Scientific testing methodologies

The objective of testing will almost always be to verify a documented supplier claim of species and/or origin. Selection of the most appropriate testing methodology is critical to generate meaningful data and most efficient use of budget.

Scientific methods

The table below provides a summary of the three key scientific methods used to test supplier claims, the type of products testing can be applied to, and the advantages and limitations of each. This information is based on practical experience built up by DoubleHelix.

	DNA analysis	Stable isotopes	Wood anatomy
Verify claims of species	✓	X	✓[1]
Verify claims of origin	✓	✓	✓[2]
Method description	DNA can be extracted from timber products and tested for: 1. Barcoding (identify species) 2. Phylogeography (identify country or region of origin) 3. Fingerprinting (identify individual trees) DNA is extracted and compared to a reference database. In the case of fingerprinting, DNA from product is compared with DNA taken from log or stump.	Trees absorb different levels of chemical isotopes from the air, water and soil depending on the geographic location. Isotopic tests identify the ratio of chemicals present which are then assessed against a known database.	Wood anatomists can determine the genus or sometimes the species of wood by examining features in the wood's structure.
Types of products that can be tested (non-exhaustive)[3]	• Solid wood products (e.g. flooring, decking, furniture). • Most engineered products and veneers.	• All wood products.	• Solid wood products (e.g. flooring, decking, furniture) • Most engineered products and veneers.
Advantages of method	• High resolution identification of species and/or region of origin.	• Can be applied to the broadest range of products.	• Low-cost and rapid • Can be used on very thin products.
Limitations of method	• Sample must be of sufficient thickness to extract DNA (usually min. 2mm). • Reference data must exist for specific species or geographic region.	• Cannot identify species. • Reference data must exist for the geographic region.	• Cannot positively identify specific species in a large genus, or where wood structure has been significantly altered.

[1] To genus level and in some cases species level.
[2] In cases where a species or genus is endemic to a particular geographic location a determination of origin can be made.
[3] Scope and applicability of verification service depends on availability and depth of reference data.