



Processing for confining polymers. Production of nano-layered films with high barrier properties



APPLICATIONS:



PACKAGINGS

DEVELOPMENT:



PROCESSING

CURRENT-STATUS

MULTINANO pilot line is based on multinanolayering for the micro and nano co-extrusion of films with high gas barrier and optical properties. The co-extrusion IPC line consists of three extruders (a fourth can possibly be added) and the configured line is modular. A single film with thousands of layers with nano-range thicknesses are obtained through a series of Layer-Multiplying Elements (LME).



CHALLENGE

A quality control is integrated inline to correlate film feature with process parameter, and optimize their barrier properties. Production of recyclable and/or biodegradable bio-based nanolayered films / sheets providing high barrier and optical properties.



FURTHER DEVELOPMENT

Bi-axial stretching of the films to improve further the gas barrier properties is available to produce films of 750 x 750 mm and max stretching ratio of MDxTD (Machine direction x Transverse direction) 10x10.



BENEFITS FOR COMPANIES AND SME'S

Multinanolayering is a new co-extrusion technology to the industry, and in particular to SMEs. It requires specific know-how, tooling and equipment, which can be a limitation to the wide acceptance of the solution by SMEs. In INN-PRESSME, SMEs will have access to engineers and PhDs with advanced know-how in polymer rheology, tooling (today provided by Nordson and Cloeren) and co-extrusion equipment: the SMEs will be able to test a comprehensive range of different available solutions.

Multinanolayering and biaxial stretching can be used for barriers properties optimization for most packaging materials.

APPLICATION EXAMPLES

Tubes for cosmetics will be developed in Inn PressMe to be an environment friendly product : bio-based and recyclable. A strong focus will be applied to make a product with high gas barrier properties and with highly aesthetic packaging.