# Difluorodibromomethane

| CAS number: | 75-61-6 |
| --- | --- |
| Synonyms: | Dibromodifluoromethane, DFBM, freon 12B2 |
| Chemical formula: | CBr2F2 |
| Structural formula: | — |

Workplace exposure standard (retained)

| TWA: | **100 ppm (858 mg/m3)** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **—** |
| IDLH: | **2,000 ppm** |
| **Sampling and analysis:** The recommended value is quantifiable through available sampling and analysis techniques. | |

## Recommendation and basis for workplace exposure standard

A TWA of 100 ppm (858 mg/m3) is recommended to protect for respiratory irritation, narcosis and liver toxicity in exposed workers.

Given the limited data available from the primary sources, it is recommended that a review of additional sources be conducted at the next scheduled review.

## Discussion and conclusions

Difluorodibromomethane is used as a as a fire extinguishing agent and in dyes, pharmaceuticals and quaternary ammonium compounds (ACGIH 2018).

A sub-chronic inhalation study in rats and dogs identified a NOAEC of 350 ppm for respiratory tract irritation, liver damage and central nervous system (CNS) effects. The ACGIH (2018) TLV-TWA was based on this NOAEC (ACGIH 2018).

The current TWA is recommended to be retained. However, due to limited animal data and no human studies it is recommended that a priority review be undertaken at the next scheduled review of the WES.

## 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 1991 TWA: 100 ppm (858 mg/m3) | |
|  |
| ACGIH 2001 TLV-TWA: 100 ppm (858 mg/m3) |
| TLV-TWA recommended to minimise the risk of respiratory tract irritation, narcosis and liver toxicity in exposed workers.  Summary of data:  Animal data:   * Exposure to vapour heated to 800⁰C is fatal at 55,000 ppm (rats, 15 min), 4,000 ppm produced pulmonary damage, irritation and oedema * Exposure to ≈2,300 ppm (rats and dogs, inhalation) daily for 6 wk, resulted in fatalities to >50% of animals * symptoms included intoxication, weakness, dizziness, pulmonary congestion and damage to the liver and CNS * NOAEL: 350 ppm (rats and dogs, daily, 6 mo, inhalation) for respiratory tract irritation, liver damage and CNS effects * TLV-TWA based on this NOAEL with no explanation of derivation.   Insufficient data to recommend a carcinogen, skin or sensitiser notation. |
| DFG 2007 Not assigned |
| The previous MAK value of 100 mL/m3 was set in 1958.  For the derivation of a MAK, suitable data in humans or from animal studies are not available. The MAK value is therefore suspended. |
| 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 | — |
| 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

Insufficient data to assign a skin notation.

### IDLH

| Is there a suitable IDLH value available? | Yes |
| --- | --- |

## Additional information

| Molecular weight: | 209.82 |
| --- | --- |
| Conversion factors at 25°C and 101.3 kPa: | 1 ppm = 8.59 mg/m3; 1 mg/m3 = 0.116 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) (2007) Dibromdifluormethan – MAK value documentation.

US National Institute for Occupational Safety and Health (NIOSH) (1994) Immediately dangerous to life or health concentrations – difluorodibromomethane.