

Application note

Moisture in nylon and polyester chip drying

Benefits:

The advantages of using the Panametrics aluminum oxide moisture sensor are

- Continuous measurement of the process with no waste of product or energy,
- The sensor can be installed as a transmitter or point of use analyzer, or
- A single multi-channel analyzer can accept inputs from multiple sensors.



Summary

Moisture is measured in the dry nitrogen purge gas that dries polyester and Nylon chips for the production of woven materials.

Application

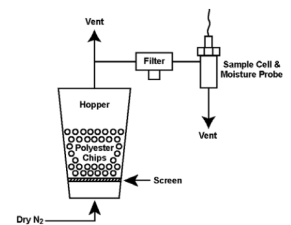
The presence of moisture in polyester and Nylon chips causes severe difficulties during the remelting and fiber spinning stages which in turn causes fibers to knit together improperly. The loss of strength in the final product results in defects in the woven materials.

Challenge

In the past, grab samples were taken during the drying process and brought to an off-line moisture analyzer to determine the surface and total water content of the solid material. If taken too early, the sample would come back as too wet, thus wasting time and product. If taken too late, unnecessary energy and nitrogen would have been expended to dry the material.

Solution

The Panametrics aluminum oxide moisture sensor can monitor the moisture content of the nitrogen that enters the hopper and can monitor the moisture at the outlet of the hopper. As the moisture content of the outlet gas approaches the moisture content at the inlet, this is a good indication that the material is dry enough for production. Empirical testing can validate a outlet moisture and duration at that moisture content that will lead to the best results.



Application specifications

Moisture Content Range: 5 to 400 ppmv

Dew Point Range: -65° to -30°C (-85° to -22°F)

Operating Temperature: 20°C (68°F)

Operating Pressure: 14.7 psia (101.3 kPa)