An Investigation on The Cr(VI) and Formaldehyde Contents and The Mechanical Characteristics of Automotive Leathers Through Accelerated Aging

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Abstract: Leathers and their final products used for upholstery items in automotive industry is a member of a leather group expected high performance characteristics. Recently parallel to the increasing demand, performance characteristics of these leathers in different uses has been started to examine in detail. Because it is no surprise and inevitsable phenomena that material aging in time progressing would cause lacking in performance and at the same time the diverse effects (but in most cases negatively) in properties and the setbacks in comfort. In particular, proceeding possible chemical decomposition depending on interior conditions of a car is of importance enabling both the lacking of material properties and decreasing the comfort of driving as well as health risks of drivers.

In this researh, investigating on the chemical decomposition in automotive leather samples under artificial aging, hexavalent chromium and formaldehyde contents, which might cause some adverse variations in material properties and involve in health risks for drivers was researched. The chemical decompositon levels depending on hexavalent chromium and formaldehyde contents of 6 different automotive leather samples under the different artificial aging conditions was examined by considering the reflection of different aging conditions. In addition, abrasion resistance, tensile strenght, tear resistance, color fastness and light fastness tests etc. were carried out to the samples aiming at the determination of failures in material characteristics and setbacks in mechanical behaviours of the samples after aging.

Keywords: Automotive leathers, aging, Cr(VI) and formaldehyde contents, mechanical characteristics