

INFLUENCE OF TEST METHOD (OLFACTOMETER VS. ROOM) AND ENVIRONMENTAL FACTORS ON ODOR DETECTION THRESHOLDS

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The German Committee on Indoor Air Guideline Values (AIR) has developed a concept of odor guideline values (OGV) to objectify complaints about odor nuisance. Therefore, reliable odor detection thresholds (ODT) are needed, which are usually determined directly at the nose (nose only) using an olfactometer. However, OGV are used to assess odor perception when the whole person is exposed to the odor (whole body).

The ODT for n-butanol and benzaldehyde measured with an olfactometer and in room air were compared. Measurements were performed in a 30 m³ exposure laboratory (ExpoLab) under standardized environmental conditions (warm light; fan noise (45 dB(A)), 22-23°C, 415 ppm CO₂, relative humidity (45-55 %)). In addition, the influence of extreme environmental conditions (cold light; traffic noise (70-85 dB(A)), 26°C, 1000 and 4000 ppm CO₂) on ODT for n-butanol was investigated. A total of 20 healthy volunteers (50 % women; 19-50 years) with average olfactory ability were trained in ODT assessment according to DIN EN 13725.

The results show that the ODT measured in room air was always lower than that measured olfactometrically, but this difference was practically significant only for n-butanol, not for benzaldehyde. Extreme environmental conditions had no effect on the ODT of n-butanol.