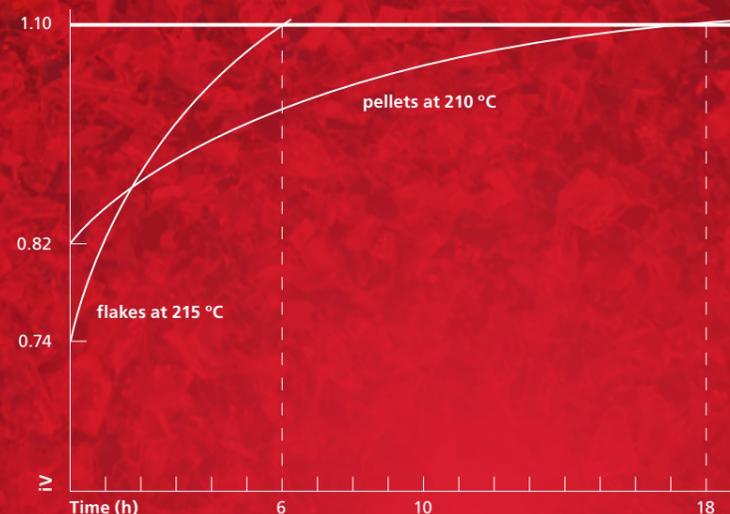


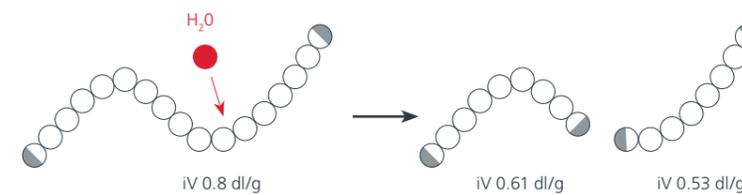
INTRINSIC VISCOSITY

iV increase under vacuum is depending on material temperature, residence time under vacuum, size and shape of the processed material and initial moisture content.

iV increase under vacuum



Loss of intrinsic viscosity in every melt phase



Processing PET is not as simple as polyolefins, since the hygroscopic moisture in PET leads to an iV loss during extrusion. In turn, this results in a loss of mechanical properties, such as brittleness and low strength of the final product.

As a consequence it is important to know the required iV of the final product. The iV loss in the melt phase is primarily influenced by the moisture content of the input material.

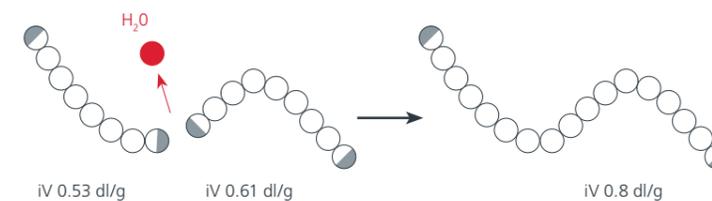
Consequences of a too low iV

- low mechanical properties
- low thermal stability
- cracking of packaging
- sharp edges of product

The main parameters influencing the iV increase of PET are

- material temperature
- residence time under vacuum
- material size/type
- initial moisture content

Solid State Polycondensation recovering your intrinsic viscosity



During Solid State Polycondensation (SSP), the molecular weight of the polyester is increased. This increase is related to a chemical process where "short" PET molecules are forming longer molecules by separation of ethylene glycol under the influence of temperatures higher than 160–170 °C, but still in the solid phase of the material.

Because of the oxidation of PET at temperatures higher than 160–170 °C, which is cracking the molecule chains, SSP has to be done in absence of oxygen, commercially at temperatures higher than 190 °C.

