

# 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  $\text{cm}^{-1}$ . Since the CD signals in the infrared region are one or more order 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° incidence angle 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 detector and optical filter are exchanged.

##### ● Lock-in detection by DSP

Phase-sensitive Lock-in detection by DSP with sophisticated algorithm optimized to VCD offers drastic improvement of the S/N ratio.

##### ● Purge capability

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

#### Features

##### ● Wide band coverage

The FVS-6000 can cover a wide spectral range from 3200 ~ 850  $\text{cm}^{-1}$  as standard. Optional detectors and filters can extend the range to 4000 ~ 750  $\text{cm}^{-1}$ , enabling the measurement of OH and NH bands. Detectors can be easily exchanged with no manual alignment, and optical filters can be switched by 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

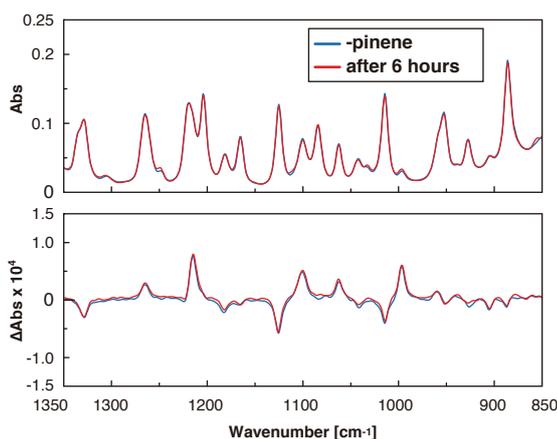
A thermostatted cell holder, 3-position autosampler, and range of small-volume liquid cells are available as options.

##### ● Spectra Manager™ II

Spectra Manager II software, cross-platform 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.

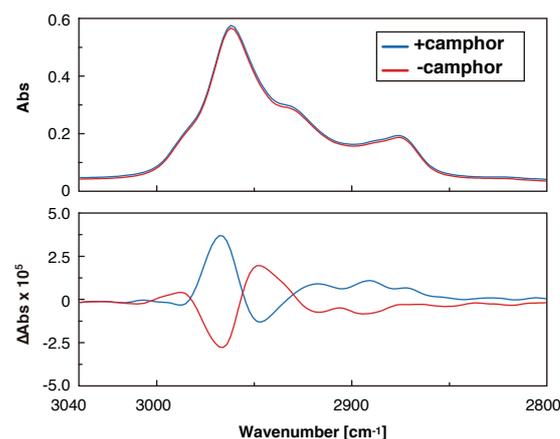
#### Long-term stability

##### VCD and IR Spectra of pinene



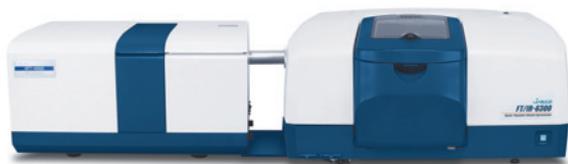
#### Narrow band mode

##### VCD and IR Spectra of camphor



## Specifications

Instrumentation	VCD instrument
Measurement range	Standard: 3200 ~ 850 cm <sup>-1</sup> Option: 4000 ~ 750 cm <sup>-1</sup>
Resolution	16 ~ 0.5 cm <sup>-1</sup>
Noise level Measurement condition	less than 8 x 10 <sup>-6</sup> ΔAbs (4 cm <sup>-1</sup> , 20 min accumulation)
Light source	High intensity ceramic source, insulated mount
Detector	Standard: MCT-V (3200 ~ 850 cm <sup>-1</sup> ) Option: MCT-C (1000 ~ 750 cm <sup>-1</sup> ) InSb (4000 ~ 2000 cm <sup>-1</sup> )
Lock-in detection	DSP
PC communication	USB2.0 for main unit RS-232C for PEM driver
Interferometer	28° incidence Michelson interferometer
Optical filter	Standard: 3200 ~ 2000 cm <sup>-1</sup> , 2000 ~ 850 cm <sup>-1</sup> (6-position automatic switching) Option: 4000 ~ 2700 cm <sup>-1</sup> , 1000 ~ 750 cm <sup>-1</sup> , 1850 ~ 1550 cm <sup>-1</sup>
Polarizer	KRS-5
Options	3-position Auto sampler Fixed liquid cell, BaF <sub>2</sub> or CaF <sub>2</sub> window, 25 ~ 100 μm cell path Demountable liquid cell, BaF <sub>2</sub> or CaF <sub>2</sub> 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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