



COATINGS FOR
BATHROOM FURNITURE

IN COMPLIANCE
WITH **UNI**
REGULATION
11216 AND
FIRA 6250

Minimum requirements for bathroom furniture are indicated in the following table:

TEST	TESTING METHOD	UNIT OF MEASURE / CLASS / LEVEL	MINIMUM REQUIREMENTS	
			Horizontal surfaces	Vertical surfaces
Scratch resistance	UNI 9428	N	≥ 0.6	≥ 0.6
Resistance to temperature fluctuations	UNI 9429	Level	5	5
Dry heat resistance	UNI EN 12722	Class according to UNI 10944	/	/
Wet heat resistance	UNI EN 12721	Class according to UNI 10944	E	/
Adhesion per dry coating thickness ^{a)} 1) thickness ≤ 0.250 mm – cross-cut test 2) thickness > 0.250 mm – traction test	UNI EN ISO 2409 UNI 9240	ISO Scale MPa	≤ 1 $\geq 1.2^{b)}$	≤ 1 $\geq 1.2^{b)}$
Surface resistance to cold liquids	UNI EN 12720	Class according to UNI 10944	C	D
Surface resistance to light: Light lacquers ^{c)} Dark lacquers ^{d)} Light colour wood ^{e)} Dark colour wood ^{f)}	UNI 9427	Grey Scale Grey Scale Grey Scale Grey Scale	4/5 ^{g)} 5 ^{h)} 2/3 4	4/5 ^{g)} 5 ^{h)} 2/3 4
Tendency to retain dirt	UNI 9300	Level	4	4

a) Thickness as measured according to UNI EN ISO 2808.

b) The requirement is not applicable if the test determines the delamination of the panel with a force < 1.2 MPa.

c) Light lacquer with a value of $Y \geq 15$ as measured according to UNI 8941-2.

d) Dark lacquer with a value of $Y < 15$ as measured according to UNI 8941-2.

e) By "light wood" is meant a coated wooden surface with a value of $Y \geq 15$ as measured according to UNI 8941-2.

f) By "dark wood" is meant a coated wooden surface with a value of $Y < 15$ as measured according to UNI 8941-2.

g) Potential variations in colour can be instrumentally carried out according to UNI 8941-3.

The requirement in accordance with UNI EN ISO 105-A05 is: $0.40 \leq \Delta E_f < 1.25$.

h) Potential variations in colour can be instrumentally carried out according to UNI 8941-3.

The requirement in accordance with UNI EN ISO 105-A05 is: $\Delta E_f < 0.40$.



COATINGS FOR **BATHROOM** FURNITURE

IN COMPLIANCE WITH **UNI REGULATION 11216**
Performance requirements for painted wood surfaces



UNI regulation 11216 defines performance standards for the finish; this allows users of the coatings to offer their customers a performance guarantee (for example, durability over time without deterioration or variation in colour gloss, scratch resistance, etc.).

UNI (Italian Unification Agency) is an association made up of over 7,000 associates (companies, freelancers, certification bodies, etc.) which passes regulations: texts defining product characteristics (performance, safety, environmental, etc.) that are the result of work by tens of thousands of experts in Italy and the world. The regulations in question are voluntarily and not mandatorily enforced, but play a highly important role in certifying the quality of products (one thinks for instance of the international ISO certifications).



Sayerlack considers it essential to guarantee to its clients products of the highest quality. To this end it has decided to test the quality of its products, carrying out, within the Research and Development Laboratory, all tests provided for by the UNI 11216 regulation. Assessment criteria were identical to those used by the foremost certifying bodies, with which Sayerlack continually collaborates.

The laboratory tests have enabled the selection of a series of coating systems that are in compliance with the regulatory standard.



The regulation provides for various performance requirements, distinguishing three categories depending on target use: kitchen, bathroom, living-room and bedroom furniture. Each category comprises various performance requirements, depending on whether the surfaces in question are horizontal or vertical. In addition, domestic kitchen furniture is covered by specific performance requirements relating to worktops.

The performance features of the products are ensured by laboratory tests. UNI Regulation 11216 takes into consideration the following characteristics: scratch resistance, resistance to fluctuations of temperature, resistance to dry heat, resistance to wet heat, cross-cut, adhesion through traction, resistance to cold liquids, resistance to light, tendency to retain dirt.

Description of laboratory tests carried out

Determination of scratch resistance (UNI 9428)

The value of scratch resistance is evaluated through determining the minimum load necessary, expressed in Newton, applied to a diamond tip, for the production of a visible, continuous circular mark on the surface of the prototype, fixed on a rotating plate with a velocity of 0.5 revolutions per minute.



Determination of surface resistance to fluctuations of temperature (UNI 9429)

Coated substrates are subjected to a heat system with temperatures and profiles set by the regulatory standard, and any alterations of the surfaces being tested are visually assessed.



Measurement of surface resistance to dry heat (UNI EN 12722)

The resistance of surfaces to dry heat is measured.

A standardised block of aluminium alloy is placed, at a specified testing temperature, in direct contact with the surface of the panel being tested. After a specified length of time the block is removed and, after 16 hours have elapsed, any potential signs of damage to the area being tested are assessed.

Measurement of surface resistance to wet heat (UNI EN 12721)

The resistance of surfaces to wet heat is measured.

A standardized block of aluminum alloy is placed, at a specified testing temperature and for a specified length of time, on top of a damp cloth that is in contact with the surface of the panel being tested.

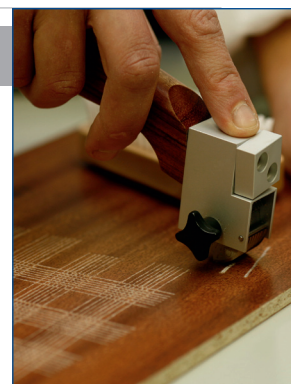
After 16 hours, any signs of damage to the area being tested are assessed.

Measurement of adhesion through cross-cut (UNI EN ISO 2409)

This test is carried out on surfaces covered with a coating film with a thickness of less than 250 μm . The test consists in applying a surface grid, composed of cross-cuts, onto the specimen surface, using appropriate sharp-bladed instruments.

The choice of the most suitable instrument (variable spacing between the blades of 1 mm, 2 mm e 3 mm) depends upon the type of substrate and on the thickness of the coating film.

Calibrated adhesive tape is applied to the grid; the tape is then removed by being torn off; a visual assessment is then made of the amount of material removed. The six-level classification quoted by the regulatory standard is used.



Measurement of adhesion through traction (UNI 9240)

In contrast to the previous test, this test is carried out on surfaces to which coatings with a greater thickness are applied (coating films above 250 µm).

Adhesion of topcoats to the substrate is assessed with a traction test that determines the force necessary to tear off appropriate aluminium cylinders previously glued on.



Measurement of surface resistance to cold liquids (UNI EN 12720)

The prototypes are left in contact with a series of staining substances in common use in daily life (coffee, olive oil, ammonia solution, etc) according to durations and conditions of contact specified by the regulation.

The prototypes are subsequently washed and examined in order to check any stains remaining on the surface.

The classification is in relation to the resistance capacities of coated surfaces in the event of contact with chemical substances classified in six groups (from A to F).

Determination of surface resistance to light (UNI 9427)

Resistance to light is determined by exposing a prototype to radiations produced by an artificial source with features characteristic of a stable system, reproducing and verifying any potential variations in surface colour brought about by sunlight.

The test is carried out in a room containing a Xenon lamp, whose light is filtered through two boron-silicate filters (in order to simulate the effect of being behind glass).

In accordance with the regulation, exposure lasts 20 hours, at the end of which the specimen is assessed by at least three expert observers with the use of D65 lamps, who compare the zone exposed to the light with a non-exposed zone.

The contrast obtained is compared with the grey scale (G/S) in accordance with ISO regulation 105 A 02; a "light/dark" scale that goes from 1 (considerable contrast, hence considerable colour variation) to 5 (no visible variation).

The test is repeated on a specimen made of a white tile on which the coating is applied, in order to demonstrate that the coating does not yellow.

Determination of surface tendency to retain dirt (UNI 9300)

An appropriate mixture (carbon black or titanium dioxide in paraffin oil suspension) is rubbed onto the surface being tested, and, after a thorough cleaning of the surface with a specified detergent solution is carried out, the residual dirt is measured.

At the end of the test, a visual assessment is made and a test grade is assigned in relation to the effect obtained.

SYSTEMS IN COMPLIANCE WITH UNI REGULATION 11216

WATER BASED COATING SYSTEMS

Horizontal and vertical surfaces

Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 472/00 + 10% AH 1545/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00
Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 472/00 + 10% AH 1545/00
Topcoat	AT 99**/NN + 1% XA 4080/00 + 3% XA 4095/00
Stain	AP 1221/XX
Basecoat (2 coats)	AU 472/00 + 10% AH 1545/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00
Stain	AP 1221/XX
Sealing Basecoat (2 coats)	AU 476/00 + 10% AH 1550/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00
Stain	AP 1221/XX
Basecoat (2 coats)	AU 465/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00
Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 472/00 + 10% AH 1545/00
Topcoat	AF 72**/00 + 1% XA 4080/00 + 3% XA 4095/00

WATER BASED COATING SYSTEMS

Horizontal and vertical surfaces

Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 465/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00

MIXED SYSTEMS

Horizontal and vertical surfaces

Stain	AP 1221/XX
Basecoat (2 coats)	AU 472/00 + 10% AH 1545/00
Topcoat	TZ 36**/00 + 70% TH 759/00

MIXED SYSTEMS

Horizontal and vertical surfaces

Basecoat (2 coats)	TU 54/00 + 20% TH 790/00
Topcoat	TZ 93**/00 + 20% TH 790/00
Sealer	TU 250/00 + 10% TH 790/00
Basecoat (2 coats)	PU 6019/00 + 2% PH 888/00 + 2% PH 999/00
Topcoat	TL 335/00 + 80% TH 735/00
Basecoat (2 coats)	TU 4132/00 + 50% TH 727/00
Topcoat	TZ 62**/00 + 70% TH 759/00
Basecoat (2 coats)	TU 4132/00 + 50% TH 727/00
Topcoat	TZ 90**/00 + 50% TH 773/00
Sealer	TU 250/00 + 10% TH 790/00
Basecoat (2 coats)	PU 361/13 + 2% PH 888/00 + 2% PH 999/00
Topcoat	TL 335/A1 + 80% TH 735/00
Sealer	TU 250/00 + 10% TH 790/00
Basecoat (2 coats)	PU 361/13 + 2% PH 888/00 + 2% PH 999/00
Topcoat	TZ 88**/A1 + 70% TH 759/00
Sealer	TU 250/00 + 10% TH 790/00
Basecoat (2 coats)	PU 637/13 + 2% PH 888/00 + 2% PH 999/00
Topcoat	TL 335/A1 + 80% TH 735/00
Sealer	TU 250/00 + 10% TH 790/00
Basecoat (2 coats)	TU 148/13 + 40% TH 780/00
Topcoat	TZ 88**/A1 + 70% TH 759/00

SOLVENT BASED COATING SYSTEMS

Vertical surfaces

Sealer	TU 250/00 + 10% TH 790/00
Basecoat (2 coats)	TU 160/00 + 50% TH 727/00
Topcoat	TZ 37**/00 + 50% TH 711/00
Basecoat (2 coats)	TU 4132/00 + 50% TH 727/00
Topcoat	TZ 29**/00 + 50% TH 773/00

WATER BASED UV COATING SYSTEMS

Horizontal and vertical surfaces

Basecoat	RA 355/00
Topcoat	AR 70**/00

SOLVENT BASED UV COATING SYSTEMS

Horizontal and vertical surfaces

Sealing Basecoat	RU 382/00
Basecoat (2 coats)	RU 362/00
Topcoat	RZ 1710/00
Sealing Basecoat	RU 382/00
Basecoat (2 coats)	RU 7523/00
Topcoat	RZ 38**/00
Basecoat (2 coats)	RU 7424/13
Topcoat	RL 8805/74
Basecoat (2 coats)	RU 7424/13
Topcoat	RL 8857/13

Certain coating systems on which tests were carried out yielded optimum performance results, close to the level required by the regulation.

The systems in question are ones that do not yet conform to UNI Regulation 11216 but are recommended by Sayerlack, insofar as over 95% of the tests carried out satisfy the performance requirements called for.

WATER BASED COATING SYSTEMS

Horizontal surfaces

(for vertical surfaces, the systems are in compliance with the regulation)

Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 465/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00

WATER BASED COATING SYSTEMS

Horizontal and vertical surfaces

Stain	AP 1221/XX
Self-Sealer (3 coats)	AF 60**/00 + 10% AH 1547/00
Basecoat (2 coats)	AU 472/13 + 5% AH 1550/00
Topcoat	AT 96**/NN + 1% XA 4080/00 + 3% XA 4095/00 + XA 2006/XX
Basecoat (2 coats)	AU 472/13 + 5% AH 1550/00
Topcoat	AT 96**/BB + 1% XA 4080/00 + 3% XA 4095/00 + XA 2006/XX

WATER BASED COATING SYSTEMS

Vertical surfaces

Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 472/00 + 10% AH 1545/00
Topcoat	AT 48**/00 + 10% AH 1545/00
Stain	AP 1221/XX
Sealing Basecoat (2 coats)	AU 476/00 + 10% AH 1550/00
Topcoat	AT 48**/00 + 10% AH 1545/00
Stain	AP 1221/XX
Sealer	AU 476/00 + 10% AH 1550/00
Basecoat	AU 465/00
Topcoat	AT 48**/00 + 10% AH 1545/00

MIXED SYSTEMS

Horizontal and vertical surfaces

Stain	AP 1221/XX
Sealing Basecoat (2 coats)	AU 476/00 + 10% AH 1550/00
Topcoat	TZ 36**/00 + 70% TH 759/00

MIXED SYSTEMS

Vertical surfaces

Basecoat (2 coats)	TU 325/00 + 100% TH 146/00
Topcoat	AF 60**/00 + 10% AH 1547/00
Stain	AP 1221/XX
Basecoat (2 coats)	TU 4132/00 + 50% TH 780/00
Topcoat	AT 99**/NN + 1% XA 4080/00 + 3% XA 4095/00
Stain	AP 1221/XX
Basecoat (2 coats)	TU 4132/00 + 50% TH 780/00
Topcoat	AF 72**/00 + 1% XA 4080/00 + 3% XA 4095/00

MIXED UV SYSTEMS

Horizontal and vertical surfaces

Sealer	RU 382/00
Basecoat (2 coats)	RU 362/00
Topcoat	AR 77**/00

For the correct production of the coating systems listed in this brochure, please refer to the products Technical Data Sheets or contact Sayerlack Technical Service.

Clear water based Lacquers FIRA 6250 - TEST RESULTS

TEST	FIRA 6250 severe test standards	AF 7220 no. XA 4080	AF 7240 + 1% XA 4080	AT 9930 no. XA 4080	AT 9930 + 0,5% XA 4080	AT 9930 + 1% XA 4080	AU 472 + AT 4820 + 10% AH 1550
Crosscut	4	4	5	4	4	4	5
Scrape, Surface Penetration	3	4	5	4	3	4	3
Penetration to substrate	4	4	5	5	3*	4	4
Impact	3	5	5	5	4	4	4
Wet Heat 55°C	3	5	5	5	5	4	3
Wet Heat 70°C	2	5	5	4	4	4	3
Wet Heat 85°C	2	4	5	3	3	3	3
Dry Heat 85°C	3	5	5	3	3	3	3
Dry Heat 100°C	3	5	5	3	3	3	3
Acetone	3	3	2*	3	4	4	4
Ethanol 96% / Toilet Spirit	3	3	5	3	4	4	4
Ethanol 48% / Potable Spirit	4	3*	5	3*	4	4	4
Tea	5	5	5	5	5	5	5
Coffee	5	5	5	5	5	5	5
Cold Oils	4	5	5	5	5	5	5
Cold Fats	4	5	5	5	5	5	5
**Disinfectant / Phenol	3				5	5	
**Disinfectant / Chloro	3				5	5	
**Paraffin Oil	3				5	5	
**Blackcurrant Juice	3				5	5	
**Ammonia	3				2*	2*	
**Acetic Acid	3				5	5	
**Olive Oil	3				5	5	

**** Bathroom test specification**
***Signifies below level required**

SEVERE
PASS

SEVERE
PASS

SEVERE
PASS

SEVERE
PASS

SEVERE
PASS

SEVERE
PASS

Test allows for two 1 point failures and still qualifies for severe rating.

PRODUCT KEY

AF 72** RANGE	Water based Self Crosslinking Topcoat (and Coat on Coat) Clear
AT 99** RANGE	Water based High Build Self Crosslinking Topcoat Clear and White
AT 48** RANGE	NEW water based 2 pack Polyurethane Clear and White



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