

Press release

KRAIBURG TPE provides shrinkage values

Waldkraiburg, February 2024

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Introduction of an optical measuring device provides shrinkage values in accordance with DIN EN ISO 294-4

During the industrial processing of plastics, details of their shrinkage values form part of the standard information that is essential as a specification for mold construction. To provide manufacturers with maximally precise data, KRAIBURG TPE has been using a contactless optical measuring device since August 2023, which enables distance measurements required to determine shrinkage values in accordance with DIN EN ISO 294-4.

The measurements “for determining the processing shrinkage and the post-shrinkage of thermoplastics” are based on test specimens 60 x 60 x 2 mm in size that are injection-molded in accordance with the DIN standard, for which the values are determined. During measurements, shrinkages are determined both along the direction of flow and transverse to it.

Combined with other parameters such as wall thicknesses and flow paths, these specifications enable mold makers and calculation engineers to carry out specific calculations for the most accurate dimensioning of their molds. This applies to the manufacture of new molds, but also to adjusting existing molds, e.g. for planned material changes. In all cases, the cavity must be designed in such a way that the material shrinkage, that persists for up to 48 hours after processing, is taken into account in relation to the finished plastic part.

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“We previously determined the shrinkage values by using tactile measuring devices,” summarizes Grit Müller of Team Application Engineering at KRAIBURG TPE. “The use of contactless measuring devices has proved to be advantageous, particularly for measuring the shrinkage of soft and very soft materials.” The reason for this, she adds, is that “When using mechanical devices, measurement distortions may occur due to minimal compressive loading, which in turn leads to minimal deviations from the dimensions required for the finished plastic after processing.” According to Grit Müller, the conditions required for using the new optical measuring device – i.e. expanding the in-house test plate production by integrating another insert into the new master die (including internal pressure sensors) – were already established last year.

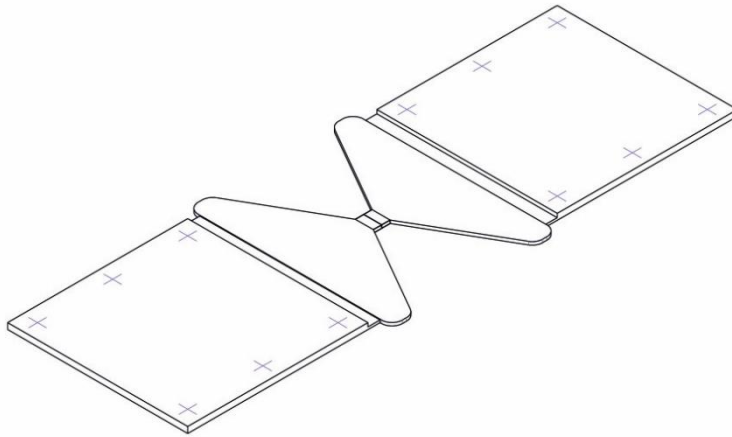
Since the introduction of the new contactless measuring device, KRAIBURG TPE has been able to determine shrinkage values for all established compounds in accordance with the DIN EN ISO 294-4 standard, irrespective of the Shore hardness of the tested materials. This enables both existing customers and also potential new customers to make decisions on the use of new or alternative materials based on even more precise information. This is of particular relevance for the production of single-component materials, since in these cases it is only the TPE source material that shrinks. But it also makes it possible to better assess the impact on shrinkage in two-component composites.

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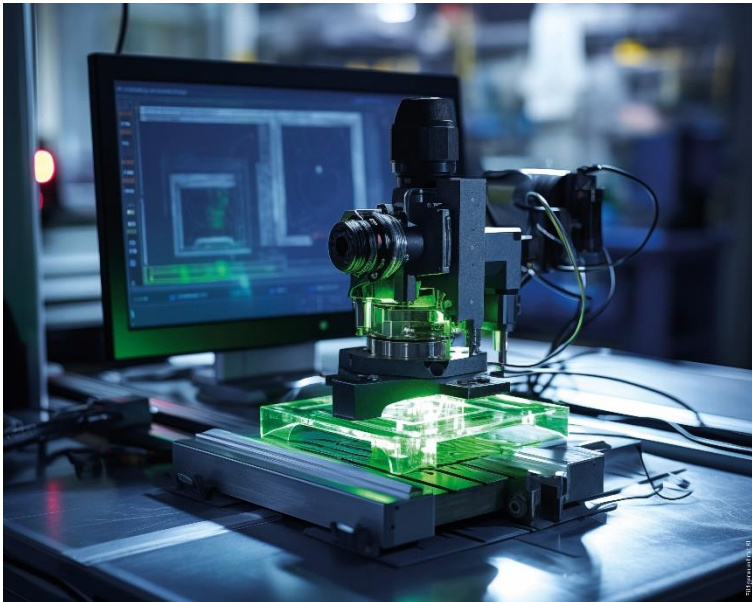
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Test plate in accordance with DIN EN ISO 294-4.

(Image: © 2024 KRAIBURG TPE)



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About KRAIBURG TPE

KRAIBURG TPE (www.kraiburg-tpe.com) is a global manufacturer of thermoplastic elastomers. From its beginning in 2001 as subsidiary of the historical KRAIBURG Group founded in 1947, KRAIBURG TPE has pioneered in TPE compounds, today being the competence leader in this industry. With production sites in Germany, the US, and Malaysia the company offers a broad range of compounds for applications in the automotive, industrial, consumer, and for the strictly regulated medical sectors. The established THERMOLAST®, COPEC®, HIPEX®, and For Tec E® product lines are processed by injection molding or extrusion and provide numerous processing and product design advantages to manufacturers. KRAIBURG TPE features innovative capabilities as well as truly global customer orientation, customized product solutions and reliable service. The company is certified to ISO 50001 at its headquarters in Germany and holds ISO 9001 and ISO 14001 certifications at all global sites. In 2021, KRAIBURG TPE generated sales of 216 million euros with around 682 worldwide employees.