

## Determination of Ambient VOCs using Passive-Canister-Preconcentrator-GC/MS

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### Abstract

The aim of this study is to develop an appropriate methodology for VOC ambient monitoring in Thailand and determine the prevailing VOCs in the ambient air and their levels in Thailand. Seventy-seven VOCs were focused. Air samples were taken on 24 hrs basis in consecutive 7 days in April 24-30, 2006 using a silco-steel canister and analyzed by preconcentrator-GC/MS. Quality assurance and quality control were also performed and discussed in this study. A preliminary study of VOCs in the ambient air was carried out at 3 sampling sites in Bangkok. The sampling site at Dindang was selected as a roadside area. Klongjun and Sahakorn were selected as residential area. From the results of this study, it was found that the concentration of aliphatic hydrocarbons, aromatic hydrocarbons, low molecular weight halogenated hydrocarbons, aromatic hydrocarbons and oxygenated hydrocarbon at Dindang was mostly higher than Sahakorn and Klongjun. Exception with the concentration of isoprene, pentanal, methylene chloride, bromodichloromethane and trichloroethylene at Sahakorn and Klongjun were found higher than Dindang. In the comparison of VOCs concentration with other countries, it was found that the concentration of some compounds was higher than Japan and Germany. Furthermore, the results also found that the concentration of 1,3-butadiene and benzene was higher than UK EQS and Japanese EQS, respectively. These compounds are classified as a carcinogen to human health. At this point, it is necessary to further investigate VOCs in the ambient air to evaluate VOCs potential risks to human health.