

SHR



Wood coatings

Coatings, including paints, lacquers, stains and varnishes are important in achieving the end-users' requirements in many wood based products.

Therefore, the provision of knowledge, research and testing facilities in the area of wood coatings is an essential element at SHR Timber Research.

Our objective is to support the entire wood working industry.

SHR can provide a wide range of services such as:

- applied scientific research projects (several years in duration)
- development of new coating concepts with the supply chain
- trouble shooting and damage assessment.

We serve the following markets:

- suppliers of raw materials for coatings
- coating manufacturers
- coating application industry
- users of coated wood products.

SHR carries out its services as confidential contract research. Additional public research funding is used to start up research activities in order to create a continuous base for innovation for wood working industry and coating suppliers.



Outdoor exposure

Available expertise

Understanding performance and behaviour of coatings on wood is a complex issue that requires a combined (technical and academic) knowledge of chemistry, wood and coatings. The current needs to reduce the environmental impact of coatings and to

extend their service life are areas of high priority. Typical examples of topics where SHR can provide highly specialised knowledge are:

Interfacial phenomena

Interaction between coatings and wood e.g. wetting, penetration and adhesion

Degradation and discoloration of (wooden) surfaces under influence of light

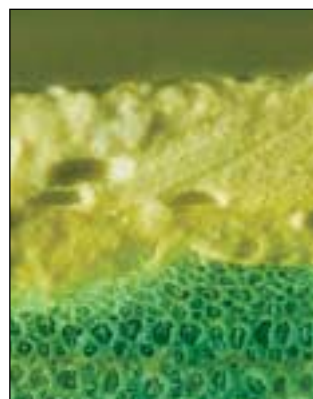
Moisture transport

Permeability of coatings also related to dimensional changes in coated wood

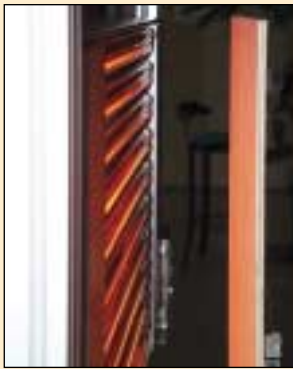
Exterior durability and performance of coatings on wood, also in relation to the entire building structure, to predict service lifes



UV curing of doors



Layer thickness



IR heating

Optimisation of coating application i.e. surface preparation, drying conditions and film formation

Testing of coatings according to various national and international standards (ISO, ASTM, EN) such as EN927, EN152 and others

Performance of a coating in combination with wood fillers, sealants or repair systems



Contact-angle

Facilities

The SHR laboratories are equipped with the following facilities relevant for coatings:

Outdoor exposure field for natural weathering of panels (EN927-3), L-joints and window frames and doors

Artificial weathering devices for both panels and full scale products

Microscopes to study the penetration of coatings, film thickness and defects



Moisture test house

Climate chambers for different moisture regimes combined with equipment to measure (online) wood moisture content and dimensional changes

Devices to measure mechanical properties of coatings including modulus of elasticity, elongation and hardness

Chemical analysis of surfaces by infrared and UV-VIS spectroscopy. Furthermore SHR has access to NMR, SEM-EDAX and TOF-SIMS

and other advanced analysis equipment and experts

Characterisation of physical properties contact angle, surface tension and viscosity measuring

Surface resistance tests for abrasion, scratch, impact, chemicals, hot-pan or cold-check

Tests on colour, gloss, adhesion and water (vapour) permeability (EN927-4 and 5)



Adhesion



Accelerated weathering, UV with waterspray



Monitoring moisture transport

For further information please contact:
Mr. J.G. Nienhuis, M.Sc (j.nienhuis@shr.nl) or
Mr. B. van de Velde, B.Sc. (b.vandvelde@shr.nl).

SHR Timber Research
P.O.Box 497
NL 6700 AL Wageningen

Wildekamp 1c
NL 6700 AT Wageningen
Phone: +(31)(0) 317 42 54 22
Fax: +(31)(0) 317 42 5783

Web: www.shr.nl



SHR Timber Research is able to offer research facilities, expertise and consultancy services on a contract basis.