

Accelerated Weathering Test of HMS-PP

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This method is meant to simulate the deterioration caused by sunlight and dew by means of artificial ultraviolet light and condensation apparatus.

UV light is the prime cause of breakdown and produces effects which are similar to thermal degradation. These involve the breaking of chemical bonds, giving rise to free radical which result in permanent chain scission in this case to HMS-PP. Some of the groups formed may be chromophores. Unlike thermal degradation, UV degradation does not occur uniformly throughout the polymer, but particularly with opaque materials, the effects are felt on or near the surface.

The photo-oxidation, by the formation of free radicals, leads to molecule scissions by consequence, it has a large influence on the physical and mechanical properties of HMS-PP.

This kind of ageing leads to an embrittlement of polymer materials. It causes a dramatic effect on the mechanical properties and fracture behaviour. Polypropylene exposed to UV for long time, brutally passes from ductile behaviour to a fragile behaviour.

The reduction of yield stress, tensile stress, elongation at break and viscosity were also observed.

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