



TEST METHODS

THE MATERIAL TESTS

All tests conducted by Sympatex comply with Sympatex quality standards and international standards. Sympatex uses the tests to ensure that all its functional materials comply with or exceed these standards.

Testing the membrane

The unique, poreless membrane undergoes a wide range of tests. The raw material (polymer) is tested before production to establish its purity, moisture content and viscosity. The Sympatex membrane is monitored online at all times during the production process – to ensure the correct thickness, the weight per m² and for flaws.

Testing the laminates

Waterproof test

The pressure test is conducted on the materials in their original condition, after washing and after dry cleaning. All laminates undergo a pressure test and must withstand extreme water pressure which is well above the levels required in the standards.

Seam seal test

All seams are sealed with special Sympatex tapes which guarantee that the seam will be sealed and therefore 100% waterproof. The tests are conducted on the materials in their original condition, after washing and after dry cleaning.

Breathability tests

Sympatex checks the breathability of functional materials by two possible laboratory tests:

- Water vapour transfer resistance: Thermal regulation model / Ret
- Water vapour permeability MVTR (for example ASTM E96B) and for footwear pursuant to DIN EN ISO 14268

Tear, tear propagation and tensile strength test

The limit of tear resistance and therefore the strength of the material are tested in tearing tests.



Martindale rub test

The wear resistance of the laminates is tested by means of a rub test. This means that depending their application certain functional materials will withstand 100,000 rubbing cycles with no problem.

Flame test

The flame test is used to test the laminate flame resistance – primarily for Contract & Workwear applications.

Spray test

All the upper materials used are finished with a hydrophobic treatment. The spray test checks the quality of the hydrophobic treatment which provides the water-repellent effect.

Other test methods for quality assurance purposes

- Heat transfer resistance test (Rct)
- Air permeability test
- Oil, fuel and chemical repellent test
- Colour fastness and colour value test
- Adhesion test
- Fit test for automobile seats

Testing the end products

The relevant garment is tested in minute detail in the tests. Special focus is given to the adhesion and waterproof finish of the seam seals. In addition the structure of points which are important to the garment's function, such as the zip fastener, hood, pocket, seam, etc. and the pearling effect of the upper material are tested. The tests are conducted with the material in its original condition and also after several washing and dry cleaning cycles. Glove inserts are tested for moisture resistance, insulation and breathability. Other tests are used for workwear – based on special standards and technical guidelines.

The EDGAR (Enhanced Dynamic Garment Rain Tester) system is used to test the clothing in continuous rain for up to 3 hours.

Testing the footwear

The footwear materials used are subjected to intensive stresses in the Sympatex test laboratories. The lining is tested to find its resistance to rubbing (using the Martindale rub test). Leather uppers must prove their flexibility and kink resistance in a kink test and their water absorption capacity is then tested in the Bally penetrometer test. Furthermore the watertight structure of the entire shoe is also checked on a test bench. Finally the footwear featuring the Sympatex laminate must withstand an endurance test of up to 14 hours in a walking simulator filled with water.