sealer ideal for sealing end grain in outdoor joinery. It has the following features:

Can be over-coated with waterborne products

It contains UV absorbers and fungicides

Good resistance to water

Optimal adhesion to the surface of the wood

Very brief setting times

## APPLICATION OF THE PRODUCT

The best end grain sealing results are obtained by applying **AY M422** onto fixtures previously treated with only primer or preservative wood stains and intermediate base coats.

The **AY M422** can be applied using the relevant 250 g dispenser and then carefully distributing it uniformly with a brush. Any surfacing (or removal) of excess must be performed within one minute from the application, using a damp cotton cloth or a sponge (do not use paper).

**AY M422** can be over-coated 30-60 minutes from the application. To obtain best adhesion of the top coat, over-coat the sealer within 2-4 hours.



# Sealer for the perfect joint

**AP M902** is a single component sealer specific for the protection of “V” joints present in outdoor joinery. It is characterised by the following requisites:

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Can be over-coated with waterborne products

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Transparent also in thickness > indicated also for transparent systems

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Optimum resistance to water

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Optimum adhesion onto the surface

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Reduced contraction > very high filling effect  
(Solids Content of about 70%)

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Neutral and odourless reaction > can also be used on tannin woods

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No solvents

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Very brief setting times

## APPLICATION OF THE PRODUCT

The best “V” joint sealing results are obtained by applying the **AP M902** product onto items previously treated with only preservative woods stains or after the application of intermediate base coat.

**AP M902** is applied with a hand gun continuously, exerting suitable pressure against the wall of the “V” joint.

Any surfacing or removal of excess must be performed within 1-2 minutes from the application; first using a brush and then immediately after using a damp cotton cloth (do not use paper).

**AP M902** can be over-coated approximately after 1-2 hours from the application.

To obtain best adhesion results of the top coat, over-coat the sealer within 4 hours.

# Thixo base coats

The thixo base coats greatly improve the level of finishing of the joinery. They are applied by spraying, flat or vertically, onto the preservative wood stain or onto the intermediate base coat in quantities between 125 and 175 wet microns.

## Main features of the Renner Italia THIXO BASE COATS

Formulated with acrylic resins especially designed to

- protect the wood from the action of water, reducing absorption
- improve the adhesion of the next coat of top coat

In the case of hardwoods, they wet the wood pore, greatly increasing the outdoor duration of the windows

Excellent duration outdoors with fungicides, UV absorbers and additives anti-bleeding



## THIXO BASE COAT RANGE

Transparent products		
YL M214	<b>Over-coatable thixo base coat</b> Transparent	High covering base coat, can be over-coated without sanding even the day after
YL S248/T13	<b>Thixo base coat for open pore</b> Larch	Thixo base coat for hardwoods such as meranti and okoumé. It can be over-coated without sanding even the day after
YL M263/T13	<b>Thixo base coat for general use</b> Larch	Base coat for general use
YL M268/xxx	<b>High build thixo base coat</b> Transparent, T13	Base coat with high solids content and great level of filling
YL M277/T13	<b>Insulating thixo base coat for iroko</b> Larch	Single component insulating base coat for iroko wood
YL M282/T13	<b>2-components thixo base coat</b> Larch	Base coat that can be catalysed with isocyanate suitable for outdoors. Ideal for systems on woods particularly rich in extracts (resins, tannins etc.)
YL M291/T12	<b>Top Quality thixo base coat for hardwoods and softwoods</b> Douglas Fir	Base coat with high degree of filling and excellent wetting of the pore, can be over-coated even the day after, with high dose of fungicide and UV absorbers

Pigmented and neutral		
YL M214/C02	<b>White Over-coatable Thixo Base coat</b> White	White base coat that can be over-coated without sanding even the day after
YL S248/xxx	<b>Thixo base coat for open pore</b> NTR, C02	Thixo base coat for hardwoods such as Meranti and Okoumé. It can be over-coated without sanding even the day after
YL M268/xxxxx	<b>High Covering Pigmented Thixo Base Coat</b> NTR, C02, C29, R3004, C01	Pigmented base coat with high filling effect
YL M274/C02	<b>White Thixo Base coat for Finger-joint</b> White	Studied for systems on Finger-joint, with reduced swelling of the fibre
YL M282/xxx	<b>2-components Thixo Base Coat</b> NTR, C02	Base coat that can be catalysed with isocyanate suitable for outdoors. Ideal for systems on woods particularly rich with extracts (resins, tannins etc.)

# Thixo top coats

They are products that exalt the natural beauty of the wood. In the coating system, they are applied by spraying, both flatly and vertically onto the preservative wood stain or, even better, onto the intermediate/base coat. The thixo top coats are applied in variable quantities between

200 and 300 wet microns depending on the coating system. They have a solids content that oscillates between 40-45% for the transparent products and the RAL formulated from neutral converters (NTR); 50-55% for white products and RAL deriving from white converters (SBN).

## Main features of the Renner Italia THIXO TOP COATS

Formulated with acrylic resins especially designed to

- resist the aggression of atmospheric agents through time
- protect the wood from the action of water, efficiently regulating the absorption and release of humidity

Presence of free radical scavengers that strengthen the performance of the UV absorbers

Presence of ultraviolet absorbers in order to reduce the destructive effects induced by solar radiation to a minimum

Absolute transparency that highlights the natural beauty of the wood

Wettability and levelling, also in vertical applications, which improve the application result



## THIXO TOP COAT RANGE

Transparent products			
CATAS	YO xxM317/xxx	<b>Thixo top coat for general use</b> 05 gloss: transp, T13, T27, T22, T37 20 gloss: transp, T11, T13, T23, T26, T28, T43 30 gloss: transp, T11, T13, T14, T18, T20, T22, T23, T26, T28, T37, T43, T50, T88 45 gloss: transp, T13, T20, T28 60 gloss: transp, T13, T28	Thixo top coat for general use, with high solids content. Easy to use, with manual pump and in automatic plants. Available in a large number of glosses and colours. <b>Catas product certification</b>
CATAS	YO xxM329/xxx	<b>High solid thixo top cover</b> 20 gloss: transp, T13, T22, T28 35 gloss: transp, T11, T13, T14, T20, T22, T23, T26, T27, T28 45 gloss: T13	Thixo top coat with high solids content. Transparent on application, it is particularly suitable for fastdrying systems, both with manual pump and in automatic plants. Available in a large number of glosses and colours. <b>Catas product certification</b>
	YO xxM370/xxx	<b>Thixo top coat for conventional hand spray</b> 30 gloss: T13, T28 60 gloss: T13	Easy to use thixo top coat, ready to use for conventional cup gun application. Transparent on application
CATAS + EVERSUMMER	YO 30M390/T26	<b>TOP QUALITY thixo top coat</b> Oak	Thixo top coat with high solids content. Transparent on application, it is particularly suitable, owing to its high content of UV absorbers, for systems where maximum duration outdoors is requested. Can be applied using manual pump and in automatic plants. <b>Catas and Eversummer product certification</b>

Pigmented			
	YO 30M317/BNC	<b>White thixo top coat for general use</b> White	Thixo top coat for general use, with high solids content. Easy to use, with manual pump and in automatic plants
	YO xxC317/xxxxx	<b>Thixo top coat with various RAL for General Use</b> 30 gloss: R1013, R6005, R6009, R9010 45 gloss: R6005, R6009, R9010 All RAL colours available from the stain system	Thixo top coat for general use, with high solids content. Easy to use, with manual pump and in automatic plants. Available in different RAL colours and different glosses
	YO 30M370/xxxxx	<b>White and various RAL Thixo top coat for conventional hand spray</b> SBN, R6005, R6009, R9010	Easy to use thixo top coat, ready to use for conventional cup gun application

Specials			
	YO 30M310/xxx	<b>Pearly thixo top coat</b> T46, T47, T67, T81, T87	Special thixo top coat for pearly effects
	YO 30M311/C76	<b>Metallic thixo top coat</b> Silver Grey	Special thixo top coat for metallic effects
	YO 30M312/xxx	<b>Semi-opaque pastels thixo top coat</b> NTR, C02, C48, C58, C64, C72, C79	Special thixo top coat for semi-white effect on fir and on oak

# Range of products for exterior doors

Such as panels for armoured exterior doors and overhead doors for garages



Primers		
YM M036	<b>Primer by spray</b> Transparent	To be coloured using EY M473 pastes. For general use, on softwoods and hardwoods species poor in tannins
Intermediate base coats		
YL C341	<b>Intermediate base coat by spray</b> Transparent	For general use, with high solids content
Base coats		
YL M260/T13	<b>Insulating thixo base coat for formager</b> Larch	Insulating base coat for formager, ideal use for veneered armoured panels
Top coats		
YO xxM370/Txx	<b>Transparent thixo top coat</b> Available in various colours and glosses	Optimum resistance to heavy stacking and blocking
YO xxM370/xxxxx	<b>Top coat for armoured panels</b> NTR, SBN, plus RAL colours already formulated	Converters for formulation of RAL colours, with optimum resistance to heavy stacking and blocking. Excellent degree of finishing.



## Range of products for outdoor structures

Gazebo, grids, fences, car-port roofs, flower boxes, garden houses, park games for children, swimming pool surrounds

Preservative wood stains		
RM 1*10 e RM2010	<b>Preservative wood stain for general use, for brush application.</b> Available in various colours	For general use, on softwoods and hardwoods species poor in tannins
RC 1*30	<b>Wax preservative wood stain for brush application.</b> Available in various colours	Contains a particular wax that gives the preservative stain high water-repellent properties. For general use, on softwoods and hardwoods species poor in tannin
RG 1*80	<b>Gel preservative wood stain for brush application.</b> Available in various colours	Its special formulation makes it exceptional to brush. Excellent colour harmonization and easy colour recovery. Ideal on large surfaces. For softwoods and hardwoods species poor in tannin
Top coats		
RF1*20	<b>Water-based top coat for brush application</b> Available in various colours	For general use
RC2030e RC3030	<b>Wax-effect top coat for brush application</b> Transparent, Honey	Available in two colours, ideal for wax finishing of items exposed outdoors
YO xxC018/Txx	<b>Top coat for flow coating application</b>	Top coat with high dose of UV absorbers, with very low viscosity, ideal for tank application (dipping). or flow coating on balconies or other
YO xxL073/Txx	<b>TOP QUALITY top coat for brush application</b>	TOP QUALITY top coat in brush application version, ideal where maximum protection against UV radiation is requested

The products with RM, RC, RF, RG codes belong to the Rio Verde line.

# Additives and auxiliary products

Pigmented pastes for preservative wood stains	
EY M470/Txx	<b>Pigmented pastes for exterior. Transparent colours</b> Black T01, Violet T31, Ox Red T03, Ox Yellow T07
EY M473/Txx	<b>Pigmented pastes for exterior. Harmoniing colours</b> Ox Red T03, Ox Yellow T07

Pigmented pastes for top coats	
EY M480/Txx	<b>Pigmented pastes for exterior. Transparent colours</b> Walnut T22, Mahogany T15, Woodland green T29

Catalysts and cross-linkers	
YC M400	<b>Isocyanic catalyst</b>
YC M407	<b>Polyaziridinic cross-linker with long pot-life</b>
YC M408	<b>Fast curing polyaziridinic cross-linker</b>

Additives	
AY M420	Anti-foaming agent for flow coating
AY M430	Matting paste
AY M435	Bactericide
AY M443	Reactivating agent for flow coating products - concentrated
AY M444	Slow-drying agent for general use
AY M447	Reactivating agent for flow coating products
AY M448	Slow-drying agent - concentrated
AY M450	Slow-drying agent
AY M453	Thickener
AY M456	Thickener
AY M457	Anti-cissing agent
AY M492	Equaliser for preservative wood stains

Auxiliary products	
AY M449	Flocculant powder
AY M460	Washing thinner for application equipments



# The Tintometric Tinting system

The Renner Italia Tintometric Tinting systems allow to create and reproduce an infinite range of pigmented products. Making use of both the traditional manual colorimetry (formulation by weight) and the most

advanced computerised mixing program (formulation by volume), Renner satisfies all requirements for the modern use of colour.

An unlimited range of colours is obtained from the

combination of **two converters**, white SBN and neutral NTR, with **17 pigmented pastes** with top quality and extraordinary resistance to light and severe weather conditions (RAL, NCS, etc).

YO xxM360/xxx	<b>Thixo converters for general use</b>	Thixo converters for general use for outdoor joinery, ideal for vertical spray application (300 $\mu$ m using airmix-airless pump)
	05 gloss: NTR and SBN 15 gloss: NTR and SBN 30 gloss: NTR and SBN 45 gloss: NTR and SBN 60 gloss: NTR and SBN 80 gloss: NTR	<i>The 30 gloss version is EN 71.3 certified</i>
YO xxM370/xxx	<b>Thixo converters for hand spray</b>	Thixo converters for armoured doors or garages, ideal for flat application (200 $\mu$ m using airmix-airless pump or with cup gun)
	15 gloss: NTR and SBN 30 gloss: NTR and SBN	
YO 90M338/xxx	<b>Converters for brush application</b>	Converter for brush application for water-based enamels.
	NTR and SBN	

## THIXO CONVERTERS FOR EXTERIORS

The converters are available in three distinct ranges for types of use: general use, for hand spray, for brush application.

The wettability and flow, also vertically, are characteristics of the application process of this family of products. They are based on acrylic resins which, as well as giving the wood extra protection, regulate perfectly the absorption and release of humidity. The thixo converters contain free radical scavengers that exalt the exterior performances of the coated items.

### THE PIGMENTED PASTES

Tested for outdoor resistance, the pigmented pastes give shine and life to the joinery. In the range of pastel or light colours, add from 0.2 to 2-3% of paste to the white SBN converter. The strong gradations combine a neutral converter NTR to 8% of paste.

THE RANGE OF PASTES	
EY--M460/--NRO	Black
EY--M460/--E02	White
EY--M460/--E04	Blue
EY--M460/--E08	Orange
EY--M460/--E09	Green
EY--M460/--C31	Purple
EY--M460/--E36	Warm red
EY--M460/--E42	Maize yellow
EY--M460/--E52	Deep Red
EY--M460/--C54	Amaranth Red
EY--M460/--C59	Golden Yellow
EY--M460/--E62	Ocean Blue
EY--M460/--E70	Oxide Red
EY--M460/--C71	Carmine Red
EY--M460/--E77	Oxide Yellow
EY--M460/--C84	Lobster Orange
EY--M460/--E85	Lemon Yellow



Biaxial gyrosopic 5-speed automatic mixer



Computerised colour mixing system for solvent based coatings



Computerised colour mixing system for water-based coatings



Spectrophotometer



# Renner Italia coating systems

They have been divided into the following segments:

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## OUTDOOR JOINERY

Such as windows and door-windows in wood or wood-aluminium, shading systems (blinds, shutters), solid wood entrance doors

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## EXTERIOR DOORS

Such as panels for armoured exterior doors and overhead doors for garages

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## OUTDOOR STRUCTURES

Such as gazebo, grids, pergolas, fences, car-port roofs, flower boxes, garden houses, park games for children, swimming pool surrounds

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# Outdoor joinery transparent coating systems

Windows and door-windows in wood or wood-aluminium, shading systems (blinds, shutters), solid wood entrance doors



(1) Specific for iroko

		SOFTWOODS		HARDWOODS		
		without resin bags	with resin bags	poor in tannins and moderately durable or not very durable	rich in extracts and tannins and moderately durable	rich in extracts and tannins and durable or very durable
Passage Number		fir, pine, hemlock, pitch pine, yellow pine	larch, douglas fir, cedar	meranti, okoumè, sapelli	niangon, american oak	iroko, chestnut, teak, european oak, mfumbi
1	<b>Primer</b>	YM M031	YM M031	YM M031		
		YM M099	YM M099	YM M099	YM M099	
2	<b>Preservative wood stains</b>	YM M040/Txx	YM M040/Txx	YM M040/Txx	YM M042/Txx	YM M042/Txx
		YM M090/Txx	YM M090/Txx	YM M090/Txx	YM M092/Txx	YM M092/Txx
		YM S803/Txx	YM S803/Txx			
3	<b>Intermediate base coat</b>	YL M150	YL M150	YL M150	YL M150	YL M150
		YL M153	YL M153	YL M153	YL M153	YL M153
		YL M154/T13	YL M154/T13	YL M154/T13	YL M154/T13	YL M154/T13
		YL M190/T12	YL M190/T12	YL M190/T12	YL M190/T12	YL M190/T12
4	<b>End grain protection</b>	AY M422	AY M422	AY M422	AY M422	AY M422
	<b>“V” joint protection</b>	AP M902	AP M902	AP M902	AP M902	AP M902
5	<b>Base coat</b>	YL M214	YL M214	YL S248/T13	YL S248/T13	YL S248/T13
		YL M263/T13	YL M263/T13	YL M263/T13	YL M263/T13	YL M263/T13
		YL M268/T13	YL M268/T13			
		YL M282/T13	YL M282/T13	YL M282/T13	YL M282/T13	YL M282/T13
		YL M291/T12	YL M291/T12	YL M291/T12	YL M291/T12	YL M291/T12
					YL M277/T13 <sup>(1)</sup>	
6	<b>Top coat</b>	YO xxM317/Txx	YO xxM317/Txx	YO xxM317/Txx	YO xxM317/Txx	YO xxM317/Txx
		YO xxM329/Txx	YO xxM329/Txx	YO xxM329/Txx	YO xxM329/Txx	YO xxM329/Txx
		YO xxM370/Txx	YO xxM370/Txx	YO xxM370/Txx	YO xxM370/Txx	YO xxM370/Txx
		YO xxM390/Txx	YO xxM390/Txx	YO xxM390/Txx	YO xxM390/Txx	YO xxM390/Txx



# Outdoor joinery pigmented coating systems

Windows and door-windows in wood or wood-aluminium, shading systems (blinds, shutters), solid wood entrance door

Passage Number		SOFTWOODS		HARDWOODS		
		without resin bags	with resin bags	poor in tannins and moderately durable or not very durable	rich in extracts and tannins and moderately durable	rich in extracts and tannins and durable or very durable
		fir, pine, hemlock, pitch pine, yellow pine	larch, douglas fir, cedar	meranti, okoumè	niangon, american oak, sapelli	iroko, chestnut, teak, european oak, mfumbi
1	<b>Primer</b>	YM M099	YM M099	YM M099	YM M099	
2	<b>Preservative wood stain</b>	YM M044/Cxx or NTR	YM M044/Cxx or NTR	YM M044/Cxx or NTR	YM M044/Cxx or NTR	YM M044/Cxx or NTR
		YM M048/C02		YM M048/C02		
3	<b>Intermediate base coat</b>	YL M150		YL M150		
		YL M153		YL M153		
		YL M154/NTR		YL M154/NTR		
4	<b>End grain protection</b>	AY M422	AY M422	AY M422	AY M422	AY M422
	<b>“V” joint protection</b>	AP M902	AP M902	AP M902	AP M902	AP M902
5	<b>Base coat</b>	YL M214/C02		YL S248/C02 or NTR		
		YL M268/Cxx or NTR				
		YL M274/C02				
		YL M282/C02 or NTR	YL M282/C02 or NTR	YL M282/C02 or NTR	YL M282/C02 or NTR	YL M282/C02 or NTR
6	<b>Top coat</b>	YO xxC317/xxxxx	YO xxC317/xxxxx	YO xxC317/xxxxx	YO xxC317/xxxxx	YO xxC317/xxxxx
		YO xxC370/xxxxx	YO xxC370/xxxxx	YO xxC370/xxxxx	YO xxC370/xxxxx	YO xxC370/xxxxx

# Exterior doors transparent coating systems

Panels for armoured exterior doors and overhead doors for garages

Passage Number		MULTILAYER PANELS OR MULTILAYER VENEERED OKOUMÈ		MULTILAYER VENEERED FORMAGER		MULTILAYER OKOUMÈ
		SOFTWOODS	HARDWOODS	SOFTWOODS	HARDWOODS	
1	<b>Preservative wood stain</b>					
	- Spray	YM M036 + paste	YM M036 + paste	YM M036 + paste	YM M036 + paste	YM M036 + paste
	- Flow coating	YM M040/Txx	YM M042/Txx	YM M040/Txx	YM M042/Txx	YM M040/Txx
		YM M090/Txx	YM M092/Txx	YM M090/Txx	YM M092/Txx	YM M090/Txx
2	<b>Intermediate base coat</b>					
	- Spray		YL C341			YL C341
	- Flow coating	YL M150	YL M150			YL M150
		YL M153	YL M153			YL M153
		YL M190/T12	YL M190/T12			YL M190/T12
3	<b>Insulating base coat</b>			YL M260	YL M260	
4	<b>Base coat</b>	YL M263/T13	YL M263/T13	YL M263/T13	YL M263/T13	YL M263/T13
		YL M268/T13	YL S248/T13	YL M268/T13	YL M268/T13	YL S248/T13
		YL M291/T12	YL M291/T12	YL M291/T12	YL M291/T12	YL M291/T12
5	<b>Top coat</b>	YO xxM329/Txx	YO xxM329/Txx	YO xxM329/Txx	YO xxM329/Txx	YO xxM329/Txx
		YO xxM370/Txx	YO xxM370/Txx	YO xxM370/Txx	YO xxM370/Txx	YO xxM370/Txx
		YO xxM390/Txx	YO xxM390/Txx	YO xxM390/Txx	YO xxM390/Txx	YO xxM390/Txx





# Exterior doors pigmented coating systems

Panels for armoured exterior doors and overhead doors for garages

		MULTILAYER OKOUMÈ	MDF FOR OUTDOORS
Passage Number			
1	<b>Preervative wood stain</b>	YM M044/xxx	
2	<b>Intermediate base coat</b>		
	- Spray	YL C341	
	- Flow coating	YL M150	
3	<b>Base coat</b>	YL S248/C02 or NTR	YL M268/NTR
			YL M274/C02
4	<b>Top coat</b>	YO xxC317/xxxxx	YO xxC317/xxxxx
		YO xxM370/xxxxx	YO xxM370/xxxxx

# Outdoor structures transparent coating systems

Gazebo, grids, fences, car-port roofs, flower boxes, garden houses, park games for children, swimming pool surrounds

Passage Number		Without thickness of the coating film	Limited thickness of the coating film	High thickness of the coating film
1	Primer	YM M099	YM M099	YM M099
2	Preservative wood stain	RM 1*10	RM 1*10	
		RC 1*30	RC 1*30	
		RG 1*80	RG 1*80	
		YM M090/Txx	YM M090/Txx	YM M090/Txx
		YM M092/Txx	YM M092/Txx	YM M092/Txx
3	Preservative wood stain	RM 1*10	RM 1*10	
		RC 1*30	RC 1*30	
		RG 1*80	RG 1*80	
		YM M090/Txx	YM M090/Txx	
		YM M092/Txx	YM M092/Txx	
4	Intermediate base coat			YL M190/T12
5	Top coat		RC 2030 or RC 3030	YO xxM390/Txx
			RF 1*20	
			YO xxL073/Txx	
			YO xxC018/Txx	
6	Top coat		RC 2030 or RC 3030	YO xxM390/Txx
			RF 1*20	
			YO xxL073/Txx	
			YO xxC018/Txx	

The products with RM, RC, RF, RG codes belong to the Rio Verde line.



# Outdoor structure pigmented coating systems

Gazebo, grids, fences, car-port roofs, flower boxes, garden houses, park games for children, swimming pool surrounds

Passage Number		Limited thickness of the coating film	High thickness of the coating film
1	Primer	YM M099	YM M099
2	Preservative wood stain	RM 2010	RM 2010
		YM M044/Cxx or NTR	YM M044/Cxx or NTR
3	Primer	RM 2010	RM 2010
		YM M044/Cxx or NTR	YM M044/Cxx or NTR
4	Top coat		RL 1*40
			YO xxC317/Rxxxx
			YO xxC370/Rxxxx
5	Top coat		RL 1*40
			YO xxC317/Rxxxx
			YO xxC370/Rxxxx

The products with RM, RC, RF, RG codes belong to the Rio Verde line.

# Catas Quality Award Certifications

The production cycles of the Aquaris range boast five different Catas certifications; the largest Italian research & development institute and test laboratory for the wood-furniture sector. The institute elaborates a specific test plan in order to issue the Quality Award mark. Successively, the Catas technicians inspect the production plant, withdrawing samples to analyse and collect the relative documentation.

The Catas laboratory then performs the tests envisioned by the technical regulations.

Only after passing all of the steps of the procedure described does the Catas Certification Committee decide whether to confer the quality award. Keeping the mark means that the company must constantly check production, sending Catas punctual reports of the monitoring tests. Every year the body must also verify that the coatings comply with the previously-fixed chemical, physical and performance parameters.

## TESTS CARRIED OUT FOR ISSUE OF THE CATAS QA

### TESTS ON THE LIQUID PRODUCT

**UNI EN ISO 3251** Solids Content

**PTP CATAS** Gas-chromatographic analysis

**PTP CATAS** Effectiveness of the biocides. Growth inhibition test on agar

### TESTS ON THE APPLIED PRODUCT

**EN 927-3** Natural ageing

**EN 927-6** Artificial ageing

**CATAS method** Permeability to UV rays

**CATAS-WKI method (HO.03)** Elasticity of the film

**EN 12720** Resistance to water

**EN 927-5** Permeability to water

**EN ISO 4622** stacking or aptitude for stacking

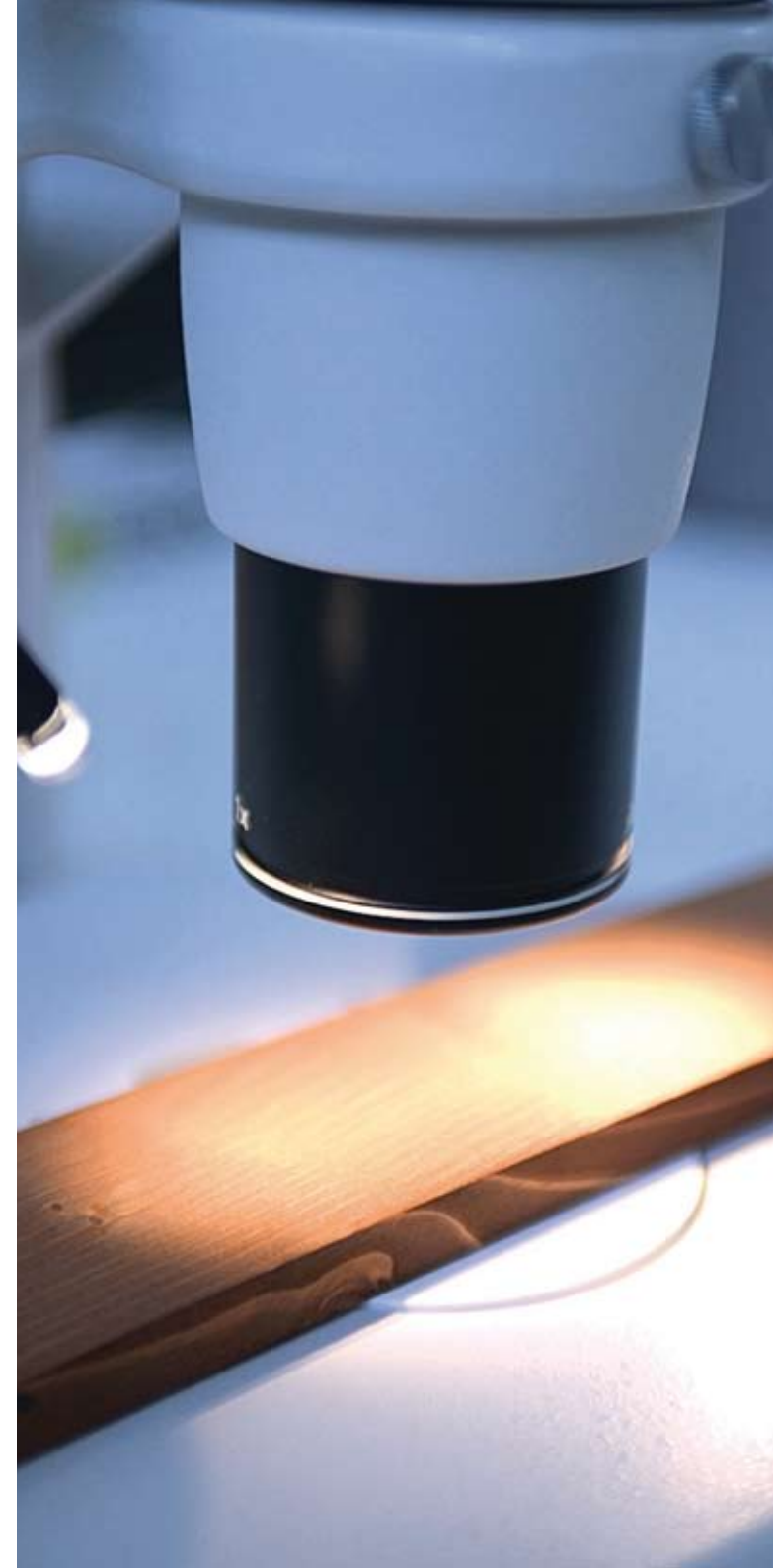




Table with requisites for the attainment of the Catas-QA and results obtained by Aquaris primers and top coats

TEST DESCRIPTION	REFERENCE STANDARD	TEST CONDITIONS	REQUISITE	CQA 14/05 YMM040/Txx YOxxM317/Txx	CQA 24/07 YMM042/Txx YOxxM317/Txx	CQA 18/05 YMM041/Txx YOxxM329/Txx	CQA 19/07 YMM090/Txx YOxxM390/Txx	CQA 25/07 YMM092/Txx YOxxM390/Txx
Natural ageing	EN 927-3		Cat. Stable (EN 927-2)	Stable	Stable	Stable	Stable	Stable
Artificial ageing	EN 927-6		Cat. Stable (EN 927-2)					
Permeability to UV rays	CATAS method	280-340 nm	< = 1%	0,75%	0,75%	0,79%	0,56%	0,56%
		280-440 nm	< = 20%	20,43%	20,43%	20,62%	12,86%	12,86%
Elasticity of the free film	CATAS-WKI method		> = 20%	215%	215%	159%	211%	211%
Resistance to water	UNI EN 12720		> = 4	4	4	4	4	4
Permeability to water	EN 927-5		< = 175 g/m <sup>2</sup>	67 ± 3 g/m <sup>2</sup>	67 ± 3 g/m <sup>2</sup>	73 ± 3 g/m <sup>2</sup>	100 ± 2 g/m <sup>2</sup>	100 ± 2 g/m <sup>2</sup>
Stacking	EN ISO 4622	At 23°C	< = 3	No defects	No defects	No defects	No defects	No defects
		At 50°C	< = 3	No defects	No defects	No defects	No defects	No defects
Biocides effectiveness	CATAS method	Brown rot	Inhibited growth	Inhibited: > 10 mm	Inhibited: 8 mm	Inhibited: 8 mm	Inhibited: > 10 mm	Inhibited: > 10 mm
		White rot	Inhibited growth	Inhibited: 2 mm	Inhibited: 1 mm	Inhibited: 0 mm	Inhibited: 6 mm	Inhibited: 7 mm
		Blueing	Inhibited growth	Inhibited: > 10 mm	Inhibited: > 10 mm	Inhibited: > 10 mm	Inhibited: > 10 mm	Inhibited: > 10 mm

# Cleaning and renewing outdoor joinery

Periodical cleaning and renewal of the film of coating are the basis of long duration of the joinery. The Renner Italia maintenance kit is particularly suitable for entry doors, windows, blinds and shutters coated with transparent and pigmented systems. Using the neutral water-based detergent **T.Clean RR1050** and the water-based reviving toner **T.Top+ RR1250**, both in the **Rio Verde line**, the wooden items will not age.

## CLEANING

**Objective.** Cleaning windows and shutters exposed to outdoor is the first important operation to be performed for correct maintenance. Acid rain, atmospheric pollution and saline environments accelerate the decay process of the coating. The removal of greasy materials, smog dust and anything else deposited on the film already represents great care of the window.

## T.CLEAN DETERGENT

**Material** Water-based neutral detergent T.Clean RR1050, cloth in micro fibre.

**Method of use** Spray the detergent onto the surface of the window. Now dry using a cloth.

**Frequency** Every six months in normal conditions, before the winter period and before the summer period. In the case of particularly aggressive environments cleaning must be intensified.



## RENEWAL

**Objective.** It is an operation to be performed on films in good state, i.e. not yet damaged (no cracks or flaking). The aim is to take the protective external layer back to its original aspect and make the item more waterproof.

### T.TOP+ WOOD-REVIVER

**Material** T.Top+ RR1250 water-based toner, cloth in micro fibre.

**Method of use** After careful cleaning, sanding is not required. Wet the micro fibre cloth with T.Top+, distribute the product over the entire surface of the window with circular movements of the hand and leave to dry. Do not apply T.Top+ on rainy days or when the items are exposed to direct sunlight. RR1250 must be applied on both sides of the items to be treated. When used on windows, only the outdoor side must be treated.

**Frequency** Every six months.  
Before the winter and before the summer.



Cleaning and renewal kit realised by Renner Italia for Icif

# General recommendations

**Storage** The water-based products must be kept in rooms with temperatures between 5 and 35°C.

**Application** In the application area the temperature must be at least 15°C both for the substrate and environment.  
The water-based coatings can be used with normal coating equipment provided, they are suitable for contact with water.

	Dilution (%)	Nozzle (mm)	Pressure of the product (bar)	Atomisation pressure (bar)
Flow coating	Ready for use	1-2	1-2	-
Tank (dipping)	Ready for use	-	-	-
Cup spray gun	6-10	From 2.5 to 2.8	-	About 4
Airmix	2-6	0,011 (0,28) 0,013 (0,33)	From 80 to 100	From 0.5 to 1
Airless	2-6	0,011 (0,28) 0,013 (0,33)	From 80 to 100	

**Drying** It must take place in well-ventilated rooms with a temperature of at least 15°C. The relative humidity of the air is also important: optimal drying conditions are obtained for values between 40 and 70%.

To reduce product drying time the following solutions can be used:

- › the use of forced circulation air
- › the use of air heated to between 35 and 40°C
- › heating plates, IR or long waves
- › microwave ovens
- › the use of a pre-heater for the top coat

**Packaging materials** Do not use expanded polystyrene, bubble wrap, undulated cardboard and plastic material film containing plasticizing substances. A preventive test is always recommended with the material that is to be used.

**Coating residues** The application equipments must be washed with water immediately after use. If dry film of coating must be removed, use AY--M460 and remove it after one night. Then rinse with water. The coating residues (washing water, booth water, waste coating) must be disposed of according to the local regulations in force. Do not throw residues into the drain system.

**Cleaning** Do not use aggressive chemical detergents (i.e. containing ammonia or alcohol) to clean items coated with water-based products.

**Gaskets and silicones** It is recommended to use PVC-based gaskets and silicones with acetic reticulation. A preventive test is always recommended.

**Expiry** Twelve months in optimal storage conditions.



**RENNER**  
**WOOD COATINGS**



**Renner Italia S.p.A.**

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