

IN-SITU REOPTIMISATION

INTELLIGENT SOFTWARE FOR OPTICAL COATINGS

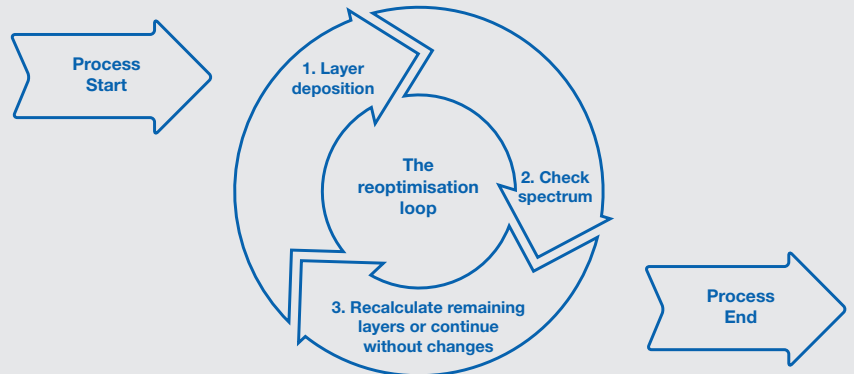
IN-SITU REOPTIMISATION

- Maximises yields for complex filter designs
- Batch recovery after unforeseen events
- Fully automated process according to user defined guidelines

THE PRINCIPLE

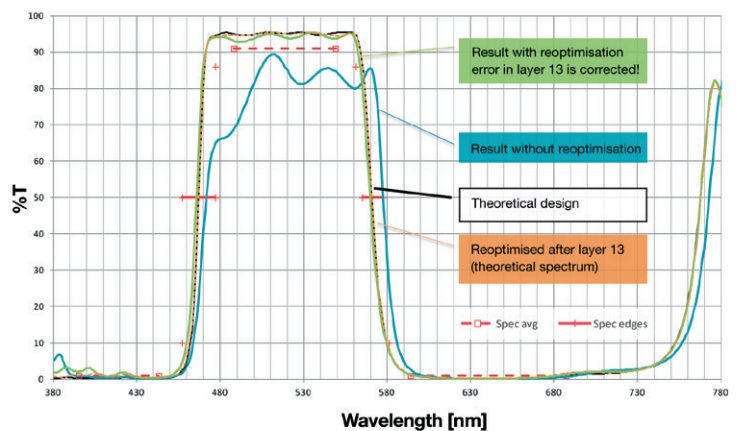
Deposition techniques like PIAD and magnetron sputtering allow for tight control of refractive indices and coating rate. Combined with optical monitoring for layer termination, precalculated designs can already be matched for reliable production of optical interference filters for a wide range of applications. However, the drive to ever higher specifications means eliminating even small variations in deposition conditions can lead to significant yield improvements and cost reductions.

In-situ reoptimisation* uses broadband optical monitoring not just during the actual coating process but also after the deposition of each layer to ensure the final stack performance is as close as possible to the original theoretical design. The actual reflection or transmission spectrum measured after termination of a layer is compared with the precalculated target spectrum. In the case of significant deviation, the remaining coating recipe is adjusted to the new required layer thickness and target spectra for the remaining layers to bring the final result back on track. The "reoptimisation" process is repeated after deposition of each layer automatically until the whole stack is complete without any extension to the process time.



THE RESULTS

Green filter, with 31 layers, with error introduced artificially to demonstrate software functionality



A triple bandpass filter

