

The test program TOXPROOF for motor vehicle interiors

Objective of the testing

Controlling the materials used in the motor vehicle interior and test of the efficiency of the pollen filter according to the TOXPROOF criteria catalogue shall ensure that passengers in the vehicle are protected best possible from allergic reactions and the adverse effects of harmful substances.

The proceeding

The materials used in the vehicle interior are tested on harmful substances. The kind of testing takes into account in which way passengers may be exposed to the potentially present harmful substances. The main ways of exposure for passengers are:

- direct skin contact, e.g. certain dyes and finishings in seat covers, belts, steering wheel, foot mats, nickel in metal surfaces
- inhalation of substances, that are emitted from surfaces, e.g. volatile substances like residual solvents, formaldehyde e.g. from adhesives, plastics and textiles
- inhalation of allergizing flower pollen, that are present in the outdoor air

The requirements

According to the principle of preventive health protection, materials that foreseeably get into prolonged contact with the skin, must keep lowest limit values for a large number of tested harmful substances. Synthetic materials, leather and textiles are tested according to the stringent requirements for clothing. This means for example neither banned azo dyes nor allergizing dispersion dyes may be present, the material may practically not colour and must keep lowest limit values for formaldehyde and heavy metals.

In addition to the chemical analysis on harmful substances, materials that come into prolonged contact with the skin are also tested dermatologically. A closed epicutaneous patch test with 20 participants may not show any skin irritations when the material has been brought into direct skin contact for 24 hours.

The indoor air in the closed, standing vehicle is also tested. For example no concentrations of formaldehyde, benzene, styrene and other aromatic hydrocarbons, esters, alcohols and ketones, that may adversely affect human health, are allowed to build up in the vehicle interior. The TOXPROOF limit values for these parameters were taken from guidance/orientation values established for indoor air in residential buildings.

The pollen filter has to retain the most common kinds of pollen from the outdoor air nearly completely. For this the efficiency of the filter is tested with defined test dust particles as well as standardized mulberry pollen. The latter is only 10 µm, which is much smaller and therefore more difficult to retain than the common birch, hazel and grass pollen (20 – 40 µm).

The test mark

Vehicles, the interior of which comply with the TOXPROOF criteria catalogue for motor vehicle interiors, can be awarded the TÜV Rheinland test mark. The manufacturer is obliged to take extensive quality ensuring measures, and additionally TÜV Produkt und Umwelt GmbH monitors the compliance with the criteria on a regular basis.

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