Filtratest

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International standard

The Filtratest fully meets the demands of DIN EN 13900-5 and ISO 23900-5 for determining the dispersion and dispersibility of pigments and extenders in plastics by means of the filter pressure value (FPV) test. The main fields of application for this method are quality control of masterbatches, compounds, and polymers as well as color recipe development.

Alternatively, the Filtratest can be used beyond the scope of the standard for testing the purity of polymers.

Principle

The Filtratest is connected to a measuring extruder with a melt pump. The polymer to be tested is plasticized and homogenized in the extruder and conveyed to the melt pump which provides for a constant throughput of the melt through the finely woven, multi-layer screen packs of the Filtratest. A pressure transducer in front of the screen packs continuously measures and records the melt pressure in front of the screen packs.

Due to the deposit of foreign particles on the screens, the melt pressure increases. From the start pressure and the maximum pressure of the melt in front of the screen packs, the Filter pressure value (FPV) is calculated automatically:

$$FPV = \frac{(p_{max} - p_s)}{m_c}$$

where

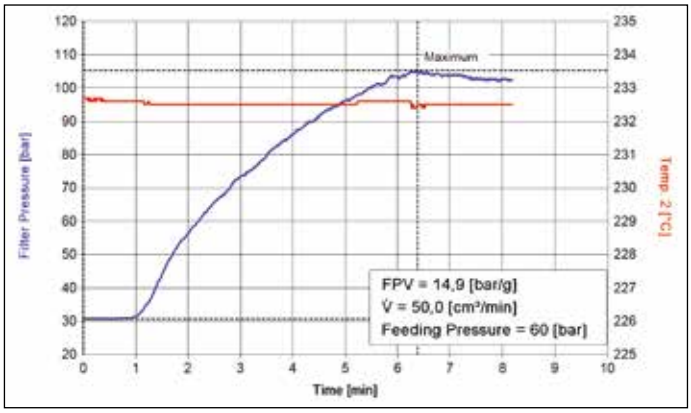
FPV	filter pressure value [bar/g]
p_s	start pressure [bar]
p_{max}	maximum pressure [bar]
m_c	pigment quantity in the melt [g]

A subsequent analysis of the deposit on the screens provides additional information as to the kind and amount of polymer impurities.

Advantages

- Quick change of screen packs through drawer system
- Integrated preheating of the screen packs
- Short cycle times and continuous extrusion by by-pass operation of the Filtratest system
- Convenient process and evaluation software

Filtratest	
Number of inserts	2 sieve package holders 1 flushing ring
Adapter for inserts	8 to 34 mm
Heating	electric heater band, 2000 W, 240 V
Melt pump speed	0 - 50 min^{-1}
Throughput	50 ... 60 cm^3/min (acc. to EN 13900-5)
Mains connection	1 x 230 V, 50/60 Hz + N + PE, 16 A



Typical pressure curve