FTIR-SPECTROPHOTOMETER
Make: PerkinElmer

The PerkinElmer Spectrum Two is a compact, robust FTIR spectrometer designed for high-performance, routine infrared analysis both in the laboratory and in the field. It is widely recognized for its ease of use, reliability, and adaptability across a range of research and industrial settings.

The Universal Attenuated Total Reflectance Accessory (UATR) is an internal reflection accessory, used with a Spectrum Two Series spectrometer, for simplifying the analysis of solids, powders, pastes, gels and liquids. The technique is non-destructive.

Instrument Capabilities

- The Spectrum Two UATR uses a diamond crystal. The diamond crystal is hard, is not easily scratched, is resistant to strong acids and bases, and can withstand high pressures. The diamond UATR has an effective scanning range that matches the full range of the instrument, although sensitivity is somewhat reduced in the approximate range 1900-2700 cm^{-1}
- As the beam does not penetrate deeply into the sample, this technique is ideal for analyzing strong infrared absorbing solutions, such as emulsions or aqueous solutions. The technique can also prove useful in measuring homogenous solid samples, solid surfaces and coatings on solid samples.
- Best resolution of 0.5 cm^{-1}, providing fine spectral details crucial for complex sample analysis
- OpticsGuard™ Technology: Protects optical components from humidity and environmental damage, extending instrument life and maintaining data quality.
- Portability: Weighs approximately 13 kg, making it suitable for remote or field analysis scenarios

Sample Type

- Homogenous solid samples
- Solid samples
- Soil surfaces or coating
- Liquid Samples

Sample Preparation

- As per user requirements

Applications

- Supports research on advanced materials, including nanomaterials, biomaterials, and thin films, by providing detailed molecular fingerprints and enabling the detection of impurities or additives.
- Helps to verify the identity and purity of active pharmaceutical ingredients (APIs), excipients, and finished products.
- Used to detect and quantify pollutants in air, water, soil, and wastewater.
- Includes monitoring industrial emissions, identifying microplastics, analyzing organic contaminants, and characterizing adsorbents
- Identify unknown polymers, study degradation mechanisms, and assess the quality of plastics, rubbers, coatings, and composites.

References

- PerkinElmer Spectrum Two Overview
- Universal Attenuated Total Reflectance Accessory Manual