

Session: Welcome and Opening
Presentation by: Gerard Nijhoving, *Senbis Polymer Innovations*

Title: **Polycondensation pilot plant in Emmen**

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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:

This session will introduce the initiative to start a Sustainable Polymer Innovation Cluster (SPIC) in Emmen. Together with the BPM team and with Cumapol, Senbis is investigating the feasibility of a polymerisation pilot plant in Emmen, more specifically focussing on polycondensation. All three partners see potential in this kind of facility in order to upscale (their) polymerisation research. The openly accessible facility fills the research gap between laboratory testing and large scale production, for which there is little capacity available in Europe.

During the feasibility study the partners want to understand the requirements and wishes of potential users of the pilot plant.



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Solving polymer challenges

Polycondensation Pilot Plant in Emmen

June 15th 2017 - Biobased Performance Materials symposium





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History | Tools, knowledge and experience accumulated over decades



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1952

1969



1999



2008

2003

2014



2017



New investors



SEN BIS
GROUP

Our Services | We offer three different service pillars



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Consultancy & Research

Our experienced team helps you solve any of your polymer challenges.

- On-site assistance
- Material selection
- Optimization of polymers and polymer products
- Fit for Use: e.g. 3D printing

Analyses & Equipment

We have a fully equipped polymer laboratory at our (and your!) disposal.

- Mechanical analysis
- Rheological investigations
- Thermal analysis
- Microscopy

Pilot Plant & Specialty Products

We offer facilities for producing specialty products and up-scaling research

- Compounding
- Extrusion - Spinning
- Polymerization
- Solid State Post-condensation



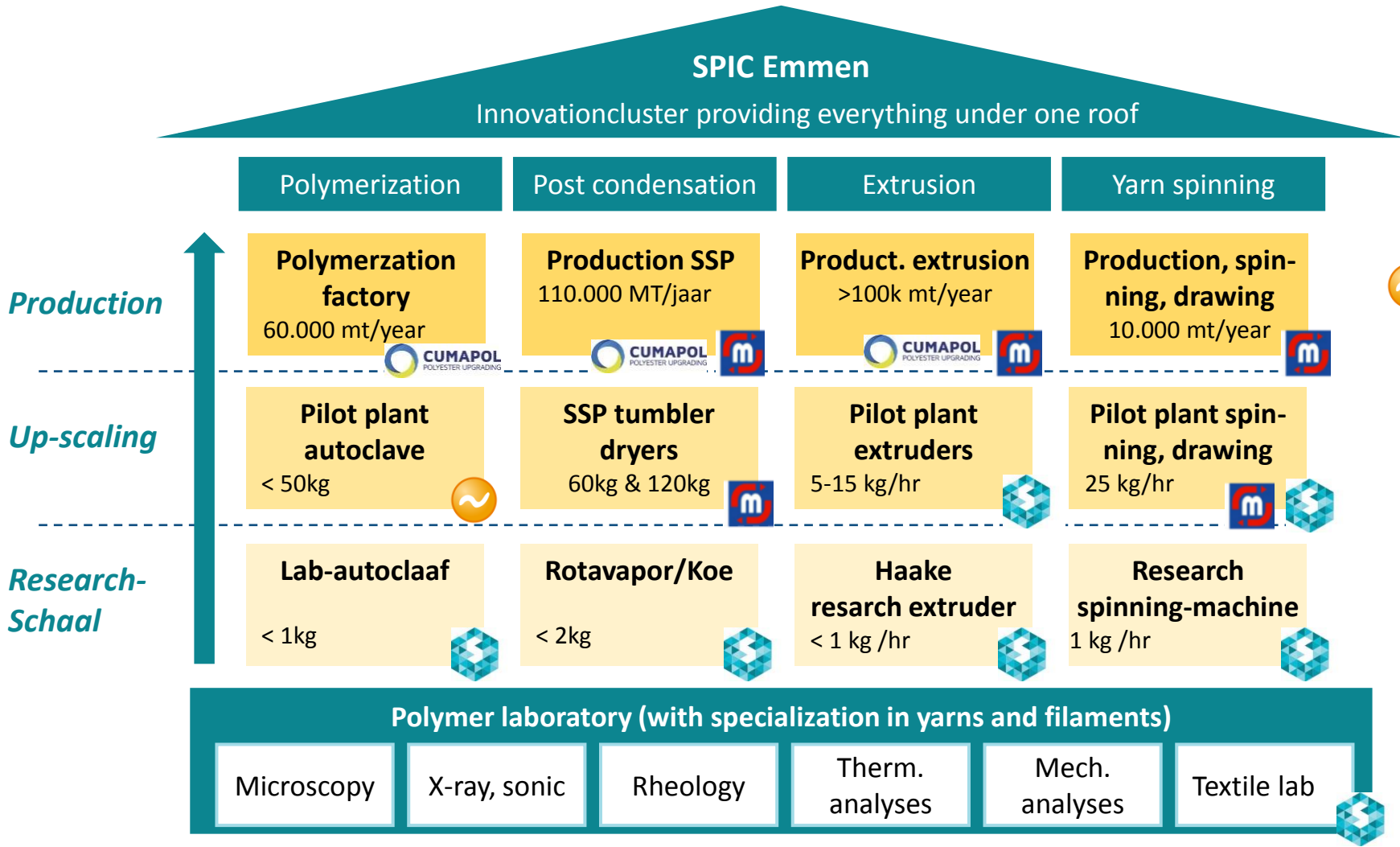
- **Dedicated R&D partnerships.** Having a fixed partner can save costs while still having support by professionals that know your organization and challenges
- **Mutual development of products** e.g. in shared ownership
- Production of **dedicated specialty products** for our customers/ partners
- **Support of educational institutions** with the valorization and with the practical part of education programs
- **Co-investments** into new laboratory and pilot plant infrastructure
(Example of SPIC Emmen on the next page)

Sustainable Polymer Innovation Cluster (SPIC)

A unique proposal, especially with polycondensation pilot



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SPIC is a new initiative in Emmen (Northern Netherlands)

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

The following partners are working on that project in Emmen

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-
- morssinkhof-rymoplast**
- SEN B I S**
POLYMER INNOVATIONS
- CUMAPOL**
POLYESTER UPGRADING

Polycondensation Pilot Plant 50-100kg /day



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Polymerization and Depolymerization of e.g. the following (Bio)polymers:

- (bio)Polyester like materials, such as:
 - PET, PEF, PBS, PEN, PBT
- (bio)Polyamide like materials

→ Depolymerization to obtain pure monomers as a recycling effort

We are investigating the **business case** and **design** for this Pilot Plant
If you are interested or have suggestions, please contact:

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5 Don't hesitate to contact us!



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