



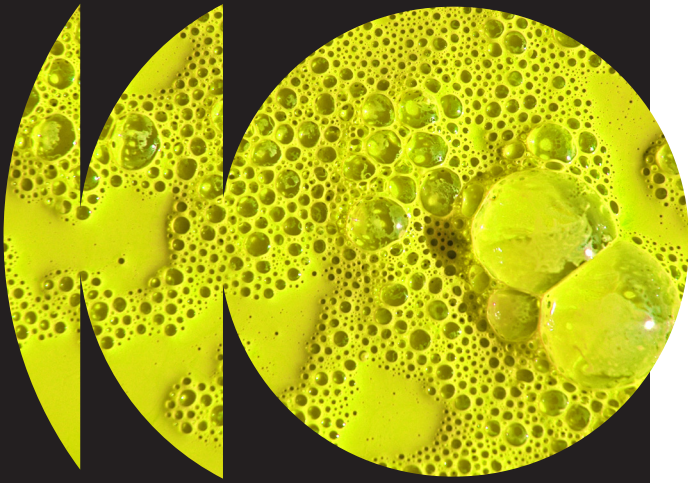
# Ocean MZ5 ATR-MIR Spectrometer



## Rapid, Accurate Mid-Infrared Analysis

The Ocean MZ5 is a miniature ATR spectrometer with measurement capabilities from 1818–909  $\text{cm}^{-1}$  (5.5–11  $\mu\text{m}$ ). This fully self-contained instrument – including sample interface, light source and detector – provides a compact, fast and scalable alternative to traditional FTIR spectroscopy. Applications include chemical discrimination, food and flavorings analysis, environmental testing and scientific research.

Ocean MZ5 is a complete system and does not require any external equipment such as light sources or fibers. Ocean Mirror, the dedicated software platform that comes with the system, is designed for measuring absorbance and transmittance of liquids placed on the instrument's crystal surface. A rotating cover protects the crystal when not in use.



## Performance

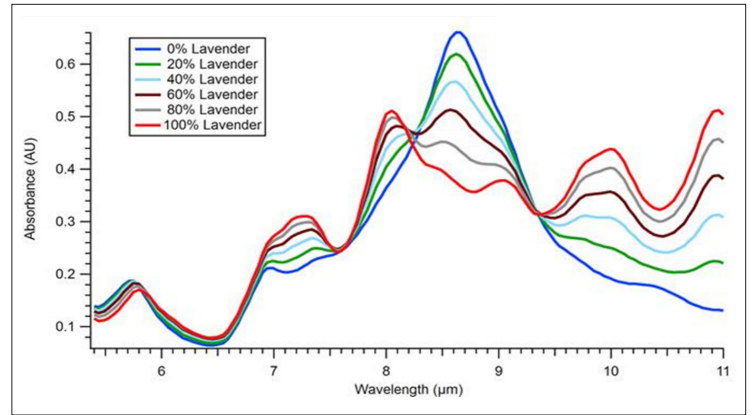
- Spectral range:** 1818–909  $\text{cm}^{-1}$  (5.5–11  $\mu\text{m}$ )
- Signal to noise:** >300:1 (60 s measurement)
- Spectral bandwidth (FWHM):** 75  $\text{cm}^{-1}$
- Measurement time (typical):** ~30 seconds
- Operating environ.:** 0–45 °C non-condensing
- Storage environment:** 0–60 °C non-condensing

## Physical and Mechanical

- Weight:** ~812 g
- Dimensions:** 165 mm x 165 mm x 66 mm
- Housing and ATR frame material:** Aluminum
- ATR surface area:** 17 mm x 27 mm
- Crystal material:** ZnSe (zinc selenide)
- Crystal cover:** Protects sample area

## Detector and Optoelectronic

- Number of sample reflections:** 9
- Illumination source:** Electrically modulated MEMS emitters
- Source lifetime:** >5,000 hrs. of continuous use
- Dispersing element:** Linear variable filter
- Detector:** 128-pixel uncooled pyroelectric array
- Analog to digital converter:** 16-bit



The Ocean MZ5 measured a series of absorbance spectra of lavender oil samples diluted with almond oil, a common adulterant, revealing differences associated with concentration. Chemometric analysis can be applied to the data to derive additional information.

## Applications

### FUEL ANALYSIS

Examples

- Fatty acids content in biodiesel
- Octane level testing
- Ethanol spiking in gasoline

### MATERIALS IDENTIFICATION

Examples

- Biomaterial analysis
- Solvent analysis
- Polymer analysis

### FARM TO TABLE TECHNOLOGIES

Examples

- Agricultural measurements and monitoring
- Food and beverage quality control
- Food safety

### ANTI-COUNTERFEIT

Examples

- Testing and qualification
- Identification and authentication of essential oils

**For more information, please contact an Ocean Insight Application Scientist today.**