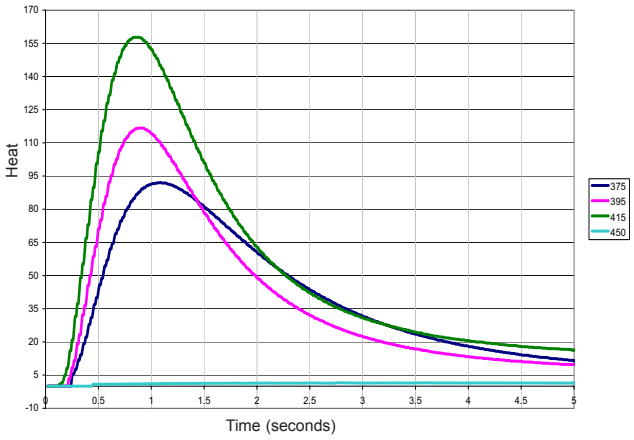
CON-TROL-CURE®

Quantitative Analysis of UV LED Performance by the TFC-9000™



The TFC-9000™'s clear data enables simple analysis for your product testing.

The CON-TROL-CURE Thin Film Calorimeter (TFC-9000™) measures the curability of inks, coatings and adhesives and ensures that they are curing consistently, batch-to-batch.

A need was identified to be able to accurately measure curing effectiveness when using different UV LED wavelengths. So, UV Process Supply developed a procedure using the TFC-9000™ to quantitatively evaluate the curing of polymers with UV LED's.

In this example, a UV curable coating sample was evaluated by curing it 4 times, each with a unique UV LED wavelength. The curing was observed and measured by the TFC-9000™ and the resultant curves were overlaid for evaluation. The TFC-9000's™ measured results (see graph in left column) clearly show that while 3 lamps cured the sample in approximately the same amount of time, the UV LED lamp at 415nm cured the coating significantly better than the other 3 UV LED wavelengths (the 450nm lamp exhibited no curing effectiveness on this material.) The best curing wavelength is identified as the curve with the highest peak of heat.

The time to peak (which is the cure rate) was also able to be measured. This determines the number of LED's needed to achieve the desired speed for each customer's specific process. In this test, to achieve the required cure rate for the specified application line speed, a linear array of 300 LED's was determined to be needed. Such a conclusive test was either impossible or prohibitively expensive to perform without the TFC-9000™.

Our experience has found that the required or recommended wavelength outlined on a UV curable's data sheet does not necessarily dictate the optimum wavelength for LED curing. Only through precise quantitative analysis as outlined above can that wavelength be determined.

For our customers and clients that require this type of analysis on an occaisional or even one time basis, UV Process Supply offers TFC-9000 laboratory testing services. The fee for basic profiling analysis of optimum LED cure wavelength is $750.00 This fee includes; laboratory time for testing of a single formulation with up to five (5) wavelengths of UV LED and data analysis including a detailed written report and associated graph.

Part Number	Description
N008-031	**TFC-9000 LAB PROFILING FEE**
N008-032	**TFC-9000 CUSTOM LAB FEE**

UV Process Supply also offers comprehensive TFC-900 studies for complex batch and modified formulation analysis. Additional laboratory services include post cure "degree of cure" analysis of UV inks and coatings using our Ink Cure Analyzer.

Contact us today to discuss all your UV Curable laboratory testing needs.

24-HOUR PRODUCT SERVICES
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