

Relationship of TVOCs Emitted from Newly Apartment House and Emission Factor of Building Materials.

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Abstract

The indoor air quality is very important in public health and welfare, as the potential cost to society of poor IAQ is very high. Some investigators were reported that the indoor levels of air pollutants can be several hundred times higher than that of outdoor. Indoor pollution caused by volatile organic compounds(VOCs) is an important aspect of IAQ which raises particular concern since many organic indoor pollutants are either known, or are suspected to be allergic, carcinogenic, neurotoxic, immunotoxic and irritant. In Korea, there has been growing concern in the past decade over health complaints attributed to the sick building syndrome. The reasons could be related to an increase in public awareness of health implications, and people spending more time in indoor environments. Newly produced building such as apartment house building can emit a variety of VOCs and number of apartment houses in Seoul metropolitan area by type of housing unit was approximately about 34.5%. Building materials emitted high concentration volatile organic compounds (VOCs) other hazardous air pollutants (HAPs) to indoor environment.

The aims of this paper are to investigate of the emission concentration from newly apartment house, to compare of indoor and outdoor and performed the small chamber test to estimate the TVOCs emission characteristics and factor about newly building materials (dry and wet).

The results are as followed.

1. Average value of TVOCs concentration was $3,768 \mu\text{g}/\text{m}^3$ and I/O ratio was 2.4 in five newly buildings. The TVOCs level of newly buildings are consistently very much higher than the recommended value of WHO, about 9.1 to 13.7 times.
2. Those of TVOCs emission characteristics are high emissions at initial time and decreased in course of time.
3. The emission factor-time profile showed good fit with the results from the measured and predicted value($R^2=0.85$).