

High-quality Recycling

Recovery of High-performance Plastics

Plastics recycling is state-of-the-art technology – at least in the case of commodity plastics such as PP and PE and to a certain extent also with engineering plastics such as PA, PC and PBT. But what is the situation when it comes to the extremely costly high-performance plastics? The price per kilogram for these specialty products is between DM 15 and 150, which makes recycling an economically attractive proposition. Leis Polytechnik GmbH, Ramstein/Pfalz, a company founded in 1991 that manufactures engineering plastics compounds, offers cost-effective, customer-oriented solutions in this area.

Leis' customers include numerous companies producing components for the electrical and automotive industries, medical technology and equipment manufacture. With a process it developed itself, Leis has been recycling high-quality materials such as PES, PSU, LCP, PEEK, PPS and many others since 1994.

Through gentle pelletization and the use of special additives, the recyclates in many cases attain virtually the same properties as the virgin material. Right from the moment the "scrap" is supplied in the form of reject parts, sprues and runners or regrind, care is taken to retain the excellent condition of the starting product. This is irrespective of whether the material is to be recycled for a customer or will serve as a raw material for the company's own production. In the subsequent compounding process, a recyclate with defined properties is produced under continuous control. The in-house laboratory tests the products and documents them in acceptance test certificates. The result is a high-quality recyclate with controlled properties at a price up to 80 percent lower than that of the corresponding virgin material.

The service provided by Leis Polytechnik, however, is not confined to state-of-the-art pelletization and modification of high-performance plastics. Twenty experienced and competent employees discuss with customers in advance all details such as quality requirements and

testing so that these can be specified. Test certificates according to DIN EN 102 04 and (since 1997) the quality system DIN ISO 90 01 certify the first-class quality of the product. Here customers benefit from the varied experience of Leis Polytechnik, not only in relation to the recycling process but also particularly as regards the behavior of the material in the subsequent application. The final safeguard of reliable performance is provided in the trial samples supplied to customers at the large-scale production price.

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Fig. 1. Change in yield stress/tensile stress at yield of some recyclates produced from high-performance plastics as compared with the values for virgin material; Neuware = Virgin material, Regranulat = Recyclates, Die dargestellten Werte sind Durchschnittswerte = The shown values are average values, Streckspannung/Bruchspannung = yield stress/tensile stress

Fig. 2. The high flexibility of the plants enables special formulations to be produced from 1 metric ton upwards and in special cases even in smaller quantities