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CLOSED-LOOP ULTRAVIOLET (UV) DOSE CONTROL FOR UV-CURABLE HMPSA

ABSTRACT

A unique characteristic of UV-curable acrylic hotmelt pressure sensitive adhesives (HMPSA) is that different levels of tack and shear are achieved by varying the energy density or dose delivered by the UV system. Having the ability to measure and adjust dose in real time without interrupting production leads to improvements in process control, quality, and throughput while also reducing waste and energy consumption.

This paper reviews the components of UV output and introduces a new inline scanning method that measures UV output along the length of each UV source and at an optimal location near the curing surface. This paper also provides information on how measurements can be integrated into a feedback system that automatically adjusts UV output to continuously maintain a target UV dose for each production run and job(s) within.