

Characterisation of lacquers, substrates and their processing characteristics

The lacquering process consists of substrate pre-treatment, lacquer application and hardening. All three process stages have to be co-ordinated in order to achieve a cost-efficient and optimal result. This in turn, requires special knowledge of specific processing characteristics of substrates and lacquers. Therefore, the EPH provides a large spectrum of testing and know-how for all related questions.

Characterisation of lacquers

- determination of the rheological characteristics
- determination of the solids content
- assessment of the brushing behaviour, spattering-/dripping affinity e.g. during practical processing
- determination of the molecular mass distribution by gel permeation chromatography
- determination of the reaction heat and lacquer stability by Differential Scanning Calorimetry (DSC), thermogravimetry (TGA) incl. determination of degradation products via infrared spectroscopy
- determination of the lacquer ageing behaviour via chemiluminescent analysis
- simulation and imitation of the hardening behaviour of UV lacquers by UV induced DSC
- determination of the response behaviour of photo initiators by UV-Vis spectroscopy



Determination of temperature-dependent rheological characteristics

Characterisation of substrates

- determination of surface roughness, also after moistening
- determination of the penetration behaviour
- determination of the wetting- and estimated adhesion behaviour of liquids such as lacquers on a substrate (surface tension/surface energy)
- determination of the electrical surface resistance



Determination of 3D topographies

Chemico-physical characterisation of the hardened/dried lacquer

Physical methods

- microhardness (universal hardness, viscoelastic characteristics)
- glass transition temperature and thermal stability by TGA/DSC
- shock tests as a proof of over-curing states on real coating substrates
- pendulum damping test on model substrates
- chemical resistance
- assessment of the lacquer-/substrate compound by scanning electron microscopy (SEM)
- distribution of (nano-) particles and additives in lacquer via SEM-EDX-Analysis



Determination of the glass transition temperature

Chemical methods

- behaviour of functional groups during the curing process/relative degree of cure by IR- and Raman-spectroscopy coupled with a rheometer
- analysis of remaining emissions (VOC, SVOC) by gas chromatographic methods
- determination of water content in dried waterborn coatings by Karl Fischer Method

Entwicklungs- und Prueflabor
Holztechnologie GmbH

Zellescher Weg 24
01217 Dresden · Germany

+49 351 4662 0
+49 351 4662 211
info@eph-dresden.de
www.eph-dresden.com

Contact persons



Dipl.-Ing.
Simone Wenk
+49 351 4662 227
simone.wenk@eph-dresden.de



Dr. rer. nat.
Christiane Swaboda
+49 351 4662 261
christiane.swaboda
@eph-dresden.de



Dr. rer. nat.
Jana Peters
+49 351 4662 277
jana.peters@eph-dresden.de