

CRYSTEX® QC

AUTOMATED SOLUBLE FRACTION ANALYZER



Single-sample automated analyzer for PP soluble fraction determination in production QC.

CRYSTEX® QC is an automated instrument designed specifically for quality control laboratories in polypropylene production plants.

The system standardizes the measurement of the soluble (amorphous) fraction by eliminating manual solvent handling, external filtration and operator-dependent steps traditionally associated with xylene extraction methods. By delivering reproducible results within a controlled and automated workflow, CRYSTEX® QC enables confident quality decisions under routine plant conditions.

CRYSTEX® QC improves laboratory safety by eliminating manual solvent handling and contact with vapors, and by using less-flammable solvents than xylene. The only manual step required is loading a representative polymer sample (up to 4 g) into a disposable bottle without the need for precise weighing. All subsequent steps – solvent dispensing, dissolution, separation, analysis, and cleaning – are performed automatically.

The total analysis time is approximately 2.5 hours for the first sample. This throughput can be increased to around 1.5 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.

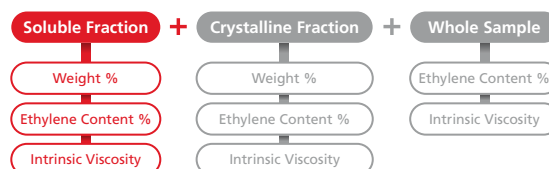
The CRYSTEX method is included in ISO 16152:2022 as an automated alternative to the manual gravimetric method for xylene-soluble determination, equivalent to ASTM D5492 and ISO 6427, Annex B.

CRYSTEX® QC analyzes one sample at a time. For higher-throughput requirements, the same technology is available in a fully automated multi-sample configuration with CRYSTEX® 42.

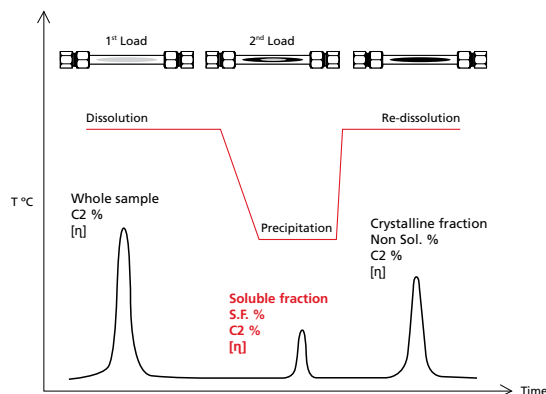
Find out more at www.polymerchar.com/CRYSTEX_QC

KEY FEATURES

- ▶ Automated substitute to the manual gravimetric/xylene solubles method.
- ▶ Additional measurement of ethylene content and intrinsic viscosity for the fraction, the crystalline fraction, and whole sample.
- ▶ CRYSTEX QC method is included in ISO 16152:2022.
- ▶ A sample can be analyzed every 2.5 hours (including dissolution and rinsing time) without manual operation. By using the "Add Samples" capability, subsequent samples take 1.5h per sample.
- ▶ Different dissolution bottle sizes available (240ml, 120ml and 60ml).
- ▶ No need for accurate weighing of sample nor manual solvent handling.
- ▶ No external filtration nor solvent evaporation required.
- ▶ Optional in-line filter for samples with pigments, fillers, recyclates, etc.
- ▶ Compatible solvents: TCB and oDCB. Ask about other solvents.



Information provided by CRYSTEX® QC in a single analysis



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