Highly Sensitive Infrared Detector for Concentration and Composition Analysis in GPC/HPLC.

IR5 MCT is a stand-alone infrared detector with a flow through cell, which incorporates interference filters at five different wavelengths and a highly sensitive thermoelectrically cooled MCT detector.

IR5 MCT is designed for on-line concentration and composition determination in HPLC, GPC or coupled to other separation techniques such as CRYSTAF, TREF, CEF or CFC.

When attached to a high temperature GPC for the analysis of polyolefins, the IR5 MCT detector provides excellent sensitivity and baseline stability in both concentration and composition (branch content) signals. Coupling an IR5 MCT to a GPC instrument, is an ideal combination for measuring very low number of branches in HDPE pipe resins thanks to its high sensitivity, which is able to distinguish differences of 1 branch per 1,000 atoms of carbon.

IR5 MCT detector incorporates a vapor leak sensor close to the flow through cell and internal temperature controllers for the heated cell and transfer line, to allow its use for high temperature applications.

KEY POINTS

- Highly sensitive concentration and composition detector for GPC analysis of polyolefins.
- Thermoelectrically cooled MCT sensor. Liquid Nitrogen not required.
- Different filters for detection at different bands in the MID-IR.
- Special focus on HDPE resins analysis by GPC-IR®.
- Possibility of coupling it to Polymer Char’s GPC-IR® or third party high temperature systems.

GPC+IR5 MCT analysis of a bimodal HDPE resin
The broadest range of instruments for Polyolefin Characterization.

- **CRYSTAF**: an instrument designed for intensive use in the analysis of the Chemical Composition Distribution in Polyolefins.
- **TREF**: a completely automated apparatus for the analysis of the Chemical Composition Distribution in Polyolefins by TREF. It provides complementary information to CRYSTAF data in the analysis of some complex resins.
- **CRYSTAF-TREF**: CRYSTAF and TREF techniques are available in the same equipment for a full Chemical Composition Distribution characterization.
- **CEF**: a high throughput equipment to analyze the Chemical Composition Distribution in polyolefins, using a new approach which combines CRYSTAF and TREF separation mechanisms.
- **CFC**: a fully automated Cross Fractionation Chromatograph (TREF+GPC) for the analysis of the Bivariate distribution in Polyolefins.
- **PREP mc²**: an automated instrument to perform semipreparative fractionation of polymers according to composition or molar mass.
- **CRYSTEX®**: an apparatus specially designed for the analysis of Xylene Solubles in polypropylene in a Quality Control environment with no solvents handling.
- **GPC One® Software**: the most comprehensive GPC Calculations Software available in the market integrating all detectors signals in the same package.
- **Data Unit 200**: Versatile signals acquisition device to link any vendor GPC instrument with Polymer Char's GPC acquisition and calculations unit.
- **IR4**: a reliable IR detector that can work with up to four simultaneous wavelengths to measure concentration and composition.
- **IR5 MCT**: a modern IR detector with a sensitive MCT element (thermoelectrically cooled) for the analysis of low number of branches in HDPE pipe resins by GPC-IR®.
- **Additional Detectors**: in some of its instruments Polymer Char offers Light Scattering (DAWN® HELEOS™ II of Wyatt Technology), Viscometry and Composition (by Polymer Char) to perform Triple Detector+Composition analysis.

Company Profile

Polymer Char is devoted to the development of state-of-the-art instrumentation for Polyolefin Analysis.

The company offers the broadest and most modern range of instruments and services for polymer analysis and more specifically, for structural characterization of polyolefins, such as Molar Mass Distribution - GPC/SEC (GPC-IR®, GPC One®), Chemical Composition Distribution (CRYSTAF, TREF, CEF), Bivariate Distribution by Cross-Fractionation Chromatography (CFC), High Temperature HPLC (TGIC, SGIC 2D), Xylene Solubles (CRYSTEX®), Preparative Fractionation (PREP mc²) or Infrared Detection (IR4, IR5 MCT).

Polymer Char is also well known for its advanced approach into virtual instrumentation software that, together with excellent remote control capabilities and its strong commitment to Customer success, places the company at the leading edge on instrumentation diagnostics and technical support.

Polymer Char, together with its global network of partners and distributors, supplies, trains and supports Customers worldwide. The company provides analytical services in 35 countries and its instruments are present today in over 20 countries within the Americas, Europe, Africa, Middle East and Asia Pacific, predominantly serving to Polymer Producers and Processors, Government and Academic Research Laboratories, Contract Research Organizations, Analytical and Testing Laboratories and Chemical Instrumentation Manufacturers.

In the last two decades and with an average annual investment of 30% of its manpower resources on R&D, Polymer Char has played a key-role in the development of most of the existing polyolefin characterization technologies, such as CRYSTAF, CRYSTEX®, CEF, CFC or GPC with IR detection. Each new project, each new analysis, makes clearer Polymer Char recognition as The Polyolefin Characterization Company.