# Cyclopentane

| CAS number: | 287-92-3 |
| --- | --- |
| Synonyms: | Pentamethylene |
| Chemical formula: | C5H10 |

Workplace exposure standard (retained)

| TWA: | **600 ppm (1,720 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 600 ppm (1,720 mg/m3) is recommended to protect for depression of the central nervous system (CNS), headache, dizziness and narcosis in exposed workers.

## Discussion and conclusions

Cyclopentane is used in organic synthesis, as a catalyst solvent, in the manufacture of adipic and maleic acids, in oil extraction and it is found in motor vehicle exhaust.

Limited toxicological evidence exists for humans and animals. Cyclopentane is considered to be less toxic than pentane; pentane above 90,000 ppm causes narcosis in animals (ACGIH, 2018). As such, the ACGIH recommendation of 600 ppm is based on analogy to *n*-pentane (ACGIH, 2018).

Given the limited toxicological data, the current TWA of 600 ppm by ACGIH (2018) is recommended to be retained. The recommended TWA is considered sufficiently low to minimise the potential for eye, skin and upper respiratory tract irritation and narcosis 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: 600 ppm (1,720 mg/m3) | |
|  |
| ACGIH 2001 TLV-TWA: 600 ppm (1,720 mg/m3) |
| TLV-TWA recommended to minimise the potential for eye, skin and upper respiratory tract irritation and narcosis in exposed workers.  Summary of data:  Human data:   * Shoe industry workers exposed to mixtures of C5-C7 (containing up to 18% cyclopentane) suffered polyneuropathy * Dermal exposure in workers resulted in burning sensation and blistering, pain subsided in 15 min.   Animal data:   * Acute exposure symptoms include excitement, loss of equilibrium, stupor, coma and respiratory failure * For *n*-pentane 90,000–120,000 ppm caused narcosis in animals in 5–60 min. |
| DFG NA NA |
| No report. |
| SCOEL NA NA |
| No report. |
| OARS/AIHA NA NA |
| No report. |
| HCOTN 2000 TWA: 600 ppm (1,720 mg/m3) |
| Summary of additional data:   * Exposure at 110 mg/m3 resulted in minimal narcosis, loss of reflexes and lethality in mice * Exposing mice at 110,000 mg/m3 resulted in immediate anaesthesia followed by mortality due to respiratory paralysis * Exposing rats at 1,500 mg/kg (IP injections) resulted in aberrations of kidney function. |

### 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 | NA |
| DFG | NA |
| 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: | 70.13 |
| --- | --- |
| Conversion factors at 25°C and 101.3 kPa: | 1 ppm = Number mg/m3; 1 mg/m3 = Number 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.

Health Council of the Netherlands (HCOTN) (2000) Cyclopentane. Health-based Reassessment of Administrative Occupational Exposure Limits. The Hague: Health Council of the Netherlands; publication no. 2000/15OSH/002.