Determination of Formaldehyde in Leather by Head Space-GC/MS

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Being the smallest carbonyl compound, formaldehyde is a colorless gas at room temperature with piercing odour, high volatility and reactivity. Because of its high chemical reactivity and versatility as a chemical intermediate, formaldehyde is considered a toxic substance, with irritant and local necrotic effects and potentially carcinogenic. Its health risks give rise to scrutinize the existence and possible formation of formaldehyde in leather and textile articles as well as all the articles in daily uses.

Formaldehyde might possibly be available in some process auxiliaries such as biocides, syntans, amino resins, fatliquors, dyeing auxiliaries and finishing products. Free or releasable formaldehyde in leather are of main importance to insist on the determination in the ecological viewpoint. The substance is analyzed by standard HPLC method that utilize 2,4 dinitrophenyl hydrazine [1]. However, analyte from the samples interfere with numerous substances after derivatization 2,4 dinitrophenyl hydrazine. The aim of the present study is to develop a selective and sensitive method for the quantitation of formaldehyde in the leather samples. The headspace gas chromatographic/mass spectrometry (HS-GC/MS) method was performed to determine formaldehyde with derivatization o-(2,3,4,5,6-pentafluorobenzyl)-hydroxylamine (PFBOA).

KEYWORDS: Formaldehyde, Leather, Head space-GC/MS, o-(2,3,4,5,6-pentafluorobenzyl)-hydroxylamine.

REFERENCES: