AppliedPhotophysics

CHIRASCAN V100 CIRCULARLY POLARIZED LUMINESCENCE ACCESSORY



Unravel the chirality of excited states

Discover when change is significant

EXAMINE EXCITED STATES OF CHIRAL MOLECULES

0.01

0.005

D

-0.005

-0.01

Detect weak CPL signals

The Chirascan™ Circularly Polarized Luminescence (CPL) accessory monitors the chirality of fluorescence emission-even weak signals (g_{lum}) in the order of 10⁻², at a typical Root Mean Square noise of 0.0014.







1R-(-)-camphorquinone



Optics for flexible optimization

- Focusing lens and iris control light throughput
- Cut-off filter removes excitation light (optional range of filters available)



CPL for Eu(facam)₃ in 5.5 mM DMSO, 1 cm pathlength.

- Scanning Emission Monochromator selects emission wavelength and bandwidth
- Detector suitable for CPL, CD and **Fluorescence Polarization measurements**

Eu(facam)3 (Europium tris[3-trifluoromethylhydroxymethylene)-(+)-camphorate]) used as a benchmark for CPL performance





Setting	value
Excitation Wavelength	373 nm
Excitation Bandwidth	33 nm
Excitation Cut-Off	515 nm
Emission Range	570 to 630 nm
Emission Bandwidth	3 nm
Time-per-point	1.25 s
Step	1 nm
Repeats	3
Temperature	22.5°C

NO COMPROMISE: CPL AND CD WITH THE SAME SETUP

The Chirascan CPL accessory has been designed to permit conventional CD measurements: Switch easily between CPL and CD mode at the click of a button, without any hardware changes.

- controlled Single Cell Peltier Holder
- for automatic PEM selection



Setting	Value (CPL)	Value (FP)
Excitation Wavelength	468 nm	480 nm
Excitation Bandwidth	8 nm	4 nm
Excitation Cut-Off	475 nm	515 nm
Emission Range	500 to 600 nm	-
Emission Bandwidth	8 nm	-
Time-per-point	1 s	-
Step	1 nm	-
Sample Time	-	30 s
Number of points	-	100
Repeats	3	3
Temperature	20°C	20°C

Fluorescein in 0.14 mM methanol and 0.72 mM glycerine, 1 cm pathlength. Fluorescence Polarization: 0.014 and 0.424.

GET ALL INFORMATION FOR THE SAME SAMPLE

No matter if used for applications in materials physics or biology: the Chirascan CPL accessory always allows a comprehensive analysis. As identical g_{lum} values are obtained for a wide range of sample concentrations, measurements can be optimized for CD so that CPL, CD and absorbance data can be obtained for the same sample.



Setting	Value
Excitation Wavelength	310 nm
Excitation Bandwidth	15 nm
Emission Range	375 to 650 nm
Emission Bandwidth	15 nm
Time-per-point	2 s
Step	1 nm
Repeats	5
Temperature	20°C

Quinolone antibiotics are often used to treat genitourinary infections. A polymer consisting of quinolone cycles with the bicyclic core structure of 4-quinolone connected by amide bonds was analyzed with a Chirascan V100 fitted with the Chirascan CPL accessory. Polymer samples at different concentrations in dichloromethane were analyzed in a 1 cm pathlength cuvette.



4-Quinolone

With lower concentrations, absorbance was optimal for CD measurements (i.e., < 2AU) while g_{lum} was virtually identical.

PRODUCT SPECIFICATIONS

Technical specifications	
Compatibility	Compatible with Chirascan V100
	For compatibility with other Chirascan accessories, contact your Applied Photophysics specialist
Control	Chirascan control software
Wavelength range	205 nm to 900 nm
Typical Root Mean Square (RMS) noise value (<i>g_{lum}</i>), 18 mM S-Camphorquinone in EtOH	0.0014 at 504 nm Emission Wavelength (10 nm Emission Bandwidth, 468 nm Excitation Wavelength, 10 nm Excitation Bandwidth, 20 s digital integration time, 800 s total acquisition time, 475 nm cut- off filter)
Bench space	Positioned inside sample chamber of Chirascan V100 Additional bench space required for SEM (18 x 26 cm) and PMT
Nitrogen purge	As for Chirascan V100
Environmental and electrical requirements	As for Chirascan V100 No Additional mains voltage required
Servicing	Must be undertaken by qualified personnel

Ordering information

To order Chirascan systems or accessories, please contact your local Applied Photophysics representative to discuss your specific requirements or submit your enquiry online at www.photophysics.com.

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