



EXTREME  
DURABLE  
MDF



# THE NEW GENERATION

Imagine a world of new and exciting possibilities for a wood based panel product, enabling its use in applications and environments that could not previously be contemplated.

Imagine the positive implication if the raw material for the panel was modified to give outstanding dimensional stability and durability using a non-toxic environmentally compatible process.

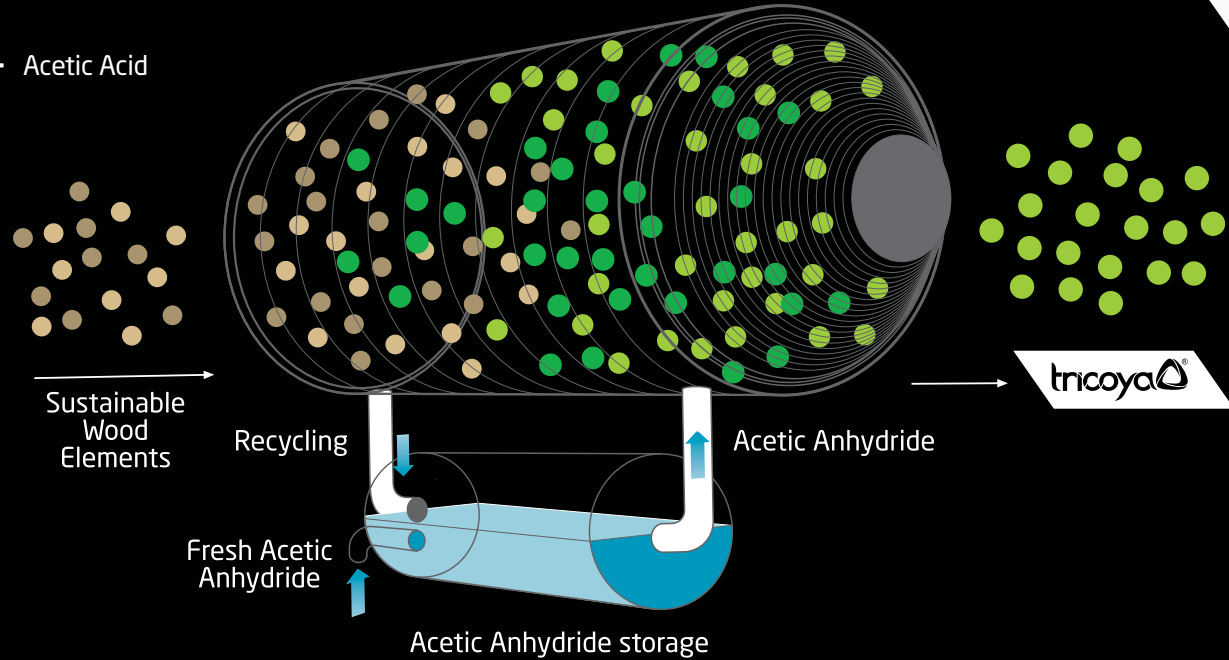
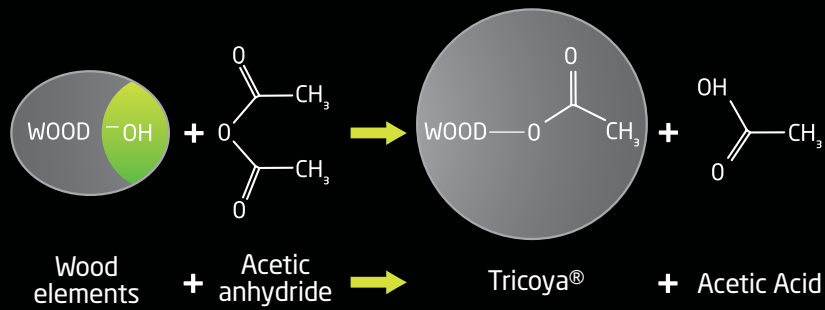
Imagine Medite® Tricoya® Extreme Durable MDF.

Medite Tricoya has been jointly developed between Medite Europe and Accsys Technologies. Made using its patented acetylation technology, Accsys successfully developed and commercialised a revolutionary modified solid wood product marketed worldwide under the brand name Accoya® wood. Accoya® wood is characterised by its durability, dimensional stability and reliability properties which have now been replicated in the production of Tricoya wood elements which are used to manufacture Medite Tricoya.

Medite Europe Ltd is part of Coillte Panel Products and owned by Coillte. Medite products are recognised as the benchmark for quality, consistency and performance in MDF, as well as being FSC® certified and CARB 2 compliant. Medite has led the market in technical innovation, introducing such advances as moisture resistant, flame retardant, exterior grade, zero-added formaldehyde, flooring quality and Ultralite MDF varieties; their programme of innovation is continuous.

The new design and application possibilities offered by the marriage of Tricoya wood elements with the manufacturing technology of Medite MDF is set to excite and stimulate composite product manufacturers, designers, architects and the construction industry alike, opening up new possibilities and solutions.





# THE ACETYLATION PROCESS

Accsys' proprietary technology used to produce Tricoya wood elements is based on wood acetylation, a process that has been studied by scientists around the world for more than 80 years.

This method of improving wood has been proven to deliver such superior performance that it has long been used as the "gold standard" against which other methods are measured. Tricoya combines this science with years of proprietary research and investment by Accsys.

The physical properties of any material are determined by its chemical structure. Wood contains an abundance of chemical groups called "free hydroxyls" (represented as OH in the chemical formula above). Free hydroxyl groups absorb and

release water according to changes in the climatic conditions (moisture content) to which the wood is exposed. This is the main reason why wood swells and shrinks. It is also believed that the digestion of wood by enzymes initiates at the free hydroxyl sites - which is one of the principal reasons that wood is prone to decay.

Acetylation effectively changes the free hydroxyls within the wood into acetyl groups. This is done by reacting the wood with acetic anhydride, which comes from acetic acid (known as vinegar when in its dilute form).

When the free hydroxyl group is transformed to an acetyl group, the ability of the wood to absorb water is greatly reduced, rendering the wood more dimensionally stable and, because it is no longer digestible, extremely durable.

Acetyl groups are already naturally present in all wood species as well as in humans and other mammals. This means that the manufacturing process adds nothing to the wood that does not already naturally occur within it, resulting in an end product that does not add toxins to the environment.

The effect of altering the wood's chemical structure, as opposed to merely altering its chemical content, is essentially to create a new product that is modified right through the cross section. By contrast, other comparable treatments merely insert chemicals (such as oils, ammonia or metal compounds) into the wood, improving durability but not dimensional stability.

# PERFORMANCE COMES NATURALLY

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

The functionality and versatility of wood-based composite panels give them universal appeal. When properties such as high strength, light weight, good insulation, excellent machinability and ease in use are required, Medite MDF is the ideal choice for many applications.

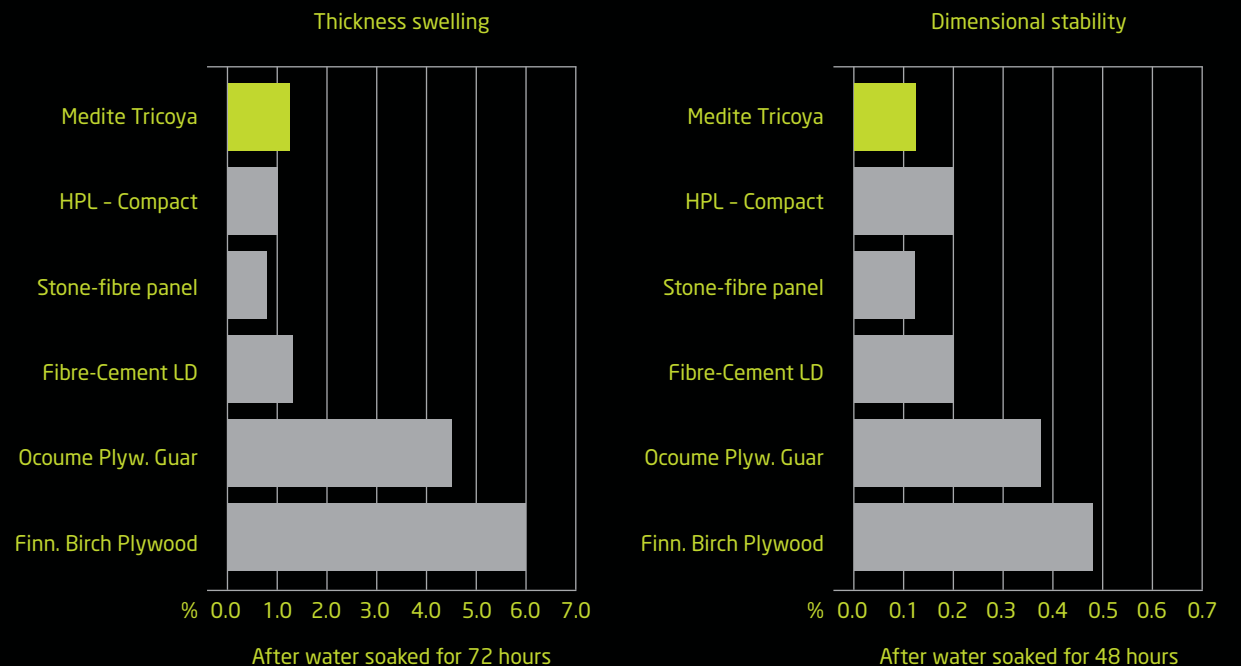
Although MDF (in its various types) is widely used as a building material, it naturally has some shortcomings. Notably, dry wood is inclined to swell and shrink in response to changes in moisture in the atmosphere. Wood is also susceptible to degradation due to attack by microorganisms, like fungi, and is not therefore naturally durable.

These shortcomings have limited the use of solid wood and in some cases MDF, in many markets and applications. Poor durability and dimensional stability will, for example, cause wood panels to crack and delaminate over time. The good news is that Medite Tricoya has been independently tested by leading UK & European institutes and has demonstrated superior dimensional stability and class 1 durability, even in changing weather conditions, meaning it may now be used in situations and applications where normal MDF panels cannot.

Research at the renowned Fraunhofer Institute for Wood Research ([www.wki.fraunhofer.de](http://www.wki.fraunhofer.de)) in Germany concludes that the performance of Medite Tricoya is so outstanding that it will allow it to be used in applications that have not previously been possible. Extensive performance testing has also been carried out by the independent Building Research Establishment (BRE) in the UK. The BRE concluded that Medite Tricoya would carry a durability class (under EN350-2) of 1, or very durable. This durability is equivalent to endangered old growth teak and more durable than oak. It also measured the creep and duration performance as well as its resistance to weathering. Sweden's SP Wood Technology has also tested the product's ability to resist wood destroying basidiomycetes (white and brown rot).



## STABILITY TEST



# BUILT IN SUSTAINABILITY

Medite Tricoya is FSC certified.



# DURABILITY TEST

Medite Tricoya excels in outdoor environments and testing has shown it does not crack or delaminate and remains stable in all dimensions.

## After 25 cycles

Photography of Medite Tricoya showing thickness of panel after 25 cycles



## Freeze/thaw cycles:

- 2 to 3 hours freezing at -20°C
- 2 to 3 hours in water of +20°C

## Wet/dry cycles:

- 18 hours storage in water (> 5°C)
- 6 hours storage at 60°C / 20% RH

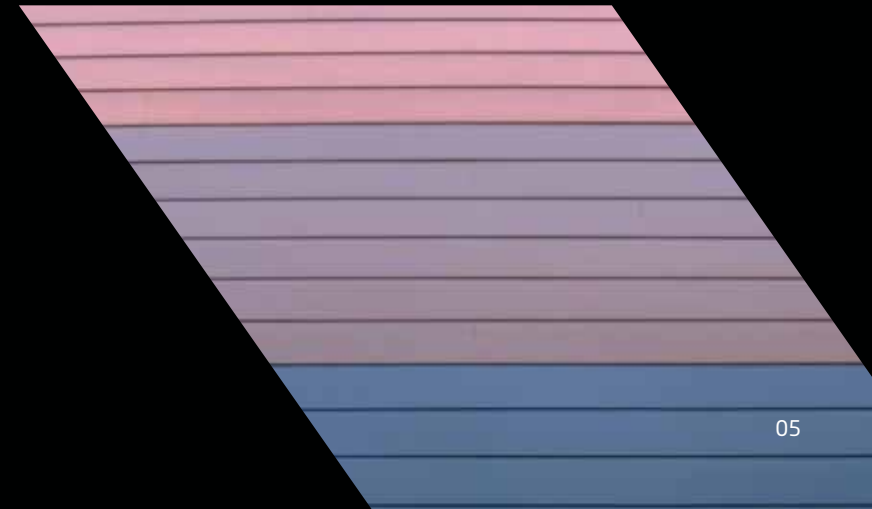
## Before 25 cycles

Photography of Medite Tricoya showing thickness of panel before 25 cycles



# KEY PRODUCT APPLICATIONS

- Façade cladding / siding
- Fascia and soffit panels and other secondary exterior applications
- Window components
- Door components and door skins
- Wet interiors, including wall linings in swimming pools, bathrooms, wet rooms and changing rooms
- Speciality furniture including lockers, cubicles, chairs and tables
- Play frames, exterior composite furniture and fittings
- Signage
- Automotive parts
- Sound barriers



# THE FINISHED ARTICLE

Medite Tricoya can be cut, coated, coloured, sanded, glued, machined and fastened the same as any other high performing wood fibreboard - allowing users all the freedom normally associated with MDF but in extreme applications.

## Fabricating

The panel may be cut, machined and used in exactly the same way as the rest of the Medite range.

## Coating

Conventional water-based paint coatings may be used to decorate the panel.

## Laminating

Melamine papers, high pressure laminates and foils can be adhered to the product.

## Sanding

The Medite Tricoya panel is delivered ex-mill with a 150 grit sanded finish and can be sanded with fine sandpaper to achieve a smooth finish.

## Supply

Medite Tricoya is produced in board size 1220x2440mm. Other panel sizes may be made available to special order.

Standard thicknesses produced are: 4.0, 6.0, 9.0, 12.0, 15.0, 18.0mm.

## Gluing

Since Medite Tricoya is drier than standard MDF and absorbs water in a different manner, this can affect the suitability and curing time of some adhesives. Suitable glues for Medite Tricoya are PU, Epoxy, PRF and EPI glues.

## Fixing

Always attach Medite Tricoya with stainless steel fasteners & fixtures with A2 or A4 (EN 10088-1) quality or AISI type 304 or 316 when possible.

## Fire rating

Medite Tricoya panels are expected to achieve a fire class of Euro Class D within the Euro classification system.



# EXTREME DURABLE MDF

# FEATURES & BENEFITS



## DURABLE

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



## 50 YEAR GUARANTEE

Peace of mind with a 50 year Medite Tricoya guarantee



## DIMENSIONALLY STABLE

Swelling and shrinking dramatically reduced



## DESIGN FREEDOM

All the design, fixing and machining flexibility of medium density fibreboards



## LOWER MAINTENANCE COSTS

Extended periods between exterior coatings maintenance



## PERFECT FOR COATING

Improved stability and durability enhances service life coating. Damaged coating or core will not affect durability



## FUNGAL RESISTANT

Effective barrier to fungal decay



## SUSTAINABLY SOURCED

Sustainably sourced FSC certified



## DESIRED SERVICE LIFE OF 60 YEARS

Independent testing by BRE shows an expected service life of 60 years for exterior use



A JOINT DEVELOPMENT BY



MEDITE® IS A REGISTERED TRADEMARK OF MEDITE EUROPE LIMITED ("MEDITE") AND CANNOT BE USED OR REPRODUCED WITHOUT MEDITE'S WRITTEN PERMISSION. TRICOYA® WOOD ELEMENTS, ACCOYA® AND THE TRIMARQUE DEVICE ARE REGISTERED TRADEMARKS OWNED BY TITAN WOOD LIMITED (TRADING AS ACCSYS TECHNOLOGIES, "ACCSYS") AND MAY NOT BE USED OR REPRODUCED WITHOUT ACCSYS'S WRITTEN PERMISSION. ACCSYS IS A WHOLLY OWNED SUBSIDIARY OF ACCSYS TECHNOLOGIES PLC, A COMPANY THAT IS LISTED ON THE LONDON STOCK EXCHANGE AIM MARKET AND EURONEXT AMSTERDAM BY NYSE EURONEXT UNDER THE SYMBOL AXS. © TITAN WOOD LTD JANUARY 2012 VERSION 2.



FOR MORE INFORMATION: [WWW.MEDITETRICOYA.COM](http://WWW.MEDITETRICOYA.COM)