CRYSTEX® 42

AUTOMATED SOLUBLE FRACTION MEASUREMENT

High-throughput analyzer for PP soluble fraction, intrinsic viscosity, and ethylene content determination.

CRYSTEX® 42 is a fully automated system designed for high-throughput and reproducible analysis of the soluble (amorphous) fraction in polypropylene and copolymers. The instrument provides a safe and robust alternative to the traditional gravimetric method based on xylene solubility, which is time-consuming, operator-dependent, and requires extensive solvent handling. By automating the entire process, CRYSTEX® 42 delivers consistent results with minimal operator intervention, making it ideally suited for laboratories requiring reliable and comparable data across large sample series.

CRYSTEX® 42 improves laboratory safety by eliminating manual solvent handling and contact with vapors, and by operating with less-flammable solvents than xylene. The only manual step required is weighing the sample (max. 160 mg). All subsequent steps – solvent dispensing, dissolution, separation, analysis, and cleaning – are performed automatically.

The system incorporates a high temperature autosampler with 42 positions for 20 mL vials, enabling automated analysis of large batches of samples and significantly reducing manpower requirements. The total analysis time is approximately 3 hours for the first sample and 2 hours for the consecutive samples, as dissolution can begin while the previous sample is being analyzed.

The crystalline and amorphous fractions are separated through a crystallization and re-dissolution process that takes place inside a proprietary TREF column. Quantification is performed using a highly stable infrared detector (Polymer Char's IR4 detector), which accurately determines the analyzed mass and provides ethylene content information. A built-in dual-capillary viscometer enables intrinsic viscosity measurement. Results are obtained for the whole sample, as well as for the soluble and crystalline fractions.

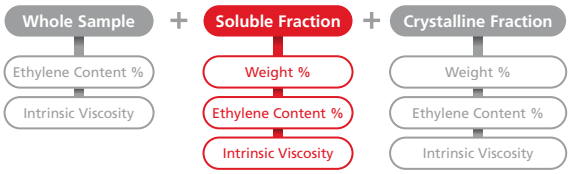
The CRYSTEX method is included in ISO 16152:2022 as an automated alternative to the manual gravimetric method for xylene-soluble determination, equivalent to ASTM D5492 and ISO 6427, Annex B.

CRYSTEX® 42 is designed for laboratories requiring high-throughput, unattended analysis of large sample batches. For single-sample, plant-level process monitoring, CRYSTEX® QC is available using the same analytical technology.

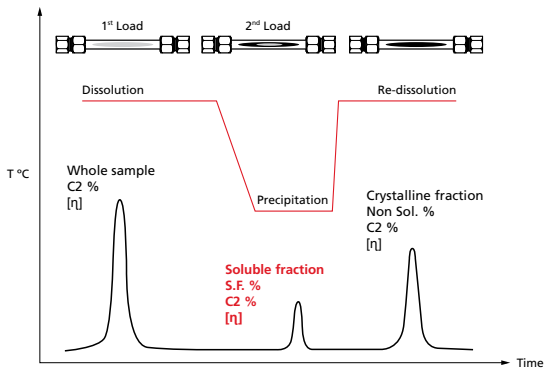
Find out more at **www.polymerchar.com/CRYSTEX_42**

KEY FEATURES

- Automated substitute to the manual gravimetric/xylene solubles method.
- Additional measurement of ethylene content and intrinsic viscosity for the soluble fraction, the crystalline fraction and whole sample.
- CRYSTEX 42 method is included in ISO 16152:2022.
- Autosampler with 42 samples capacity.
- Dissolution and full analysis of the first sample completed in 3 hours. Following samples results are obtained every 2 hours.
- Vials of 20ml for low solvent consumption.
- No need for accurate weighing of sample or manual solvent handling.
- No external filtration or solvent evaporation required.
- Optional in-line filter for samples with pigments, fillers, recyclates, etc.
- Compatible solvents: TCB and oDCB.



Information provided by CRYSTEX® 42 in a single analysis



Elution of the whole sample and PP fractions in a TREF column

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