

Recognition of the Hazards and Uses of Glycol Ethers

In Taiwan

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Abstract

Glycol ethers (including glycol ether esters) are a group of solvents with medium-high boiling points and low evaporation rates, possessing the solvent characteristics of alcohol/ ethers (or ether/ester) functions. They have been widely used in coatings and in various industries for more than half a century. Recently, the lower molecular weight E-series glycol ethers have been found to have reproductive and teratogenic toxicity. Based on the potential toxicity of E-series glycol ethers, ACGIH adopted new TLVs in 1984; Japan, Germany, and Sweden, also lowered their exposure standards in 1990, 1986 and 1991, respectively. As a result, most manufacturers of E-series glycol ethers have also taken action to stop the production or sell of these potentially hazardous products. In response to the impact of this worldwide transition from the E-to P-series, this study focuses on the types and quantities of these solvents being used in Taiwan, and the knowledge of users about the potential toxic effects. In this study, we found that large quantities of E-series glycol ethers are imported and used in Taiwan. Our estimates are: 2-ME, 2,500-3,000 tons; 2-EE, 1,200-1,800 tons; 2EEA, 5, 000-8, 000 tons; and 2-BE, 8, 000-10, 000 tons annually. About 70% to 80 % are used in the coating industry. Lack of recognition of the potential toxic effects and the possibility of skin absorption are common among users. In conclusion, increased occupational health education, modification of current legislation and the providing of substitutes are urgently needed.