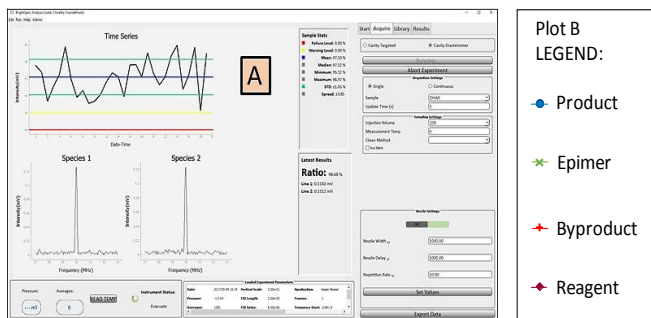


isoMRR Spectrometer

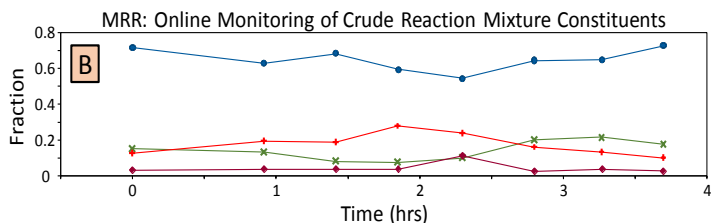
for mixture analysis and process monitoring



Molecular Rotational Resonance (MRR) spectroscopy is a powerful tool for the investigation of chemical structure in the gas phase. MRR is uniquely sensitive to structure – each molecule has its own fully-resolved, individual, and distinct spectrum. The isoMRR spectrometer identifies and quantifies **diastereomers, regioisomers, isotopologues, and enantiomers, as well as other impurities**, rapidly and directly from a complex mixture. Applications include stereochemical purity determination, reaction conditions screening, impurity monitoring, and continuous process monitoring.



Example: Monitoring reaction purity in a continuous reaction process. As reaction conditions are varied, key species (starting material, product, epimer, and byproduct) are identified and quantified directly in the reaction flow.



One instrument can be trained to perform analyses on a wide range of chemical systems.

BrightSpec isoMRR Spectrometer

Specifications

Measurement Technique	Fourier Transform Microwave Spectroscopy with Fabry-Perot resonator
Measurement Capabilities	Isomeric and Nonisomeric Impurity Quantification Enantiomeric Excess (Chiral Tagging) Continuous Monitoring
Frequency Range	6-18 GHz
Resonator Q	>6000 typ.
Mode Bandwidth	2 MHz typ. (FWHM)
Excitation Source	BrightSpec Tunable Synthesizer Module
Digitizer	125 MS/s 14-bit Digitizer with FPGA Signal Averaging
Sample Introduction	Pulsed Supersonic Expansion Nozzle
Nozzle Repetition Rate	10 Hz (adjustable)
Measurement Time Per Frequency	0.1-10 minutes
Analyte Molecular Weight Range	70-300 amu
Sample Required Per Measurement	1 mg typical
Sample Types	Pure solids and liquids Solutions Gases (pre-mixed with carrier gas)
Carrier Gases	Ne (recommended), He, or Ar
Sample Introduction	Pulsed supersonic expansion
Measurement Cycle Time	<15 min
Sampling Accessories	Programmed temperature vaporization (PTV) inlet Autosampler Continuous process connection
Operating Temperature	25 +/- 5°C
Humidity Range	20-80% R.H.
Noise	<70 dB(A)
Power	100-240 VAC, 50/60 Hz, single-phase, two circuits
Instrument footprint (approx.)	1.2 x 0.6 x 1.5 m (l x w x h)
Instrument weight (approx.)	160 kg

Specifications are subject to change at any time. Please contact BrightSpec for most up-to-date information.

