



Natural wood
Made to last

Kebony vs. Thermally-Modified

In the world of modified woods, there are many different versions. But not all modification processes are created equal, so how do you tell the difference? Here are 5 primary categories to help you distinguish between Kebony and thermally-modified wood products.

Modification Process

Kebony uses a patented and proprietary modification process called furfurylation. Furfurylation uses a bio based liquid called furfuryl alcohol derived from agricultural plant waste. Furfuryl alcohol is injected into the sapwood cells and when combined with heat, permanently bonds together, resulting in a softwood being permanently transformed into the characteristics of a hardwood. Even though chemicals are used, the product is non-toxic both during and at the end of service. Kebony comes with a 30-yr warranty.

Thermal modification of wood is a chemical-free process where wood is heated in a kiln to temperatures between 180°C and 230°C. This also results in a permanent change of the wood cells creating improved durability and performance. Thermal modification is very common, many companies use a variation of this science. Most thermally-modified woods come with a 25-yr warranty at the most.

Winner: Since Kebony's process is thickening wood cells while thermal modification thins wood cell walls, increasing brittleness, the advantage goes to Kebony

Durability

Kebony contains a permanently swollen and stable cell wall providing a long life span and a wood more similar in performance to tropical hardwoods. The furfurylation process produces resistance to microbial decay, increased dimensional stability, hardness, stiffness and a controlled moisture content. For these reasons, Kebony offers a 30-year warranty on Kebony products.

Thermally-modified woods bake out the wood sugars that are a food source to insects while controlling the wood's moisture content in order to produce a more stable product than the original species. Because of the removal of substances from the wood cells, thermally-modified woods are less desirable for heavy traffic areas like boardwalks or commercial decks. As a decking or site furnishing, it has the drawback of the cell walls being reduced in thickness and susceptible to cell collapse and it can be prone to wear in high foot traffic areas.

Winner: Kebony for enhanced durability as a decking product

Maintenance

Both products weather to a nice silver patina and do not require maintenance other than normal cleaning. Kebony wood will have a 30 year warranty where most thermally-modified pines will not contain a warranty. Some thermally modified hardwoods have a warranty of 25 years depending on the manufacturer and wood species.

With both product types being natural wood, they can be cleaned with soap and water or with some light pressure washing. Either product can also hold stain or paint based on manufacturer specifications.

Winner: Tie, with Kebony having a slight edge because of a longer warranty

Environmental Impact

Kebony is the ultimate alternative to the tropical hardwoods. Kebony uses FSC®-certified fast growth trees which only take 30 years to mature and gives them a total life cycle that will outlive many tropical hardwoods. The trees come from sustainably managed forests and are all FSC®-certified. In contrast, Ipé and other tropical hardwoods have a 100-yr maturity rate and are retrieved through rainforest deforestation or illegal logging practices. The Kebony modification process is also clean and non-toxic.

Thermal modification is practiced with a variety of wood species depending on the manufacturer, from non-FSC®-certified Pine and hardwoods like Ash. Pine is a fast-growth softwood, while Ash tends to have a longer growth cycle and less progressive reforestation plan, increasing the overall environmental impact. Slower growth trees work better for thermal modification since the wood cell walls are being thinned during the modification process.

Transportation and shipping is another thing to consider in terms of environmental impact. Kebony is produced in Norway and Belgium, thermally-modified products are produced in

both the USA and internationally. A common misconception is shipping internationally significantly increases the carbon footprint of a product, but due to the a shipping vessels massive capacity shipping over water ends up being twice as fuel-efficient as a rail car and almost 10 times more efficient than semi-trucks.

Winner: Both are significantly more sustainable than tropical hardwoods, but since Kebony can utilize the fastest growing trees in the best climates in the world they have a definitive edge over thermal modification

Value

Value is typically dependent on use and goals of the project. The cost difference between Kebony and similar thermally-modified products vary greatly between manufacturers and based on region. Another factor that should be considered is total cost of ownership. If a project is designed to be long-lasting then you want to use a product designed to last as long as the other materials being utilized.

Winner: It depends on the project

The Verdict

We can't speak for all thermally-modified products, but typically furfurylated wood like Kebony creates a more durable product than thermal modification when using the same species and dimensions. We encourage you to do your own research and choose the product that best suits your specific needs.