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Thermoplastic elastomer demonstrators to show performance and capabilities

Prof Wim Thielemans – KU Leuven

Cofinanciering

met de steun van west-vlaanderen de gedreven provincie
Wallonie
AGENTSCHAP INNOVEREN & ONDERNEMEN

AVEC LE SOUTIEN DU FONDS EUROPÉEN DE DÉVELOPPEMENT RÉGIONAL
MET STEUN VAN HET EUROPEES FONDS VOOR REGIONALE ONTWIKKELING

Aim

- To visualize and highlight properties of thermoplastic elastomers
- Show-and-tell approach

Demonstrator 1

Improving impact properties of PLA by blending with TPEs

Example:
10% PEBE / 90% PLA

Improvement of the impact resistance of polylactide

Demonstrator 2

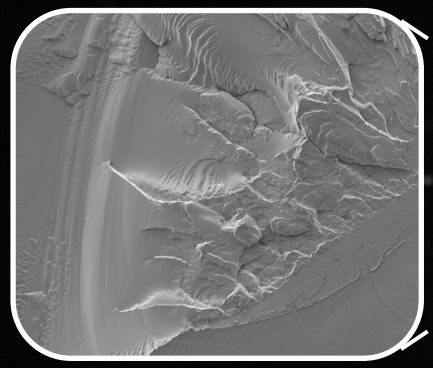
Foaming of TPEs

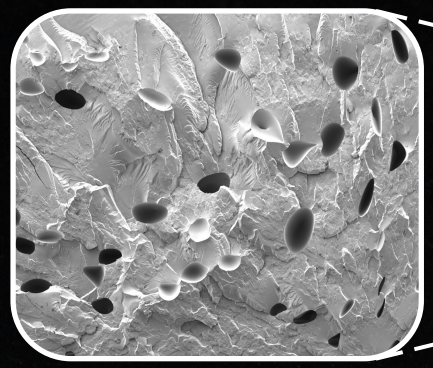
Example:

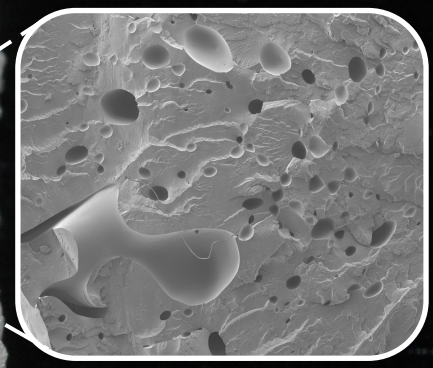
Polyolefin elastomers foamed with

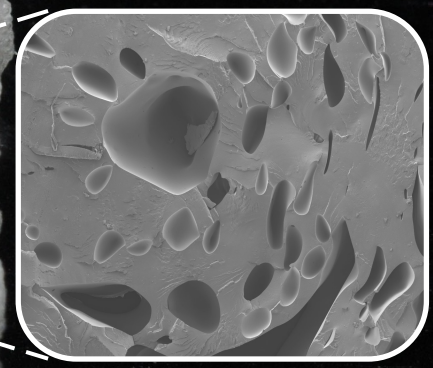
- Exothermic blowing agent (1-5%)
- Endothermic blowing agent (1-5%)
- Microspheres (1-5%)

Endothermic blowing agent



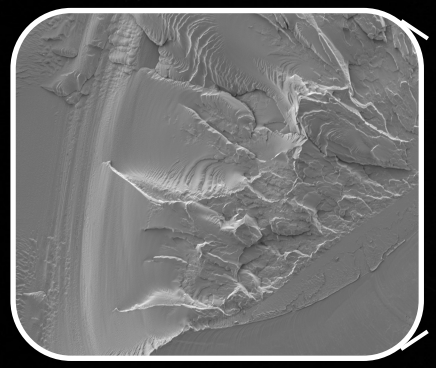


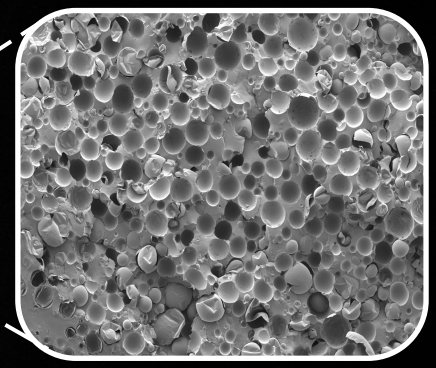


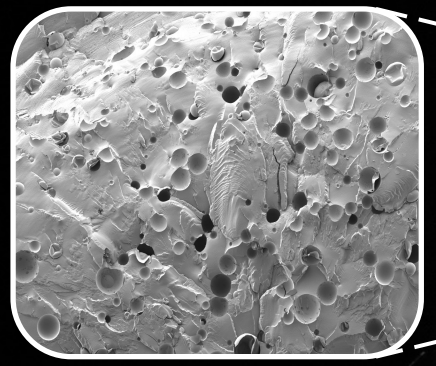


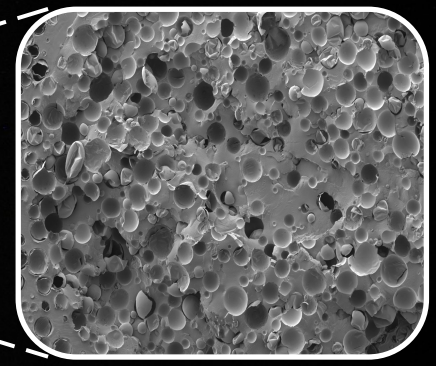
0% 0.5% 1% 1.5% 2% 5%

Microspheres









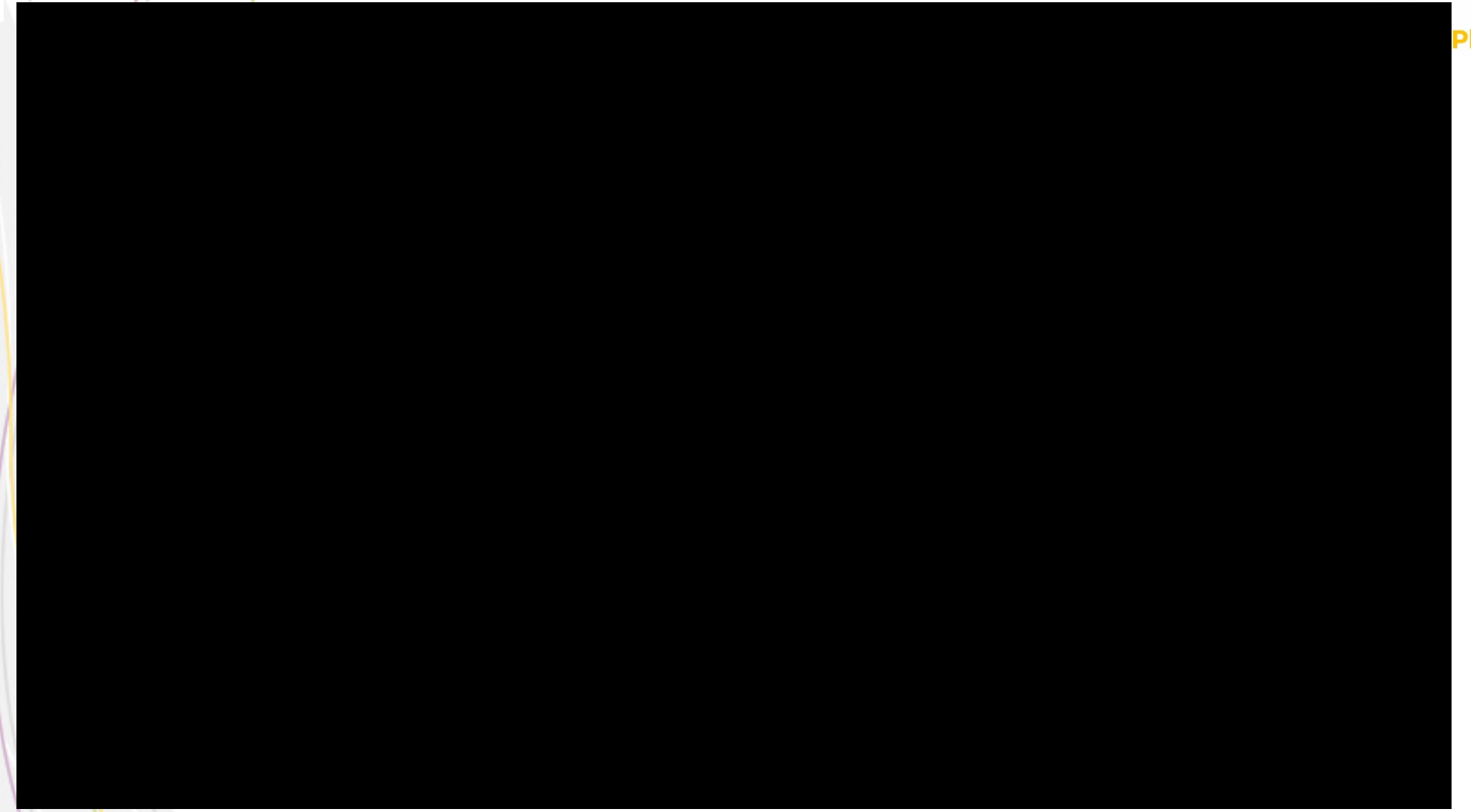
0% 0.5% 1% 1.5% 2% 5%

Demonstrator 3

Visualisation of damping effects of TPEs

Metal ball falling onto TPE cutout

Example:
SEBS and SEBS with filler



Plast

Demonstrator 4

Heel patch

Example:

Heel patch created from partially biobased TPE

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Demonstrator 5-1

3D printing of TPEs on different substrates

Example:
Nanovia Istroflex
(biodegradable 3D printable TPE)

Range of demonstrators

Printing on Alumina

Printing on Porcelain

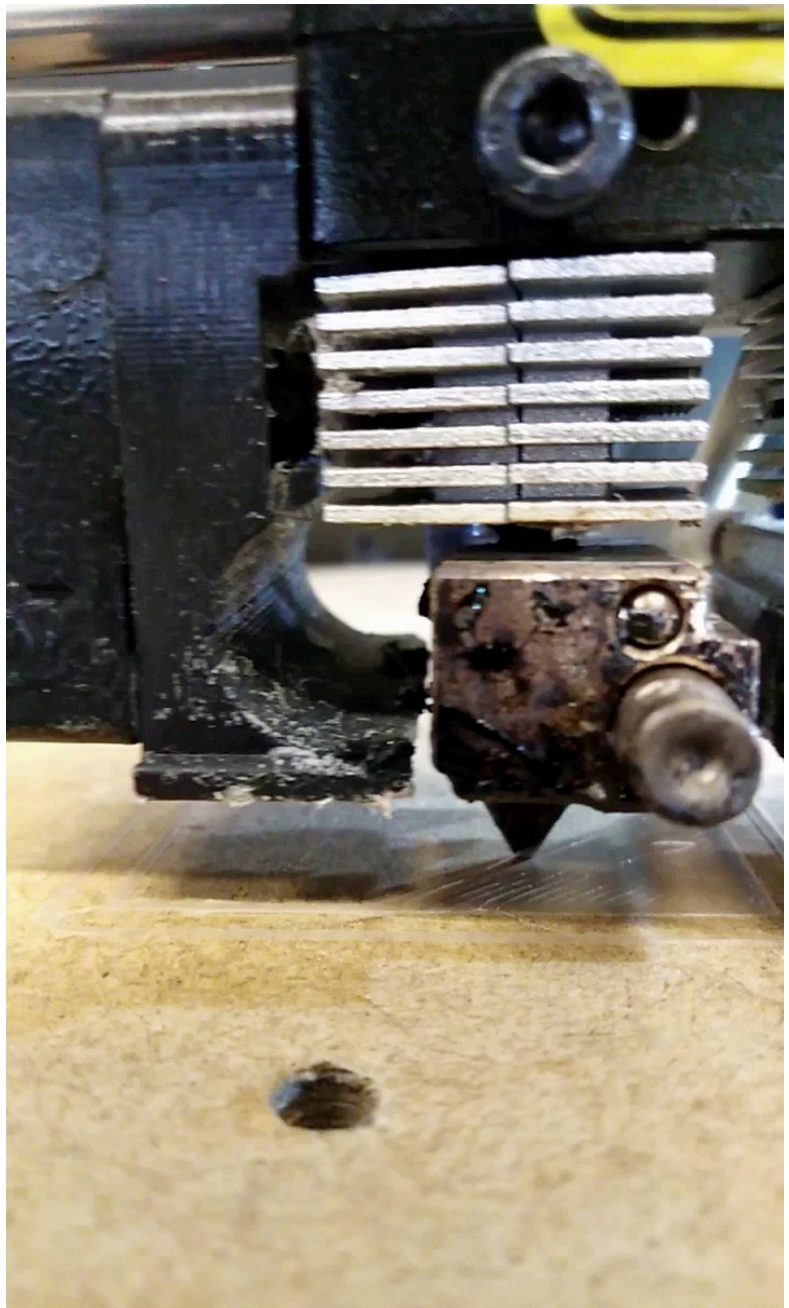
Printing on Textile

Printing on a Cup

Recently …!

Printing on Wood

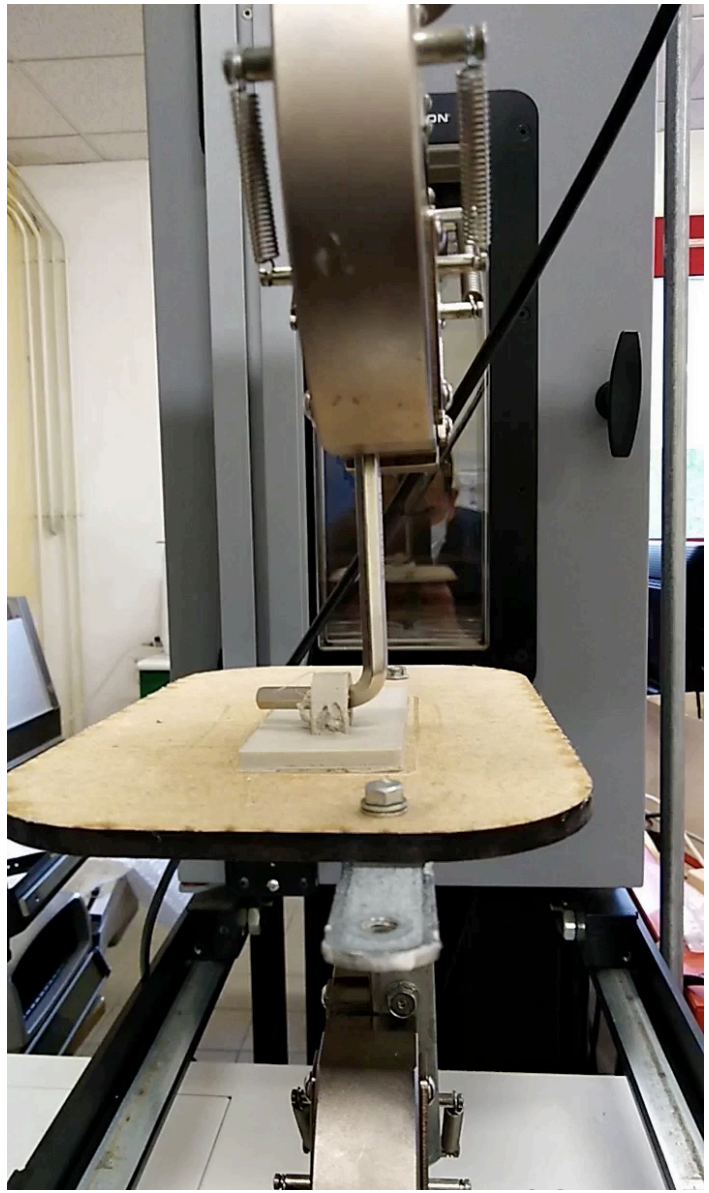
Printing on Aluminium



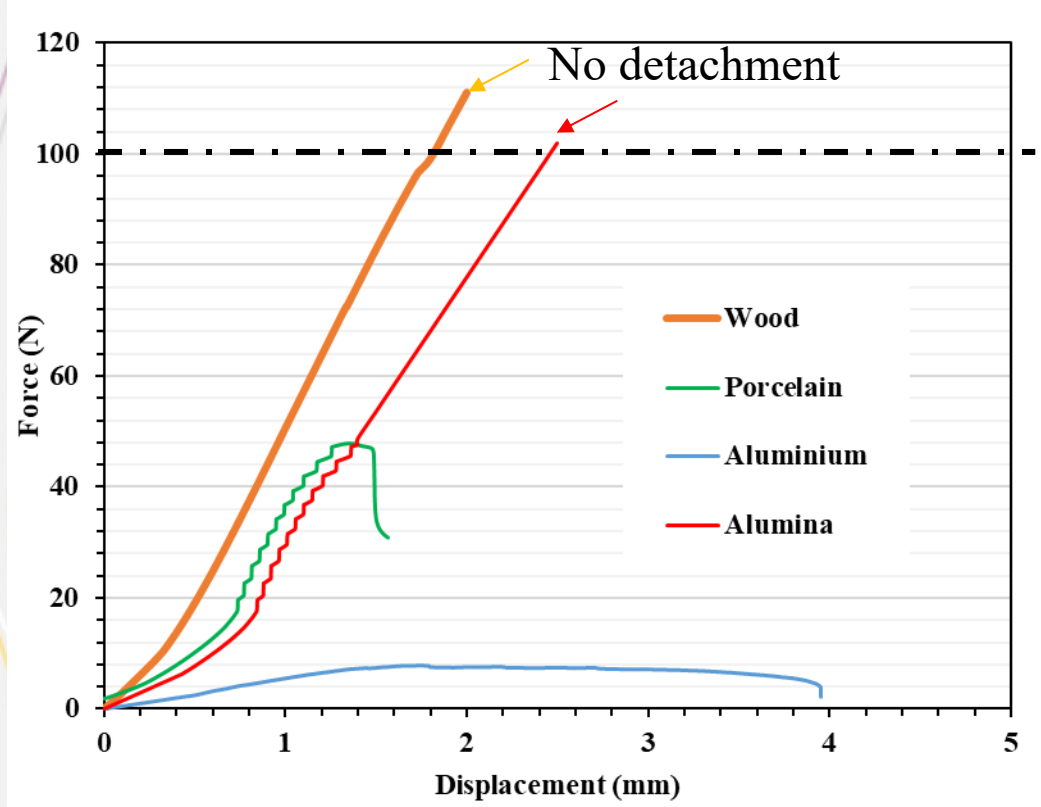
Demonstrator 5-2

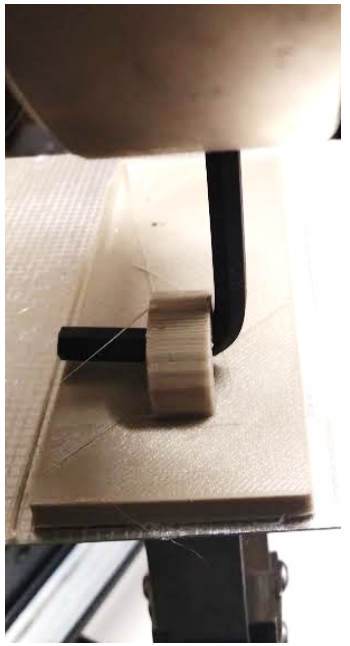
3D printing of TPEs on different substrates

Ability to test adhesion force



Adhesion force





- ✓ **Highest adhesion**: Wood and Alumina
- ✓ **Intermediate adhesion**: Porcelain
- ✓ **Low adhesion**: Aluminium

Newsletter 6 coming out

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Newsletter Elasto-Plast

01/21 2021/1

In this Newsletter

- Foamed Thermoplastic Elastomers
- Damping Properties of Thermoplastics Elastomers
- A Partially Bio-sourced Thermoplastic Elastomer
- 3D Printing of Thermoplastic Elastomers on Various Substrates
- Improving the impact resistance of poly(lactic acid)

Thermoplastic Elastomer Demonstrators

In the Interreg France-Wallonie-Vlaanderen Elasto-Plast project, the project team set out to familiarize companies with the potential thermoplastic elastomers (TPEs) offer terms of performance and processing advantages. We also set out to investigate limitations of current commercial TPEs and to develop new materials that can address these limitations.

To highlight developments and make them more tangible to a wider audience, we took it upon ourselves to develop a series of demonstrators that could highlight the potential of TPEs, raise awareness of their behaviour and potential, and showcase interesting new developments.

https://interreg-elastoplast.eu/en/eventsNews

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Questions ?

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