OCTACHLORONAPHTHALENE

CAS number:	2234-13-1
Synonyms:	Halowax 1051, perchloronaphthalene
Chemical formula:	$C_{10}Cl_8$
Structural formula:	—

Workplace exposure standard (interim)

TWA:	**0.1 mg/m^3**
STEL:	**0.3 mg/m^3**
Peak limitation:	**—**
Notations:	**Sk.**
IDLH:	**Unknown: lack of data** (1 mg/m^3, i.e. ten times TWA. Change to "most protective" respirator if >1 mg/m^3)

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 mg/m^3 is recommended to protect for liver effects in exposed workers.

A STEL of 0.3 mg/m^3 is recommended to protect for liver effects in acutely exposed workers.

A priority evaluation is recommended at the next scheduled review.

Discussion and conclusions

Octachloronaphthalene has been used as a fireproof and waterproof additive in cable insulation and in other protective coating materials. Critical effects from exposure is potential liver damage.

Limited data exists in humans and animals. Chlorinated naphthalenes (penta- and hexachloro-) produce acne-like lesions and may be absorbed through the skin. Liver damage and hyperkeratosis reported in cattle fed octachloronaphthalene for up to 30 days. No further information was provided. Repeated exposure of animals to fumes of molten chlorinated naphthalenes resulted in acute yellow atrophy of the liver. Dermal absorption of various chlorinated naphthalenes has been demonstrated in animals which is also suspected in humans. ACGIH (2018) recommended the TLV-TWA by analogy to hexachloronaphthalene and the less toxic pentachloronaphthalene (ACGIH, 2018).

Given the limited available data, the TWA of 0.1 mg/m^3 and STEL of 0.3 mg/m^3 are recommended to be retained in the interim to protect for liver effects in exposed workers, as derived by ACGIH (2018). A priority review is recommended at the next scheduled review.

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 recommended due to evidence of dermal absorption and contribution to adverse systemic effects and by analogy to structurally similar chemicals.

APPENDIX

Primary sources with reports

Source	Year set	Standard
SWA	***1991***	***TWA: 0.1 mg/m³; STEL: 0.3 mg/m³***
ACGIH	***2001***	***TLV-TWA: 0.1 mg/m³; TLV-STEL: 0.3 mg/m³***
TLV-TWA recommended to minimise the potential for liver damage. TLV-TWA recommended by analogy to the TLV for hexachloronaphthalene (0.2 mg/m³) and indirectly to that for pentachloronaphthalene (0.5 mg/m³). TLV-STEL recommended to provide additional margin of protection; no derivation. Summary of data: Human data: • No data available on effects related to inhalation • Chlorinated naphthalenes (penta- and hexachloro-) produce acne-like lesions; may be absorbed through the skin. Animal data: • Liver damage and hyperkeratosis in cattle fed octachloronaphthalene for up to 30 d; no further information • Repeated exposure of animals to fumes of molten chlorinated naphthalenes resulted in acute yellow atrophy of the liver; severe sometimes fatal systemic poisoning; no further information • Dermal absorption of various chlorinated naphthalenes has been demonstrated in animals; suspected in humans. Insufficient data to recommend sensitiser or carcinogen notations.		
DFG	***1999***	***Not assigned***
No MAK assigned. Reviewed as part of chlorinated naphthalenes group. No further data.		
SCOEL	***NA***	***NA***
No report.		
OARS/AIHA	***NA***	***NA***
No report.		
HCOTN	***2000***	***TWA: 0.1 mg/m³***
Administrative OEL. Insufficient data to recommend a health-based OEL. No further information.		

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	Skin
DFG	H (skin)
SCOEL	NA
HCOTN	Skin
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?	Yes

Additional information

Molecular weight:	403.74
Conversion factors at 25°C and 101.3 kPa:	1 ppm = Number mg/m^3; 1 mg/m^3 = 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* on the ACGIH website.

Deutsche Forschungsgemeinschaft (DFG) (1999) Chlorinated naphthalenes – MAK value documentation.

Health Council of the Netherlands (HCOTN) (2000) Octachloronaphthalene. Health-based Reassessment of Administrative Occupational Exposure Limits. The Hague: Health Council of the Netherlands; publication no. 2000/15OSH/012.

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