

Easy to use measurement equipment for emissions from interior finishing materials in buildings in use

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Introduction

Emissions from new materials like flooring, paints, and adhesives after renovation can cause annoyance. The aim of this study was to develop a new measurement method with a minimal of cost and easy to use as an alternative for the emission cell according to CEN ENV 13419 Part 2.

Methods

To identify the source the air samples from emission cells and from the room air were compared. Used were 12-litres emission cells.

After thorough ventilation emission cells were put against the wall and on the flooring. After a period of 8 hours while the room was closed air samples were taken from the emission cells and from the room air on Tenax. The flow was 0.1 L/min and the sampling volume 3 l.

The analysis was done by gas chromatography coupled with a mass spectrometer. Because of the compounds that are typical for solvent-free materials the extraction from the Tenax was done by thermo-desorption.



Figure 1. Emission cell against the wall



Figure 2. Emission cells on the floor

Results

The analysis of the air samples showed that 15 different compounds, mostly aldehydes, coming from the flooring had significantly higher concentration. Most of these compounds have a low odour threshold.

Conclusions

Although the ventilation rate in emissions cells was 0.5/hour the study showed that it is possible to identify an source if the concentration in the emission cell was significantly (> 30%) above the room air concentration. At similar concentrations it must be assumed it deals with a secondary contamination.