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

Stofdocument deel A

CAS-nr: 92-52-4 **Difenyl** **C12H10** **VN-nr: 3077 n.e.g.**
GEVI: 90

Synoniemen: fenylbenzeen, dibenzeen (Engels: biphenyl)

Interventiewaarden		10 min.	30 min.	1 uur	2 uur	4 uur	8 uur
Voorlichtingsrichtwaarden	**VRW (mg/m^3)**	6,4	4,4	3,5	2,8	2,2	1,4
Alarmeringsgrenswaarden	**AGW (mg/m^3)**	210	150	120	58	29	14
Levensbedreigende waarden	**LBW (mg/m^3)**	630	440	350	170	87	43
Datum vaststelling: 06-10-2016				1 mg/m^3 = 0,156 ppm; 1 ppm = 6,414 mg/m^3			

Explosiegrens: 0,6 vol% ≈ 38000 mg/m^3

Geur: typerende, sterke geur
LOA: 0,94 mg/m^3

Fysisch-chemische eigenschappen

Uiterlijk: witte/lichtgele kristallen, witte schilfers
Brand: moeilijk brandbaar

Relatieve dichtheid van verzadigd damp-lucht mengsel: 1,0

Molecuulmassa: 154,2 g/mol

Zuurgraad: Geen data
LogKow: 3,8
Wateroplosbaarheid: Niet
Verzadigde dampdruk: 0,04 mbar

Overige informatie

Publieke grenswaarde: niet afgeleid
MAK: niet afgeleid
TLV-TWA: 1,28 mg/m^3

Toxicologische eigenschappen

Effecten bij inhalatoire blootstelling

Onder VRW: geen effecten

VRW → AGW: irritatie van de slijmvliezen van ogen en luchtwegen, hoesten, hoofdpijn, duizeligheid, misselijkheid

AGW → LBW: ernstige irritatie van ogen en luchtwegen, hoestaanvallen, braken

Boven LBW: sterfte

Toxiciteit bij eenmalige, inhalatoire blootstelling

- Difenyl is een irriterende stof voor neus, ogen en luchtwegen

Effecten bij blootstelling aan vloeistof

Huidcontact: roodheid en pijn

Oogcontact: roodheid en pijn

Carcinogeniteit

IARC classificatie: niet geclassificeerd
CRP: not derived

Beknopte medische informatie

Ontsmetting damp
algemeen: frisse lucht, rust, en bij aanhoudende klachten arts raadplegen

Ontsmetting vloeistof
huid: overmaat stof droog verwijderen, verontreinigde kleding uittrekken, spoelen en wassen met water en zeep.
ogen: minimaal 15 min. spoelen met water (evt. contactlenzen verwijderen), dan naar oogarts brengen.
inslikken: mond laten spoelen (uitspugen!), en onmiddellijk arts raadplegen. Niet laten braken

Specifieke behandeling en materialen*: geen.*

Neem contact op met het NVIC (Tel:+31 (0)30 274 8888) voor aanvullende 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: 92-52-4 **Biphenyl** **C12H10** **UN-nr: 3077 n.o.s.**

Basis for the Dutch Intervention Values

VRW: In contrast to the AEGL-1, VRW values are derived

AGW: Different point of departure than AEGL, 2h value added

LBW: In contrast to the AEGL-3, LBW values are derived.

Date: 06-10-2016 AEGL Interim 2007

Dutch Intervention Values (mg/m^3)

	10 min	30 min	1 h	2 h	4 h	8 h	End point
VRW	6.4	4.4	3.5	2.8	2.2	1.4	Rapid, shallow breathing; hyperactivity in rats and mice.
AGW	210	150	120	58	29	14	1/3 LBW
LBW	630	440	350	170	87	43	Highest non-lethal level rats

Derivation of the Dutch Intervention Values

VRW: The highest dose level of an acute toxicity study (1x 6 hr, to 0.8 ppm or 3.0 ppm, equivalent with 5.1 or 19.2 mg/m^3) in rats was chosen as point of departure for the VRW. Though no effects were observed in the study, the effects observed in other studies in rats and mice at higher concentration levels support the choice of this PoD (nasal discharge in rats at 6.0 and 48 ppm, equivalent with 38.5 and 308 mg/m^3 in repeated dose studies and hyperactivity and shallow respiration in mice after 4 hour exposure to 14 ppm, or 89.8 mg/m^3).
The default total uncertainty factor of 10 (3x3) was considered sufficient to account for inter- and intraspecies differences. For time-scaling $C^n \times t = k$ was used, using default values for n of 1 and 3 for extrapolation to longer and shorter exposure durations, respectively.

AGW: In de absence of adequate data to derive AGW values, the LBW values were divided by 3.

LBW: LBW-values are based on results from an acute inhalation toxicity study in rats (see 'Additional toxicological information'). Rats (n=8) were exposed one hour to 960 and 3470 mg/m^3 biphenyl. The highest non-lethal level (3470 mg/m^3) was used as point of departure for LBW. The default total uncertainty factor of 10 (3x3) was considered sufficient to account for inter- and intraspecies differences. For time-scaling $C^n \times t = k$ was used, using default values for n of 1 and 3 for extrapolation to longer and shorter exposure durations, respectively.

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

Biphenyl is a direct acting irritant to the nose, eyes and respiratory tract.
In addition to data available in the AEGL TSD, an additional acute inhalation toxicity study in rats was included in the evaluation and used as basis for LBW derivation (Haley et al., 1959). Rats were exposed via whole body inhalation for one hour to 0, 960 or 3470 mg/m^3 diphenyl. After a 14-day post-exposure observation period, none of the animals died. Non-lethal effects included tracheal edema (reversible after one week), acute tracheal necrosis and chronic tracheitis. It is noted that ocular irritation and labored breathing were not observed upon exposure to this compound.

There is no information on the reproductive and developmental toxicity via the inhalation route in the available literature (search up to 2015).

H315: Causes skin irritation, H319: Causes serious eye irritation, H335: May cause respiratory irritation

Carcinogenicity and derivation of the CRP value

IARC classification: not classified

Derivation of the carcinogenic risk potency (CRP): not derived

Odour and derivation of the LOA value

Odour: typical, strong odour or pleasant, butter like odour

Odour threshold (ODT): 0.06 mg/m^3 (AIHA 1995)

LOA = 11.8 * ODT * 1.33 = 0.94 mg/m^3

	(The concentration Level leading to distinct Odour Awareness (I=3) is calculated using the formula: I = 2.33 * log (C/ODT) + 0.5. A correction factor of 1.33 is applied to this value) The LOA is below the AGW, but there are no adequate data to determine whether subjects can be aware of the odour below the level where health effects may be expected. .

***Other standards and guidelines** (1h values in mg/m^3, unless otherwise indicated)*				
VRW level **3.5**	*AEGL-1* NR	*ERPG-1* -		*IDLH: 100 mg/m^3*
AGW level **120**	*AEGL-2* 62	*ERPG-2* -		
LBW level **350**	*AEGL-3* NR	*ERPG-3* -		