

Alpha

UV-VIS SMART SPECTROPHOTOMETER



Alpha

The luxuriously designed Alpha is a spectrophotometer that uses the double-beam method.

Alpha measures the transmittance and absorbance of samples in the UV and visible regions, enabling precise analysis of concentration and purity. From routine laboratory experiments to advanced research applications, it delivers excellent reproducibility and reliable results across environmental, biotechnology, and chemical fields.

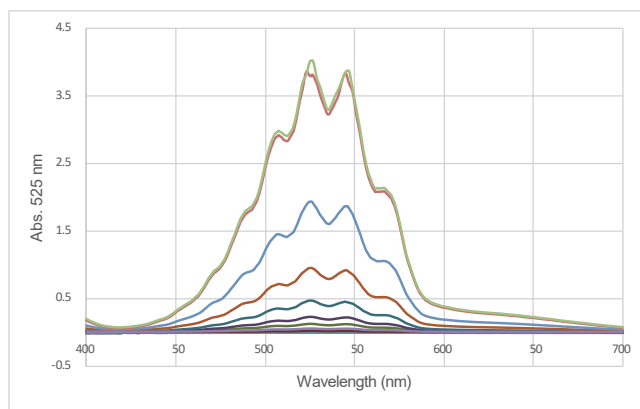


Figure. Absorption spectra of potassium permanganate (KMnO₄) at different concentrations
Measured over a wide concentration range of 0.03–265 mg/L, the results demonstrate Alpha's excellent stray light suppression, maintaining outstanding linearity without signal saturation even at a high absorbance of 3.9866 Abs.

Stray light caused by scattering and diffraction in optical components can reduce linearity and introduce measurement errors, particularly in high-absorbance analysis.

Alpha employs a dual stray-light suppression design, combining a dedicated Stray Light Trap that absorbs scattered light with a rotating Filter Wheel that physically blocks unwanted light.

This design ensures stable baselines and a high signal-to-noise ratio (S/N), minimizing signal distortion.

Specifications			
Photometrics System	Double-beam type	Baseline Stability	Less than 0.0003 Abs/hr
Light Source(s)	Tungsten Lamp / Deuterium Lamp		(700 nm, one hour after light source turned ON)
Detector	Silicon Photodiode	Baseline Flatness	< ± 0.0005 A
Spectral Bandwidth	Fixed - 1.0 nm (190 to 1,100 nm)		(190 to 1,100 nm, one hour after light source turned ON)
	(Optional) Variable - 0.5, 1, 1.5, 2, 4 nm	Photometric Repeatability	Less than ± 0.0002 Abs at 0.5 Abs
Wavelength Range	190 to 1,100 nm		Less than ± 0.0006 Abs at 1.0 Abs
Wavelength Display (setting)	0.05 nm		Less than ± 0.0010 Abs at 2.0 Abs
Wavelength Accuracy	± 0.3 nm (For entire range)	Stray Light	Less than 1.00 % (198 nm KCl)
	± 0.1 nm (656.1 nm)		Less than 0.05 % (220 nm NaI)
Wavelength Repeatability	± 0.1 nm		Less than 0.05 % (340 nm NaNO ₂)
Wavelength Slew Rate	Approx. 25,000 nm/min	RMS noise	Less than 0.00005 Abs (700 nm)
Scanning Speed(Max)	6,000 nm/min	Monochromator	Czerny-Turner type with 1,200 lines/nm blazed grating
Lamp interchange Wavelength	340 to 410 nm (Default 370 nm)	Standard Cell Holder	Automatic Rotary type 8-position Multi-Cell Holder
Photometric Range	Absorbance: -4 A to 4 A	Operating System (OS)	Windows 10 (Embedded PC)
	Transmittance: 0% to 400%	Display	8 inch color LCD with touch screen
Photometric Accuracy	± 0.002 Abs at 0.5 Abs	Control Options	Onboard with built-in touchscreen
	± 0.004 Abs at 1.0 Abs		PC Software (View)
	± 0.006 Abs at 2.0 Abs	Dimensions(W*D*H)	520 mm * 500 mm * 200 mm
	(NIST930D/NIST1930 or equivalent)	Power Requirement	AC 100-240 V, 50/60 Hz, 140 VA
Environmental requirements	Temperature: 15 °C to 35 °C	Weight	14 kg
	Humidity: 30 % to 80 %	PC Software	(Optional) FDA 21 CFR Part 11 compliance S/W (Secure)

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