

# Polymer Testing and Analysis Solutions for Every Stage of Polymer Production



# Agilent Solutions for Polymer analysis



## Molecular Weight Analysis for Polymers

Characterize Polymers Beyond Conventional Capabilities with the GPC/SEC Portfolio

Polymer molecular weight strongly influences performance and processability. Higher weight improves properties, while polydispersity eases processing but reduces performance. GPC/SEC analysis supports polymer R&D, production monitoring, and failure investigation.

Agilent GPC systems, paired with our columns and standards, offer complete solutions for both analytical and microscale chromatography.

Discover more:

- [Video on how to characterize your polymers accurately, precisely, and reproducibly with Agilent GPC/SEC systems.](#)
- [Brochure of the Agilent GPC/SEC solutions for polymers and macromolecules.](#)
- [Application note on how to improve GPC with Agilent solutions.](#)



## Polymer Materials Identification

Polymer Materials Identification Made Fast and Easy

Ensuring polymer product quality requires testing throughout production to confirm identity, composition, and labeling accuracy. With a wide range of formulations and global suppliers, verifying material suitability is increasingly complex.

Agilent 4300 FTIR instrument offers nondestructive, in-situ sampling and delivers fast, reliable qualitative and quantitative data. This enables manufacturers to optimize production by confirming polymer identity and determining statistical copolymers.

Discover more:

- [On-demand webinar about Handheld FTIR for rapid and convenient in-field analysis.](#)
- [Application compendium offering a window into the diversity of applications of FTIR.](#)

## Analysis of Additives, Impurities, & Residuals in Polymers

Polymer Analysis Solutions for Additives, Impurities, and Residuals

Polymers are made from monomers, solvents, and various additives like stabilizers and plasticizers. Because manufacturing and purification are rarely perfect, residual chemicals often remain in the final product. These residuals—including monomers, solvents, and additives—can migrate from the polymer and potentially pose health risks.

Agilent offers comprehensive solutions to detect and quantify these trace compounds, helping manufacturers monitor impurities, assess migration, and ensure product safety and compliance.

Discover more:

- [Application note on Phthalate Analysis Using an Agilent 8890 GC and an Agilent 5977A GC/MSD.](#)
- [Application note on Short Chain Chlorinated Paraffins \(SCCPs\) Analysis by High-Resolution 7250 GC/Q-TOF.](#)
- [Application note on the Analysis of the Release of N-Nitrosamines using GC/NCD.](#)
- [On-demand webinar about GC/MS and LC/Q-TOF for Reliable Quantification of Chlorinated Paraffins.](#)





## Quality, Properties, & Defect Analysis in Polymers

Simplify Polymer QA/QC, Properties, and Defect Analysis with Molecular Spectroscopy

Polymers are made from monomers, solvents, and additives, with varied forms resulting from different material combinations and reaction conditions. Failures during manufacturing—due to contaminants, incomplete reactions, or incorrect ratios—require thorough failure analysis to ensure product safety and performance. FTIR spectroscopy is a key tool for evaluating polymer quality and defects.

Agilent offers flexible FTIR solutions, from handheld systems for field use to sensitive benchtop and LDIR systems for fast, nondestructive analysis of polymers and multilayer films.

Discover more:

- [Application compendium on Polymer analysis with FTIR.](#)
- [Application note on how to controlling the swelling of polymer-coated gold nanoparticles by UV-Vis spectroscopy.](#)



## Microplastic analysis

Understanding an Unknown Threat

Microplastics are any plastic-derived synthetic solid particle or polymeric matrix, ranging in size from 1  $\mu\text{m}$  to 5 mm and insoluble in water. Although microplastics are being analyzed with increasing intensity, their risk to the environment is not yet fully understood. More scientific research involves microplastics to increase understanding of their possible toxicity.

The Agilent 8700 LDIR uses quantum cascade laser spectroscopy for fast, automated microplastics analysis in environmental and food samples. Its efficient workflows reduce processing time from days to minutes, minimizing operator input, lowering costs, and delivering rapid, reliable results.

Discover more:

- [Get a Deep Dive into the Global Micro- and Nanoplastics issue.](#)
- [On-demand Webinar Series: Microplastics Analysis Just Got Easier.](#)
- [Discover how to find the needle in the haystack with Agilent 8700 LDIR Imaging System.](#)