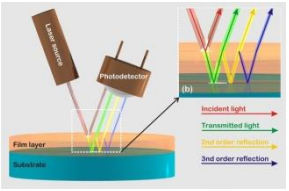
ThetaMetrisis APPLICATION NOTE #047

Thickness Measurement of lenses coatings on eyeglasses



Introduction:

Lens coatings are layers applied on ophthalmic glasses to enhance their properties and in particular protect and improve the user experience of wearing glasses. In this Application Note, thicknesses of the individual layers of ophthalmic glasses are calculated by using **FR Tools**.

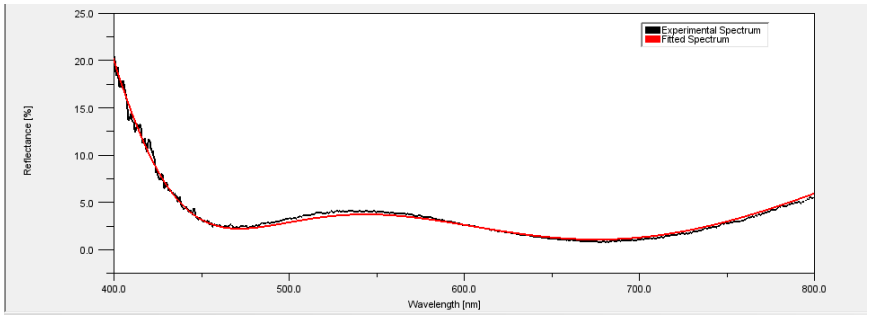
Means & Methods:

Measurements were performed on Front (convex) and Back (concave) side of the lenses using and FR-pRo VIS/NIR equipped with the contact probe which is placed on the reflection probe and it is ideal for measurements of coatings on curved samples and surfaces. The fitting was applied in the 400-800 nm spectral range. Reflectance and fitted spectra and the calculated thicknesses are presented below**.**

Results:

Typical experimental reflectance spectra (black line) and fitted reflectance spectra (red line), as recorded by the FR-Monitor software, and the thickness values measured, are illustrated in the figures below. In each case. the thicknesses of four individual layers are measured simultaneously.

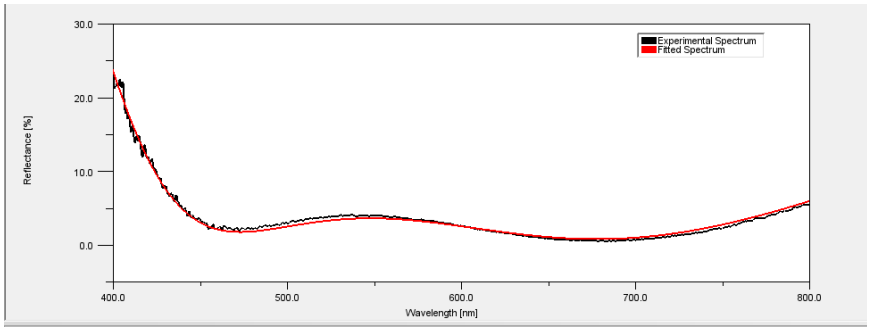
Front Side



Thicknesses measured

Layer	Material	Thickness (nm)
1	ZrO_2	26.5
2	SiO_2	15.1
3	ZrO_2	71.4
4	SiO_2	95.5

Back Side



Thicknesses measured

Layer	Material	Thickness (nm)
1	ZrO_2	27.8
2	SiO_2	16.0
3	ZrO_2	69.2
4	SiO_2	95.8

Conclusions:

The individual layers of front and back sides of ophthalmic lenses were successfully calculated using and **FR-pRo VIS/NIR** tool equipped with the **Contact Probe** accessory.