tricoya®

High-performance exterior MDF

IMAGINE HAVING
AN MDF PANEL
TRULY DURABLE AND
SUFFICIENTLY STABLE
FOR OUTSIDE USE.

WITH OR WITHOUT
COATINGS IT
WOULD ENABLE EASY
MANUFACTURING AND
USE IN APPLICATIONS
NOT PREVIOUSLY
ENVISIONED FOR MDF.

IMAGINE TRICOYA®.

tricoya®




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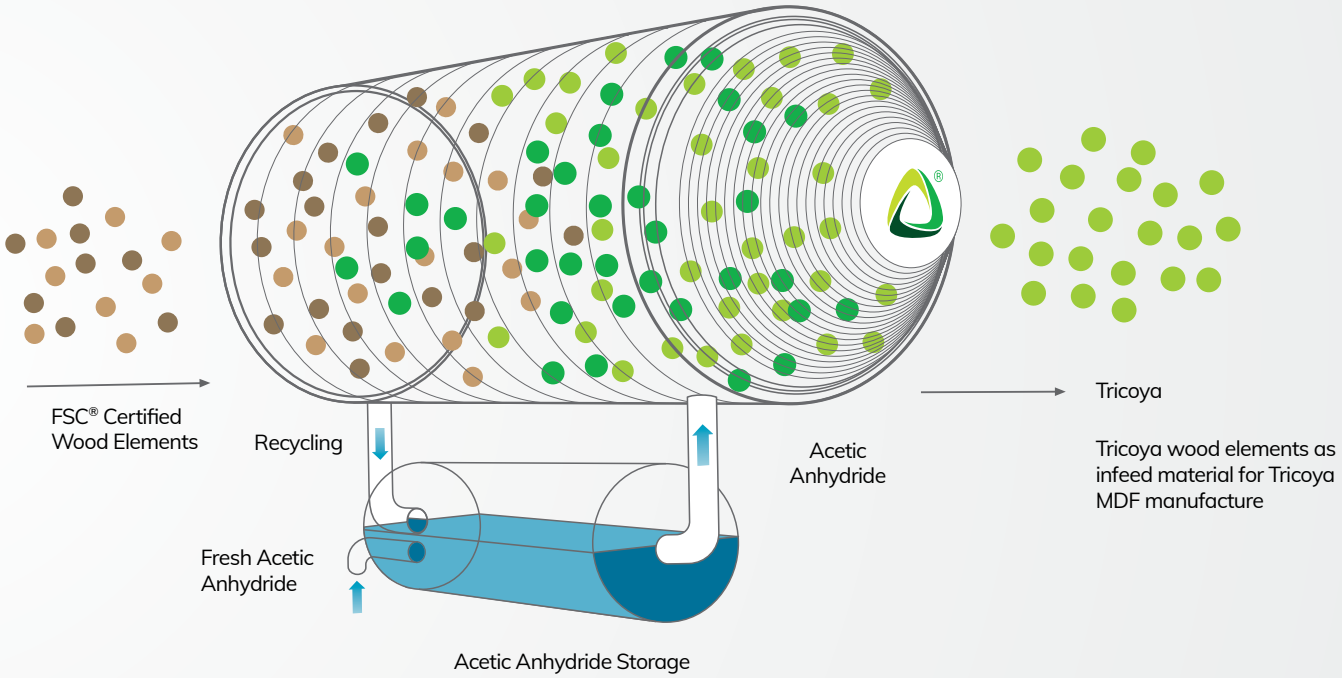
ABOUT THE PANEL

Tricoya is the world's leading high-performance exterior MDF panel. Benefitting from the same industry leading performance credentials as Accoya, Tricoya offers unrivaled durability and dimensional stability. This makes Tricoya the ideal material for exterior applications, whatever the climate. Offering ultimate design freedom for product manufacturers, contractors, and architects alike, Tricoya has been setting the industry benchmark since 2012.

Tricoya was originally developed by challenging the most fundamental reason for wood swelling: water absorption by hygroscopic wood fibers due to the presence of hydroxyl groups. The hydroxyl groups (water absorbing sites) can bind or release water molecules, causing wood to swell or shrink.

To enhance the properties of wood in a sustainable manner, Accsys Technologies applies a revolutionary acetylation process, which has been proven on Accoya solid wood since 2007. By acetylating wood using acetic anhydride the number of naturally occurring hydrophobic acetyl groups in the wood cells are increased. The acetylation process converts hydroxyl groups (chemical formula: -OH) into acetyl groups (chemical formula: $-COCH_3$), thereby preventing water absorption at these sites, and thus enhancing the dimensional stability and durability of the wood.



Apart from creating exceptional dimensional stability, the acetylation process enables Tricoya to achieve Class 1 durability, leading to a biological decay resistance which exceeds oak and tropical wood species including Burmese teak in extended in-ground graveyard trials in accordance with AWPA E7 methods.

Tricoya offers a solution for specifiers and consumers to be used in environments of wet, high humidity or fully weather exposed applications, which delivers superior performance in a versatile large panel form.

Tricoya wood chips are refined at the MDF mill, and the resulting fibers are mixed with a zero formaldehyde resin to produce a No Added Formaldehyde (NAF) finished product.

TRICOYA PANEL BENEFITS

HIGHLY DURABLE

Longer lasting, perfect for outdoor use or wet (interior and exterior) environments

HIGHLY STABLE

Swelling and shrinking dramatically reduced

BESPOKE OPTIONS

All the design, machining and assembly flexibility of medium density fiberboard

50 YEAR WOOD WARRANTY

Peace of mind with a 50 year Tricoya warranty above ground and 25 years in ground

VERY LOW MAINTENANCE

Extended periods between exterior coatings maintenance

IDEAL FOR COATINGS

Improved stability and durability enhances the service life of the coating. Damaged coating will not affect the panel warranty

SUSTAINABLY SOURCED

Sustainably sourced from FSC® certified forests and Cradle to Cradle Certified® Silver

INSECT RESISTANT

Effective barrier to fungal decay

NON TOXIC

Tricoya® complies with CARB 93120 for Phase 2 and NAF requirements

FSC www.fsc.org FSC® C012330 The mark of responsible forestry

CERTIFIED cradle to cradle SILVER

PROPERTIES

Tricoya creates a new class of wood based panel products with Class 1 Durability and exceptional dimensional stability, suitable for a wide range of exterior applications such as doors siding, façade paneling, trim, fascia's, soffits, etc. Tricoya can be cut, machined and installed using techniques and equipment commonly used throughout the building industry and requires low maintenance thereafter. The flexibility of Tricoya offers endless design opportunities so that it can be cut to size, machined CNC cut, painted, routed, and wrapped without impacting its unique properties.

Moisture content

Tricoya is supplied with a moisture content below 5%, when conditioned at ambient conditions (70°F and 65% RH). An indicative measurement of the moisture content should be made before installation. If a measurement shows a moisture content of 8% or more, this may indicate the presence of "free water" and the Tricoya should be allowed to dry before processing, gluing or coating. Tricoya siding should be installed with a ventilated cavity.

Reports and certificates

Timber Products Inspection, Georgia USA have completed in-ground graveyard tests (AWPA E7) on uncoated Tricoya for 32 months in the Ground at their Gainesville Florida Site. Tricoya showed no degradation at the 32 month inspection period, while initial decay and termite attack were evident in Burmese teak and both Sapele and Western Red cedar were heavily attacked.

Building Research Establishment (BRE) UK and AFRC Australia performance testing indicated that Tricoya achieves Durability Class 1 under EN 350-2. Durability was at least equivalent to Burmese teak and Tricoya was more durable than oak.

British Board of Agrément (BBA) assessment concluded that Tricoya is suitable for internal and external non-structural applications (BBA Assessment number M2/49109).

Fire behavior

ASTM E84 Class C based on testing 0.35" and 0.47" (9mm and 12mm).

Property	Test Method	Unit	Range	Typical value for board thickness				
		mm inch		6 0.24	9 0.35	12 0.47	15 0.59	19 0.71
Density @ 70°F and 65% RH	ASTM D1037	lb/ft3	± 1.9	44.9	44.9	44.9	44.9	42.5
Moisture content								
@ 70°F and 30% RH	ASTM D4442	%		1	1	1	1	1
@ 70°F and 65% RH	ASTM D4442	%		3	3	3	3	3
@ 70°F and 85% RH	ASTM D4442	%		4	4	4	4	4
Dimensional stability								
Thickness swell 24 hrs @ 70°F in water	ASTM D1037	%	max	2.5	2	2	1.5	1.5
Water absorption 24 hrs @ 70°F in water	ASTM D1037	%	max	8	8	8	6	6
Mechanical properties								
Modulus of rupture	ASTM D1037	psi	min	4,350	4,350	3,630	3,630	2,900
Modulus of elasticity	ASTM D1037	psi	min	435,000	435,000	363,000	363,000	363,000
Internal bond strength	ASTM D1037	psi	min	120	120	120	120	120
Internal bond strength after boil test	ASTM D1037	psi	min	100	100	100	100	100
Modulus of rupture	ASTM D1037	psi	min	4,350	4,350	3,630	3,630	2,900
Modulus of elasticity	ASTM D1037	psi	min	435,000	435,000	363,000	363,000	363,000
Internal bond strength	ASTM D1037	psi	min	120	120	120	120	120
Internal bond strength after boil test	ASTM D1037	psi	min	100	100	100	100	100

PERFORMANCE COMES NATURALLY

Many of the benefits observed for Accoya acetylated solid wood, including enhanced dimensional stability, durability and fungal decay resistance, hold true for Tricoya.

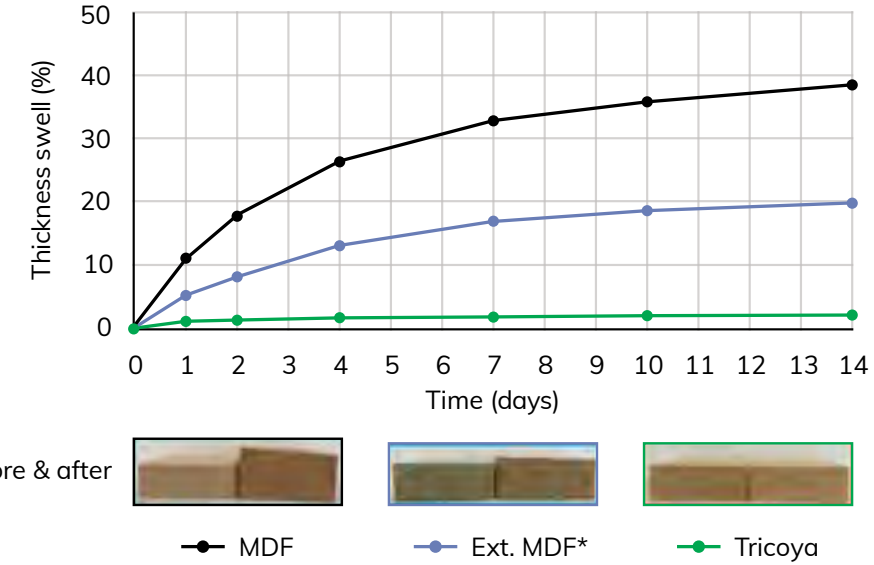
The functionality and versatility of the wood-based Tricoya composite panels provide a universal appeal. Up until this point, the suitability of conventional MDF panels for exterior and indoor constant wet use environments has been limited and hindered by practical limitations.

Tricoya combines the versatility, ease of machining, ease of coating and large panel format with the performance heritage and credentials of Accoya. Accoya and Tricoya are living up to the promise for manufacturers and specifiers alike.

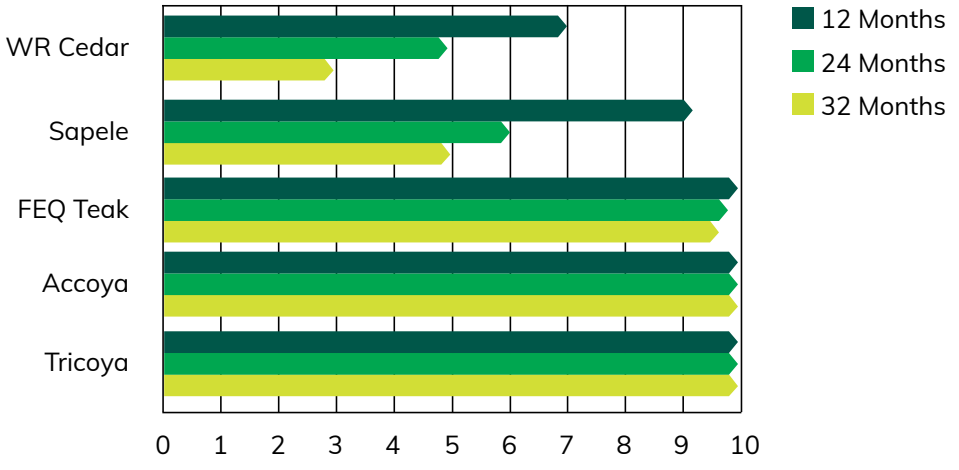
We encourage you to take a Tricoya sample and experience its features, so cut it, drill it, soak it and place it outdoors.

The panel performs.

THICKNESS SWELL IN WATER @ 68°F OF 11/16" MDF PANELS



DECAY RESISTANCE



0 to 10 rating, with 10 being the best E7 Stake trials, TPI test site, Gainesville Florida. Uncoated.

accoya® tricoya®

*Ext. MDF is a leading North American brand of exterior MDF.

APPLICATIONS

- Window and door components
- Door skins
- Trim
- Fascia/soffit panels and other secondary exterior applications
- Wet interiors, including wall linings in swimming pools, bathrooms, changing rooms etc
- Outdoor kitchens
- Signage
- Specialty furniture including lockers, cubicles, chairs & tables
- Play frames, tree houses & exterior composite furniture
- Sound barriers
- And much more...

USING TRICOYA

Tricoya can be cut, coated, sanded, glued, machined and fastened in the same manner as any other high performing wood fiberboard – allowing users all the freedom associated with MDF. The Tricoya difference is that this can now be done for humid indoor and outdoor applications and with confidence.

Machining and Finishing

Tricoya may be cut, machined and used in exactly the same way as other wood fiberboards with no change in machinability. Tricoya is delivered with a 120 grit sanded finish. It may be sanded with finer papers to achieve smoother surfaces. Water based paint systems may be used to decorate Tricoya. Tricoya may be laminated with melamine papers, high pressure laminates, wood veneers, foils and other materials. Exterior-grade adhesives such as epoxy, polyurethane, phenol-resorcinol resin and EPI may be used as long as they meet exterior use requirements via ASTM D5751 Wet Use, or other equivalent test method.

Coatings

Conventional wood coatings may be used to decorate the panel. As with other non-preservative treated wood substrates, It's important to use a coating with an effective moldicide to protect the coating film from mold development. It's also important to avoid coatings with calcium carbonate (chalk) filler which can react with the panel and cause disruption of the coating.

The dimensional stability of Tricoya fibers generally reduces the need for denibbing after priming.

Fasteners

All mechanical fasteners that may come into contact with water, including screws, hinges, fixtures and fittings, should be manufactured from Stainless Steel ANSI type 304 or 316. Internal handles and other furniture that are used in dry conditions may be made from any usually acceptable material. Components used for furniture and other interior applications that are normally installed in dry conditions may utilize galvanized, coated and other metals with low corrosion resistance.

Corrosion testing on naval brass and higher quality aluminum products show that these metals are highly corrosion resistant in direct contact with Tricoya and may also be considered.

There are many aluminum alloy types. By way of example the following aluminum grades performed well in internal testing: 3003, 6005, 6063, 6061, 5154, 5052, 3052 and 1100.

Adhesives

The acetylation process to produce acetylated wood causes changes in properties of wood that may have an influence on the performance of the adhesive when used with Tricoya. The surface of Tricoya is slightly hydrophobic (water repelling) as compared to standard MDF, which may influence adhesives that require presence of water for curing. The curing/drying time stated by manufacturers for such adhesives may need to be extended. Furthermore, Tricoya may be slightly acidic and therefore adhesives which are acid-sensitive should not be used.

It is strongly recommended to perform a small scale trial before full application and if needed contact the adhesive supplier for advice regarding the gluing process and their specific adhesives.

Wood adhesives are classified according to ISO 19209 into 4 classes. The applications that Tricoya are used in (exposed to weathering and/or high moisture levels) require preferably D4 (but at least D3). Adhesive manufacturers provide a range of adhesives to make the bonding process of Tricoya a convenient one.
The strength of the bond between Tricoya and several types of laminates has been tested in studies with institutes and with suppliers of adhesives.

Examples of suitable adhesives are listed below:

- EPI dispersion, PUR hot melt, PUR prepolymer adhesives, such as those offered by Jowat provided good test results in applications such as bonding Tricoya, flat lamination and edge banding.
- Laminates have been successfully bonded to Tricoya using various types of adhesive systems, such as PUR, and SMP offered by Kleiberit.
- Soudal adhesives, such as liquid PUR, PUR and hybrid adhesives, proved successful in bonding Tricoya to Tricoya.
- Bolton adhesives, such as SMP type adhesives, proved useful as non-load bearing adhesive.

Contact your adhesive supplier for specific advice to suit your assembly environment.

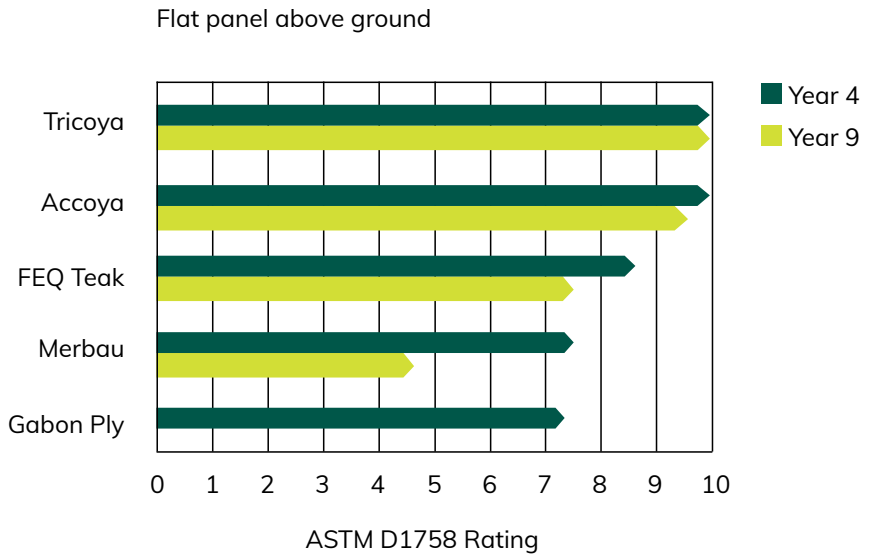
TRIED AND TESTED

BORNEO

The above-ground H3 flat panel field trial was installed in 2014 at The University of Malaysia test site in Borneo. Year round high temperatures and monthly rainfall make this a particuarly aggressive site for wood decay.

The wood types in the test were assessed by an ASTM 10 point visual decay assessment . The inspection reported here was in August 2023 after 9 years exposure.

The Accoya and Tricoya outperformed the other traditional durable timber options and demonstrated their Durability Class 1 credentials.

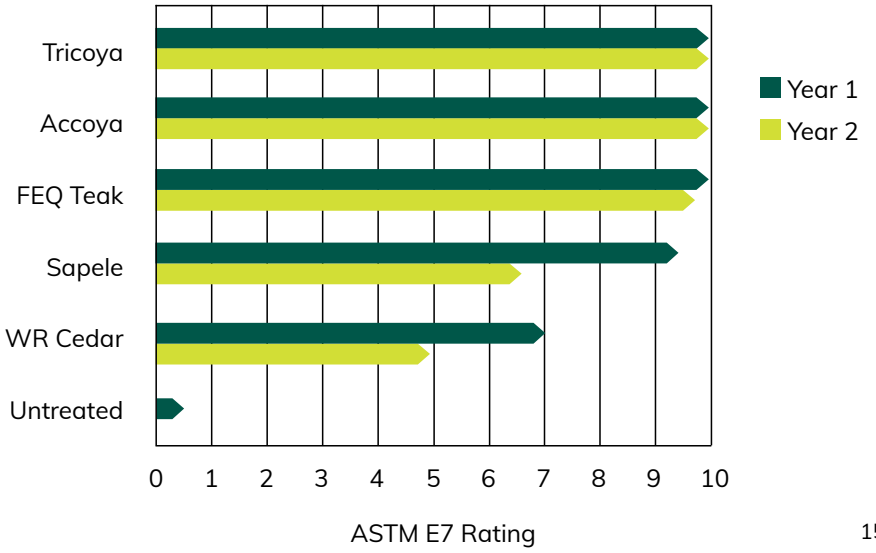


OKINAWA

Tricoya and a range of durable wood types were installed at an independent test field on the Island of Okinawa, Japan. The site was chosen due to its high rainfall and temperatures creating an ideal environment for termites and decay. After 4 years in could contact, the uncoated Tricoya panels samples can be removed from the ground contact exposure with no visible damage and the sharpness of cut edges retained. All other durable woods tested suffered wood decay and termite attack.

FLORIDA

In ground and above ground durability trials were conducted on uncoated Tricoya and several durable controls in the independent test field at Gainesville, Florida. As the chart shows, decay had set in after two years in the durable wood controls included FEQ teak. There was no attack on the Tricoya panel samples.



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