

## NEWS RELEASE

### **Production of PU parts without release agents**

#### IKV and IFAM research use of a plasma-polymer mould coating

Aachen, October 2018. The Institute of Plastics Processing (IKV) in Industry and the Skilled Crafts at RWTH Aachen University is cooperating with the Fraunhofer Institute for Manufacturing Technology and Advanced Materials (IFAM) to research the use of plasma polymer mould coatings for the release agent-free production of polyurethane (PU) parts.

In PU processing, the use of release agents has become well-established in the industry, and the disadvantages associated with their use are generally regarded as unavoidable. These disadvantages range from the strict occupational safety regulations and longer cycle times to the need for regular mould cleaning to remove release agent residues. The logical consequence is that working without release agents offers plenty of optimisation potential.

An alternative to conventional release agents are permanent plasma-polymer mould cavity coatings, which the IFAM developed jointly with IKV in two previous projects. Their effectiveness in the demoulding of PU parts has already been proved. For this reason, the current project will focus on a detailed study of the interaction of different PU material systems with plasma-polymer mould coatings. Apart from that, the research team will examine the stability of the mould coatings in the production tool.

In addition to the substitution of traditional release agents, the new technology also has other advantages in processing. Firstly, it allows the moulding of finer surface textures because the mould structures can no longer become clogged with release agent. Secondly, there is no need to clean the moulded parts before secondary finishing steps such as surface coating. To conclude the studies, an appraisal is to be compiled of the usability of plasma polymer mould coatings in near-reality production scenarios for various PU mouldings. The economic efficiency of different scenarios will also be evaluated.

IKV will present the latest results during the next meeting of the committee accompanying the project, which will take place in Aachen on 23 October 2018. Interested company representatives are warmly invited to attend and can register direct with Lorenz Wruck: [lorenz.wruck@ikv.rwth-aachen.de](mailto:lorenz.wruck@ikv.rwth-aachen.de)

**[www.ikv-aachen.de](http://www.ikv-aachen.de)**

#### **About IKV**

IKV - the Institute for Plastics Processing at RWTH Aachen University, is Europe-wide the leading research and education institute engaged in the field of plastics processing enjoying outstanding reputation. More than 300 staff are employed in finding solutions to problems connected with processing, materials technology and part design in the plastics and rubber industries. IKV's close contacts with industry and science, together with its outstanding facilities, enable cutting-edge research in plastics technology and ensure that students benefit from a comprehensive, practically oriented course of study. Plastics engineering graduates from IKV are thus sought-

after experts in industry. In organisational terms, IKV is divided up into the four specialist departments of Injection Moulding, Extrusion and Rubber Technology, Part Design and Materials Technology, and Composites and Polyurethane Technology. The institute also takes in the Centre for Analysis and Testing of Plastics, and the Training and Further Education department. IKV is run by an Association of Sponsors, which currently has a membership of about 300 plastics companies from all over the world. Univ.-Prof. Dr.-Ing. Christian Hopmann is Head of the Institute and Managing Director of the Association of Sponsors. He also holds the Chair of Plastics Processing at the Faculty of Mechanical Engineering at RWTH Aachen University.

**Photo in high resolution to find on our website together with the press release at [www.ikv-aachen.de/en/news](http://www.ikv-aachen.de/en/news)**

We would appreciate a sample copy of any reprints.



The demoulding of complex PU moulded parts from complex mould technology, such as the FRIMO self-locking foaming mould shown above, should in future be possible without release agents. (photo: FRIMO)

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