

V-600 Series

UV-Vis/NIR Spectrophotometers

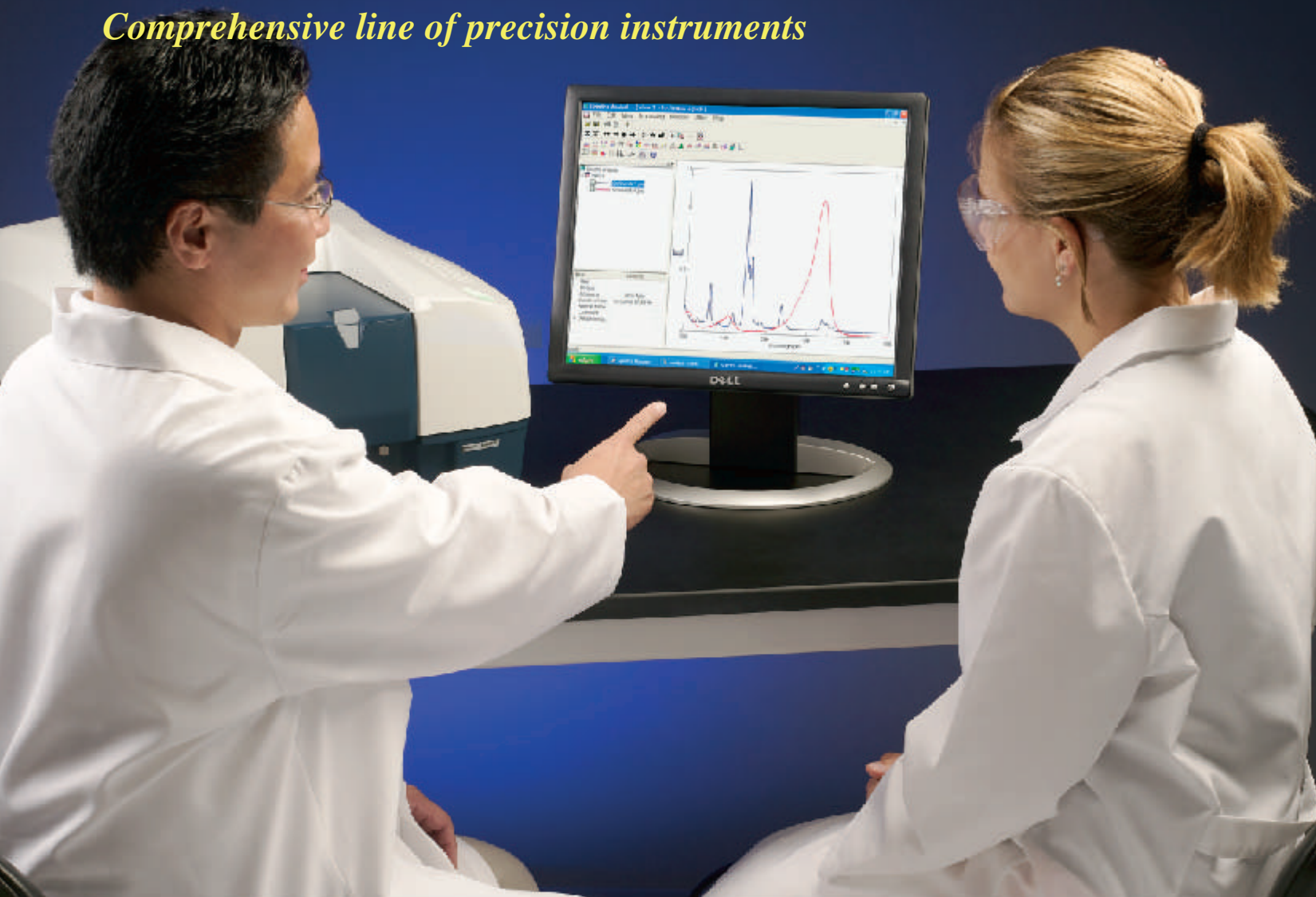
*Superior performance
Superior innovation
Superior reliability*



Jasco

V-600 Series UV-Vis/NIR Spectrophotometers

Comprehensive line of precision instruments



With more than forty years of experience in the design of spectrophotometers, JASCO is pleased to introduce a new line of UV-Vis/NIR instruments. The V-600 series consists of five distinct models designed to meet the capabilities required by thousands of customers worldwide. From an innovative optical layout to a simple comprehensive instrument control and data analysis software interface, the V-600 series does not compromise on accuracy, performance or reliability. JASCO is proud of its successful analytical instrument development, and is excited about the advances offered by this powerful product lineup. JASCO fully guarantees the reliability and performance of these instruments, and provides a complete range of customer support services.



Compact design

The compact optical design of the V-600 Series reduces space requirements in the modern laboratory.

Excellent optical performance

Reduced stray light enables highly precise measurements over a wide photometric range.

High speed scanning

High throughput optics and fast detectors provide high-speed scanning without wavelength tracking errors.

Dark correction

Stray light reduction features enable highly-accurate measurements of high-absorbance samples.

Monochromator step scanning

Step scan function provides reliable peak assignment of samples with sharp or narrow absorption peaks.

User-friendly graphical interfaces

New iRM intelligent remote module
Spectra Manager™ II and Spectra Manager CFR

IQ Accessory

Automatic accessory recognition.

IQ Start

A registered software program can be activated with a simple push of the 'Start Button'.



Full range of Accessories

Over 50 sampling accessories for gas, liquid and solid samples are available for specific sampling applications.

Accurate and reliable

A USP, EP and JP compliant instrument validation is provided. IQ/OQ support is available as an option.

Wide wavelength range from UV to NIR

High energy throughput provides excellent signal-to-noise ratio for the entire UV to NIR spectral range.

V-630
General-purpose UV-Vis

V-630Bio
Life Science package



V-650
High resolution UV-Vis

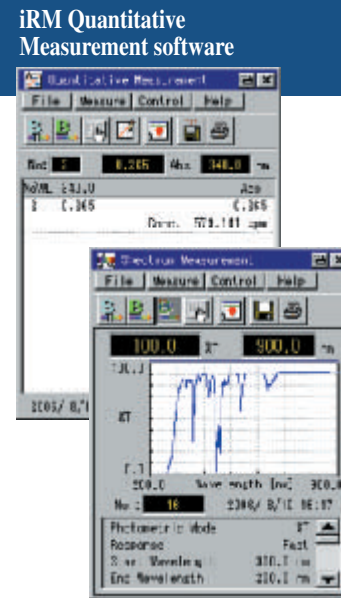
V-660
Exceptional stray light rejection

V-670
Expansion into the NIR region



V-630 UV-Vis Spectrophotometer

The V-630 is an economical, general-purpose instrument with a compact design to save bench space. Its excellent spectroscopic performance is suitable for routine, QC and research applications with a spectral bandwidth of 1.5 nm that complies with JP, EP and USP requirements. Two graphical user interfaces are available including a newly redesigned intelligent remote module (iRM) with a color LCD touch screen and Spectra Manager II software, the latest version of JASCO's innovative cross-platform spectroscopy software. Both of these control and analysis interfaces allow full-system control and advanced data processing. Spectra Manager CFR is a 21 CFR part 11 compliant version of software and can be ordered as an option.



iRM Spectral Scan software

V-630Bio Life Science package

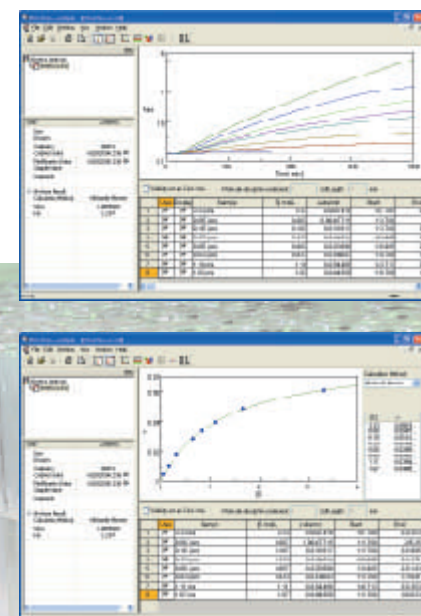
The V-630Bio is specifically designed for Life Science applications. It consists of the V-630, an intelligent Remote Module (iRM) for biological and clinical analysis, and a micro cell holder. Dedicated bio-analytical application programs include protein/nucleic acid measurement, temperature ramping/DNA melting analysis, kinetics measurement and analysis, and a quantitative protein analysis program with six different calibration methods included in the software. The TCH-703 4 μ L 8-position turret micro cell holder, PAC-743/743R automatic 8-position Peltier cell changer for micro cells, and other sampling accessories are available as options.



- Double-beam spectrophotometer with single monochromator
- Silicon photodiode detectors
- Range 190 to 1100 nm
- Fixed bandpass of 1.5 nm
- High-speed scanning up to 8,000 nm/min

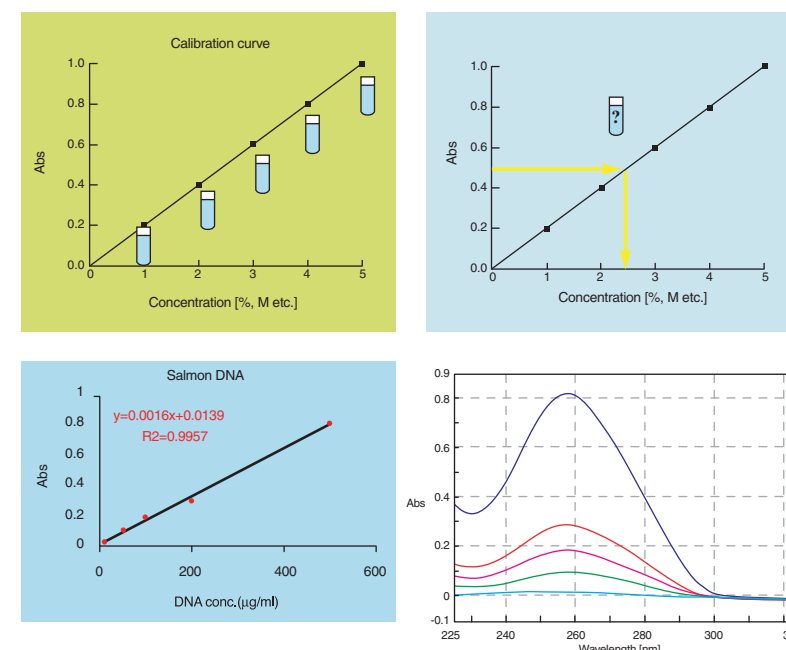
- Applicable to micro volume samples
- Powerful protein quantitation program
- Integrated bio-application programs
- USB compatible printing
- Data storage on PC-compatible flash memory card

Spectra Manager II

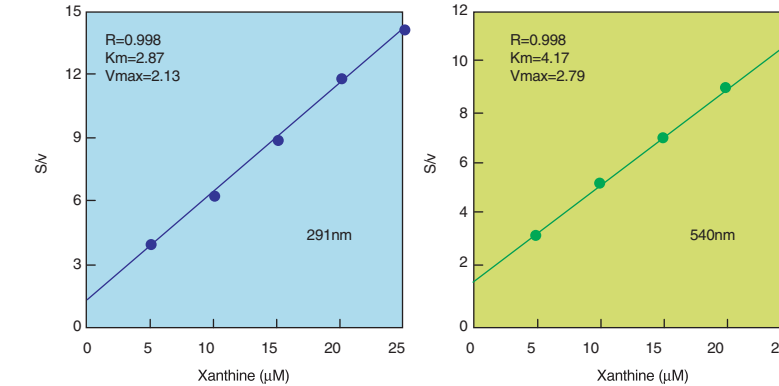


Advanced Kinetics Analysis Program (Option)

Quantitative analysis of Salmon DNA at 260 nm in phosphate buffer

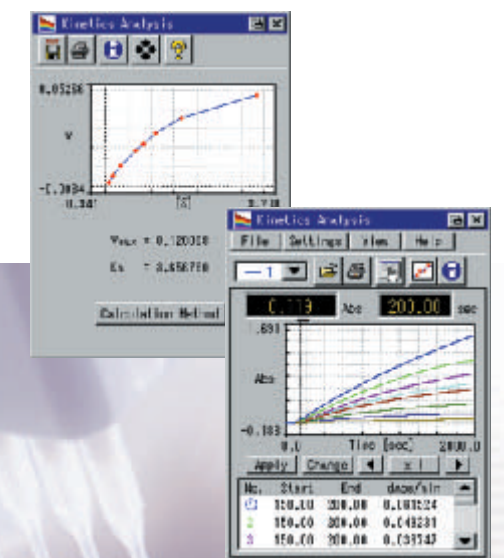


Analysis of the xanthine oxidase reaction rate



Xanthine oxidase is an enzyme that forms uric acid and active oxygen (O_2^-) from xanthine and O_2 . (Two substrates, two products) The formation rate of uric acid can be measured at 291 nm and that of active oxygen (using NBT) at 540 nm. Analysis of these two different wavelengths provides the values of K_m and V_{max} for the two products. K_m indicates the degree of interaction between the enzyme and the substrate. V_{max} reflects the reactivity of the enzyme.

iRM Bio Kinetic analysis Software



V-650/660/670 UV-Vis/NIR Spectrophotometers

The V-650/660/670 are double-beam spectrophotometers with a photomultiplier tube detector. The high sensitivity of the PMT detector enables accurate measurements of low concentration samples. By controlling the high voltage applied to the PMT, the dynode feedback system allows a wider dynamic range. It also enables the use of such solid sample handling accessories as integrating spheres to collect diffuse light transmitted or reflected by the sample. The advanced optical design offers high optical throughput and low stray light for extended absorbance linearity with the capability for high resolution measurements as low as 0.1 nm for gas and vapor phase spectroscopy.



V-650 High resolution UV-Vis

Double-beam spectrophotometer with single monochromator

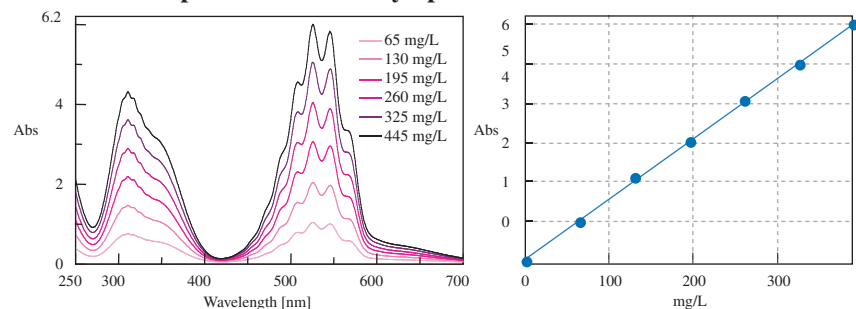
Linearity up to 4 absorbance
Range 190 to 900 nm
Variable bandpass to 0.1 nm

V-660 Exceptional stray light rejection

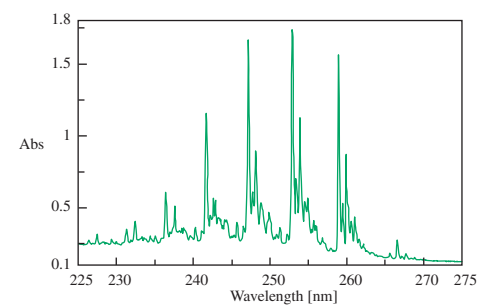
Double-beam spectrophotometer with double monochromator

Low stray light below 0.00008%
Linearity up to 6 absorbance
Range 187 to 900 nm
Variable bandpass to 0.1 nm

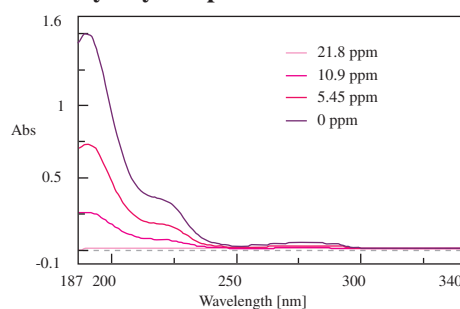
KMnO₄ spectra and linearity up to 6 absorbance



Benzene vapor spectrum



Lysozyme spectrum to 187 nm

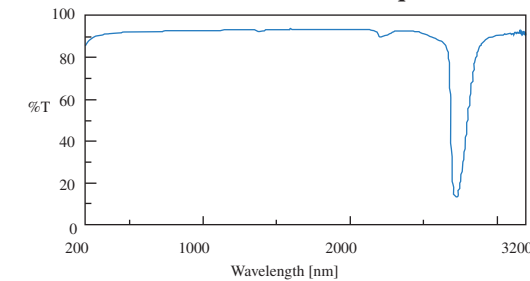


V-670 Expansion into the NIR region, offering incredible value

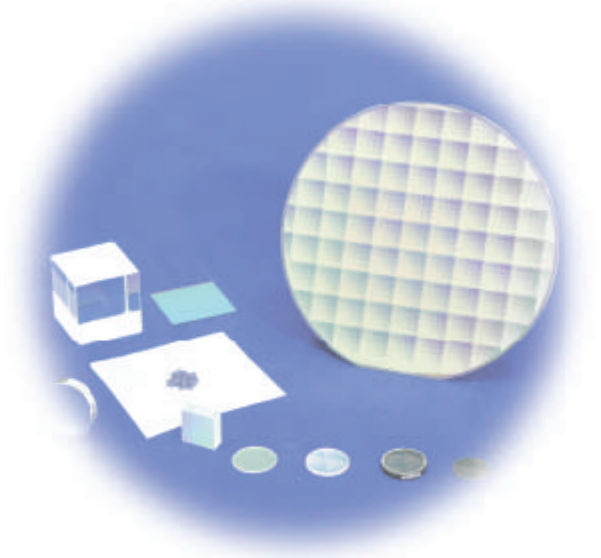
The unique single monochromator design of the V-670 requires fewer mirrors to provide a higher throughput resulting in a better signal-to-noise ratio over the entire spectral range. Many UV-Vis/NIR applications require reflectance or transmittance measurements of special optics, films, and wafers. The optional large sample compartment can directly accommodate large samples non-destructively. Several integrating spheres are available including a remote optical fiber unit which can measure the diffuse reflection of a variety of solid samples, such as pastes, clothing materials and food products.

Unique single monochromator system
Photomultiplier tube detector for UV-Vis region
Peltier cooled PbS detector for NIR operation
Range 190 to 2700 nm (3200 nm option)
Variable bandpass to 0.1 nm (UV-Vis)

Transmittance measurement of quartz window

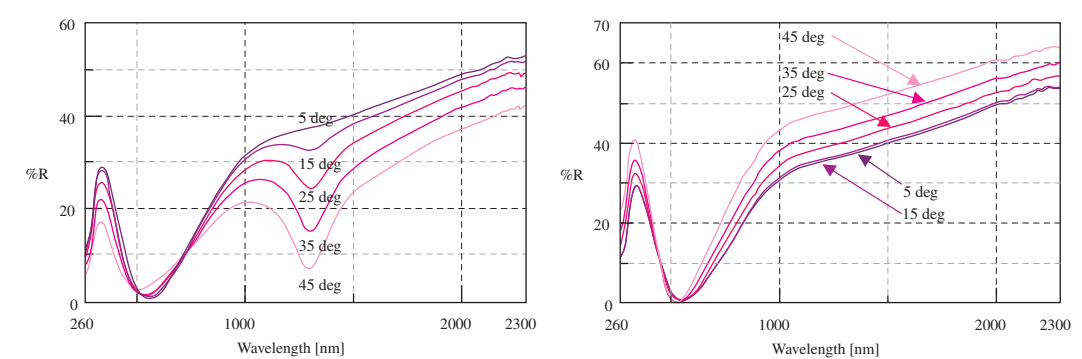


Wavelength extension up to 3200 nm allows observation of H₂O absorption in quartz.



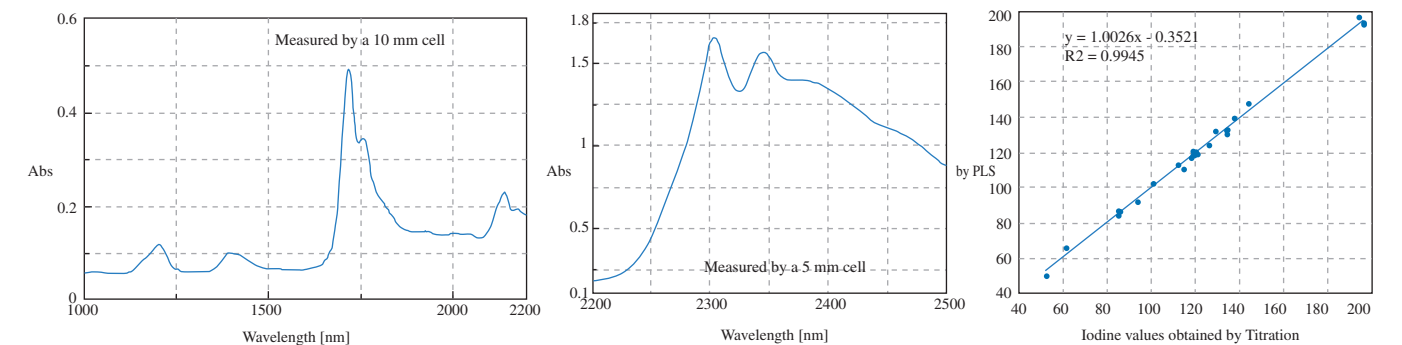
Absolute Reflectance Spectra of 50 nm ITO on Si

(Using Automated Absolute Reflectance Measurement System)



Absolute reflectance spectra of 50 nm ITO (indium tin oxide) on silicon substrate, p-polarized light (left), and s-polarized light (right). Incidence angles are 5°, 15°, 25°, 35°, 45°. The ITO film is transparent in visible light while highly conductive and widely used in LCD's, PD's and touch-panels.

NIR absorbance spectra of a fatty oil



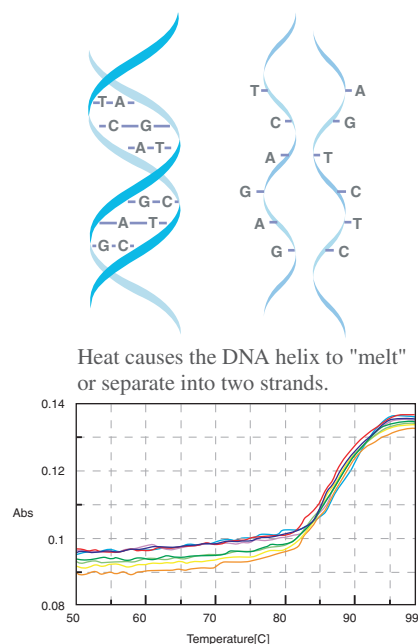
An important characteristic of a fatty oil product is its iodine value (IV). The V-670 and a PLS (Partial Least Square) program allows determination of the iodine values in fatty oil samples, measuring differences in the spectra in the range from 2300 nm to 2500 nm. The differences in NIR absorbance can be attributed to differences in iodine values (i.e., concentrations of unsaturated C=C double bonds in the oil molecules). The differences in the spectra can be observed at approximately 1200, 1950, 2200 and 2400 nm.

Solutions for liquid samples

UV-Vis spectroscopic analysis is a common analytical procedure in which the liquid sample spectrum is measured and quantitative analysis is performed using the maximum absorption wavelength. Today, increasingly sophisticated applications that include time and temperature variables are being employed in such fields as biochemistry and biotechnology, and in clinical laboratories. JASCO offers various sampling accessories to support the growing demand for complex applications and provides the ideal system tailored to meet specific customer requirements. In a PC controlled configuration, these intelligent accessories enable high-speed data acquisition and high-measurement accuracy.

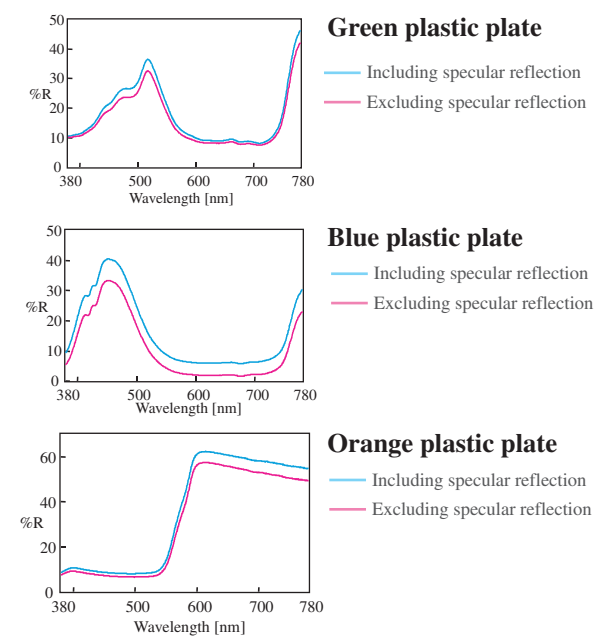
Solutions for solid samples

With an increasing demand for evaluation of new materials such as polymers, glasses, ceramic materials and semiconductors using optical spectroscopy, several different types of accessories are required for the measurement of solid samples. Many of the properties of solid samples require not only UV-Vis measurements, but also measurement into the NIR region. To satisfy these requirements, JASCO offers several reflection accessories, such as specular reflection attachments and integrating spheres for both UV-Vis and UV-Vis/NIR. An extended large sample compartment is also available as well as an integrating sphere with an optical fiber interface for such applications as nondestructive food analysis in the NIR region.



DNA melting analysis

Using a newly developed 8-position V-series cell changer, transmittance or absorbance measurements for up to 8 samples can be collected simultaneously with temperature control from 0 to 100°C. The data shown are for the thermal melting of a 50 mg/mL DNA solution (200 mM phosphate buffer pH7.0) obtained from calf thymus, monitored at 260 nm and showing increasing absorption. The T_m (melting point) can be observed around 88°C. The 8-position cell changer can be utilized in other applications, such as biological macromolecules, enzyme activity, liquid crystals, etc.



Reflectance measurements of plastic plates by using the integrating sphere

Several types of integrating spheres are available for the V-600 series to comply with various application requirements. Integrating spheres for horizontal sampling, models PIV-756/PIN-757, can mount the sample horizontally and provide measurements of small sample sizes by using a lens. The models ISV-722/ISN-723 (60 mm diam.) and ILV-724/ILN-725 (150 mm diam.) provide the ability to eliminate specular reflectance. Sample reflectance can be measured either including the specular reflectance or providing only the diffuse reflectance.

Variety of cells



5 µL micro cell



50 µL micro cell

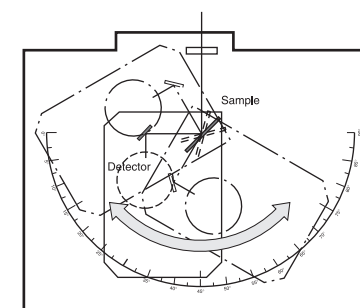


4 µL 8-position Turret micro cell

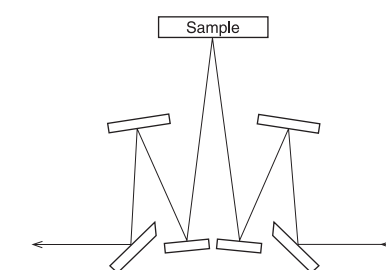


8-position micro cell
8-position 5 mm cell block
6-position 10mm cell block

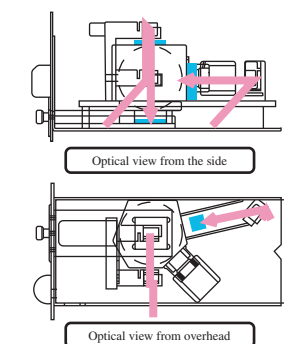
Absolute reflectance



Specular reflectance



Integrating sphere

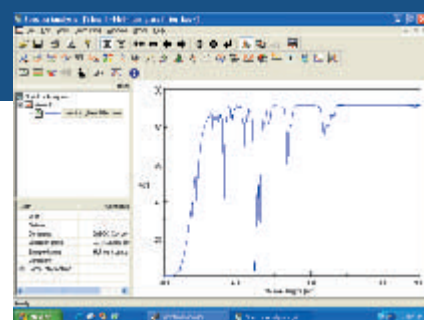


Cross-platform spectroscopy software Spectra Manager™ II & CFR

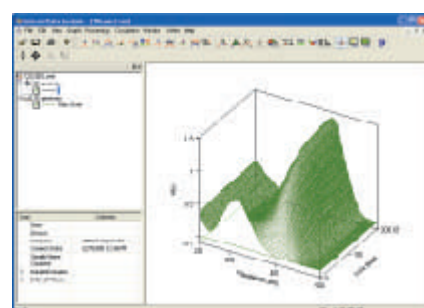
JASCO's Spectra Manager™ II, the latest version of the innovative cross-platform spectroscopy software, allows full system control and advanced data processing. Spectra Manager II is also available as a 21 CFR part 11 compliant version. Both software packages are designed to provide easy operation and the ability to perform a wide range of applications from routine to sophisticated procedures.



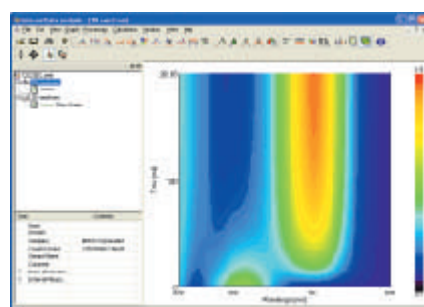
Full system control with instrument validation (standard)
Powerful data processing and spectral analysis
Report publishing using JASCO Canvas
Kinetics, film thickness, color analysis (standard)
A range of optional software programs



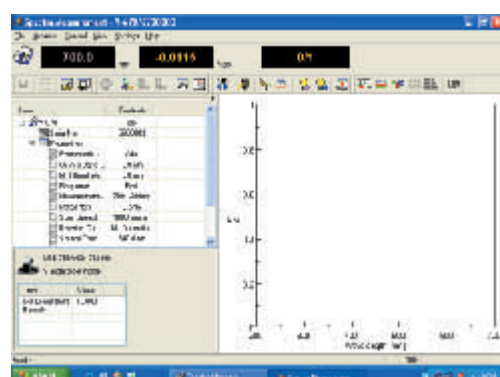
Spectra analysis screen



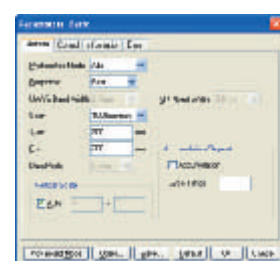
3D view



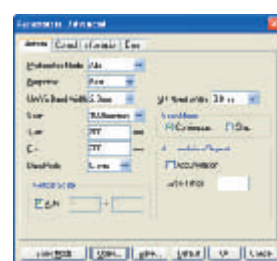
Color view



Spectra measurement



Parameter settings
(Basic mode)



Parameter settings
(Advanced mode)

Intelligent Remote Module iRM-700

The iRM-700 intelligent remote module incorporates a wide display with a color LCD touch screen and provides access to all functions necessary for routine applications. The iRM conveniently guides the operator through routines encompassing data acquisition to data processing. The obtained data can be automatically printed to USB printers, or saved to a compact flash memory card for further processing on a PC.



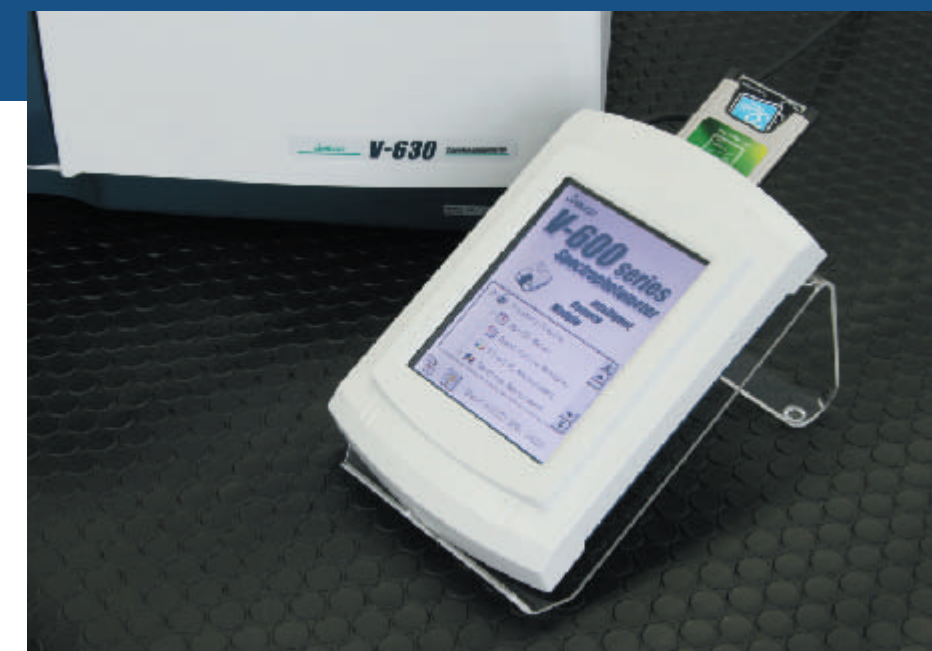
Touch-sensitive screen



Easy data transfer to a PC



Print to a USB printer



High quality color LCD display
Operation using Touch Pen
Enhanced quantitative analysis
Equipped with instrument validation software



● Specifications are subject to change without notice.

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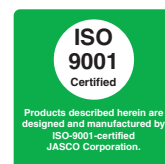
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