Title: Update on BPM Polymerization pilot initiatives

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Curriculum:
Gerard Nijhoving, Managing Director at Senbis Polymer Innovations B.V., obtained his MSc in Engineering and Policy Analysis at Delft University of Technology and an MSc in Public Administration at Harbin Institute of Technology. Since 2010 he held various positions as market analyst, (freelance) consultant and business developer at DP Supply, Sunoil Biodiesel and Senbis Consulting and was founder/general manager of Damilko Holland B.V., a company focusing on the development and sales of powdered instant dairy drinks in consumer packaging.

Gerard is currently responsible for general management, strategy and commerce at Senbis Polymer Innovations, a privately owned company that supports its customers with applied polymer research, with a specialization in yarns and (mono)filaments. Besides research and consultancy, Senbis offers laboratory analyses and pilot plant facilities. In addition Senbis invests in new product development together with partners.

Abstract:
SPIC-Emmen is an innovation cluster in the Netherlands that offers facilities on three levels: R&D, up-scaling and production. Available technologies include o.a. polycondensation, SSP, extrusion, spinning, 3D printing and injection moulding.

For polycondensation up-scaling facilities are missing. The cluster considers to invest in a pilot plant with a reactor size of about 150L. This provides the industry options to produce (bio)polymers in batches of 25 to 75 kg. Focus point of the pilot plant will be the polymerization of biobased monomers for both polyesters as polyamides. Besides biopolymers the facility will be used to upscale research regarding chemical recycling. More details on the facility will be provided soon on the new website of www.spic-emmen.com.

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Polycondensation Pilot Plant in Emmen

SPIC - Emmen
SUSTAINABLE POLYMER INNOVATION CLUSTER

June 14th 2018 - Biobased Performance Materials symposium

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Content

SENBIS
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1 History | Tools, knowledge and experience accumulated over decades

SENBIS POLYMER INNOVATIONS

AKU/Enka — 1952

1969 — AkzoNobel

ACORDIS — 1999

Diolen — 2003

API — 2008

2014 — Innofil 3D

2017 — SENBIS POLYMER INNOVATIONS

New investors

Sunoil Biodiesel

SENBIS GROUP

2 SPIC Emmen website

SPIC - Emmen
SUSTAINABLE POLYMER INNOVATION CLUSTER

www.spic-emmen.com

3 All scales under one roof!

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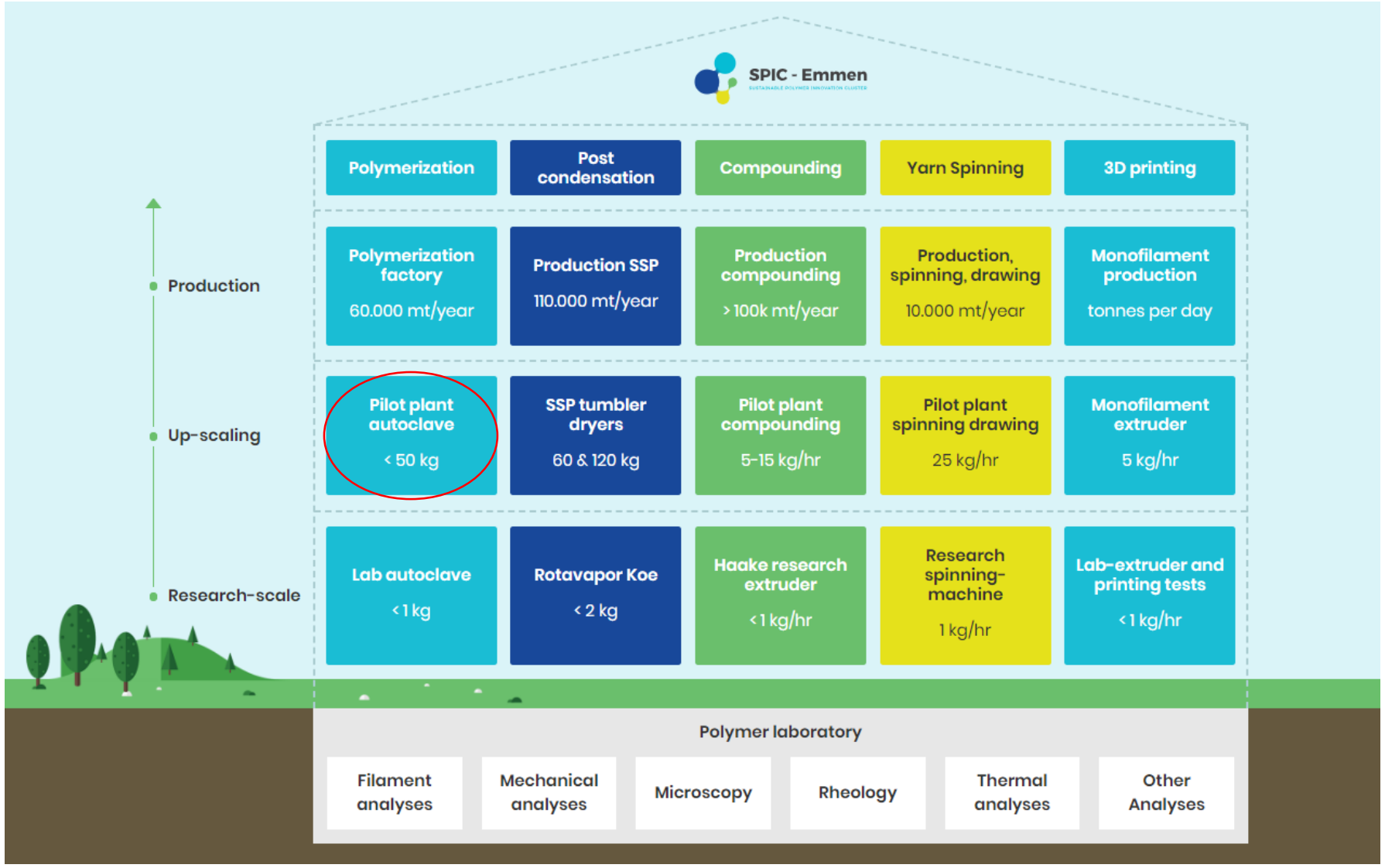

The Polycondensation Pilot Plant will be a great extension to the cluster

4 Polycondensation pilot plant 150L reactor

Picture: buchiglasuster

Expected realization: Q2 2019

- Polymerization of e.g. the following (Bio)polymers:
  - (bio)polyester like materials, such as:
    - PET, PEF, PBS, PEN, PBT
  - (bio)polyamide like materials
- Depolymerization of recycled polyesters to obtain pure monomers
- Expected key specifications:
  - 150 liter reactor(s)
  - Temperature up to 300 C
  - Pressure up to 100 bar
  - Viscosity up to 1.000 Pa.s

Decades of polycondensation track record. Experienced operators and researchers already employed

5 Interested in polycondensation R&D?

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