

Stofdocument deel A

CAS-nr: 75-68-3

1-chloor-1,1-difluorethaan

$C_2H_3ClF_2$

VN-nr: 2517

GEVI: 23

Synoniemen: HCFC-142b, monochloordifluorethaan, R142b (Engels: 1-chloro-1,1-difluoroethane)

Interventiewaarden		10 min.	30 min.	1 uur	2 uur	4 uur	8 uur
Voorlichtingsrichtwaarden	VRW (mg/m³)	14.000	9.600	7.600	6.000	4.800	3.100
Alarmeringsgrenswaarden	AGW (mg/m³)	35.000*	35.000*	35.000*	26.000*	13.000	6.500
Levensbedreigende waarden	LBW (mg/m³)	240.000**	170.000**	84.000*	42.000*	21.000*	10.000
Datum vaststelling: 16-12-2010		1 mg/m ³ = 0,239 ppm; 1 ppm = 4,18 mg/m ³					
Explosiegrens: LEL = 4,4 vol% ≈ 184.000 mg/m ³		Geur: (nagenoeg) reukloos					
* berekende interventiewaarde hoger dan 10% LEL		LOA: niet afgeleid					
** berekende interventiewaarde hoger dan 50% LEL							
Fysisch-chemische eigenschappen				Overige informatie			
Uiterlijk: kleurloos onder druk tot vloeistof verdicht gas		Molecuulmassa: 100,5 g/mol		Publieke grenswaarde:			
Brand: zeer brandgevaarlijk		Zuurgraad: geen data		Niet afgeleid			
Relatieve dichtheid van verzadigd damp-lucht mengsel: 3,5		LogKow: 1,6		MAK: 4170 mg/m ³			
		Wateroplosbaarheid: 0,19 g/100 ml (matig)		TLV-TWA: niet afgeleid			
		Verzadigde dampdruk: 2895 mbar					
Toxicologische eigenschappen							
Effecten bij inhalatoire blootstelling				Toxiciteit bij eenmalige, inhalatoire blootstelling			
<u>Onder VRW:</u> geen effecten				<ul style="list-style-type: none"> 1-Chloor-1,1-difluorethaan veroorzaakt luchtwegirritatie en bewustzijnsdaling. Blootstelling aan 1-chloor-1,1-difluorethaan kan het hart overgevoelig maken voor adrenaline. Door verdringing van zuurstof uit de lucht kan het gas verstikkend werken. 			
<u>VRW → AGW:</u> irritatie luchtwegen, sufheid							
<u>AGW → LBW:</u> ernstige irritatie luchtwegen, bewustzijnsdaling, hartritmestoornissen							
<u>Boven LBW:</u> hartstilstand, coma, sterfte							
Effecten bij blootstelling aan vloeistof				Carcinogeniteit			
<u>Huidcontact:</u> bevroeringsverschijnselen zoals roodheid, pijn, blaren				IARC classificatie: niet geclassificeerd			
<u>Oogcontact:</u> bij bevroering: roodheid en pijn, slecht zien				CRP: niet afgeleid			
Beknopte medische informatie							
Ontsmetting gas							
<i>algemeen:</i> frisse lucht, rust en arts raadplegen..							
Ontsmetting vloeistof							
<i>huid:</i> N.v.t. (gas). <i>Bij contact met de vloeistof:</i> aan de huid vastgevroren kleding NIET lostrekken, spoelen met veel water / kleding verwijderen en arts raadplegen. ¹⁾							
<i>ogen:</i> <i>bij gasblootstelling en bevroering:</i> minimaal 15 min. spoelen met water (evt. contactlenzen verwijderen), dan naar oogarts brengen, <i>bij bevroering:</i> blijven spoelen tijdens vervoer.							
<i>inslikken:</i> N.v.t. (gas).							
Specifieke behandeling en materialen: geen.							
Neem contact op met het NVIC (tel: +31 (0)30 -274 8888) voor informatie met betrekking tot medisch handelen.							

Stofdocument deel B

CAS-nr: 75-68-3

1-chloro-1,1-difluoroethane

C₂H₃ClF₂

UN-nr: 2517

Basis for the Dutch Intervention Values

VRW: Based on toxicological information in ERPG document

AGW: Based on toxicological information in ERPG document

LBW: Based on toxicological information in ERPG document

Date: 16-12-2010

ERPG document 1999

Dutch Intervention Values (mg/m³)

	10 min	30 min	1 h	2 h	4 h	8 h	End point
VRW	14,000	9,600	7,600	6,000	4,800	3,100	No effect level in animals
AGW	35,000 *	35,000 *	35,000 *	26,000 *	13,000	6,500	Threshold of cardiac sensitization in dogs Threshold of unconsciousness in rats
LBW	240,000 **	170,000 **	84,000 *	42,000 *	21,000 *	10,000	Threshold of lethality in rats

* value higher than 10% of LEL; ** value higher than 50% of LEL

Derivation of the Dutch Intervention Values

VRW: As point of departure for the derivation of VRW values, a 6 hour exposure to 10,000 ppm (42,000 mg/m³) was chosen. This concentration had no adverse effects (clinical, hematological, histopathological) in a 90-day inhalation toxicity study in dogs and rats exposed for 6 hours/day 5 days/week. In a 2-week inhalation toxicity study in rats during exposure to 20,000 ppm (84,000 mg/m³) for 6 hour/day 5 days/week, salivation was observed. Inter- and intraspecies uncertainty factors of 3 each were applied to account for differences between species and between individuals. Time scaling was performed using the equation $C^n \times t = k$, using the default values of $n = 1$ and $n = 3$ for extrapolation to longer and shorter exposure durations, respectively.

AGW: For the derivation of the AGW values two points of departure were used. For the 10-minutes, 30-minutes and 1-hour AGW values the NOAEL for cardiac sensitization was used. In beagle dogs cardiac sensitization was observed in 0 out of 6 dogs exposed for approximately 5 minutes to 25,000 ppm (105,000 mg/m³) and in 5 out of 12 dogs exposed to 50,000 ppm (210,000 mg/m³). As beagle dogs are considered to be especially sensitive to cardiac sensitization no interspecies factor was applied. An intraspecies factor of 3 was applied to account for sensitive individuals. No time scaling was performed. As point of departure for derivation of the 2, 4, and 8-hour AGW values, 30 minute exposure to 250,000 ppm (1,000,000 mg/m³) was chosen (see additional toxicological information). This was the highest concentration that did not result in unconsciousness and severe pulmonary irritation in rats. Inter- and intraspecies factors of 3 each were applied to account for differences between species and between individuals. Time scaling was performed using the equation $C^n \times t = k$, using the default value of $n = 1$ for extrapolation to longer exposure durations.

LBW: As point of departure for the derivation of LBW values 400,000 ppm (1,700,000 mg/m³) was chosen. This concentration caused severe pulmonary irritation and unconsciousness but no mortality in rats exposed for 30 minutes. The next highest concentration of 500,000 ppm (2,100,000 mg/m³) resulted in mortality. Inter- and intraspecies factors of 3 each were applied to account for differences between species and between individuals. Time scaling was performed using the equation $C^n \times t = k$, using the default values of $n = 1$ and $n = 3$ for extrapolation to longer and shorter exposure durations, respectively.

The choice of the point of departure is supported by 1) a reported 2 hour LC₅₀ for mice of 447,000 ppm (1,870,000 mg/m³) from which a threshold for lethality of $447,000 / 3 = 149,000$ ppm (623,000 mg/m³) can be calculated; and 2) a reported approximate lethal concentration in rats after 4 hours exposure of 128,000 ppm (535,000 mg/m³).

Additional toxicological information (including relevant results of a general literature search, if any)

The AGW values for time points 2h, 4h and 8h were based on a study of Lester and Greenberg (1950). In this study, rats were exposed to 150000-800000 ppm (627062-3344336 mg/m³) 1-chloro-1,1-difluoroethane. Disappearance of the postural reflex was seen at 200000 ppm 836084 mg/m³). Unconsciousness occurred at 300000 ppm (1254125 mg/m³) and death at 500000 ppm (2090210 mg/m³).

1-chloro-1,1-difluoroethane has a low order of acute inhalation toxicity. It can cause irritation of the respiratory tract and has anesthetic effects at high inhalation levels. The compound can sensitize the heart to adrenalin and cause cardiac arrest.

There was no evidence of embryotoxicity/teratogenicity or effect on male fertility of 1-chloro-1,1-difluoroethane in rats exposed to concentrations up to 10,000 ppm (42,000 mg/m³) or 20,000 ppm (84,000 mg/m³), respectively.

No harmonized H-sentences for human health.

Carcinogenicity and derivation of the CRP value

IARC classification: not classified
 No carcinogenic risk potency (CRP) was derived.
 In a 2-year combined chronic toxicity/carcinogenicity study in rats exposed to 1000, 10,000, or 20,000 ppm (4200, 42,000, or 84,000 mg/m³) for 6 hours/day 5 days/week, 1-chloro, 1,1-difluoroethane was not carcinogenic.

Odour and derivation of the LOA value

Odour: nearly odourless
 No LOA was derived.

Other standards and guidelines (1h values in mg/m³, unless otherwise indicated)

VRW level 7,600	AEGL-1 not derived	ERPG-1 42,000		IDLH: not derived
AGW level 35,000	AEGL-2 not derived	ERPG-2 63,000		
LBW level 84,000	AEGL-3 not derived	ERPG-3 100,000		