

Stofdocument deel A
CAS-nr: 123-86-4
n-Butylacetaat
CH₃-COO-(CH₂)₃-CH₃
VN-nr: 1123
GEVI: 33
Synoniemen: azijnzuur n-butylester, n-butylethanoaat (Engels: n-butylacetate)

Interventiewaarden		10 min.	30 min.	1 uur	2 uur	4 uur	8 uur
Voorlichtingsrichtwaarden	VRW (mg/m³)	70	70	70	70	70	70
Alarmeringsgrenswaarden	AGW (mg/m³)	700	700	700	700	700	700
Levensbedreigende waarden	LBW (mg/m³)	14.000*	9.600*	7.600*	6.000*	4.800	2.400
Datum vaststelling: 31-10-2017		1 mg/m ³ = 0,207 ppm; 1 ppm = 4,833 mg/m ³					
Explosiegrens: 1,2 vol% ≈ 12.000 ppm ≈ 58.000 mg/m ³ * berekende interventiewaarde hoger dan 10% LEL			Geur: zoete (banaan)geur LOA: 24 mg/m ³				
Fysisch-chemische eigenschappen				Overige informatie			
Uiterlijk: kleurloze vloeistof Brand: brandgevaarlijk		Molecuulmassa: 116,2 g/mol Zuurgraad: pH 6,2 (0,5 g/100 ml) LogKow: 2,3		Publieke grenswaarde: geen MAK: 480 mg/m ³ TLV-TWA: 725 mg/m ³			
Relatieve dichtheid van verzadigd damp- lucht mengsel: 1,04		Wateroplosbaarheid: 0,5 g/100 ml (slecht) Verzadigde dampdruk: 12 mbar					
Toxicologische eigenschappen							
Effecten bij inhalatoire blootstelling <u>Onder VRW:</u> keelpijn en hoesten <u>VRW → AGW:</u> irritatie van ogen, neus en keel, duizeligheid, hoofdpijn <u>AGW → LBW:</u> oogpijn, (brandende) neuspijn, (brandende) keelpijn, benauwdheid op de borst, duizeligheid, bewustzijnsdaling <u>Boven LBW:</u> sterfte				Toxiciteit bij eenmalige, inhalatoire blootstelling <ul style="list-style-type: none"> Acute blootstelling resulteert in irritatie van ogen, neus en keel. De vloeistof ontvet de huid. Erg hoge concentraties kunnen leiden tot effecten op het CZS, met als gevolg bewustzijnsdaling. Effecten op cardiovasculair systeem. Sterfte is waarschijnlijk het gevolg van CZS depressie en niet door direct effect (irritatie) van ademhalingsorganen. 			
Effecten bij blootstelling aan vloeistof <u>Huidcontact:</u> prikkeling, droge huid, roodheid <u>Oogcontact:</u> prikkeling, roodheid en pijn				Carcinogeniteit IARC classificatie: geen CRP: niet afgeleid.			
Beknopte medische informatie							
Ontsmetting damp <i>algemeen:</i> frisse lucht, rust, halfzittende houding en bij aanhoudende klachten arts raadplegen.							
Ontsmetting vloeistof <i>huid:</i> verontreinigde kleding uittrekken, spoelen en wassen met water en zeep. <i>ogen:</i> minimaal 15 min. spoelen met water (evt. contactlenzen verwijderen), dan naar oogarts brengen. <i>inslikken:</i> mond laten spoelen (uitspugen!), GEEN braken opwekken en 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							

Stofdocument deel B

CAS-nr: 123-86-4

n-Butylacetate

CH₃-COO-(CH₂)₃-CH₃

UN-nr: 1123

Basis for the Dutch Intervention Values

VRW: Based on information as described in ERPG-document, different values are derived, other time-points added.

AGW: Based on information as described in ERPG-document, different values are derived, other time-points added

LBW: Based on information as described in ERPG-document, different values are derived, other time-points added.

Date: 31-10-2017

ERPG 2014

Dutch Intervention Values (mg/m³)

	10 min	30 min	1 h	2 h	4 h	8 h	End point
VRW	70	70	70	70	70	70	Threshold for irritation to the throat in humans
AGW	700	700	700	700	700	700	Severe throat irritation and eye and nose irritation in humans
LBW	14,000*	9,600*	7,600*	6,000*	4,800	2,400	Threshold for lethality in rats.

* value higher than 10% of LEL

Derivation of the Dutch Intervention Values

VRW: The irritation produced by acute exposure to n-butyl acetate in healthy, non-smoking human subjects without any history of occupational solvent exposure was studied in three chamber experiments. Exposure levels tested in the different experiments were 350, 700, 1,050, and 1,400 mg/m³ in four 20-min sessions with 24 h rest periods between sessions (n=12f+ 12m), 70 and 1,400 mg/m³ in two 20 min sessions with 7 day rest periods between sessions (n=14f + 9 m), and 70 and 700 mg/m³ in two 4 h sessions with time interval of 7 days (n=5f + 7m). Rating scales, various measures of eye irritation, and pulmonary functions were used to evaluate the irritation produced by the exposures in different parts of the study. Irritation to the throat, breathing difficulties and sensation of a bad smell were reported in experiment 3 (4 hours to 70 or 700 mg/m³) as well as a borderline significance of irritation to the nose. These levels are supported by a study in healthy human volunteers who were exposed for 2-5 minutes to 200 ppm, equal to 967 mg/m³ (throat irritation) and 3-5 minutes at 300 ppm, equal to 1450 mg/m³ (eye and nose irritation and severe throat irritation). The effects reported after 20 min of exposure to 70 mg/m³ (very slight nose and throat irritation) were not considered significant and below the level of discomfort, and therefore used as point of departure for derivation of the VRW. Because effects were marginal, no uncertainty factor was applied to account for intraspecies differences. Time scaling was not applied, because exposure duration did not significantly influence the severity of the effects as is demonstrated by the comparable effects observed after 20 min exposure to 1400 mg/m³ and 4 hour exposure to 700 mg/m³.

AGW: For derivation of the AGW values, the same study was considered as for the VRW values. The highest 4-hour exposure concentration of 700 mg/m³ was chosen as point of departure. Because effects (irritation to eyes, nose and throat scored in the lower regions of the scale) were considered sub AGW, no uncertainty factor was applied to account for intraspecies differences. Time scaling was not applied, because exposure duration did not significantly influence the severity of the effects.

LBW: Eight acute inhalation toxicity studies have been performed in rats with very varying outcomes. The results have been compared and the reasons for the differences have been investigated thoroughly (Norris et al, 1997, WHO 2005). No explanation could be found, nor could results be reproduced even within laboratories. The study resulting in the lowest LC₅₀ (head-only to aerosol) was not used as starting point, because none of the other nose- or head- only studies even came close to this level. In the study resulting in the next lowest LC₅₀ (whole body aerosol) rats (5/sex/group) were exposed to 283 and 540 ppm (1368 and 2610 mg/m³). All rats died at the highest exposure concentration, whereas none of the rats died at the low exposure concentration. Using the lowest level as threshold for lethality, the default uncertainty factor of 10 (3x3) and the default values for time scaling to longer and shorter durations, respectively would result in unrealistic low LBW values (390, 270, 220, 170, 140, 68 mg/m³) in comparison with the human data used as basis for VRW and AGW. Therefore, these studies were not used as point of departure. The more so, since in repeated exposure studies at much higher concentrations no deaths were reported.

In two sub-chronic toxicity studies (14 wks and 13 wks) using exposure concentrations up to 3000 ppm n-butylacetate vapour, apart from transient signs of sedation and effects on body- and organ weights, no life threatening effects were observed. This provides sufficient support to use the acute toxicity studies yielding higher LC₀₁ values for selecting a point of departure. Because no explanation could be found for the different findings between laboratories and within laboratories, the results found in three studies from one laboratory, all using whole body exposure to aerosols or vapours, were combined in DoseResp. A 4-hour LC₀₁ of 4.798 x 10⁴ mg/m³ was calculated and used as point of departure for the LBW. The default 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.

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

In the presence of water n-butylacetate slowly hydrolyses to acetic acid and n-butanol.

The substance does not elicit reproductive or developmental effects.

Carcinogenicity studies with n-butylacetate were not found.

H336: May cause drowsiness or dizziness

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: sweet, ester-like pleasant odour (banana-like).

OT_{detection}: 1.50 mg/m³ [AIHA, 1989]

LOA = 11.8 * OT_{detection} * 1.33 = 24 mg/m³

(The concentration Level leading to distinct O odour Awareness (I=3) is calculated using the formula: $I = 2.33 * \log(C/OT) + 0.5$. A correction factor of 1.33 is applied to this value)

The LOA lies below all intervention values.

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

VRW level 70	AEGL-1 -	ERPG-1 24	IDLH: 8200 mg/m ³ (30 min)
AGW level 700	AEGL-2 -	ERPG-2 950	
LBW level 7,600	AEGL-3 -	ERPG-3 14,250	

^a Note that the ERPG values as presented here (in mg/m³) are derived using the conversion factors of the ERPG.