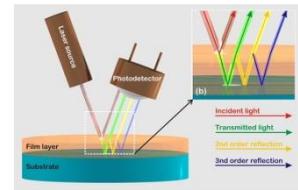


ThetaMetrisis APPLICATION NOTE #020

Thickness determination of PET cling films through transmittance measurements.



Goal:

The measurement of the thickness of a PET cling film.

Means & Methods:

Transmittance measurements over the range 200-850nm were performed using a FR-Basic UV-Vis, equipped with Thetametrisis **Film cuvette holder**, shown in **Figure 1**. The film cuvette holder is the perfect set-up for Absorbance/Transmittance measurements of solid films or solid material up to 10mm thick and b) liquid samples in rectangular cuvettes with 10mm path length (3.5ml volume). The cling film under investigation was attached directly to an arm of the film cuvette holder, ensuring that the film remained flat against the arm.

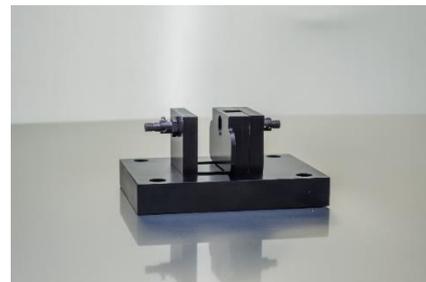


Figure 1. Film cuvette holder accessory for FR-Basic

Results:

A typical transmittance spectrum obtained is illustrated in **Figure 2**, where clear, regular interference fringes can be observed at the 350-850nm spectral range, whereas at the UV spectrum (<350nm) strong absorption occurs. Thickness measurements were taken on spectral regions of 550-800nm, where PET's thickness was found to be 12.3um.

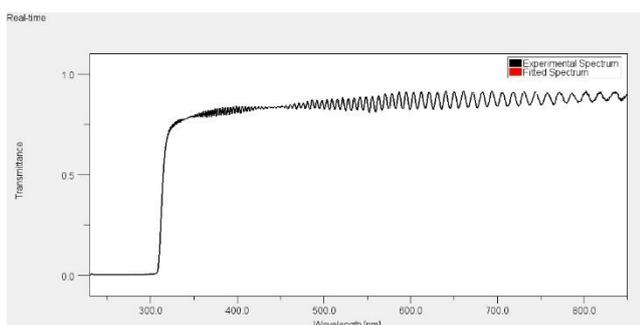


Figure 2. Transmittance spectrum of a cling film at the 220-850nm region.

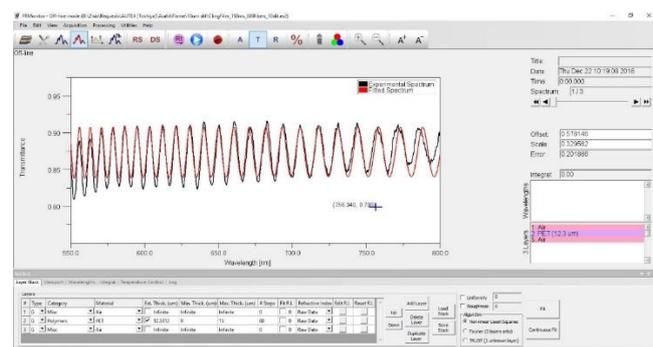


Figure 3. Experimental and fitted reflectance spectra from FR-Monitor of a PET cling film at the 550-800nm. The thickness was measured 12.33um.

Conclusions:

We have successfully measure the thickness of a commercial available PET cling film using the transmission set-up (**Film cuvette holder**) for FR-Basic. For more information, contact us at info@thetametrisis.com.