Rijksinstituut voor Volksgezondheid en Milieu
Ministerie van Volksgezondheid, Welzijn en Sport

Stofdocument deel A

CAS-nr: 76-06-02 **VN-nr: 1580**

Chloorpicrine

CCl_3NO_2 **GEVI: 66**

Synoniemen: nitrochloroform, trichloornitromethaan (Engels: chloropicrin)

Interventiewaarden		10 min.	30 min.	1 uur	2 uur	4 uur	8 uur
Voorlichtingsrichtwaarden	**VRW (mg/m^3)**	0,34	0,34	0,34	0,34	0,34	0,34
Alarmeringsgrenswaarden	**AGW (mg/m^3)**	1,0	1,0	1,0	1,0	1,0	1,0
Levensbedreigende waarden	**LBW (mg/m^3)**	16	11	8,6	6,8	5,4	2,7
Datum vaststelling: 06-10-2016				1 mg/m^3 = 0,146 ppm; 1 ppm = 6,84 mg/m^3			

Explosiegrens: geen. Alleen kans op explosie door reacties en bij snelle verhitting

Geur: stekende geur

LOA: niet afgeleid

Fysisch-chemische eigenschappen

Uiterlijk: kleurloze olieachtige vloeistof

Brand: niet brandbaar, maar bij vele reacties kans op brand en explosie

Relatieve dichtheid van verzadigd damp-lucht mengsel: 1,1

Molecuulmassa:	164,4 g/mol
Zuurgraad:	Geen data
LogKow:	2,6
Wateroplosbaarheid:	0,2 g/100 ml (slecht)
Verzadigde dampdruk:	ca 25 mbar

Overige informatie

Publieke grenswaarde: niet afgeleid
MAK: 0,68 mg/m^3
TLV-TWA: 0,68 mg/m^3

Toxicologische eigenschappen

Effecten bij inhalatoire blootstelling

Onder VRW: geen

VRW → AGW: tranen, keelpijn, kortademigheid, hoest, branderig gevoel achter het borstbeen, hoofdpijn, duizeligheid, flauwvallen, misselijkheid, braken

AGW → LBW: bronchitis, ademnood

Boven LBW: sterfte

Toxiciteit bij eenmalige, inhalatoire blootstelling

- De (damp van de) stof werkt sterk irriterend tot bijtend op de ogen, de huid en de luchtwegen.
- Inademing kan chemische longontsteking en/of longoedeem veroorzaken. De verschijnselen hiervan kunnen vertraagd optreden en versterkt worden door lichamelijke inspanning.
- Hoofdpijn en misselijkheid kunnen tot meer dan een maand na blootstelling aan hoge concentraties chloorpicrine ervaren worden.

Effecten bij blootstelling aan vloeistof

Huidcontact: bijtend, brandwonden.

Oogcontact: tranenvloed, roodheid en pijn, hoornvliesbeschadiging, ernstige brandwonden.

Carcinogeniteit

IARC classificatie: niet geclassificeerd
CRP: niet afgeleid

Beknopte medische informatie

Ontsmetting damp

algemeen: frisse lucht, rust, halfzittende houding, direct spoedeisende medische hulp inzetten

Ontsmetting vloeistof

huid: verontreinigde kleding uittrekken, spoelen en wassen met water en zeep, arts raadplegen.

ogen: minimaal 15 min. spoelen met water (evt. contactlenzen verwijderen), dan naar oogarts brengen, blijven spoelen tijdens vervoer.

inslikken: mond laten spoelen (uitspugen!), GEEN braken opwekken, direct spoedeisende medische hulp inzetten.

Specifieke behandeling en materialen*: geen.*

Neem contact op met het NVIC (Tel:+31 (0)30 274 8888) voor informatie met betrekking tot medisch handelen

National Institute for Public Health and the Environment
Ministry of Health, Welfare and Sport

Stofdocument deel B

CAS-nr: 76-06-2 **chloropicrin** **CCl_3NO_2** **UN-nr: 1580**

Basis for the Dutch Intervention Values

VRW: AEGL values adopted, 2h value added

AGW: AEGL values adopted, 2h value added

LBW: Same point of departure, using different value for n, time scaling applied to 10 min value, 2h value added

Date: 06-10-2016	AEGL Document: Interim, June 2008

Dutch Intervention Values (mg/m^3)

	10 min	30 min	1 h	2 h	4 h	8 h	End point
VRW	0.34	0.34	0.34	0.34	0.34	0.34	Threshold for ocular irritation in humans
AGW	1.0	1.0	1.0	1.0	1.0	1.0	Severe ocular irritation in humans
LBW	16	11	8.6	6.8	5.4	2.7	Estimated lethality threshold ($BMCL_{05}$) in rats

Derivation of the Dutch Intervention Values

VRW: The VRW values are based on human data. In a study performed in 3 phases, healthy human volunteers were exposed to chloropicrin in varying durations and exposure concentrations, examining chloropicrin-induced sensory irritation. In phase 1 identification of chloropicrin was assessed using odor, effects on eye (eye feel) or nose (nasal feel). Exposure consisted of a single sniff (odor), 25 (eye feel) or 7 (nasal feel) seconds of exposure to concentrations of 0, 0.36, 0.53, 0.80, or 1.2 ppm (0, 2.5, 3.6, 5.5, or 8.2 mg/m^3, respectively). In Phase 2, positive detection was assessed as irritation of the eyes, nose, or throat, in subjects exposed for 20-30 minutes to 0, 0.05, 0.075, 0.10, and 0.15 ppm (corresponding to 0.34, 0.51, 0.68, and 1.0 mg/m^3, respectively) in a walk-in chamber. Phase 3 was similar but also assessed clinical signs and changes in pulmonary function in subjects exposed for 60 min on each of the 4 consecutive days to 0, 0.10, and 0.15 ppm, corresponding to 0.68 and 1.0 mg/m^3, respectively). The point-of-departure for deriving the VRW is the 20-30 min exposure to 0.050 ppm (or 0.34 mg/^{3}) which represents a NOAEL for ocular irritation. This is supported by a 1-hour $BMCL_{10}$ of 73 ppb (0.073 ppm; 0.50 mg/m^3) based on the analysis of the abovementioned data on ocular irritation in human volunteers. Time scaling was not applied as data indicate that the observed effect does not increase with duration of exposure. An intraspecies uncertainty factor was not applied either, as sensitive individuals were included in the study and did no show large variability.

AGW: The AGW values are based on the same human volunteer study as the VRW values. In the third phase of this study human volunteers were exposed to 0.1 or 0.15 ppm corresponding to 0.68 and 1.0 mg/m^3, respectively) or 60 minutes on 4 consecutive days with some participants reporting severe eye irritation during the first exposure. Though the effects were reversible and only marginally suitable for AGW derivation, human data are preferred as basis for derivation of intervention values and according to the volunteers, the symptoms were “hard to tolerate” at both exposure concentrations (8/32 and 7/32 subjects), though symptom rating was highest at the 1.0 mg/m^3. The 60 min exposure to 0.15 ppm (1.0 mg/m^3) was used as point of departure for the AGW. In accordance with the VRW derivation, time scaling was not applied as data indicate that the observed effect does not increase with duration of exposure. An intraspecies uncertainty factor was not applied either, as sensitive individuals were included in the study and did no show large variability.

LBW: The LBW values were determined by using available mortality data in rats in a benchmark dose approach. F344 rats (6-8 male rats/group) were exposed to 8.8, 11.0, 11.4, 12.1, 13.6 or 16.0 ppm (corresponding to 60, 75, 78, 83, 93, 110 mg/m^3, respectively) for 240 min and to 21.7 or 45.5 ppm (150 or 311 mg/m^3) for 30 min. The $BMCL_{05}$ value of 7.9 ppm (54 mg/m^3) for 4 hour was used as a point of departure for deriving the LBW values. The default total uncertainty factor of 10 (3x3) was considered sufficient to account for inter- and intraspecies differences. Time scaling was performed using the equation $C^n \times t = k$ with the default n = 1 and n= 3, to calculate to longer and shorter durations, respectively. The default values for n are applied instead of the chemical specific value of 2.3 based on the rat lethality data, because only two time points support this value.

Additional toxicological information (including relevant results of a general literature search, if any)
Chloropicrin is irritating to the skin, eyes and respiratory tract. Exposure via inhalation resulted in impairment of the pulmonary function, pulmonary edema, and death in laboratory animals. The mode of action is not fully understood. Chloropricrin reacts with sulfhydryl groups of hemoglobin resulting in compromised oxygen transport. Data on developmental and reproductive toxicity and carcinogenicity upon inhalation exposure are too limited to draw conclusions. H330: Fatal if inhaled, H302: Harmful if swallowed; H319: Causes serious eye irritation; H335: May cause respiratory irritation, H315: Causes skin irritation

Carcinogenicity and derivation of the CRP value
IARC classification: not classified Derivation of the carcinogenic risk potency (CRP): No carcinogenic risk potency (CRP) was derived

Odour and derivation of the LOA value
Odour: pungent odour Despite reported odour detections at very low concentration no suitable threshold level was established to derive a LOA.

Other standards and guidelines ***(1h values in mg/m^3, unless otherwise indicated)***

VRW level **0.34**	*AEGL-1* 0.34	*ERPG-1* 0.51		*IDLH:* 14 (30 min)
AGW level **1.0**	*AEGL-2* 1.0	*ERPG-2* 1.0		
LBW level **8.6**	*AEGL-3* 9.4	*ERPG-3* 10		