# Dimethyl sulfide

| CAS number: | 75-18-3 |
| --- | --- |
| Synonyms: | DMS, methane, thiobis |
| Chemical formula: | C2H6S |
| Structural formula: | — |

Workplace exposure standard (new)

| TWA: | **10 ppm (25 mg/m3)** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **—** |
| IDLH: | **—** |
| **Sampling and analysis:** The recommended value is quantifiable through available sampling and analysis techniques. | |

## Recommendation and basis for workplace exposure standard

A TWA of 10 ppm (25 mg/m3) is recommended to protect for general nuisance effects in exposed workers.

## Discussion and conclusions

Dimethyl sulfide is an industrial contaminant released from pulp and paper, oil refineries and sewerage treatment plants. Dimethyl sulfide is also produced by bacteria in periodontal pockets and is an intermediary from methionine metabolism. It is found in fragrance formulations and in several food substances, including butter, oil and bread (ACGIH, 2018).

An odour threshold is reported as low as 2.5 ppb (0.0025 mg/m3). The TWA of 10 ppm (25 mg/m3) is adopted from the current TLV-TWA assigned by ACGIH (2018). It is recommended based on its low toxicity in acute and repeated exposures in animal studies and an absence of reported effects in low level exposures in occupational studies.

## Recommendation for notations

Not classified as a carcinogen according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Not classified as a skin sensitiser or respiratory sensitiser according to the GHS.

There are insufficient data to recommend a skin notation.

# Appendix

### Primary sources with reports

| Source Year set Standard |
| --- |
| SWA NA NA | |
|  |
| ACGIH 2004 TLV-TWA: 10 ppm (25 mg/m3) |
| TLV-TWA of 10 ppm (25 mg/m3) recommended due to low level toxicity in acute and repeated exposures in animal studies, lack of genotoxicity and absence of effects in low level exposures in industrial setting.  TLV-TWA exceeds odour threshold and may cause nuisance complaints in occupational setting.  Summary of data  Human data:   * Naturally occurring in expired air and produced by bacteria in mouth * Low likelihood of adverse effects at concentrations <0.05 to 14 ppm * Odour detected is as low as 0.0025 mg/m3 (2.5 ppb) * No toxicity data on exposure to DMS alone.   Animal data:   * LC50: 40,250 ppm (rats, 4 h) with no mortality ≤24,000 ppm * Single-dose dermal application of 5 g/kg resulted in no mortality * oral dose of 500 mg/kg reduced motor activity in mouse by 1/20 of the spontaneous rate * Lung congestion and effects in kidneys (haemorrhagic foci and pyelonephritis) of rabbits after 13 wk exposure to 2% solution in drinking water * No studies on chronic toxicity or carcinogenicity * Negative genotoxicity tests.   No skin notation is recommended, and insufficient data available to assign sensitiser and carcinogenicity notations or recommend TLV-STEL. |
| DFG 1975 MAK: Not established |
| Summary of data  Animal data:   * LD50: 3,700 mg/kg, (mice) and 3,300 mg/kg (rats); administration type unknown * Inhalation 6 h/d over 6 mo, indicated chronic effects (no further information). |
| SCOEL NA NA |
| No report. |
| OARS/AIHA NA NA |
| No report. |
| HCOTN NA NA |
| No report. |

### Secondary source reports relied upon

NIL.

### Carcinogenicity — non-threshold based genotoxic carcinogens

| Is the chemical mutagenic? | Insufficient data |
| --- | --- |
| Is the chemical carcinogenic with a mutagenic mechanism of action? | Insufficient data |
| Insufficient data are available to determine if the chemical is a non-threshold based genotoxic carcinogen. | |

## Notations

| Source | Notations |
| --- | --- |
| SWA | NA |
| HCIS | NA |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| ACGIH | — |
| DFG | — |
| SCOEL | NA |
| HCOTN | NA |
| IARC | NA |
| US NIOSH | NA |

NA = not applicable (a recommendation has not been made by this Agency); — = the Agency has assessed available data for this chemical but has not recommended any notations

### Skin notation assessment

| Calculation |
| --- |
| Insufficient data to assign a skin notation. |

### IDLH

| Is there a suitable IDLH value available? | No |
| --- | --- |

## Additional information

| Molecular weight: | 62.13 |
| --- | --- |
| Conversion factors at 25°C and 101.3 kPa: | 1 ppm = 2.54 mg/m3; 1 mg/m3 = 0.39 ppm |
| This chemical is used as a pesticide: |  |
| This chemical is a biological product: |  |
| This chemical is a by-product of a process: |  |
| A biological exposure index has been recommended by these agencies: | ACGIH  DFG  SCOEL |

## Workplace exposure standard history

| Year | Standard |
| --- | --- |
| Click here to enter year |  |

## References

American Conference of Industrial Hygienists (ACGIH®) (2018) TLVs® and BEIs® with 7th Edition Documentation, CD-ROM, Single User Version. Copyright 2018. Reprinted with permission. See the [*TLVs® and BEIs® Guidelines section*](http://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations) on the ACGIH website.

Deutsche Forschungsgemeinschaft (DFG) (1975) Dimethyl sulfide – MAK value documentation.