

JASCO

FVS-6000

Vibrational Circular Dichroism Spectrometer

An essential tool for absolute configuration of molecules

JASCO has developed the FVS-6000 high performance VCD (Vibrational Circular Dichroism) spectrometer with the most advanced DSP electronics and auto-alignment mechanism. The FVS-6000 not only allows you to easily obtain fingerprint VCD spectra, but also has several unique features such as a measurement range extension option of 4000 ~ 750 cm^{-1} . Since the CD signals in the infrared region are one or more orders of magnitude lower than ECD signals in the UV-Vis region, high sensitivity and stability are required for a VCD spectrometer. The FVS-6000 is the VCD spectrometer of choice for highly sensitive VCD measurements.



Sensitivity and Stability

● Optimized optics

The FVS-6000 employs a 28° interferometer to reduce polarization effects and reflective optics to eliminate artifacts caused by birefringence for high-quality VCD data. The isolated mount of the IR light source and the thermal control of the PEM crystal offers long-term baseline stability.

● VCD auto alignment

The auto alignment function optimizes the VCD optics to reduce linear anisotropy artifacts. No manual alignment is required when the detector and/or optical filters are exchanged.

● Lock-in detection by DSP

Phase-sensitive lock-in detection by DSP (Digital Signal Processing) with a sophisticated algorithm optimized for VCD offers drastic improvement of the S/N ratio.

● Purge capability

The optics, sample chamber and detector housing are all purgeable to obtain high-precision data free of environmental interference.

Features

● Wide band coverage

The FVS-6000 can provide spectra over a wide spectral range from 3200 ~ 850 cm^{-1} as standard. Optional detectors and filters can extend the range to 4000 ~ 750 cm^{-1} , enabling the measurement of OH and NH bands. Detectors can be easily exchanged with no manual alignment, and optical filters can be switched by a PC-controlled 6-position filter wheel.

● Narrow band mode

The narrow band mode allows measurements of small peaks at targeted absorption bands with high sensitivity by using optional band filters.

● Variety of sample cells

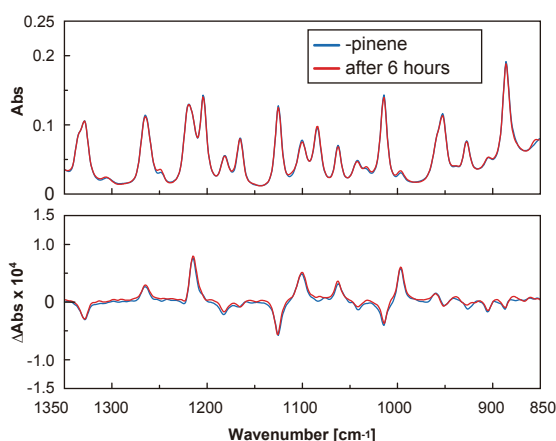
A thermostatted cell holder, 3-position sample shuttle, and range of small-volume liquid cells are available as options.

● Spectra Manager™ II

Spectra Manager II software, the cross-platform control and analysis package for all JASCO spectrometers, offers quick and easy VCD data acquisition and analysis. Theoretically calculated VCD intensities from a commercially available calculation software can be plotted as simulated spectra to be compared with the experimental data for further tertiary structure analysis of molecules.

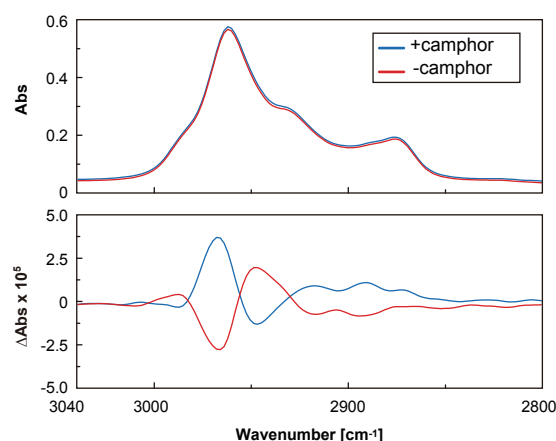
Long-term stability

VCD and IR Spectra of pinene



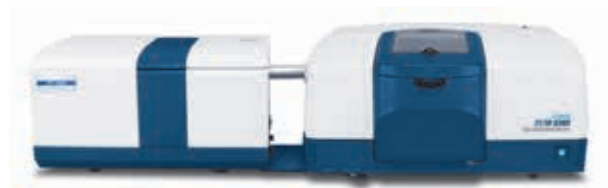
Narrow band mode

VCD and IR Spectra of camphor



Specifications

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|--------------------------------------|---|
| Instrumentation | VCD instrument |
| Measurement range | Standard: 3200 ~ 850 cm ⁻¹ Option: 4000 ~ 750 cm ⁻¹ |
| Resolution | 16 ~ 0.5 cm ⁻¹ |
| Noise level (measurement conditions) | less than 8 x 10 ⁻⁶ ΔAbs (4 cm ⁻¹ , 20 min accumulation) |
| Light source | High intensity ceramic source, insulated mount |
| Detector | Standard: MCT-V (3200 ~ 850 cm ⁻¹) Option: MCT-C (1000 ~ 750 cm ⁻¹) InSb (4000 ~ 2000 cm ⁻¹) |
| Lock-in detection | DSP |
| PC communication | USB2.0 for main unit RS-232C for PEM driver |
| Interferometer | 28° Michelson interferometer |
| Optical filter | Standard: 3200 ~ 2000 cm ⁻¹ , 2000 ~ 850 cm ⁻¹ (6-position automatic switching) Option: 4000 ~ 2700 cm ⁻¹ , 1000 ~ 750 cm ⁻¹ , 1850 ~ 1550 cm ⁻¹ |
| Polarizer | KRS-5 |
| Options | 3-position automated sample shuttle Fixed liquid cell, BaF ₂ or CaF ₂ window, 25 ~ 1000 μm cell path Demountable liquid cell, BaF ₂ or CaF ₂ window, including 50 and 100 μm cell spacer Temperature control cell (Peltier cooled) |
| Dimensions | 590(W) x 670(D) x 313(H) mm |
| Weight | 65 kg |



*The VFT-4000 VCD attachment for the FT/IR-4000, 6000 Series FT-IR spectrometers is also available.

VFT-4000 VCD attachment with the FT/IR-6300 FT-IR spectrometer



● Specifications are subject to change without notice.

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