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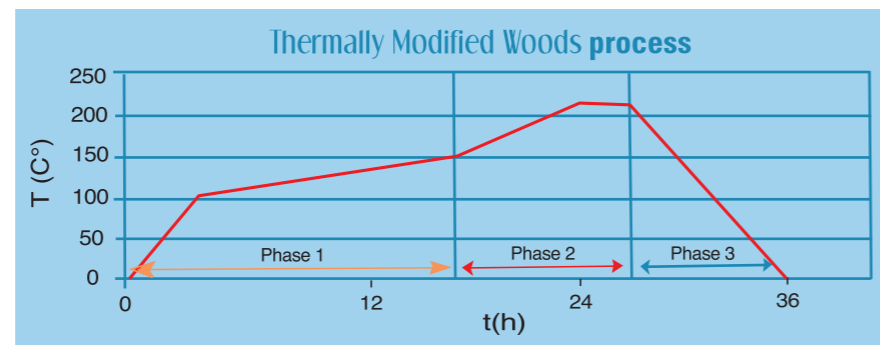


## What is Thermally Modified Woods?

Thermally Modified Wood is produced by gradually heating timber in special chamber kilns at temperatures reaching between 160 C and 245 C. The treatment takes place in an oxygen-deprived atmosphere without the addition of any chemical or toxic substances.

At these temperatures, the cellular structure of the wood is modified, destroying the water-absorbing cells. The process eliminates the water and resin present in the wood, reducing at some point the moisture content to practically 0%.

Some of the wood's physical properties are thus enhanced, specifically, its color, dimensional stability and resistance to fungal decay.



## Key Benefits and Features

### Moisture Content

The equilibrium relative moisture content is lowered by approximately 50%, resulting in lowered dimensional variations due to hygroscopic changes. For example, the equilibrium moisture content of resinous woods in a 65% RH atmosphere stays at 6% instead of the 12% found in the untreated ones.

### Durability

With their reduced moisture content, Thermally Modified Woods are resistant to the fungi and moulds that mark and degrade wood. They therefore show improved appearance and performance over time.

### Resistance to Insects

As the treatment of Thermally Modified Woods kills the cells on which insects feed, Thermally Modified Wood is resistant to Capricorne, Lyctus, Death watch beetle, although no resistance has been proved against termites.

### Performance in fires

Thermally Modified Woods behave relatively like their untreated counterparts in fire conditions. While fire tends to propagate faster in Thermally Modified Woods, the quantity of smoke emitted during combustion is reduced.

### Color

The color of Thermally Modified Woods varies with the temperature and duration of treatment: higher temperatures resulting in darker colors. If not protected, Thermally Modified Woods exposed to UV rays will lose with time their original color and turn to a silverfish gray.

### Other Characteristics

While a higher temperature of treatment increases resistance and dimensional stability, it also increases the hardness of the wood, reducing its workability. The strength properties of the wood are reduced while the risk of splitting is greatly increased requiring special precautions. Also, more dust is produced during machining.

## Applications

Thermally Modified Woods high resistance to moisture and decay causing fungi makes them an excellent materials for outdoor applications.

In internal applications, Thermally Modified Woods are particularly suitable where stability and moisture are important.

Better heat insulation and the absence of resins make Thermally Modified Woods perfectly suitable for many special applications such as saunas and alike.

### External Uses:

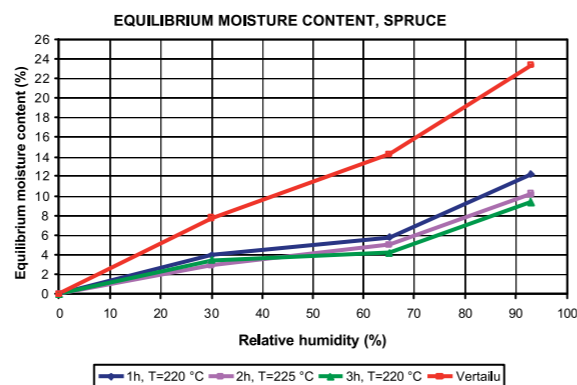
- Wood cladding.
- Decking.
- Windows and shutters
- External doors
- Fences
- Garden furniture
- Patios and pergolas.

Note: Thermally Modified Wood is not suited to conditions where it would be saturated in water or come in contact with soil.

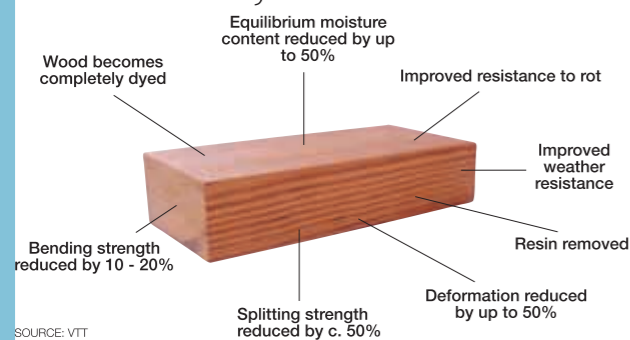
### Internal Uses:

- Flooring
- Kitchen cabinets
- Saunas
- Bathroom furniture.
- Educational and recreational toys.

| APPLICATION                   | HARDWOODS   |           |     |         |                 |         |                 | SOFTWOODS |        |          |
|-------------------------------|-------------|-----------|-----|---------|-----------------|---------|-----------------|-----------|--------|----------|
|                               | White Birch | Red Maple | Ash | Red Oak | American Cherry | Hickory | American Poplar | Aspen     | Spruce | Red Pine |
| <b>COVERING</b>               |             |           |     |         |                 |         |                 |           |        |          |
| Decking                       | ■           | ■         | ■   | ■       |                 |         |                 |           |        |          |
| Flooring                      | ■           | ■         | ■   | ■       |                 |         |                 |           |        |          |
| Cladding                      | ■           | ■         | ■   | ■       |                 | ■       | ■               |           |        | ■        |
| Internal Pannelling           | ■           | ■         | ■   | ■       | ■               |         |                 | ■         |        |          |
| False Ceiling                 | ■           | ■         | ■   | ■       |                 |         | ■               | ■         | ■      | ■        |
| <b>CONSTRUCTION</b>           |             |           |     |         |                 |         |                 |           |        |          |
| Pergolas                      |             |           | ■   |         |                 |         | ■               |           | ■      | ■        |
| Gazeboes                      |             |           | ■   |         |                 |         | ■               |           | ■      | ■        |
| Pool sides                    | ■           | ■         | ■   | ■       |                 |         |                 |           | ■      | ■        |
| <b>CARPENTRY</b>              |             |           |     |         |                 |         |                 |           |        |          |
| External Doors                | ■           | ■         | ■   | ■       | ■               |         | ■               | ■         | ■      |          |
| Windows                       |             | ■         | ■   |         | ■               |         | ■               |           | ■      | ■        |
| Shutters                      |             | ■         | ■   |         |                 |         | ■               |           | ■      | ■        |
| Kitchen Doors                 | ■           | ■         | ■   | ■       | ■               | ■       |                 |           | ■      |          |
| Kitchen and Bathroom Cabinets | ■           | ■         | ■   | ■       | ■               | ■       |                 |           | ■      |          |
| Patio Tiles                   | ■           | ■         | ■   | ■       |                 |         |                 |           |        |          |
| <b>FURNITURE</b>              |             |           |     |         |                 |         |                 |           |        |          |
| Garden Furniture              | ■           | ■         | ■   |         |                 |         |                 |           | ■      | ■        |
| Street Furniture              | ■           | ■         | ■   |         |                 |         |                 | ■         | ■      | ■        |



## Thermally Modified Woods



SOURCE: VTT

Torrefied Wood  
**Absolute beauty of a natural solution**  
 Unlike chemical treatment processes, which alter the natural appearance of wood (for example the greenish tinge of treated wood), torrefaction actually enhances the natural intrinsic beauty of wood, giving added value to less popular species. Torrefaction gives everyday species a richer hue, similar to that of exotic wood species.

