

# Instructions for Sample Preparation for Material Testing of Automotive Interior Parts



## General information

These instructions are intended to assist in the selection of sample fabrication and taking, so that the real material properties can be determined by testing on samples representative of the entire component.

They are aimed at automotive suppliers who test assembled parts and individual components made of plastic for series release according to OEM supplier specifications. The instructions are used to coordinate normative requirements and design challenges regarding sample preparation with our laboratory, thereby avoiding inconsistencies in test results that cannot be derived through material quality or the manufacturing process.

---

## Select the manufacturing process of the samples

First of all, a distinction is made between material testing directly on the component and material testing on machined samples or samples produced by injection molding. The manufacturing process of the samples depending on the plastic used makes a significant contribution to reaching the mechanical key values achieved.

DEKRA offers the following manufacturing methods for the production of plastic samples:

- > Waterjet cutting from components
- > Precision milling from components
- > Injection molding from base material (granules)
- > Pre- and post-processing methods of the manufactured samples

The selection is made by our experts in a joint customer discussion depending on the plastic type and component geometry.

---

## Consider production characteristics

It should be clarified during the offer phase in cooperation with DEKRA whether sample-taking for standard samples from the component is possible and whether this can then provide representative results according to the material data sheet.

Apparently good sampling points can lead to poor measurement results due to production-related component characteristics; here, attention must be paid to the following:

- > Gate point and parting line
- > Surface condition (grains)
- > Wall thickness
- > Material flow lines and alignment of fillers (glass fibers)

# Instructions for Sample Preparation for Material Testing of Automotive Interior Parts

## Compare material key values

The selection of a plastic by the automotive supplier is made with the help of a material data sheet from the granulate manufacturer, so that the material specification according to the drawing and delivery condition - specified by the OEM – is met.

There are two crucial points to consider here:

1. The material data sheet presents material characteristics that were determined on ideally manufactured standard samples and usually improve the material from a market point of view, over a significantly higher number of tested samples.
2. Experience has shown that the material properties of machined samples deviate from the material properties of a material data sheet (MDS).

These two factors thus strongly limit the selection of a suitable base material, since on the one hand the economic factor plays a role and the material is ordered that is close to the requirements on the basis of the MDS; but at the same time the plastic, processed as a component, cannot achieve the mechanical key values of the material data sheet.

The comparison between injection-molded standard samples and machined component samples explains these differences:

- > Injection molded skin on standard samples increases strength and elongation
- > Grains on components can create a notch effect
- > Anisotropy of fillers in components can reduce strength and elongation
- > Small wall thicknesses (usually < 4 mm) produce a smaller cross-section and thus a greater potential for defects, e.g. in the case of blowholes

---

## Clarify minimum sample quantity

During the offer phase, suitable sampling points should be defined with our laboratory experts using a technical drawing of the components. Taking into account the above aspects and the minimum requirement for the number of samples to be tested, we determine the number of components and the amount of base material necessary for the tests.

---

## Labeling of samples and shipping

The sample labeling, the material identification and the date of manufacture of the component including the batch number must be applied to the outside of the packaging - not directly on the component.

Samples without clear labeling cannot be analyzed by the DEKRA testing laboratory until written clarification has been provided.

When sending samples, please always enclose a cover letter (order/sample advice note) with reference to the quotation number - this will help us to avoid delays!

### DEKRA Automobil GmbH

Laboratory for Materials Testing and  
Damage Analysis (formerly k-labor)

Unidekstrasse 5

75015 Bretten

Telephone +49.7252.96552-0

Fax +49.7252.96552-29

k-labor@dekra.com

[k-labor.de/home-en](http://k-labor.de/home-en)