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LANXESS
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Light-Weight plastic oil pans for trucks

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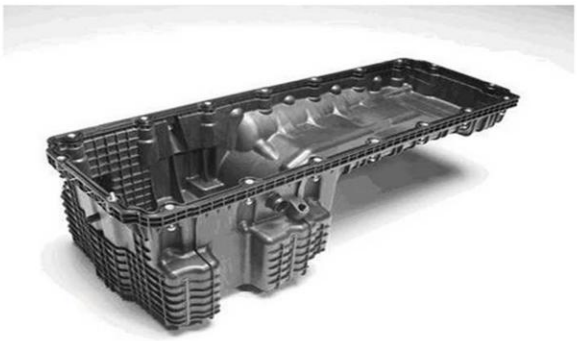

ETAuto Bureau

Mumbai: In a breakthrough to light weighting measures, leading specialty chemical company Lanxess and Swiss firm BBP Kunststoffwerk Marbach Baier GmbH have jointly developed one of the largest plastic (polyamide) oil pans for trucks.

In this particular application, polyamide offers an alternative to aluminum, sheet steel and sheet molding compounds (SMC). It produces far lighter components than die-cast aluminum, for example. What's more, polyamide components made using injection molding processes are ready for use straight away. In contrast, die-cast and SMC parts often have to undergo laborious and costly additional processing in order to remove burring.

Talking about implantation of such high technology in India, Sushmita Datta - Business Unit Head (India), High Performance Materials, Lanxess said: "The commercial vehicle market is changing rapidly in India; there is a visible difference in the technology used in the past to those being used in the present. ...certainly result in an increase in demand for high performance materials and its applications for the commercial vehicle sector."

According to a media release, the oil pans developed by using Durethan from Lanxess is fitted in the 12.8 liter Euro 6 engines for the Mercedes Actros from Daimler are up to 120 cm long, 40 cm wide and 35 cm deep. To date, they are the largest engine oil pans for trucks to be made of polyamide 6 and 66.

One variant of the oil pan for the 12.8 liter engine is made of the heat-stabilized polyamide 66 Durethan AKV 35 H2.0 filled with 35 percent glass fibers, while the other is manufactured using the corresponding polyamide 6 grade Durethan BKV 35 EF H2.0.

Validation & Testing

"It transpired that polyamide 6, too, is able to cope with the high demands made on these large components that are exposed to a range of temperatures and pressures," said Frank Krause, a LANXESS expert for oil-carrying engine parts made of plastic.

"Other investigations examined how the oil pans would behave if the entire engine block, including the transmission, was removed and set down for maintenance work or repairs. In this instance, the pans would have to bear a weight of around 1.6 metric tons. Integral simulation was used to provide detailed analysis of the directionality of the thermal expansion around the flanges resulting from the varying fiber orientation in the component. We used this to derive measures to ensure the tightness of the flange under all the potential temperatures and pressures," said Krause.