

Adhesion- and material testing

Transfer offering

Adhesives are an essential construction element. In order to optimize bonded joints, surface activations are used which are adapted to the adhesive and the substrate to be joined. These material composites are usually tested using the compressive or shear strength method; the adhesive strength of films is examined using a peel test. Adhesion tests of coatings on substrates are carried out using the stamp-peel method. In addition, material characteristics can be determined by tensile, compression and bending tests. The elongation of elastic materials is recorded and measured with a video extensometer. Adhesives and coating materials can be tested with regard to their visco-elastic or flow behaviour dependent on time and temperature using a shear stress and strain controlled rheometer.



Tensile testing machine
Inspekt table 50 kN



Videoextensometer RTSS



Rheometer MCR
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Approach

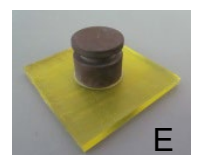
Application-specific investigations and practice-related tests of the adhesive strength of adhesives and coatings are carried out using suitable surface activation methods, such as flame pyrolysis, atmospheric pressure plasma and primers or a combination of these methods. The choice of adhesive is based on the materials to be bonded and their desired functionality and load-bearing capacity. In the course of the trials, pretreatment, application and curing parameters are tested and optimized. In addition to mechanical testing, the quality of the bond is assessed by functional and durability tests. Load tests such as climate change test, salt spray test, UV weathering, boiling test and water storage are of particular interest for the adhesion of coatings under weather conditions. Based on the results, processing proposals for adhesive and coating processes are developed.

Advantages

- Optimum adhesive selection and surface activation adapted to this for each material
- Determination of the mechanical properties of composites, bonding and adhesion of functional coatings
- Process specific product recommendations

Methods

- Tensile, compression, bending test
- Roller peel test
- Stamp tear-off test
- Tensile and compression shear tests
- Rheology



A - tensile shear test; B - bend test; C - peel test; D - punch break test;
E - test specimen for punch break

Development status and property rights

All tests are carried out according to the current DIN standards.