



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

Materials Management Division

For Reference No.1000016348 (RFx No.6100000574)

TECHNICAL SPECIFICATION FOR REAL DOUBLE BEAM UV VISIBLE SPECTROPHOTOMETER

Sr. No.	Parameter	Description
1	Wavelength Range	190-1100 nm or 185 nm-1200 nm or 185-1400 nm or 185-900 nm or 175-900 nm
2	Source	Deuterium and Tungsten or Xenon flash lamp Note: If the system has more than one light sources (e.g. Tungsten & Deuterium), they should be well pre-aligned/calibrated, so that the lamp change during scanning should not add any noise/ jump in spectral features.
3	Monochromator	1200 lines/mm, Czerny- Turner
4	Detector	Si photodiodes or PMT detector for Sample and Reference
5	Photometric System	True Real Double Beam
6	Photometric Range	-3 to +3 or further wider range
7	Absorbance Range	$\pm 3 A$
8	Stray Light	At 220 nm (NaI) $\leq 0.05 \%T$
		At 340 nm (NaNO ₂) $\leq 0.05 \%T$
		At 200 nm (KCl) $\leq 1 \%T$



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9	Spectral Bandwidth	At least three (or more) variable slit widths/ bandwidths, e.g., 0.2, 0.5, 1, 2, 4, 5 nm
10	Data Interval	0.05, 0.1, 0.5, 1, 2 nm
11	Wavelength accuracy	± 0.5 nm (or lesser/better range)
12	Wavelength reproducibility	± 0.1 nm (or lesser/better range)
13	Photometric accuracy	± 0.004 A (or lesser/better range)
14	Photometric reproducibility	< 0.001 A
15	Photometric drift	< 0.0005 A/hour
16	Scan speed	Variable 1 to 3000 nm/min or higher rate (faster rate)
17	Interface	USB Connectivity
18	Cuvettes	1 cm path length, approx. 3.5 ml volume, 1 set, made of UV-clear quartz (pair for sample and reference)
19	Quartz discs/slides	25 pcs UV-clear quartz disc (s) of size within approx. 15x15x0.5 mm to 20x20x0.5 mm or within 15-20 mm diameter with approx. 0.5 mm thickness have to be quoted
20	Environmental Compatibility	Temperature: 15- 35° C and Humidity: 30-80% Non-condensing
22	Software	System compatible original Licensed Software should be quoted with following capabilities: - <ul style="list-style-type: none"> a. Software should control/ run the spectrophotometer and measure Absorbance, Transmittance and



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		<p>Reflectance at the full or selected Wavelength with real-time spectral displays and live instrument and accessory status bar.</p> <p>b. Software should have facility to export data to Clip board, CSV file, Excel file, BMP file, ASCII file etc., Zoom In / Out, Add / Edit Labels operations.</p> <p>c. Software should have facility for fully integrated Spectrum Scan, Kinetic, Wavelength, Colorimetry etc. program data collection mode and a Self-checking control module before scanning.</p> <p>d. Should be compatible with Windows 8, and 10 OS</p>
23	Accessory	<ol style="list-style-type: none">1. Advanced transmission and reflectance accessory appropriate for solid thin film samples. Samples should be reproducibly placed into a well-defined holder/slot/groove, firmly.2. Thin film holder for samples with thickness of ≤ 1 mm (including film and substrate plate).3. Integrating sphere (diameter within 50 mm or 80 mm) for diffuse reflectance and transmittance of solid samples.4. Appropriate scanning attachment for solid samples5. All the accessories should properly fit into the desired optical path during data acquisition.



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24	Spare Lamp(s)	1 set each of spare Deuterium and Tungsten lamp or if applicable Xenon flash lamp should be included in quote
25	Weight	Due to frequent position-changing nature of experiment the system should be tabletop, plug and play type and must not weigh more than 27 kg
26	Other(s)	<ol style="list-style-type: none">1. The system should come up with at least 2-years warranty period (from the date of installation). Usual troubleshooting/ maintenance during warranty period have to be covered by the vendor.2. The system should have at least three or more installations in Indian academic sector, successfully.3. If necessary, the offered system need to be shown as a live demonstration, when called for, being a qualifying criteria.4. Bidder/vendor will be fully responsible in successful delivery (including unloading), installation and commissioning of the instrument at installation site in IIT Bombay. Documents for customs clearance & transportation will be provided by IIT Bombay to the bidder/vendor in case of imported items.