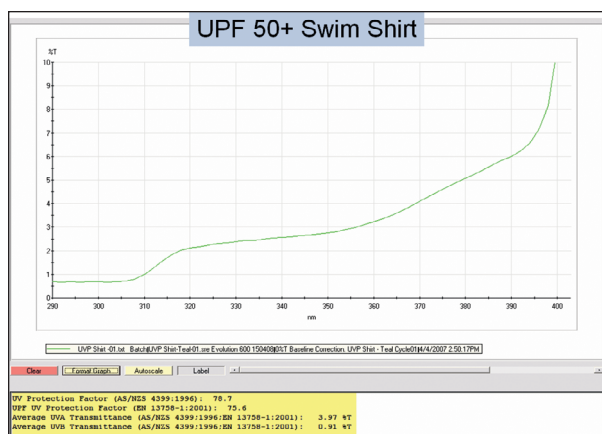


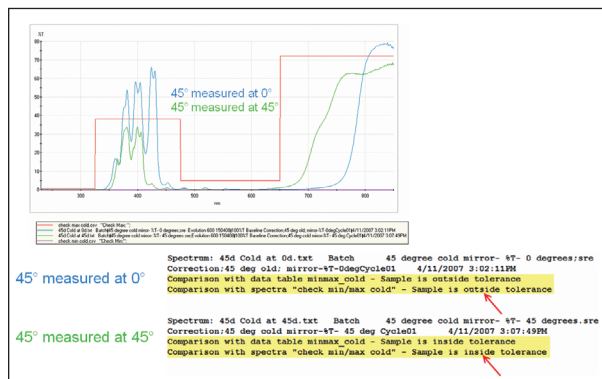
## VISION*lite* MaterialsCalc Software

Comprehensive software for the analysis and quality control of optical material samples

The VISION*lite* (VL) MaterialsCalc software helps material scientists easily confirm compliance with international standards for a wide range of solid samples. Standard methodologies for materials, such as sunglasses, UV protection fabrics, and plastics, are built into the software. The software offers a visual presentation of the data, along with standard calculations and pass/fail criteria.



The data above shows the analysis of a swim shirt incorporating UV protection. Automated test results for the AS/NZS and EN standards are determined.



Use VL MaterialsCalc software for automated QA/QC analysis on optical samples to quickly determine if an optic complies with your specification.

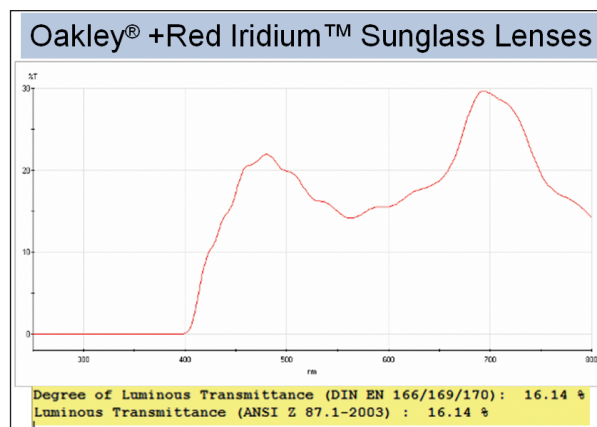
The VL MaterialsCalc software package is designed to determine a variety of integral material data calculated from the sample spectrum. The software communicates with many Thermo Scientific UV-Visible spectrophotometers including the GENESYS™, Helios™, and Evolution™ series. The VL MaterialsCalc software is a powerful stand-alone package allowing full instrument and accessory control. In the stand-alone configuration, VL MaterialsCalc records the required transmission or reflectance spectrum and automatically performs calculations using the recorded data. The software can also perform calculations using data acquired by VISION*lite*™ or VISION*pro*™ software.

The calculations available in VL MaterialsCalc are derived from national and international standards like ASTM, ISO, DIN, ANSI, and JIST. See the table on the following page for a comprehensive list.

Calculations can be performed automatically after a spectrum is recorded using VL MaterialsCalc software or the analysis can be performed offline with stored spectra. The software can import and export data in VISION*pro*, VISION*lite*, JCAMP, or text (TXT and CSV) file format.

### Easy Setup and Operation

The VL MaterialsCalc program is easy to configure and operate. Simply set up the scan method, select the calculations you wish to perform, and run the method. The software controls the instrument and accessories and automatically performs the calculations on the data. The method can also be set to automatically print or save the results. All of the calculation parameters, such as sample thickness, are stored with the method ensuring sophisticated evaluation with a few mouse clicks.



Transmittance of sunglasses can be easily calculated as well as other important parameters for sunglasses, safety, and fashion eyewear.

## Sample Thickness Transformation

To characterize transparent materials it may be necessary to generate results for a standard sample thickness. The sample thickness recalculation of a spectrum can be based on a single reflectance value, on the material's refractive index or on a full single-surface reflectance spectrum.

## ASTM D-1003 Haze Measurement

VL MaterialsCalc allows you to determine the ASTM haze value of a sample. When this calculation is selected, the software automatically prompts the user to measure the 100% transmission, the 0% transmission, and the scattered and the directed transmittance. It then automatically calculates the haze value from the spectra using the ASTM D-1003-00 algorithm.

## Easy QA/QC Using High/Low Comparisons

Besides the various integral parameters, VL MaterialsCalc software allows comparing a sample spectrum to a table of minimum and maximum data or to given high/low reference spectra. This method gives a clear picture of the material being analyzed and can be used for rapid QA/QC analysis of incoming raw materials or production units.

## Mathematical Calculations and Decisions

VL MaterialsCalc performs user-definable calculations and logical decisions with data from a single spectrum or multiple spectra. Automation allows the user to be queried for variable entry, giving even more flexibility to the method.

## Customizing VL MaterialsCalc

VL MaterialsCalc allows users to:

- modify the list of available calculations
- change the way calculations are performed based on the existing algorithms
- change the naming of the pre-defined calculations
- change the format or the output and the units

## Ordering Information

Description	Part Number
VL MaterialsCalc Software	869-124500

## VL MaterialsCalc Software Calculations

Parameter	Standard
<b>Light Transmittance</b>	
Personal Eye Protection.	DIN EN 166
Personal Eye Protection – filters for welding glasses and related techniques	DIN EN 169
Personal Eye Protection – ultraviolet filters – SBW transmittance requirements and recommended use	DIN EN 170/172
Personal Eye Equipment – sunglasses and sun glare filters for general use and filters for direct observation of the sun	DIN EN-1836-2005
Recommended Practices for Occupational Eye Protection Eye Protectors for Industrial Applications Sunglasses and Fashion Spectacles	AS 1338/1:1992; AS 1338/3:1992 AS;1337:1992
Ophthalmic Nonprescription Sunglasses and Fashion Eye wear Requirements	AS/NZS 1067-2003 ANSI Z 80.3-2001
American National Standard Practice for Occupational and Educational Eye and Face Protection Safety Glasses and Safety Goggles Welding Glasses and Welding Goggles	ANSI Z 87.1-2003 CSA Z 94.3
Luminous Transmittance	JIS T 8147;JIS T 8141-1980
Visual Transmissivity	British Rail
Luminous Transmittance	Military Standard FQSE/PD 95-07
Luminous Transmittance/Scotopic/Photopic/C	

## BS EN 410\* Glass in Building Determination of Luminous and Solar Characteristics of Glazing

UV Light Transmission	EN 410:1998
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### Haze\*

Haze (%)	ASTM D-1003-00
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### Color Vision Parameters

Personal Eye Protection – sunglasses and sun glare filters for general use traffic signal transmittance	EN 1836-2005
Red, Yellow and Green Visibility	ANSI Z80.3-2001
Red Signal Visibility Factor	AS/NZS1337:1992;AS/NZS 1067.1-2003

### UV Parameters

Erythematous Zone Mean Transmittance	ANSI Z 80.3-2001
Near Ultraviolet Zone Mean Transmittance	ANSI Z 80.3-2001
Solar Erythematous Ultraviolet Transmittance	AS/NZS1337:1992
Mean Near Ultraviolet Transmittance	AS/NZS1337:1992/AS/NZS 1067.1-2003
Mean Solar Erythematous Ultraviolet Transmittance	AS/NZS 1067.1-2003
Violet Factor	AS/NZS1337:1992/AS/NZS 1067.1-2003
Effective Far-ultraviolet Average Transmittance	ANSI Z87.1-2003
Near Ultraviolet Average Transmittance	ANSI Z87.1-2003
Sun Protection Factor	COLIPA
UPF*	AS/NZS 2064
Blue Light Transmittance	ANSI Z87.1-2003
% Transmission – 313 nm; 365 nm	

### Miscellaneous

Neutrality of Class 2 Test	FQSE
Shade Number	ANSI Z87.1-2003
Comparison to Min/max Table Values	Various or Customer SOP
Comparison to Min/max Spectra	Various or Customer SOP

\* These parameters require an Integrating Sphere accessory (DRA-EV-600 Diffuse Reflectance Accessory, Part Number 222-219000).