

*The MAK Collection for Occupational Health and Safety*

## Trimethylamine

### MAK Value Documentation, addendum – Translation of the German version from 2018

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**Keywords:** trimethylamine; MAK value; maximum workplace concentration; peak limitation; momentary value; ceiling limit value; irritation; nasal epithelium

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# Trimethylamine / N,N-Dimethylmethanamine

## MAK Value Documentation

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### Abstract

The German Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area has evaluated a momentary value for trimethylamine [75-50-3]. Critical effect is the irritation of the respiratory epithelia in the nose of rats and a maximum concentration at the workplace (MAK value) of 2 ml/m<sup>3</sup> has been set. This value was established by analogy with cyclohexylamine. In addition to the MAK value, a momentary value of 5 ml/m<sup>3</sup> for cyclohexylamine has been established which must not be exceeded at any time to prevent from local irritation. Therefore, a momentary value of 5 ml/m<sup>3</sup> is also set for N,N-trimethylamine.

### Keywords

trimethylamine; N,N-dimethylmethanamine; TMA; peak limitation; occupational exposure; maximum workplace concentration; MAK value; toxicity; hazardous substance

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# Trimethylamine

[75-50-3]

## Supplement 2018

<b>MAK value (2004)</b>	<b>2 ml/m<sup>3</sup> (ppm) <math>\triangleq</math> 4.9 mg/m<sup>3</sup></b>
<b>Peak limitation (2004)</b>	<b>Category I, excursion factor 2</b>
<b>Momentary value (2017)</b>	<b>5 ml/m<sup>3</sup> (ppm) <math>\triangleq</math> 12 mg/m<sup>3</sup></b>
<b>Absorption through the skin</b>	–
<b>Sensitization</b>	–
<b>Carcinogenicity</b>	–
<b>Prenatal toxicity (2006)</b>	<b>Pregnancy Risk Group C</b>
<b>Germ cell mutagenicity</b>	–

**1 ml/m<sup>3</sup> (ppm)  $\triangleq$  2.453 mg/m<sup>3</sup>**

**1 ml/m<sup>3</sup> (ppm)  $\triangleq$  0.408 mg/m<sup>3</sup>**

This supplement evaluates whether a momentary value needs to be established for trimethylamine.

The critical effect of trimethylamine is local irritation of the nasal respiratory epithelium of rats. In 2015, the MAK value of 2 ml/m<sup>3</sup> was confirmed based on a comparison of the RD<sub>50</sub> values for trimethylamine (61 ml/m<sup>3</sup>), cyclohexylamine (50 ml/m<sup>3</sup>; MAK value 2 ml/m<sup>3</sup>) and dimethylamine (70 ml/m<sup>3</sup>; MAK value 2 ml/m<sup>3</sup>) and the NOAEC (no observed adverse effect concentration) of 2 ml/m<sup>3</sup> determined in a study of the effects of cyclohexylamine on volunteers (supplement "Trimethylamin" 2016).

To limit exposure peaks, cyclohexylamine and dimethylamine were classified in Peak Limitation Category I with an excursion factor of 2. In analogy to these substances, trimethylamine has been classified in Peak Limitation Category I with an excursion factor of 2.

## Manifesto (peak limitation)

**Peak limitation.** As the MAK value for trimethylamine was derived by analogy to the more thoroughly investigated cyclohexylamine and a momentary value of  $5 \text{ ml/m}^3$  was set for cyclohexylamine as a result of findings in volunteers (supplement "Cyclohexylamin" 2017, available in German only), a momentary value of  $5 \text{ ml/m}^3$  has now been established for trimethylamine to prevent irritation from occurring. This is based on the assumption that both substances have a similar irritation potential.

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