

## **Basic Study on Mechanism of SVOC Adsorption onto Airborne Particles in Indoor Air**

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Semi volatile organic compounds (SVOC), such as di(2-ethylhexyl) phthalate (DEHP), have not only caused chemical sensitivity, but also trigger asthma. SVOCs are adsorbed onto airborne particles as well as gas phase in indoor air. This characteristic makes it difficult to measure SVOC concentrations and evaluate the partitioning of gaseous and particulate phases. Therefore, three models are suggested to evaluate partitioning between the gaseous and particulate phases through the previous studies. However, there are currently few studies that take the influence of environmental factors on the mechanism of SVOC adsorption onto airborne particles into consideration.

In this study, the characteristic of each model was extracted, and the mechanisms of DEHP adsorption onto airborne particles were investigated by experiments. Then, the experimental results for DEHP adsorption were compared with theoretical values by the models.

The main results are as follows. The DEHP concentrations of gaseous and particulate phases increased and DEHP particulate ratio decreased as a chamber temperature rose. In addition, the high airborne particle concentrations caused an increase in the DEHP particulate concentration. The difference in the composition of airborne particles also influenced the DEHP particulate concentration. Moreover, estimates based on the Junge model corresponded well with the results of these experiments. These results indicated that particulate surface concentration is related to the mechanism of DEHP adsorption onto airborne particles.