Rheotens - A method to characterise extrusion coating polyolefins

Presented by:
Mikko Peltovuori
Borealis Polymers

This work will give you

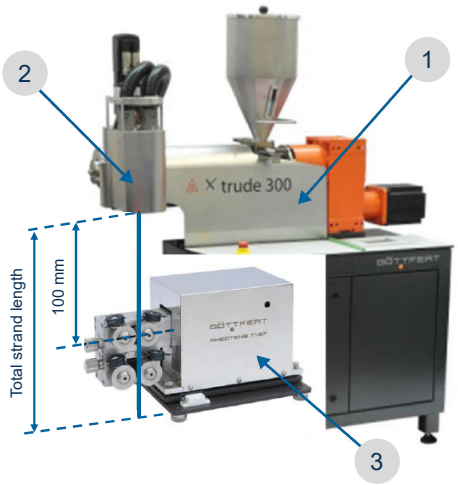
1. Basic information about Rheotens measurement and equipment used
2. Rheotens comparison of polyolefins used in extrusion coating

Background

- Analyse elongational properties of polymer melts
- Used to analyse material for applications like foam and extrusion coating
- Similarities to traditional tensile testing
- Output graph force vs pulley speed

Rheotens™ test equipment

1. Göttfert Xtrude 300
2. Mini Bypass Rheograph 71.05
3. Rheotens 71.97



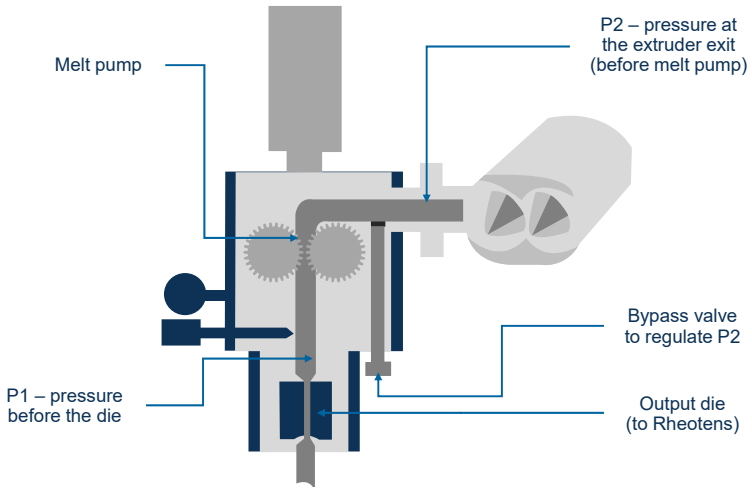
Extruder and Rheograph

Göttfert Xtrude 300

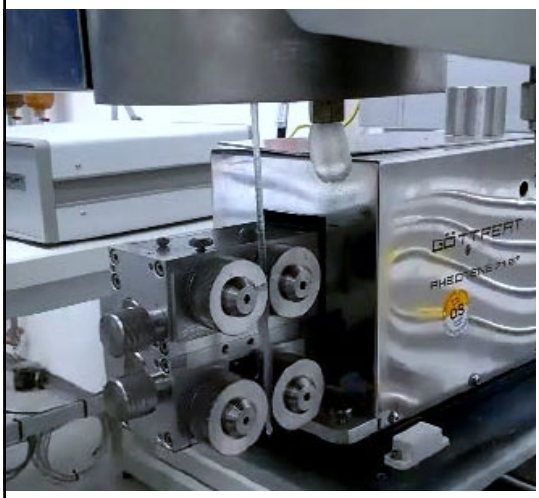
- Single Screw, Ø 20 mm

Rheograph MBR 71.05

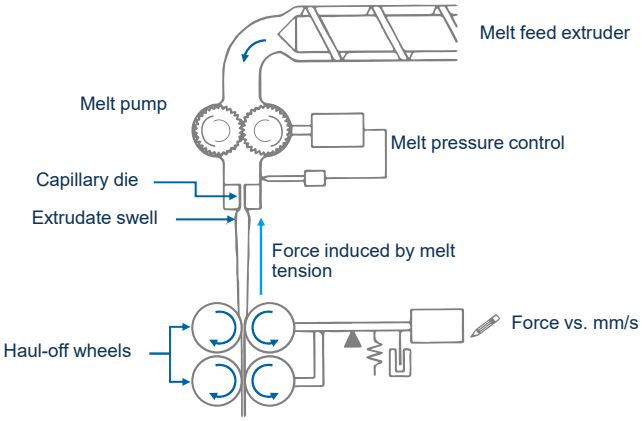
- Melt pump
- Pressure control with bypass valve



Rheotens measurement unit 71.97



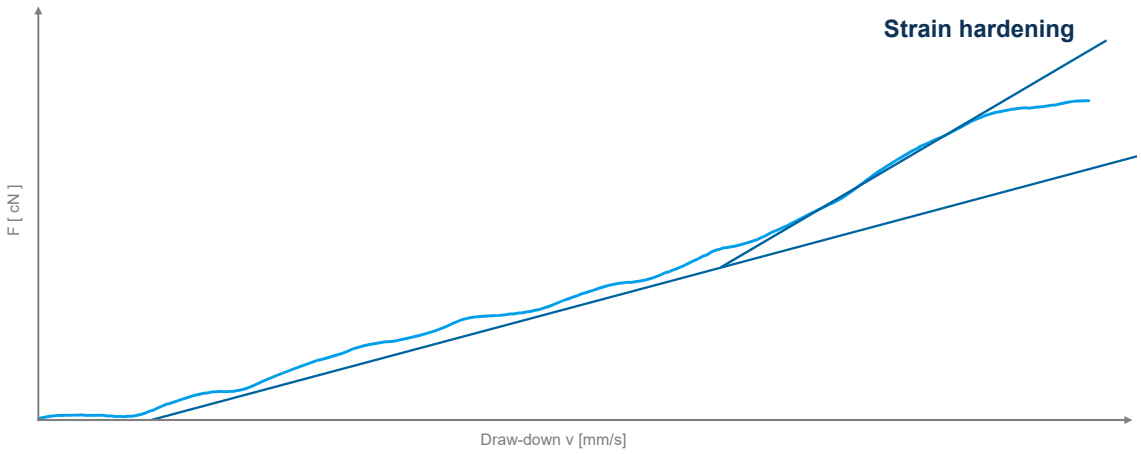
Actual measurement is done at the Rheotens instrument



Settings and preparation

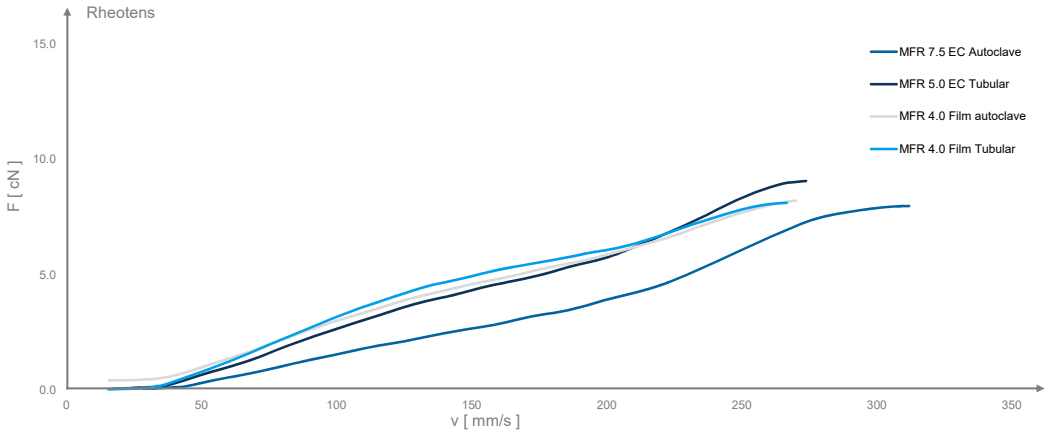
- Output 2.1 g/min
- Extruder pressure 120 bars
- Die pressure 6.0 bars
- Initial speed of pulleys 15 mm/s
- Acceleration 120 mm/s²
  - Maximum 600 mm/s
- Standard melt temperature 200°C
  - Can be adjusted for material and MFR

Measurement and results



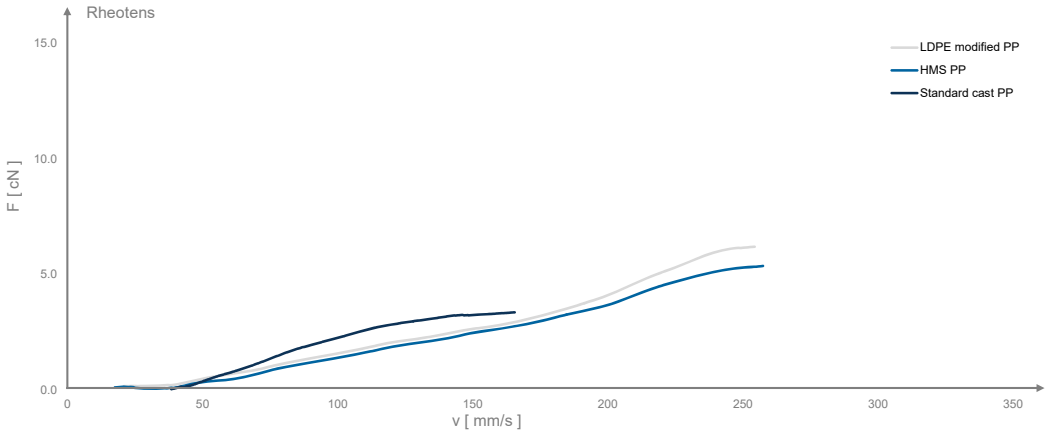
Results for different PE grades

Rheotens measurements of different LDPE grades



Results for different PP grades

Rheotens measurements of different PP grades



“Thank You”
for your patience

Presented by:

Mikko Peltovuori
Product Management
Borealis Polymers
mikko.peltovuori@borealisgroup.com

BOREALIS

TAPPI INTERNATIONAL FLEXIBLE PACKAGING & EXTRUSION DIVISION