

APR/MAY 2020 | VOLUME 22/ISSUE 2

EUROPEAN

PLASTIC

PRODUCT MANUFACTURER



INTENSE

HIGH QUALITY AND DURABILITY:
MEUSBURGER STRIKES WHILE THE IRON IS HOT



FORM-IDIBLE

INPAK MAKINA'S MUSTAFA
EREN DISCUSSES THE TURKISH
COMPANY'S THERMOFORMING
SOLUTIONS.

GOOD NEWS FROM BRUSSELS

PRINCIPAL SCIENTIST AT P&G GIAN
DE BELDER BROUGHT GOOD NEWS
TO PETCORE EUROPE.

FLYING ACES

EPPM SPOKE WITH OKLAHOMA
ACES PROGRAMME MANAGER
LESHIA PEARSON.

FOUNDED IN FRANCE IN 2013, POLLEN AM USES ULTRA-SOFT TPES FOR ADDITIVE MANUFACTURING IN ITS PAM SERIES P 3D PRINTERS. OPERATIONS DIRECTOR DIDIER FONTA EXPLAINS.

Softly, softly

Flexible materials, including natural and synthetic rubbers, made way during the 1970s following the creation of TPEs, which revolutionised industrial production due to its easy processing qualities, flexibility and ability to be injection moulded. TPEs have since become ubiquitous in everyday products such as toothbrushes, kitchenware and footwear.

Including TPU, TPS and TPO, each member of the TPE category has properties and qualities suitable to specific applications – depending on their respective mechanical or chemical resistance. However, TPEs express properties over a wide range of hardnesses – that is, from very hard to ultra-soft in texture. A 95 Shore A type TPE can be used in a rubber caster, for example, whereas an 80 Shore A TPE may be more suitable for use in footwear.



The Pam series P is the only 3D printing machine in the world to print this extremely soft material



ABOVE: THE NEW PAM SERIES P



The common elastic or rubber band is typically a 20 Shore A TPE and, for scale, chewing gum is measured below Shore A (i.e. Shore 00). This measurement is considered the definition of a 'very soft' material.

For France-based 3D printing specialists Pollen AM, the good news is that no matter where the TPE sits on this scale, it can be used in the Pam series P additive manufacturing technology hardware. The company has even printed individual TPE parts with hardnesses running down the scale from 90 to 00. Saying that the Pam series P is the only 3D printing machine in the world to print this extremely soft material makes us just a little bit proud, we have to confess.

The Pam series is a technology inspired by micro-extrusion techniques, and capable of treating every polymer type. The process of treating a material in order to obtain functional 3D printed parts requires a vigorous validation process that can be more or less intensive depending on the material category.

STEP 1: PROCESS VALIDATION

The use of a specific material with Pam technology begins with introducing it to the extruder to confirm its extrudability, with non-degradation of the chemistry and consistency being the key points to look for.

STEP 2: ELABORATION

Printing with Pam technology is all about the correct slicing parameters. A new material type, following validation, implies iteration – known as a Printing Profile – with regards to temperatures, speeds or extrusion dimensions.

Pollen AM delivers validated Printing Profiles that work for most applications with its TPE and other thermoplastics, including PEEK, PA6 and PA66, and PET.

STEP 3: REFINING FOR DEDICATED APPLICATIONS

Each application and part can be meticulously optimised due to the variety of levers in the slicer, and their ability to work on specific challenges such as optimising dimensional fidelity and improving mechanical properties.

From standard to high-performance plastics, and even metal, Pollen AM's Pam series is the only technology using industrial grade materials, and the company warmly invites enquiries regarding availability, processability, and knowledge transfer programmes.