# chloropicrin

| CAS number: | 76-06-2 |
| --- | --- |
| Synonyms: | Nitrochloroform, trichloronitromethane, nitrotrichloromethane, acquinite |
| Chemical formula: | CCl3NO2 |
| Structural formula: | — |

Workplace exposure standard (retained)

| TWA: | **0.1 ppm (0.67 mg/m3)** |
| --- | --- |
| STEL: | **—** |
| Peak limitation: | **—** |
| Notations: | **—** |
| IDLH: | **2 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 0.1 ppm (0.67 mg/m3) is recommended to protect for eye and respiratory irritation in exposed workers.

## Discussion and conclusions

Chloropicrin is widely used in a range of fumigants, insecticides and fungicides. It was historically used as a war gas and is intensely irritating to the eyes.

Limited toxicological data in humans and animals are available. In humans, individual susceptibility leads to varying results following exposure. Painful irritation to the eyes is reported at 0.3 to 0.37 ppm after three to 30 seconds, while 4 ppm causes incapacity after a few seconds. An acute inhalation study in rats reports congestion, haemorrhage, oedema and death following exposure to 340 ppm for one minute (ACGIH, 2018; DFG, 2000).

Based on the available evidence, the current TWA is considered sufficiently low to protect for the identified critical effects.

## 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 0.1 ppm (0.67 mg/m3) | |
|  |
| ACGIH 2001 TLV-TWA: 0.1 ppm (0.67 mg/m3) |
| TLV- is recommended to minimise the potential for eye and pulmonary irritation and pulmonary oedema  Summary of data:  Human data:   * Painful irritation to the eyes at 0.3–0.37 ppm (3–30 sec) * 15 ppm not tolerable by accustomed individuals (≥1 min) * 4 ppm reported to make a person unfit for activity (“a few seconds”) * 15 ppm for the same period resulted in respiratory tract injury.   Animal data:   * 340 ppm lethal to rats (1 min) * pathological manifestations are congestion, haemorrhage, oedema and infiltration of the lung tissue in early stages of inhalation * 78 wk gavage dosing study reported no statistically significant increase of tumour incidence in rats and mice * results inconclusive as most rats did not survive long enough for late-appearing tumours to manifest.   Insufficient evidence to recommend a skin or sensitiser notation. |
| DFG 2000 MAK: 0.1 ppm (0.68 mg/m3) |
| The MAK is recommended to protect for strong irritant effects.   * No animal studies with long‐term inhalation * No modern studies with reliable air analyses were carried out. |
| 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? | No |
| **The chemical is not a non-threshold based genotoxic carcinogen.** |  |

## Notations

| Source | Notations |
| --- | --- |
| SWA | NA |
| HCIS | NA |
| NICNAS | NA |
| EU Annex | NA |
| ECHA | NA |
| ACGIH | Carcinogenicity – A4 |
| 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 information available. |

### IDLH

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

## Additional information

| Molecular weight: | 164.37 |
| --- | --- |
| 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.

Deutsche Forschungsgemeinschaft (DFG) (2000) Chlorpikrin (Trichlornitromethan) addendum 2000 – MAK value documentation.

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