

# iodoform

**CAS number:** 75-47-8

**Synonyms:** Triiodomethane

**Chemical formula:**  $\text{CHI}_3$

**Structural formula:** —

## Workplace exposure standard (interim)

**TWA:** 0.6 ppm (10 mg/m<sup>3</sup>)

**STEL:** —

**Peak limitation:** —

**Notations:** Sk.

**IDLH:** —

**Sampling and analysis:** The recommended value is quantifiable through available sampling and analysis techniques.

## Recommendation and basis for workplace exposure standard

An interim TWA of 0.6 ppm (10 mg/m<sup>3</sup>) is recommended to protect for central nervous system (CNS) depression, nausea and heart, kidney and liver effects in exposed workers.

## Discussion and conclusions

Iodoform is used as an antiseptic and disinfectant. Critical effects of acute exposure include CNS depression, nausea and effects on kidney, liver and heart (ACGIH 2018). These critical effects are, however, based largely on dermal exposure apart from cardiopulmonary collapse in an acute study involving rats. The available toxicological dataset is limited to acute and a sub-chronic inhalational exposure study in rats, which showed mineralised deposits in the medullary renal tubules as the critical effect at 14 ppm (ACGIH, 2018).

In the absence of chronic exposure data and given the minor effects reported in rats at 14 ppm, the current TWA of 0.6 ppm (10 mg/m<sup>3</sup>) is retained in the interim as it is considered sufficiently low to protect for adverse effects in exposed workers.

A detailed examination of the available dataset should be prioritised during subsequent reviews since no reliable long-term exposure data was available for this evaluation.

## 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.

A skin notation is warranted as evidence indicates rapid absorption through the skin and reports of acute poisonings in the workplace.

## APPENDIX

### Primary sources with reports

Source	Year set	Standard
<b>SWA</b>	<b>1991</b>	<b>TWA: 0.6 ppm (10 mg/m<sup>3</sup>)</b>
<b>ACGIH</b>	<b>2001</b>	<b>TLV-TWA: 0.6 ppm (10 mg/m<sup>3</sup>)</b>
<p>TLV-TWA recommended to minimise the risk of CNS depression, nausea and effects on kidney, liver and heart through dermal application to broken skin.</p> <p>Summary of data:</p> <p>Human data:</p> <ul style="list-style-type: none"> <li>Topical antiseptic application produced reported symptoms including CNS depression, vomiting, coma and damage to kidney, liver and heart</li> <li>Systematic symptoms can result from percutaneous absorption, 1 reported delirium and hallucination.</li> </ul> <p>Animal data:</p> <ul style="list-style-type: none"> <li>LD<sub>50</sub>: 630 mg/kg (mice, oral)</li> <li>LC<sub>50</sub>: 165 ppm (rats, 7 h) deaths attributed to cardiopulmonary collapse</li> <li>Exposure to 14 ppm (rats, 7 h/d, 7 d, inhalation), mineralised deposits in the medullary renal tubules</li> <li>Not considered carcinogenic in bioassay, study considered inadequate.</li> </ul> <p>TLV-TWA recommended partially by analogy to bromoform.</p> <p>Insufficient data to recommend a skin, sensitiser or carcinogen notation.</p>		
<b>DFG</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>SCOEL</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>OARS/AIHA</b>	<b>NA</b>	<b>NA</b>
No report.		
<b>HCOTN</b>	<b>2007</b>	<b>Not assigned</b>
<p>The committee concludes that iodoform has been insufficiently investigated.</p> <p>Summary of additional data:</p> <ul style="list-style-type: none"> <li>Mutagenic in <i>Salmonella typhimurium</i> assays</li> <li>Induced an increase in unscheduled DNA synthesis and sister chromatid exchanges in hamster embryo cells, <i>in vitro</i>.</li> </ul>		

### Secondary source reports relied upon

NIL.

## Carcinogenicity — non-threshold based genotoxic carcinogens

Is the chemical mutagenic? Yes

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	NA
SCOEL	NA
HCOTN	Carcinogenicity – category 3
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

Adverse effects in human case study: yes

Dermal LD<sub>50</sub> ≤ 1000 mg/kg:

Dermal repeat-dose NOAEL ≤ 200 mg/kg:

Dermal LD<sub>50</sub>/Inhalation LD<sub>50</sub> < 10:

*In vivo* dermal absorption rate > 10%:

Estimated dermal exposure at WES > 10%:

**a skin notation is warranted**

## IDLH

Is there a suitable IDLH value available? No



## Additional information

Molecular weight:	393.73
Conversion factors at 25°C and 101.3 kPa:	1 ppm = Number mg/m <sup>3</sup> ; 1 mg/m <sup>3</sup> = Number ppm
This chemical is used as a pesticide:	<input type="checkbox"/>
This chemical is a biological product:	<input type="checkbox"/>
This chemical is a by-product of a process:	<input type="checkbox"/>
A biological exposure index has been recommended by these agencies:	<input type="checkbox"/> ACGIH <input type="checkbox"/> DFG <input type="checkbox"/> SCOEL

## Workplace exposure standard history

Year	Standard
Click here to enter year	

## References

American Conference of Industrial Hygienists (ACGIH®) (2018) TLVs® and BEIs® with 7<sup>th</sup> Edition Documentation, CD-ROM, Single User Version. Copyright 2018. Reprinted with permission. See the [TLVs® and BEIs® Guidelines section](#) on the ACGIH website.

Health Council of the Netherlands (HCOTN) (2007) Iodoform. Health-based calculated occupational cancer risk values. The Hague: Health Council of the Netherlands; publication no. 2007/08OSH.