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## EFFECT OF WEATHERING CONDITIONS ON THE DEGRADATION BEHAVIOUR OF ABS

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Acrylonitrile-butadiene-styrene (ABS) is a styrenic copolymer used in a wide range of technological applications due to its outstanding properties. However, this material is well known by exhibiting a low weathering resistance due to a large amount of carbon-carbon double bonds present in the butadiene component. ABS degradation induces properties modification such as color changes, chalking and drastic deterioration of mechanical properties.

Light stabilizers, such as ultraviolet absorbers (UVA) and hindered amines light stabilizers (HALS) are commonly introduced in ABS formulation to extend copolymer lifetime.

Accelerated weathering devices have been used extensively to assess the durability of several polymers. In this study, stabilized ABS samples were submitted to accelerated weathering conditions using two different devices – a *Xenotest 150 S*, from Atlas, and *Q-Sun Xe-3-Hs*, from Q-Panel aiming understand the influence of weathering conditions on the degradation rate of ABS.

The exposed samples were removed periodically and characterized by several techniques. ATR-FTIR was used to evaluate the chemical modifications that occurred at the surface of the samples. UV/Vis spectroscopy was used to assess the loss of the stabilizers. Stress-strain experiments were carried out for study the influence of weathering on the mechanical properties. The yellow index of the samples was measured using a spectrophotometer.

The results obtained showed that radiation intensity and temperature are parameters which play an important role on the photodegradation rate of ABS.

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