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Desorption of Organic Solvents from Activated Charcoal with 2-Hydroxypyridine

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Abstract

Gas chromatography has been widely used for analysis of solvent vapor. However, there have been a difficulty that the target solvents were interfered with extraction solvent. A new extraction method of the solvent from activated charcoal with 2-hydroxypyridine was devised. With this procedure, the target solvent was extracted with 2-hydroxypyridine in its liquid state (150 C) from charcoal and after cooling, solvent was liberated into the air from the solid state (20 C) of 2-hydroxypyridine. In the method, solvents in the air could be accurately and precisely determined, because carbon disulfide, which interfered with target solvents in gas chromatography, was not used to extract. The recovery rates of common eight organic solvents were examined and high recoveries, more than 90 percent, were obtained in the solvents except acetone and methyl ethyl ketone. Moreover, the mean peak height of seven solvents was 51 times as high as that by desorption with carbon disulfide by gas chromatography. The present method is considered to be available for the determination of solvent vapor in the workplaces.
