

During their life-cycle, components, assemblies or technical products are exposed to various environmental influences.

We simulate these climatic conditions in advance and check, whether the functionality of your product will be affected.

We are able to perform basic examinations or just compensate your capacity bottleneck. Of course, k-labor also incorporates individual customer requirements.

Our services for climatic and environmental simulations include:

- **Aging tests**
- **Thermal cycling tests (cold / heat)**
Cooling to -40 °C; heat to +1150 °C
- **Alternating climate stress tests**
Implementation according to DIN, special programs, or to industrial standards of the manufacturers - with and without humidity control according to DIN EN 60068.

Examples from the automotive industry:

- Daimler DBL 5306.5.2 - Tropical climate alternating storage
- BMW Standard Pr 303.4 - Alternating climate stress test
- VW Standard PV 1200, PV 2005 - Alternating climate stress test
- Volvo VICT Indoor corrosion test

- **Artificial weathering / radiation (UV-irradiation, Xenotest)**

- **Corrosion tests**

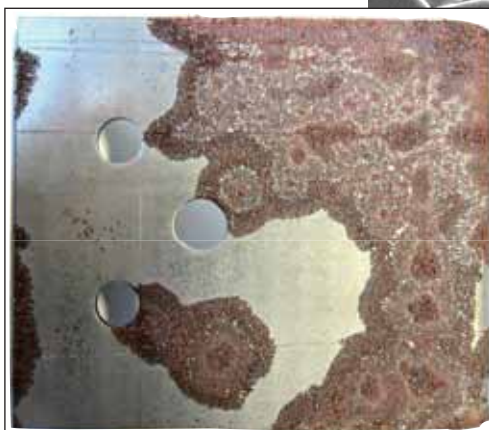
- Salt spray test DIN EN ISO 9227 (old: DIN 50 021)
- Condensation test DIN EN ISO 6270-2 (old: DIN 50 017) and DIN EN ISO 6988 (old: DIN 50 018)
- Corrosion - alternating climate stress test according to VDA 621-415

- **Chemical resistance and compatibility tests**

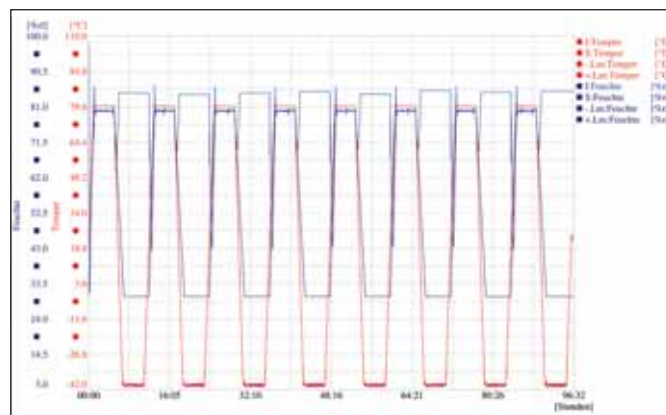
- Methods for determining the resistance to stress cracking:
- ESC (Environmental Stress Cracking)
 - Tensile creep tests into media
 - Determining the compatibility of materials to chemicals such as solvents, detergents, greases, oils to coffee or ketchup.

These and other climatic tests permit the selection of the best material.

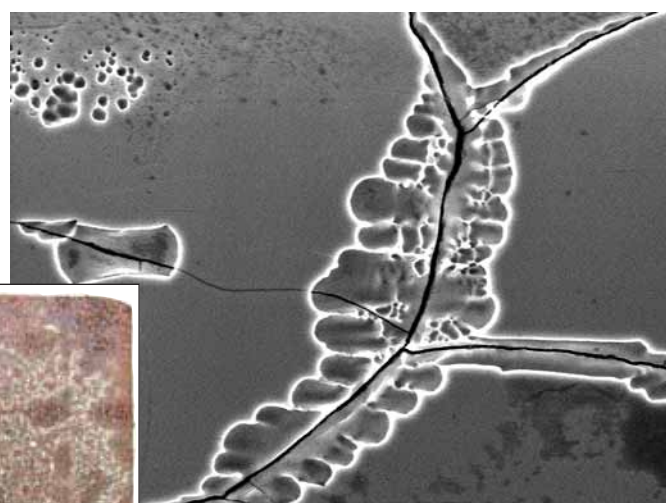
To determine the environmental influences, all material investigations can be carried out before or after to the above environmental tests.



Air-storage of a component / cold test at -40 °C



Alternating climate stress test VW PV 1200



Corrosion in a hard-chrome layer (2000 : 1)

Condensation test on a plate
AHT (Condensation climate with alternating humidity and air temperature) 15 days according to DIN EN ISO 6270-2