

## ARTIFICIAL AND NATURAL WEATHERING OF TRANSPARENT ENGINEERING RESINS

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### Abstract

Transparent engineering resins often are used in outdoor construction application and therefore are exposed to the solar radiation. In the case of polycarbonate or polyester the state of the art are coextruded monolithic or multiwall sheets, which should withstand at least 10 years of climatic influences like rain, hail, snow, wind and last but not least sun. Hence the sheets should keep not only their optical favourable properties but also their mechanical properties.

To simulate the lifetime of such sheets, thin films of the coextrusion material have been exposed to light in different artificial weathering tools with different light sources, radiation and cycles. In addition multi-year outdoor exposure at several locations is under way.

The stability of these films depend strongly on the amount and type of light stabilizers added to the system; in the case of polycarbonate and polyesters normally UV absorbers. In general one can differentiate between older systems based on benzophenones, cyanoacrylates or benzotriazoles or newer systems based on new developed triazinic chromophors. The latter ones lead in general to higher property retention of the sheets due to the higher inherent stability of the chromophor.

As a continuation of the paper given at the 3rd European Weathering Symposium, where one formulation was thoroughly investigated, in this paper the different UV absorber classes are compared with each other under artificial weathering conditions as well as in real life outdoor weathering.