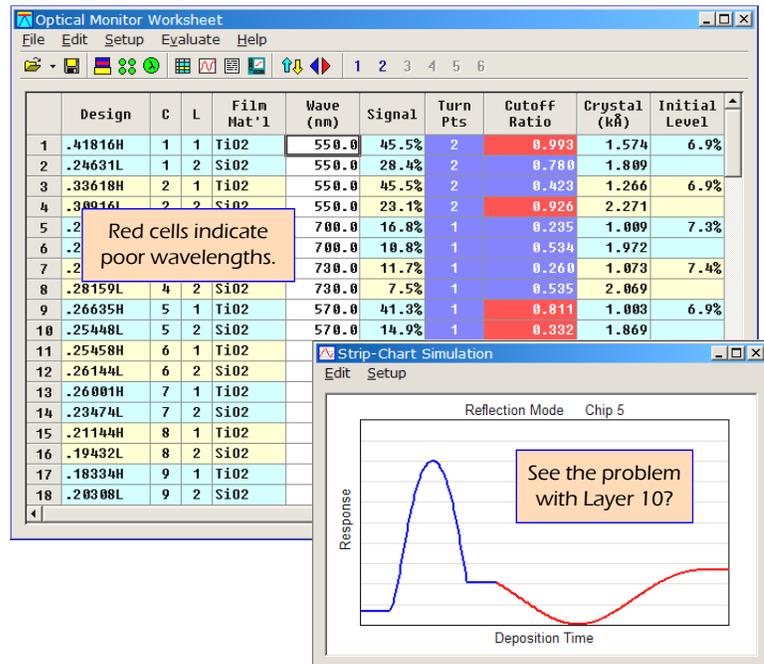


Optical Monitoring with Design Software?

Thin film design software (even our own) is generally inadequate for optical monitor setup, especially when using witness chips. But some coating engineers persist anyway! So here are tips on turning 'monitoring curves' (R/T vs. thickness) into optimum machine settings:

1. Consider that each witness chip has its own thin film design. Try 2 to 4 layers on a chip. In the case of a Leybold 6 or 12-position witness, too many layers on a spot will result in monitoring errors; this configuration requires an easy way to change layer assignment.
2. Multiply each sub-design by monitor-to-work ratio and evaluate over a range of wavelengths to determine optimum cutoffs. Include index variations between design and monitor, system spectral response, and monochromator calibration. The latter is especially important when a wide range of monitor wavelengths is required.
3. Calculations should utilize the last two turning points. These may be in previous layers when monitoring very thin layers, so it's best to use the same wavelengths for all layers on a chip. If it's not possible to find good cutoff ratios, try changing the number of layers on the chip.
4. Recalculate to ensure the monitor signals stay within appropriate levels for manual or automatic monitors. You don't want to go off-scale during the run.
5. Manual monitors - Create a run-sheet with coating instructions, including starting level for each chip. Embedding strip-chart simulation plots in the run-sheet helps coating technicians 'get it right'.
6. Automatic monitors - Print monitor settings for typing data into older coating systems (Balzers GSM-420), upload settings via RS-232 (Eddy LMC-20) or create a coating file (Leybold Leycom IV, SYRUS_{pro}) as appropriate. Since there are probably several generations of optical coating systems at your facility, your software needs to include them all.



The above points might be too detailed for upper management, so we've provided the following Executive Summary.

The graphic on the left shows what happens when thin film design software is used to set up optical monitoring procedures. The graphic on the right shows what happens when designs are converted to monitor settings in FilmStar MONITOR.



Contact us today for a demonstration of FilmStar MONITOR on your computer!

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