Technical Information

Hitachi High-Tech
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Contact Lens Luminous Transmittance Analyzer

Hitachi U-3900 Spectrophotometer

Hitachi's advanced technology sup luminous transmittance.

Hitachi's newly developed lens analysis accessory enables smooth and accurate sample setup in solution.

Contact Lens Luminous Transmittance Analyzer U-390

Instrument Composition

◆Hitachi U-3900 Spectrophotometer

- U-3900 Spectrophotometer main instrument
- UV Solutions program*1

◆Contact lens luminous transmittance measurement accessory*2

(1) 60mm Integrating sphere accessory (P/N 2J2-0176)

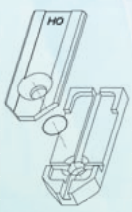
(2) Option package program (P/N 3J2-0311)

(3) Contact lens luminous transmittance measurement accessory (P/N 2J2-0197*3)

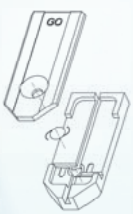
- Soft contact lens holder ×1
- Hard contact lens holder ×1
- Intraocular lens holder ×1
- Cell for contact lens holder ×1
- Cell mounting for contact lens measurement accessory ×1

60mm Integrating sphere accessory

Soft contact lens holder



Hard contact lens holder



Intraocular contact lens holder

		Soft contact lens	Hard contact lens	Intraocular lens
Sample size	Diameter	12 - 15 mm	9 - 10 mm	5.5 - 6 mm
	Thickness	0.06 - 0.2 mm	0.1 mm	0.3 mm
	R	6.8 - 10 mm	6.8 - 10 mm	
Center hole	Diameter	6 mm	6 mm	3 mm

*1: PC for Windows®7 professional (32bit), monitor and printer are required.

*2: Reagents, etc not included.

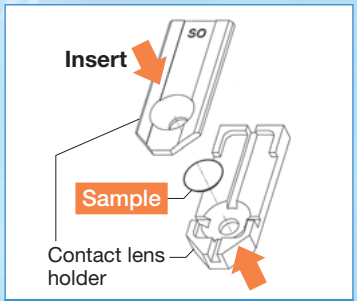
*3: Special order. For full specifications and precautions, please contact our sales stuff.

ports the analysis of contact lens

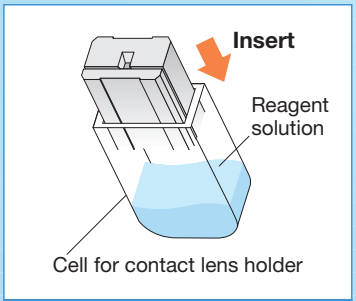
Features

1 With the lens measurement accessory*4, which is specially designed for measuring contact lenses, you can prepare hard and soft contact lenses for measurement while soaked in solution ,which was difficult to perform in the conventional methods.

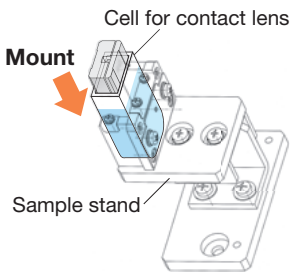
*4: Patent pending



Place sample into the holder

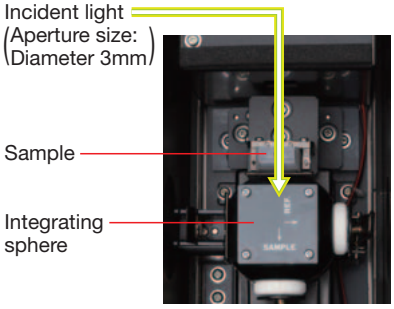


Insert the holder into the cell



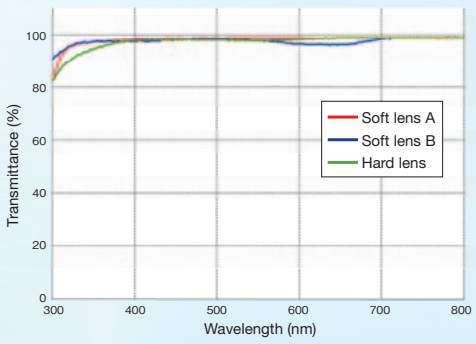
Mount the cell on the sample stand

2 The integrating sphere method, conforming to ISO18369 is employed, so that highly reliable data can be obtained.



Measurement example

The spectral transmittance of hard and soft contact lenses was measured using the contact lens luminous transmittance measurement accessory (special order), and the luminous transmittance values were calculated with reference to ISO18369-3. The luminous transmittance was high for both contact lenses, and a relative standard deviation of 0.07% was obtained for the reproducibility (n = 5) of the procedure, including lens removal, confirming good reproducibility. The system for luminous transmittance allows the simple analysis of contact lenses for shipping inspection and other purposes.



Spectral Transmittance Spectrum of the Contact Lens

Luminous Transmittance Calculation Results

*Calculated with reference to ISO 18369-3

	Soft lens A	Soft lens B	Hard lens
Luminous transmittance (%)*	98.85	97.59	98.21

Reproducibility Results for the Luminous Transmittance of Soft Lens A

	Luminous transmittance (%)
1	98.85
2	98.85
3	98.84
4	99.00
5	98.94
Ave.	98.90
RSD%	0.07

Appearance

60mm Integrating sphere accessory

Contact lens luminous transmittance measurement accessory (special order)

Main Specifications

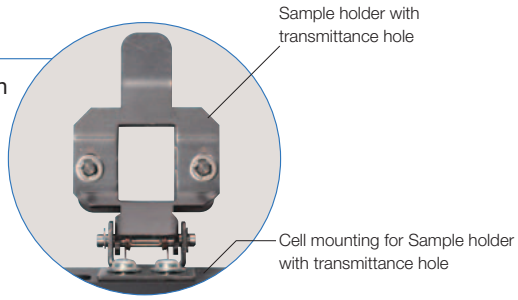
Hitachi UV-Vis Spectrophotometer U-3900	
Light source	Ultraviolet region: Adjustment-free deuterium lamp (D_2 lamp) Visible region: Adjustment-free tungsten iodine lamp (50 W) (WI lamp)
Monochrometer	Diffraction grating Single monochrometer Seya-Namioka mount
Wavelength range	190-900 nm*1
Integrating sphere	Internal Diameter: 60 mm Material: $BaSO_4$
Detector	Photomultiplier
Data processing unit	PC: OS Windows®7 Professional (32 bit)
Dimensions	680(W) × 692(D) × 257(H) mm (spectrophotometer main instrument only)
Weight	45 kg (spectrophotometer main instrument only)
Power consumption	AC115V, AC220V to 240V, 50/60Hz, 300VA (Does not include power to PC, monitor, and printer.)

*1 When 60mm integrating sphere is used: 250-800 nm

※Windows® is registered trademark of Microsoft Corporation.

Option for eyeglass luminous transmittance measurement

By replacing the contact lens luminous transmittance measurement accessory with the following accessories, you can measure the transmittance of eyeglass lenses.



Accessory requirement

(1) 60 mm integrating sphere (P/N 2J2-0176)

(2) Cell mounting for Sample holder with transmittance hole (P/N 130-2076*2)

(3) Sample holder with transmittance hole (P/N 130-2070*2)

*2: Special order

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Printed in Japan (H) **HTB-E085** 2012.4