



WATER-BASED COATINGS FOR ACCOYA® WOOD

QUALITY BY THE LIGHT OF THE SUN





WATER-BASED COATINGS FOR ACCOYA® WOOD
QUALITY BY THE LIGHT OF THE SUN



PROVEN EXPERIENCE AND QUALITY

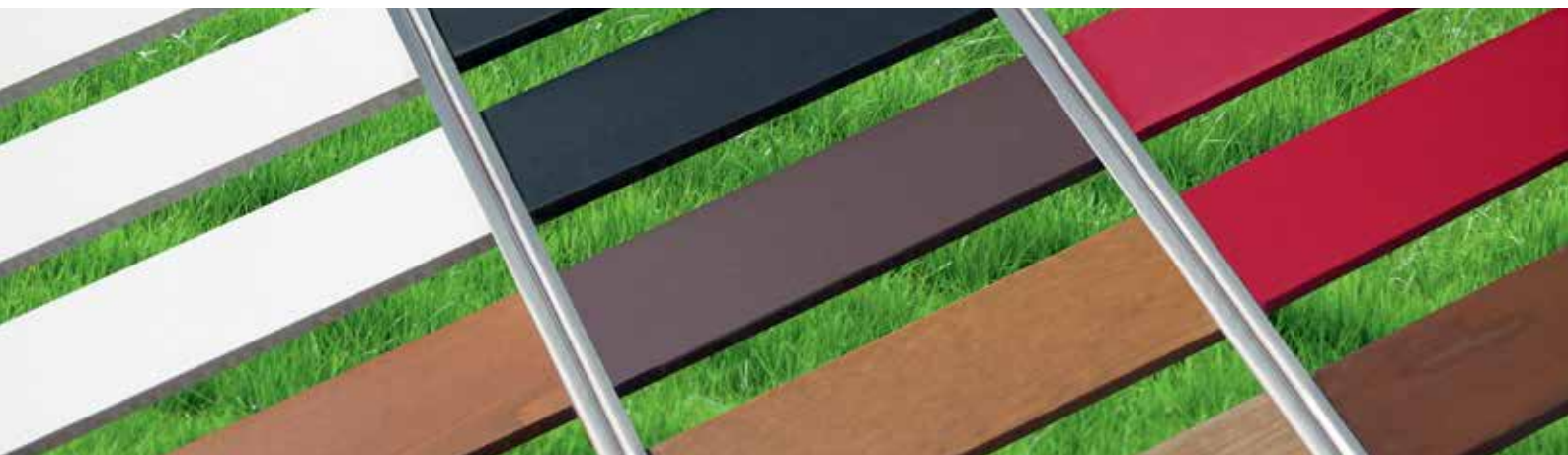
ICA has been developing water-based coatings for outdoors wooden surfaces for over 30 years. Thanks to its great experience, it is able to select the best raw materials and optimize the most appropriate formulations for their application.

ICA employs performance and quality tests to certify its products' service life and guide the development of new solutions.

Along with laboratory testing, which provides essential information in a relatively short time, ICA also runs **natural weathering tests at various sites**.

The **ARBOREA SUN** project, which analyzes the performance of ICA outdoors water-based coatings, was born in 2010 in collaboration with ICA's technology partner **Q-Lab**, an accredited materials testing laboratory.

This project allowed to assess the durability of various coating cycles when applied to different woods.



ACCOYA® WOOD

Accoya® is a molecularly modified acetylated wood. The wood is made to react with acetic anhydride, derived from acetic acid (which, in its diluted form, is kitchen vinegar), to change its natural chemical composition.

This process greatly reduces the capacity of the wood to absorb water, giving it **increased dimensional stability and outstanding durability**.

Altering the chemical structure of the wood, rather than simply changing its chemical content, effectively yields a new type of wood – an innovative material that doesn't require any protective treatment.

Accoya® is produced using sustainable sources with a patented **Accsys** procedure which ensures responsible forestry management.



WHY CHOOSE ACCOYA®

Multiple weathering tests run by external accredited laboratories have shown that ICA coating cycles on Accoya® wood guarantee **extraordinary performance**.

Other benefits:

- Flexible processing
- Customization with a wide range of effects and colors
- Excellent aesthetic results, using low opacity top coats
- The wood can be brushed
- Long-lasting coating
- Easy cleaning and renewal with Easy Coat water-based conditioner

KEY FEATURES



DIMENSIONALLY
STABLE



OUTSTANDING
DURABILITY



IDEAL
FOR COATING



BAREFOOT
FRIENDLY



NATURALLY
INSULATING



EXCELLENT
MACHINABILITY



INSECT
BARRIER



CONSISTENT
QUALITY
THROUGHOUT



NATURALLY
BEAUTIFUL
WOOD



FROM
SUSTAINABLE
SOURCES



RETAINED
STRENGTH
& HARDNESS



NON-TOXIC
& RECYCLABLE

ACCOYA® AND ARBOREA BIO FOR A SUSTAINABLE FUTURE

Accoya® wood is a high quality choice which also **fully supports environmental sustainability requirements**. Accoya® wood products generally last longer than the time required to grow the trees used in making the material, and thus reduces atmospheric CO₂ emissions in comparison with other types of wood.

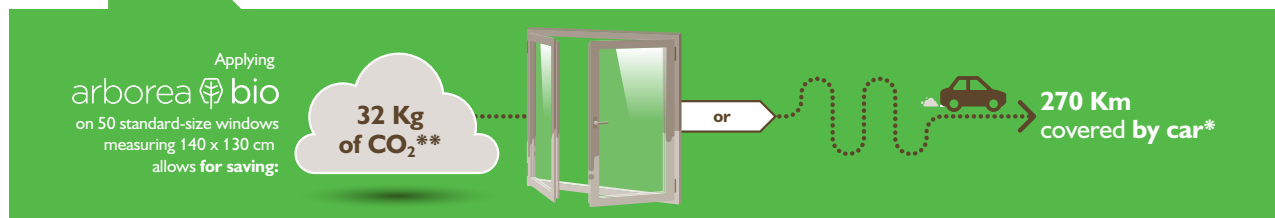
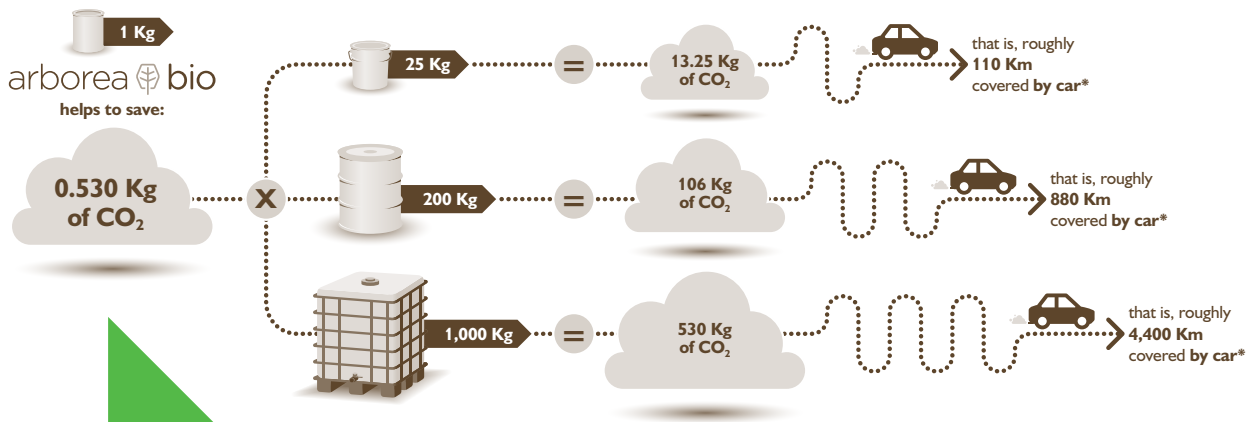
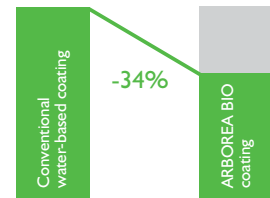


The **ARBOREA BIO** water-based coatings line, made with renewable materials deriving from an innovative refining process which converts waste vegetable matter that is not fit for human consumption, when applied to Accoya® wood, further reduces CO₂ emissions thanks to its special formulation which assures a certified content of renewable raw materials. ARBOREA BIO products boast a **Carbon Footprint** which is 34% lower than that of conventional water-based coatings.

Carbon Footprint:
Conventional water-based coating v. ARBOREA BIO on Accoya® wood

Using 1000 kg of ARBOREA BIO, compared with the same amount of a conventional water-based coating, saves 530 kg of CO₂ emissions, which is the same amount of carbon dioxide emitted by a car in 4,454 km.

The combination of ICA coatings and Accoya® wood thus reduces the environmental impact of outdoors wooden products and frames and shutters as never before, with **guaranteed service life and unequalled beauty**.



*The calculation was made using the mean value of 119.5 g of CO₂/km emitted by a newly registered car according to EEA Report No. 27/2016.

**Calculated on reference product LA321IBIO, including overspray.

ACCELERATED WEATHERING PER EN 927

The **accelerated weathering test** per **EN 927** was repeated successfully two times, for a total of 4,032 hours.

When a cut is made into the coating layer, Accoya® wood passes the test with flying colors, while other woods suffer detachment of the coating and color changes in the vicinity of the cut before the test is completed.

TEST RESULTS IN COMPARISON



PINE

FIR

OAK



NATURAL ACCELERATED WEATHERING IN ARIZONA

To check the effectiveness of its coating cycles in the most extreme conditions of environmental exposure, ICA subjected its products to **accelerated weathering in the Arizona desert** at the **Q-Lab** test station.

The **hot and dry climate** of Arizona is characterized by very intense sunlight, very high temperatures at night, which can reach as much as 46°C during the summer, and very low rainfall and humidity. Furthermore, the nights are generally cold, and the constantly varying temperatures severely stress both the wood and its coating.

These were the conditions used for the **Q-TRAC** accelerated weathering tests with a number of coating cycles on Accoya®.

This test method uses mirrors to direct the sunlight onto the test panel, to further stress the coating layer.

The system ensures that the amount of sunlight is kept constant throughout the day by mechanically following the direction of sun for maximum exposure. During the night, on the other hand, the test sample is misted with water vapor at regular intervals to simulate rainfall.



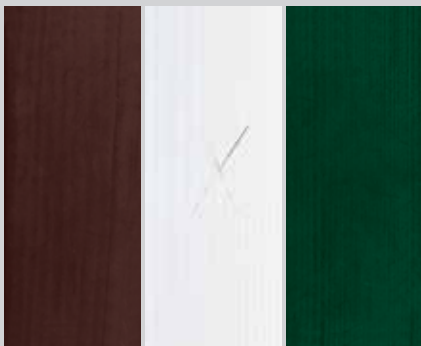
Q-TRAC ON TRANSPARENT AND LACQUERED CYCLES

In outdoors exposure, the type of wood used is a decisive factor for the duration of the coating cycle. ICA's transparent and lacquered cycles, when subjected to the stress generated by the combined action of sunlight and water in the Arizona desert, passed the Q-TRAC test with flying colors when applied to Accoya® wood.

On other woods, such as non-acetylated pine, the lacquered cycles passed the test without damage, unlike the transparent ones. This is because if the substrate is effectively shielded from the sunlight, as is the case with lacquered cycles, or is highly resistant by its very nature, like Accoya®, the coating will last much longer.

Since the Q-TRAC test is much more severe than the EN 927 test, it may happen that coating cycles which are perfectly compliant with European standards do not pass the test run in the drastic conditions of the Arizona desert.

TEST RESULTS IN COMPARISON



PINE



PINE



accoya®

EXAMPLES OF ICA COATING CYCLES ON ACCOYA®

APPLICATION TO FRAMES AND SHUTTERS

Cycle with colored impregnating agent

- **IM538C37** ARBOREA NATURAL MATTER Semi-matte water-based impregnating agent (Cannella color - Cinnamon brown)
- **FA34** Monocomponent water-based base coat for outdoors applications
- **LA321IBAG20BIO** Transparent BIO water-based matte top coat for outdoors applications (20 gloss) + 5% IM538C37

Lacquered cycle

- **IM479B** White water-based impregnating agent
- **FA557B** White water-based base coat
- **LA321IBG20BIO** White BIO water-based matte top coat for outdoors applications (20 gloss)

Metallic cycle

- **IM479B** White water-based impregnating agent
- **FA557B** White water-based base coat
- **LA321VM81BIO** ARBOREA METAL BIO water-based top coat with metallic effect (Cioccolato color - Chocolate brown)



EXAMPLES OF ICA COATING CYCLES ON ACCOYA®

APPLICATION TO **DECKING**

Cycle with aged wood effect

- **IM764NG** NATURAL GRAY Impregnating agent/top coat - 2 coats

Metallic cycle

- **IM764VM80** ARBOREA METAL Water-based impregnating agent/top coat with metallic effect (Marrone Pallido color - Pale Brown) - 2 coats

Transparent cycle

- **TOPDECK** High coverage water-based impregnating agent/top coat - 2 coats



EXAMPLES OF ICA COATING CYCLES ON ACCOYA®

APPLICATION TO CLADDING

Cycle with aged wood effect

- **IM764NG** NATURAL GRAY Impregnating agent/top coat - 2 coats

Metallic cycle

- **IM479B** White water-based impregnating agent
- **FA557B** White water-based base coat
- **LA321VM72BIO** ARBOREA METAL BIO Water-based top coat with metallic effect (Grigio Ombra color - Umbra grey)

Lacquered cycle

- **IM479B** White water-based impregnating agent
- **FA557B** White water-based base coat
- **LA321IBIO/R9010** Pigmented BIO water-based top coat (RAL9010 color)

Cycle with colored impregnating agent

- **IM538C39** ARBOREA NATURAL MATTER Semi-matte water-based impregnating agent (Pepe Bianco color - White Pepper)
- **FA34** Monocomponent water-based base coat for outdoors applications
- **LA321IBAG20BIO** Transparent BIO water-based matte top coat for outdoors applications (20 gloss) + 5% IM538C39

Note:

To reduce moisture absorption into frame edges or end grains, it is recommended to apply the **SA10** transparent, water-based, monocomponent sealer, by brush or spatula, or the **SA11**, using a thin-tipped dispenser.



CARING FOR WOOD

ICA coating cycles offer outstanding, long-lasting protection for wood.

To keep the coating looking good, **EASY COAT** ready-to-use water-based transparent conditioner is recommended.

EASY COAT, when used regularly, prevents the coating layer weathering and extends its protective power, thus postponing the need for maintenance.



ICA SpA

Via Sandro Pertini 52
62012 Civitanova Marche (MC) Italy
Tel. +39 0733 8080
Fax +39 0733 808140
info@icaspa.com

www.icaspa.com

