

LANXESS cooperates with elastomer injection molding experts

Working together in an exciting market

Leverkusen – LANXESS, a world market leader in the field of synthetic rubber, is cooperating with elastomer machine manufacturing specialist Maplan from Ternitz, Austria, in exploring the technical potential of its new, easy-flow HNBR elastomer, Therban AT 3400 VP. The experience gained through this collaboration will help customers interested in the new liquid injection-moldable HNBR grade to significantly shorten the time to market of new products made from this high-performance rubber.

"Vulcanizates of Therban AT 3400 VP boast the same outstanding ozone and oil resistance and aging and abrasion properties as comparable HNBR elastomers from LANXESS' portfolio," says Dr. Kevin Kulbaba, rubber expert from the LANXESS Technical Rubber Products business unit, describing the new elastomer. "The dynamic properties are also equivalent, or even superior, for example, to those of many silicone elastomers. Therban AT 3400 VP is therefore ideal for the production of seals and gaskets that are subjected to high dynamic loads and have to function reliably between -30 and 160 °C, including in non-polar media such as oils and fuels. Nevertheless, at normal processing temperatures, the product has a viscosity of between 100 and 1,000 Pascal seconds. This means it flows 1,000 to 10,000 times more easily than existing Therban grades." This makes this ULV (= ultra-low viscous) grade of Therban suitable among other applications for the versatile liquid injection molding technique (LIM).

Although the rubber applications development department has considerable expertise with other low-viscosity elastomers, such as silicones and fluorinated silicones, it has little practical experience with the processing of this new HNBR grade. "We therefore decided to seize on the chance that a new product like easy-flow Therban can offer an elastomer machine manufacturer," says Rudolf Eisenhuber,

LANXESS AG

Contact: Udo Erbstößer
Market Communications
Trade and Technical Press
51369 Leverkusen
Germany

Phone: +49 214 30-54529
Fax: +49 214 30-44865
udo.erbstoesser@lanxess.com

Page 1 of 3

head of the engineering section at Maplan Maschinen u. techn. Anlagen Planungs- und Fertigungs-Ges.m.b.H. "That's why we approached LANXESS with an offer of cooperation at such an early stage of the market launch of the new material. The experience we have had with the experts has been very positive. Together we were able to adapt our plant engineering to the properties of the new elastomer within a very short time."

The elastomer injection molding technology developed by Maplan seems to be predestined for the ULV-HNBRs from LANXESS. Injection units with a short, permanently tight-fitting cooled nozzle, such as in the MHF400/300 E2 units, are ideal for the production of small, thin parts made of Therban AT 3400 VP. Dispensing with nozzle retraction between the shots avoids high pressure losses and prevents the unnecessary escape of material, which, especially with the manufacture of small parts, would quickly have a negative effect. But this is precisely one of the strengths of Therban AT 3400 VP. Says Dr. Kulbaba: "The new ULV Therban fills not only large-volume cavities faster than before. The easy-flow material reaches even distant parts of complicated mold cavities. This means that even small slits and extremely thin cross-sections are now filled better. We were also able to prove this in practice with the help of the injection molding experts from Ternitz using test molds."

To adapt the Maplan machine to the viscosity of the new LANXESS elastomer, all that needed to be done was to modify the feed unit – a task that the Austrian engineers mastered within just a few days. "We have since supplied several customers with samples of the new elastomer, and the feedback is very positive," says Dr. Soddemann, head of the Therban Center of Excellence in LANXESS' Technical Rubber Products business unit. "Once the projects become more specific, we can start straight away. The necessary technology is already available – thanks to the cooperation with Maplan." Rudolf Eisenhuber from Maplan is also optimistic: "ULV Therban is a highly promising material that is ideally suitable, for example, for highly demanding seals and gaskets in vehicle construction. For us it is

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exciting that we can tap new customer areas as a result of the fact that we have collected experience with the new material at such an early stage."

LANXESS is a leading specialty chemicals company with sales of EUR 5.06 billion in 2009 and currently around 14,300 employees in 23 countries. The company is represented at 42 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals.

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