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ARTIFICIAL AGING EXAMINATION OF PVC FIBERS AS VIBRATING STRINGS

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Abstract

Changes in material properties are examined in this work by vibration diagnostic techniques. In the article examinations of soft poly(vinyl chloride) (PVC) fibers, which were tested as vibrating strings are presented after different UV light induced aging times. The developed experimental system is presented in this manuscript and the main goal is to determine material changes as the results of artificial aging by special vibration diagnostic methods. The damped oscillations, where PVC fibers are stretched and twanged as strings are analyzed in this work. Parameters are also determined and their values are given after different aging time and relevant property changes are identified. The general equation of damped oscillation is written in a modified form, and the change of the traditional damping coefficient proves to be significant and the angular acceleration introduced by us also well characterizes the property changes induced by artificial aging.

Key words: aging, degradation, material properties, poly(vinyl chloride), vibration

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