

Tried and Tested.

Work on wood modified with acetic acid began in 1928, unfortunately the high cost of the process led to extremely limited commercial production. However, work by scientists continued around the world. Their incentive was largely the potential offered by acetylated wood's unmatched performance properties and sustainability credentials.

Cost-effective production has been made possible due to recent advances in a patented, closed loop, chemical engineering technology used in the production process. This modified wood is now commercially available, as Accoya.

The finished product, despite being more cost competitive, has exactly the same material properties as the material researched continuously since 1928. This permits reference to the large number of field trials set up with material produced in large lab scale modification vessels at institutes around the world.

Accoya installed as a canal lining in 1995.



These field trials and a large database of British and European Standard laboratory test methods give great confidence when backing Accoya as the long life timber option.

Accoya™ removed from canal lining in 2005 (10 years) showing no decay.



The Accoya modification process introduces additional, naturally occurring acetyl compounds to the wood. (Pine has 2% acetyl, oak 4% and Accoya 20%.) This level of acetyl compounds has recently been demonstrated at the University of Wales¹, to prevent the wood cells walls absorbing moisture in liquid or vapor form.

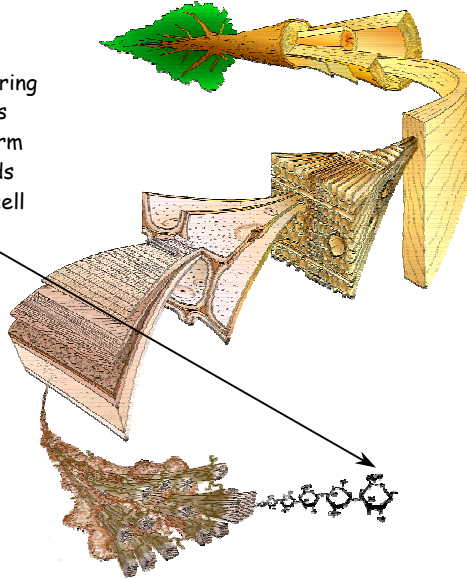
This unique and passive mechanism prevents organisms from decaying the wood and also causes the wood to have exceptionally dimensionally stable.

Importantly, the decay resistance and stability performance can be guaranteed through the entire cross section of the wood when it leaves the modification process. There is then no risk of exposing untreated areas in joinery manufacturing processes or on site.

¹ Dr. Callun Hill, Senior Lecturer in Renewable Materials, University of Wales, Bangor.

The molecular change which creates Accoya™.

Naturally occurring acetyl molecules added which form permanent bonds with the wood cell walls.



Coating test samples after a 10 year south facing exposure at 45° to the sun (most severe exposure possible): With no maintenance.



Scan Redwood.

Accoya

Accoya's exceptional stability leads to:

- increased coatings life and a significant reduced maintenance requirements.
- More flexibility in design (eg. Wide cladding boards or window sills).
- Eliminates common site snagging problems due to warping, twisting or sticking.

Importantly the Accoya™ modification process goes completely through the timber so no parts of the timber are below these performance levels. This total cross sectional modification on a molecular level requires that perceptions of wood and associated problems are redefined. Its comparison with other traditional species is shown below. Accoya™ strength or machining characteristics are not reduced in anyway.

Coating Field trials for a range of opaque and translucent coatings at the SHR institutue, Netherlands.



Comparing Accoya durability and stability to common joinery timbers.

	Durability class*	Dimensional stability**
Accoya	1	2.3%
S. Pine (redwood)	4	12.0%
Western red cedar	2 or 3	8.0%
Sapele	3	8.0%
Teak	2	6.5%
* 1 is best. 5 is worst. BSEN350-1		
** Soak to oven dry. Smallest change is best		

In addition, these extensive test results allow the product to be referenced against any British and European use class standards. The most commonly used in the UK is BS8417-2003. 8417 states a service life in excess of a 60 years for timbers of durability class 1 when used for doors, windows, cladding and other external joinery. Accoya is durability class 1, no other joinery timbers are.

Graveyard field testing for over 10 years supports Durability Class 1 determination in Laboratory experiments.



Independent reviews of this information are available from BRE and the SHR Institute in the Netherlands. A BBA application is being processed and testing is ongoing at TRADA. A whole life cost model for Accoya windows has been completed by the Paint Advisory Bureau. A Life Cycle Assessment of the product will be available in early 2007.

BRE² Concluding assessment for Accoya™ windows.

"We consider that a window prepared from a permeable timber species that is acetylated through the cross section to 20% WPG, will show significantly improved coatings performance properties. If the window is designed and built to the principles of best practice, installed by competent contractors and linked to the Sikken's Sentinel Plus coated wood care and maintenance package it will provide a window of outstanding durability and dimensional stability that would meet a 60 year service life requirement."

Accoya™ is an excellent substrate for machining.



Accoya™ is a timber product with exceptional potential for the construction industry from a range of standpoints. The performance is backed by guarantees against wood decay and coating maintenance.

Installed Accoya™ cladding with a Sikken's wood stain finish. No brush applied maintenance required for 10 years.



Further details on all the above and manufactures of cladding and joinery products from Accoya can be supplied by BSW (www.bsw.co.uk).

JPA 08-11-2006

² Building Research Establishment, Watford.