

# Assessment principles of Terpenes

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# Terpenes



- Terpenes are major component of plant essential oils
- Terpenes are the cause of the typical odour of wood
- Terpenes are volatile organic compounds (VOC's)

# Terpenes



- Bicyclic Terpenes are components of the resinous oil of coniferous wood
- Emissions of terpenes are marginally appreciable with hardwood, aldehydes and carboxylic acids dominate here
- Terpenes are known as a distillate of the resin as spirits of turpentine and are used as
  - solvent in surface treatment products, adhesives, household products.....

# Terpenes/Substantials

- $\alpha$ -Pinen
- $\beta$ -Pinen
- $\Delta$ -3-Caren
- Limonen
- Eucalyptol
- Campher
- (-)-Borneol
- Verbenon
- Isolongifolen
- Longifolen
- $\beta$ -Caryophyllen
- Camphen

These are the substances they are by the assessment of the VOC's in interiors are consulted.  $\alpha$ -Pinene as a leading substance.

Guide value I = 200  $\mu\text{g}/\text{m}^2$

Guide value II = 2000  $\mu\text{g}/\text{m}^2$

Guide value I (RW I) represents the concentration of a substance in indoor air for which, when considered individually, there is no evidence at present that even life-long exposure is expected to bear any adverse health impacts. Values exceeding this are associated with exposure that is undesirable for health reasons.

Guide value II (RW II) is an effect-related value based on current toxicological and epidemiological knowledge of a substance's effect threshold that takes uncertainty factors into account. It represents the concentration of a substance which, if reached or exceeded, requires immediate action as this concentration could pose a health hazard, especially for sensitive people who reside in these spaces over long periods of time.

# Terpene



- $\alpha$ -Pinen,  $\Delta$ -3-Caren irritate with the person mucous membranes of eyes and noses
- $\Delta$ -3-Caren = appeals for allergy sufferers allergenic

# Terpene

Numerous studies show that wooden-conditioned (coniferous wood) is raised or excessive terpene burden in interiors are „negative special cases“ and is to be ascribed not to the material wood in themselves, but their improper processing.

Independent investigations have shown that for the group of the Terpene, i. e. in the essentials  $\alpha$ -Pinen and 3-Caren, the typical space air concentrations lie in the area of approx. 0,01-0. 1 mg / m<sup>3</sup> (from =10 to 100  $\mu$  g/m<sup>3</sup>). The RW 1 of 0. 2 mg / m<sup>3</sup> (200  $\mu$  g/m<sup>3</sup>) is reached under normal housing conditions only seldom or is crossed.

EGBBI (Europäische Gesellschaft für gesundes Bauen und Innenraumlufthygiene  
<http://www.eggbi.eu>)

# Terpene

## Conclusion for CAF indoor air limit values

### Proposal

Total VOC (TVOC)  $\leq 300 \mu\text{g}/\text{m}^3$  (excluded Terpene)

By use of wood and timber products in the interior separate evaluation of the Terpene

Terpene  $\leq 200 \mu\text{g}/\text{m}^3$