ACTIVE SPECTRUM

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Benchtop Micro-ESR™

Active Spectrum manufactures the world's smallest Benchtop Electron Spin Resonance (EPR/ESR) spectrometer.

Industrial, scientific and educational applications of electron spin resonance are now extraordinarily cost-effective.

ASI's Benchtop Micro-ESR™ includes our patented miniature electron spin resonance spectrometer, operating at 9.5 GHz with a sweep range of 300 Gauss and sub-micromolar sensitivity.

Also included are an automatic temperature controller and full Windows 7 computer system with Ethernet and multiple USB ports.

Active Spectrum's Benchtop Micro-ESR™ spectrometer is used in industrial and academic labs and educational institutions worldwide. Some sample applications are:

- Crude oil analysis: asphaltene and vanadium content
- Lubricants analysis: oxidation of engine oil, hydraulic oil and turbine oil
- Spin-trapping (PBN, TEMPOL, BMPO, DMPO)
- Shelf life of food products (vegetable oil, beer, wine)
- Biodiesel oxidative stability
- Detection of raw fuel dilution in marine engines
- Additives
- Soot
- Catalyst coking

SPECIFICATIONS

Parameter	X-band (9.5 GHz)
Sensitivity	0.1 µM
Sample Tube diameter	ø5.8 mm
Magnet Assembly	3480 ± 150 Gauss
Magnetic Field Uniformity	0.25 Gauss
Supply Voltage	15 VDC / 6.7A (120V/240V Wall Adapter Included)
Data Interfaces	Ethernet and USB
Screen	8.4" Touchpanel display with Windows 7 Embedded DVI/HDMV/VGA
Dimensions	12" x 12" x 12" Case

SAMPLE RESULTS

Sensitivity Demonstration: Micro-ESR Spectrometer S/N 21.6 with 1µM TEMPOL in water

Spectrometer Settings	Sample
Analyte: 1 micro-molar TEMPOL in deionized water.	Sample Cell: Glass flat cell (5mm x 0.5mm)
Microwave power: 25 mW	Sample Volume: 50 µL
Sweep Width: 60 Gauss	
Sweep Duration: 3 minutes	
Modulation field: 1 Gauss	

Signal-to-Noise Calculation

Parameter	Value
S/N (Amplitude)	21.60
Signal Amplitude	21.17 mV
Noise Amplitude	0.98 mV
S/N (Power)	466.6

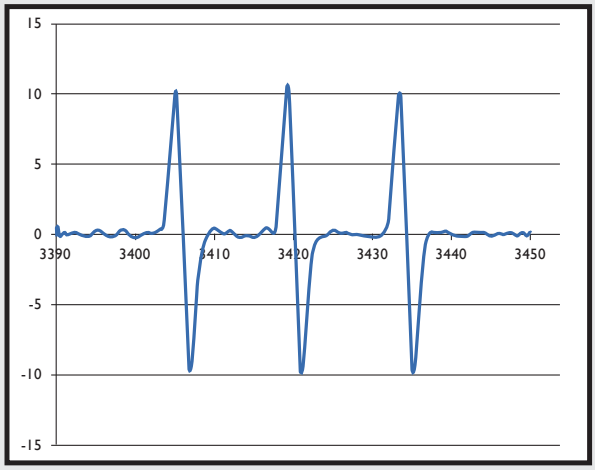

Figure 1: 3-minute scan of 1 micro-molar TEMPOL in aqueous solution

FEATURES

Data Interface

Sample Insertion

Touchpanel Display

AVAILABILITY

Please contact us at +1 650-212-2625 or sales@activespectrum.com to discuss your application in more detail.

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1191 Chess Dr. Suite F
Foster City, CA 94404
T: 650-212-2625 F: 650-212-2627
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