

## WEATHERING OF PLASTICS: CARBON BLACK ADDITIVES

All materials absorb sunlight radiation – it's what makes them heat up in the sunshine. While sunlight causes many materials to simply heat up, some materials are actually degraded by sunlight. Most plastics are in this latter group. We know that sunlight is a spectrum of frequencies and that the most destructive frequencies for plastics are those at the higher energy end of sunlight – in the ultraviolet (UV) range of the spectrum.

The absorbed UV light breaks, or cleaves, the weak chemical bonds of the polymer material. This leads to shorter chains, which in turn causes the plastic material to become more brittle. This process is called photo degradation, and it leads to loss of mechanical properties and/or discoloration, cracking, fading, and chalking. In other words photo degradation leads to weathering of plastics.

The most common additive used to prevent or reduce UV light degradation is *Carbon Black*.

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