

## **MEDITE TRICOYA**

### **STORAGE, HANDLING and USER INSTRUCTIONS**

#### **Medite Tricoya MDF Packages**

All Medite Tricoya MDF undergoes inspection before leaving the plant. Medite Tricoya is strapped with binding tape into standard labelled packages, each with a unique number.

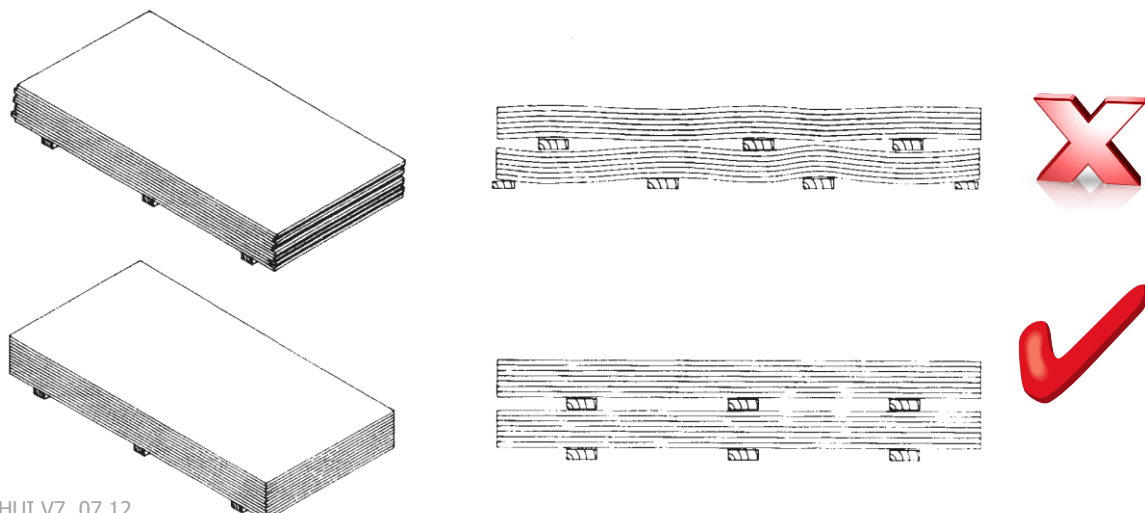
#### **Storage and Handling**

The method of manufacturing Medite Tricoya MDF ensures a balanced construction resulting from the uniform distribution of fibres throughout the panel thickness. The maintenance of this inherent flatness is dependent upon the use of correct storage and handling procedures. Without these, boards may develop a permanent set under their own weight, particularly if not adequately supported on a flat pallet or by insufficient bearers during any storage period.

The following procedures are recommended:

1. Medite Tricoya MDF sheets should be stored horizontally in dry conditions and lifted clear of the floor using dry bearers as supports.
2. Where individual bearers are used, they should be of equal thickness and placed at not more than 800mm centres for boards of 15mm thickness and upwards, subject to a minimum of three bearers. Closer spacing is required for thinner boards.
3. The bearers supporting successive layers should be in vertical alignment.
4. Stacks of boards should have flush sides to minimise damage to protruding edges or over-hanging corners.
5. The storage area should be well ventilated and the conditions should be reasonably dry.
6. To prevent the boards getting wet during storage and on site, it is recommended that Medite Tricoya is covered with a "vapour-open" plastic.
7. As with general storage conditions, storage at the building site should be a minimum of 10cm above concrete flooring and 30cm above ground.

Figure 1: Storage and Handling



## **Traceability**

Medite Tricoya is primarily identified by its packaging labels, which feature the Medite Tricoya and Coillte Panel Products logos. In addition there is a single white 10cm stripe line marked on both long sides of the board pack and reference number printed on the corner of the board. In case of doubt, we will verify the product's authenticity. Medite Tricoya can be traced by this reference number and its packaging label. It is therefore imperative to retain all relevant documents and to record the movements of each package through to the manufacture of the products. This tracking is also needed if you intend to offer products with certified sustainable wood certifications. The board printed reference number is to be quoted in the case of any queries, complaints or warranty claims.

## **Information Transfer**

It may be important to inform the principal and third parties doing installation that Medite Tricoya has been used in the production of your product. Portions of this guide such as proper storage to the building site, appropriate fasteners and fixtures to use for final installation and related considerations should be communicated.

## **Usage**

### **Introduction**

Medite Tricoya may be used in exterior or interior wetted applications. It may be used as a substitute for treated softwoods, hardwoods, high grade exterior plywood's, plastic, cement based, metal or composite materials. It may be used for a wide range of applications including exterior cladding or facades, shop fronts, signage, exterior doors, garden or outdoor furniture, playground equipment, backing boards, cubicles & wet rooms, flooring, marine fit out and more. Medite Tricoya is inherently stable and durable.

Wood releases moisture in dry climates and absorbs moisture in humid conditions. The moisture within wood takes two forms: "free water", which is contained in the cell cavities (or lumen), and "bound water", which is contained in the cell wall matrix. While Medite Tricoya in any conditions will have minimal bound water, which is what accounts for many of its superior properties, it can still contain free water. Final product quality can be harmed by excessive free water; it is therefore essential that the moisture content of the wood is determined prior to processing, gluing and coating.

### **Wood Moisture Content**

Medite supplies Medite Tricoya from the factory in a dry condition (wood moisture content 3–5%). If the measurement shows a moisture content of 8% or more this may indicate the presence of "free water" and the Medite Tricoya should be allowed to dry before processing, gluing or coating.

### **General**

Processing of Medite Tricoya does not affect its unique properties, such as durability and dimensional stability, as the Medite Tricoya is modified throughout the cross section. Medite Tricoya is easy to process and can be compared, in general, to standard MDF. Special tools are not required, for example, to do cross cutting, ripping, planing, routing, or drilling. Sanding before finishing is often not required, but is dependent on required end finish.

It should be noted that a light vinegar smell may become apparent when using Medite Tricoya. With proper suction/ventilation this can be reduced to a minimum. Health and safety tests have been successfully performed against a wide range of tests in many countries and have shown no issues.

As with other wood species with higher acid levels, caution should be taken to prevent long term exposure of wood machinery and exhaust systems to dust and shavings to prevent corrosion.

Prior to machining or further processing, the board moisture content should be checked. A moisture content reading, showing < 8%, indicates suitability for processing.

## **Cutting and Machining**

### **Introduction**

Medite Tricoya can easily be cut, shaped, routed, moulded and bored with conventional wood working equipment and tools.

Tool wear rates on Medite Tricoya are similar to wear rates on Medite MDF. In general, Medite Tricoya is denser and slightly more abrasive than common hardwoods. As steel-tipped tools dull quickly, carbide-tipped tools are recommended for normal work on any scale. Diamond-tipped tools may be best for very high volume operations. The greater cost of these cutters is offset by less re-sharpening and more consistent cut edges.

Saw blades used for particleboard are normally satisfactory. Compared to saw blades for solid wood, all types of MDF saw blades require higher clearance and increased tooth angles (Consult tool suppliers for further guidance).

One of the prime features of Medite Tricoya is its clean edge and face machining characteristics. Contoured designs are almost unlimited. However, care must be taken in the selection of profiles, as the presence of sharp corners or narrow sections will alter the uniformity of paint coverage and reduce the resistance of profiled edges to impact damage.

When machining Medite Tricoya, as with any MDF, cutter angles are important. A large hook angle is required to ensure clean cutting with minimum wear of the cutting tip. A large clearance angle prevents the back of the cutter from rubbing against the machined edges. The increase in both these angles is limited by the requirement to maintain adequate strength at the tool tip.

Cutters for all types of MDF are normally supplied with angles in the following ranges:  
*Cutting (hook) angle: 10 to 20 degrees    Clearance angle: 20 to 22 degrees*

To minimise sanding after machining, feed speed should be selected to produce at least 8 cutter marks per cm. This can be compared to 6 cutter marks per cm which would be acceptable in a typical solid wood machining operation. Achieving the recommended cutter marks per cm is a function of material feed speed, the number of cutters and the rotational speed of the cutting block. The optimal feed speed for each cutting block can be calculated as follows:

$$\text{Feed Speed (m/min)} = \frac{\text{RPM} \times \text{No. of cutter edge}}{100 \times \text{cutter marks / cm}}$$

At lower feed speeds, the cutters will compress and abrade the MDF. The resulting high pressure on the tips and increasing temperature due to frictional heat will reduce the life of the cutters between sharpening. At higher speed, a greater spacing between cutter marks will increase roughness, thereby necessitating more sanding to achieve the required level of smoothness before finishing.

## **Dust removal during machining**

Efficient dust removal for all cutting and machining operations helps to prolong tool life, by reducing potential overheating of the cutting tool. A minimum air velocity of 23-30 m/sec is recommended for dust extraction

## **Sanding**

Carbide-based abrasives are generally recommended for sanding Medite Tricoya MDF. A modified "closed coat" abrasive is also recommended. This combines the smoother finishing properties of "closed coat" systems with resistance to fine dust clogging of "open coat" systems.

## **Face sanding**

Medite Tricoya is shipped with a 150 grit final factory finish. This provides an excellent smooth surface, ideally suited to the direct application of most veneers, plastic foils, HPL's and painting. Scuff sanding, with the object of increasing adhesion may be detrimental to surface quality. Deep sanding of the faces of Medite Tricoya with the object of reducing thickness is not recommended. Heavy one-side sanding should also be avoided to prevent warping.

## **Edge sanding**

Cut edges may require sanding with a 150-240 grit paper. This sanding is useful for cleaning up "fibre nap".

## **Dust extraction during sanding**

During the sanding operation, Medite Tricoya produces a very fine light dust, in common with all MDF material. As with all fine dusts, a common sense approach to safe working conditions must be adopted.

An efficient dust extraction system is essential during automatic sanding, both for performance and life of sanding belts and operative comfort. A minimum air velocity of 23-30 m/sec is recommended for dust extraction.

During hand sanding, the wearing of dust masks is recommended, to protect the operative from inhalation of fine particles.

## **Screws & Fasteners**

All wood contains organic acids, although the quantity varies by species. These organic acids are the main cause of corrosion of metal fasteners used in wood. Medite Tricoya being manufactured from an Acetylated wood contains very small acid levels comparable to other durable species such as oak and western red cedar.

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

Screws should be of parallel core type. Pilot holes are required to 85-95% of screw root diameter, unless self-piloting screw types are used. Pilot holes are of particular importance when screwing into board edges and should be drilled a minimum of 1 mm beyond the depth of the screw into the board.

Screws should not be located too closely to the corners of panels. In general, a screw driven through the face of a board should be at least 25mm from corners and at least 75mm from corners on the edges. Where other methods of fixing are not practicable, small diameter Stainless Steel nails can be used successfully provided they are not closer than 70mm to a corner when inserted into board edges. They should be

spaced at least 150mm apart to reduce the risk of core delamination. Improved holding power in the edges can be achieved by using ring shank nails and inserting them at a small angle to the perpendicular

Tests have shown that base metals and galvanized metals that are in direct or indirect contact with wood containing acids will corrode in damp climatic conditions. It is therefore recommended that high quality stainless steel products be used where possible. When stainless steel is not available, metals and/or the Medite Tricoya should be coated or otherwise separated to avoid the two coming into direct contact. Indirect contact issues can occur in non-ventilated areas where condensation related corrosion is possible (for example, lock rebates). As with any installation, pit or galvanic corrosion must also be avoided by using fasteners that are compatible with the metals used in hinges, locks and other hardware. Testing and experience to date with the use of brass, common types of anodized aluminium (6063, 6082) and chrome plated steel have been very positive. However your fixings supplier should be consulted to avoid any issues.

Panels should be fitted with spacers and not fitted flush to any masonry or brickwork. Expansion gaps MUST be fully filled with an elastic sealant (suitable mastics or silicone) at the time of fixing.

### Fixing Centres

Medite Tricoya is a non-structural panel and therefore the distances between the supports can be crucial to its ultimate performance. It is essential that in the design, an allowance for a small degree of movement (see Technical Specification Sheet) be provided. Maximum recommended spans between fixing centres in non-wind exposed areas are shown in table 2. If Medite Tricoya is to be used as a panel in wind exposed areas, professional advice should be sought from a suitably qualified person as to the spacing and number of fixings required due to wind loadings.

TABLE 2 - RECOMMENDED FIXING CENTRES (non-wind exposed)		
Thickness		Recommended fixing centres
6 - 9 mm	-	300mm
12 mm	-	450mm
15 mm	-	600mm
18 mm	-	750mm

### Gluing

#### General

As with all wood species, the right choice of glue will depend on the application and the required performance of the glue bond.

Wood adhesives are classified according to EN204 into 4 main classifications, classes D1-D4. The applications that Medite Tricoya will be experiencing lead to a requirement for D3 & D4 class adhesives.

Medite Tricoya has been tested with various types of adhesives for many applications. In general Medite Tricoya can be glued using PVA, PU, RPF, or EPI wood adhesive systems.

**PVA (polyvinyl acetate):** gives thin joint, thermoplastic, some flexibility (depending on classification), easier application and cleaning. Comes in all classifications D1-D4.

**PU (polyurethane):** Classification D4. The joint will swell slightly as the adhesive swells when curing, so need a very clean surface to lay a material onto it, and may need to cut the excess depending on finish required. The joint will be rather flexible but "full of air" as it will swell.

**RPF (Resorcinol phenol formaldehyde):** D4 waterproof and resistant to some chemicals. Two part adhesive, gives a reddish brown glue line. Excellent mechanical strength; can be used hot or cold.

**EPI (Emulsion polymer isocyanate):** D4 two part adhesive, high strength, high water resistance, good resistance to creep.

### **Changed Properties**

Comprehensive testing has shown that Medite Tricoya has good gluing properties. However, it is imperative that the product's modified properties are taken into account. This is of particular importance because common wood adhesives (PVA, EPI, PU, and PRF) either harden on contact with moisture or part of the water content of the adhesive needs to be absorbed by the MDF.

The acetylation process substantially reduces the ability of the wood to swell. This can impact properties such as the ability of joints to 'self-clamp'. Another effect is that the equilibrium moisture content of Medite Tricoya is substantially lower than untreated MDF in the same climatic conditions. While this makes Medite Tricoya dimensionally very stable, it can mean that absorption properties of the MDF are different due to the hydrophobic nature of the surface in its first minutes. Adhesives that require water as a catalyst and those consisting of two or more components that could migrate differently may have weaker bonds.

When gluing Medite Tricoya it is strongly recommended to test first and if needed contact your adhesive supplier(s) as they have in-depth knowledge of the gluing process and their adhesives.

### **Painting**

Water based paint systems may be used to decorate Medite Tricoya. There is no requirement, from a technical performance perspective, in attributes such as durability and dimensional stability, to seal the edges components. However, to achieve a good painted surface finish, edge sealing is recommended. Because of Medite Tricoya's exceptional dimensional stability, extended paint guarantees are available from some Paint Manufacturers.

### **General**

Medite Tricoya's compatibility with various coating systems compares well with standard MDF in general and it may be finished with commonly used products.

Please note: Coating formulations vary from supplier to supplier and, of course, processes vary depending on the application equipment used and end-product design. We also know that formulations of some suppliers' products vary by geography. Despite Medite Tricoya's excellent record of compatibility, we highly recommend having your coating suppliers involved in the process. They have in-depth knowledge of their products, application and how to determine the performance of the finished product from a technical performance perspective, in respect of attributes such as durability and dimensional stability.

## Outdoor Use

There is no need to finish Medite Tricoya from a technical performance perspective, in respect of attributes such as durability and dimensional stability. However, Medite Tricoya is susceptible to weathering in outdoor circumstances. A series of chemical, biological and physical processes try to degrade the Tricoya MDF.

When used unfinished, Medite Tricoya can exhibit various types of discoloration such as blue stains, surface moulds and uneven UV weathering. Stains can also be caused by use of aggressive cleaning agents, foods and other substances inadvertently left on the Medite Tricoya. Also, discoloration can occur around metal fasteners. In addition to discoloration of the surface, unfinished Medite Tricoya's texture, when outdoors, will become rougher over time.

## Greying

Uncoated Medite Tricoya, used outdoors will eventually "grey" due to two biological processes that take place within the wood fibres and at its surface:

--UV light partly degrades substances in the Medite Tricoya's structure leading to a lightening of the surface (natural wood species obtain a typically dark brown.). These substances are water soluble and the surface of the Medite Tricoya pales when washed with water.

--UV degraded wood has a more open structure and this allows surface molds, stains, mosses and algae to penetrate and develop. They do not, however, cause rot with Medite Tricoya. The most common surface fungus is bluestain, which is actually black but combines with the light colour of the panel to give a greyish appearance on the surface. Medite Tricoya is all-natural and non-toxic so mould growth can occur if Medite Tricoya is left uncoated. Blue-stain can be avoided by using a high quality UV resistant coating. This also protects the wood from accidental staining such as from spilled food.

## Dimensional Stability

Medite Tricoya is extremely dimensionally stable but this does not mean it is completely inert. Changes in humidity can cause slight changes in Medite Tricoya's volume and these should be taken into account for product design and installation (see Technical Specification Sheet)

## Thermal Resistance

	thickness mm	R Value m <sup>2</sup> K/W
Medite Tricoya	6	0.056
Medite Tricoya	9	0.085
Medite Tricoya	12	0.114
Medite Tricoya	15	0.150
Medite Tricoya	18	0.180

## Waste wood & end of life considerations

Medite Tricoya waste can be handled in the same way as normal MDF. Medite Tricoya is non-toxic and does not require any special disposal considerations. Given its long life, multiple applications and non-toxicity, Medite Tricoya is suited to re-use and recycling.

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