

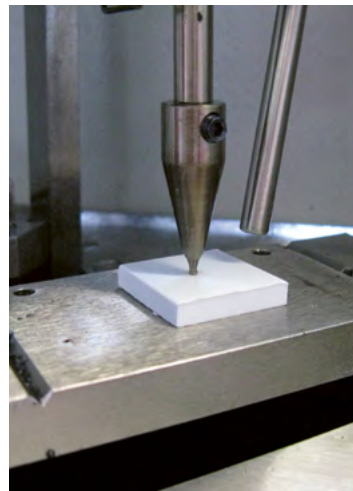


Range of services

Automotive Testing

Testing according to the automotive standards

in a certified laboratory



The DIN EN ISO/ IEC 17025 certified laboratory of the KIMW offers suppliers monitoring and assistance.

The services offered range from the compilation of the necessary test effort to the competent execution of the tests and the generation of a complete, detailed and clear test report. It is in this way that especially smaller and medium- sized suppliers do not have to deal with the complex review and interpretation of the highly specialised relevant testing standards and processes. The Kunststoff-Institut can even initiate the testing according to less common standards to be carried out in one of the numerous certified and well established test laboratories it has been partnering with for years. The advantage: The clients will receive full service from one

source, compiled in one single document. The Kunststoff-Institut staff is available for the detailed consultation of projects, which are increasingly subject to the product

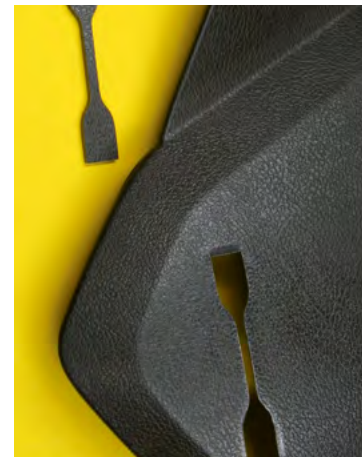
specifications of the automotive industry. Listed below are the common and frequently requested tests:

Delivery specification - Material quality (examples)		
Audi BMW Mercedes GM FIAT Ford Jaguar- Land Rover Opel Porsche PSA Seat Skoda Tesla Volkswagen Volvo	➤ DBL 1224	➤ TL 527
	➤ (DBL 5404/DBL 5410/ DBL 5490)	➤ TL 528
	➤ DBL 5416	➤ TL 533
	➤ DBL 5420/DBL 1262	➤ TL 52231
	➤ DBL 5562/DBL 1232	➤ TL 52440
	➤ GMW 14650	➤ TL 52476
	➤ GMW 14651	➤ VW 50133
	➤ PTL 4038	➤ VW 44045
	➤ PTL 4039	➤ VW 50123
	➤ PTL 8140	➤ VW 50125
	➤ STJLR 51.5301	➤ VW 50134
		➤ VW 96238
Tests according to various standards		
➤ Density	➤ Heat resistance	➤ Fogging
➤ Moisture content	➤ Dimensional stability	➤ Odour
➤ Annealing residue	➤ after aging at elevated	➤ Flammability
➤ Identity verification	➤ temperature	➤ Surface and volume
➤ Tensile strength	➤ Viscosity number	➤ resistivity
➤ Impact resistance	➤ Melt flow rate MFR	➤ Glow wire test
➤ (Charpy, Dynstat, Izod)	➤ Melt volume flow rate	➤ Chemical resistance
➤ Ball hardness	➤ MVR	➤ Storage under changing
➤ Shore hardness (A or D)	➤ Melting point/DSC	➤ climate conditions
➤ Vicat softening temperature	➤ Emission testing	➤ Ageing
➤ Aging in coolant	➤ VOC and FOG values	➤ Ball drop test
	➤ 1,3-Butadiene content	➤ Lightfastness
	➤ Formaldehyde emission	
Testing of thermoplastic polymers, thermoplastic elastomers, duromers or elastomers.		
Standard test specimen or sample plates for numerous tests can be manufactured at the Kunststoff-Institut technical centre.		

Delivery specification/Material quality

These specifications are used for testing that the material the item is made of meets the properties of the plastic. It is verified the requirements.

Surface testing (examp.) BMW PR 307.4 DBL 1302 (DBL 7384) DBL 1665 DBL 9202 DIN EN 60068-2-70 GS 94007 GS 97034 PTL 4026 (VW96136) PTL 5536 (VW96183) PTL 5580 (VW96457) STJLR 51.5225 STJLR 51.5241 STJLR 51.5242 TL 226 TL 211 TL 52728	➤ Cross-cut test ➤ Scratch resistance ➤ Adhesive strength ➤ Film thickness determination ➤ Exposure testing ➤ Gloss test ➤ Colour measurement ➤ Hydrolysis resistance ➤ Resistance against: ▪ Cleaning agents ▪ Synthetic sweat ▪ Other media ➤ Abrasion resistance	➤ Boiling test ➤ Salt spray test ➤ Resistance to creams ➤ Crockmeter test ➤ Roughness measurement ➤ Ball drop test ➤ Crack and pore density ➤ Finger nail test ➤ Martindale abrasion ➤ Stone-chip resistance ➤ shoe sole test ➤ pressure water-jetting test ➤ automatic car wash test
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Surface testing

In the case of decor items, not only the mechanical requirements but also the adhesion

of the coating will be tested. In the case of grained surfaces, a scratch or rubbing test may be required.

Emission analyses (examples)	➤ GME/GMW 8081 D10 5495 ➤ PN 780 GME/GMW 8081 DBL 1000 (DBL 5430) ➤ VDA 278 (PB VWL 709) VOC- und FOG-Wert ➤ VW 50180/VW 50181 VW 51780		
Fogging	➤ DIN 75201 A/B ➤ D45 1727 ➤ GMW 3235	➤ GME 60326 ➤ ISO 6452 ➤ PV 3015	➤ SAE J 1756 ➤ STD 1082 ➤ VCS 1027,2719
Odour	➤ D10 5517 ➤ FLTM BO 131-01 ➤ GMW 3205	➤ PPV 8010 ➤ PV 3900	➤ VDA 270 ➤ VCS 1027,2729
Formaldehyde emission	➤ D40 5535 ➤ PV 3925	➤ VDA 275 ➤ VCS 1027,2739	
Total carbon emission	➤ PV 3341	➤ STD 1027,2714	➤ VDA 277 (TVOC)
1,3-Butadiene	➤ DIN EN 13130-4		
DUT/SHED Chamber Method	➤ DIN ISO 12219-4 ➤ GS 93008-4	➤ GS 97014-2/3/4 ➤ PV 3942	➤ VDA 276



Emission analyses

Many of the items used in the interior of a vehicle are subject to emission measurements. These tests are based on the standards provided by almost every automotive manufac-

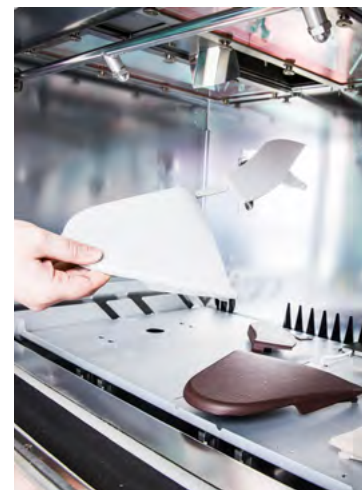
turer based on their own processes. These standards are usually directly based on common standards.

Light fastness Accelerated weathering Weathering testing (Examples for interior/exterior tests)	➤ GME 60292 ➤ GMW 14162 ➤ ISO 105-B06 ➤ ISO 4892-2 ➤ MBN 51000-5 ➤ PSA D47-1431	➤ PV 1303 ➤ PV 3929 ➤ Kalaharitest ➤ PV 3930 Floridatest ➤ SAE J 1885 ➤ SAE J 1960	➤ SAE J 1976 ➤ SAE J 2412 ➤ STD 1026,8242 ➤ TPJLR 52.353 ➤ VDA 75202
Sun simulation	➤ BMW PrV 306.4 (Verf. C)	➤ DIN 75220	

Accelerated weathering/ light fastness and sun simulator

These are tests for verifying the colour fastness when subjected to solar radiation: Do the colours fade or does the colour change

in any other way? The test is followed by a so-called greyscale evaluation or an evaluation of the mechanical properties. Items that are used on the outside of the vehicle are subject to more rigorous testing.



Various OEM approvals:

- BMW qualified
- VW approved lab
VW 50180
- VW-Certified Laboratory
- Mercedes-Benz:
Emissions Certifications
- Stellantis Certifications
Flammability tests
Emissions

Determination of the burn rate ▪ Burn rate ▪ Flame resistance (examples)	➤ BMW GS 97038	➤ GMW 3232	➤ SAE J 369
	➤ CMVSS 302	➤ ISO 3795	➤ STD 5031,1
	➤ DBL 5307	➤ LP.7M079	➤ TL 1010 TL 1011
	➤ DIN 75200	➤ MS 300-08	➤ TSM0500G
	➤ Fiat 7-G2000	➤ PTL 8501	➤ VCS 5031,19
	➤ FMVSS 302	➤ PV 3357	
	➤ GB 8410	➤ PV 3904	
Other burn tests	➤ ASTM D635	➤ IEC 60695-11-10	
	➤ Glow wire resistance	➤ UL 94 (V, HB etc.)	

Burning tests

Usually for interior automotive items, the so-called burn rate is determined. It is to be made sure that in the case of a fire, the materials used will not burn directly, but,

if at all, burn very slowly. The requirement is usually a burn rate of less than 100 millimetres per minute. Almost all automotive manufacturers refer to DIN 75200 or FMVSS 302.

Other tests	➤ Climate change tests ➤ Chemical resistance tests/ Stress crack tests ➤ Long term ageing behaviour ➤ Surface and volume resistivity ➤ Thermal conductivity test	➤ Coefficient of linear expansion ➤ Heavy metal determination ➤ Glow wire resistance ➤ Chemical resistances ➤ Material identification ➤ Easy-to-clean
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FURTHER SERVICES

Damage analysis on the moulded parts and treated surfaces of parts:

Physical and chemical methods of analysis can be used to determine the cause of damage. The development of methods of resolution is very important.

Further test areas:

- Medical technology
- Recycling
- Packagings/foils
- 3D printing
- Bioplastics

Material selection:

Support from companies in the determination of customer requirements and the execution of systematic materials research.

Round robin tests:

www.dir-kimw.de

INFORMATION & ADVICE

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