# SulFur hexafluoride

| CAS number: | 2551-62-4 |
| --- | --- |
| Synonyms: | Sulphur hexafluoride |
| Chemical formula: | SF6 |

Workplace exposure standard (retained)

| TWA: | **1,000 ppm (5,970 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 1,000 ppm (5,970 mg/m3) is recommended to protect for asphyxiation in exposed workers.

## Discussion and conclusions

Sulfur hexafluoride is primarily used as an electrical insulator gas and as a tracer gas for ventilation measurements.

The critical effect of exposure is asphyxiation.

Inhalation exposure in rats at an 80 per cent gas mixture resulted in no adverse effects. Based on this, sulfur hexafluoride is considered pharmacologically inactive (ACGIH 2018).

The critical effect is a result of the displacement of oxygen in air. However, no chronic studies are available to confirm this. Accordingly, the TWA of 1,000 ppm is recommended to be retained. It is the same as the OEL by ACGIH and DFG and is considered sufficiently protective for asphyxiation in exposed workers.

## 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: 1,000 ppm (5,970 mg/m3) | |
|  |
| ACGIH 2001 TLV-TWA: 1,000 ppm (5,970 mg/m3) |
| TLV-TWA recommended to minimise the risk of asphyxiation in exposed workers.  Summary of data:  The primary hazard considered to be asphyxiation as a result of the displacement of air, accordingly the TLV–TWA of 1,000 ppm is recommended based on good occupational hygiene practice.  Animal data:   * 50 rats exposed to 80% gas mixture (20% O2) for 16–24 h showed no adverse effects. Compound considered pharmacologically inactive.   Insufficient data to recommend a skin, sensitiser or carcinogen notation. |
| DFG 1958 MAK: 1,000 ppm (6,100 mg/m3) |
| The MAK value is not toxicological based; justified by occupational hygiene (no further justification provided). |
| 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? | No |
| --- | --- |

## Additional information

| Molecular weight: | 146.06 |
| --- | --- |
| Conversion factors at 25°C and 101.3 kPa: | 1 ppm = 6.01 mg/m3; 1 mg/m3 = 0.166 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) (2002) Schwefelhexafluorid – MAK value documentation.