1- and 2-Propanol

Health based recommended occupational exposure limit

Report of the Dutch Expert Committee on Occupational Standards, a committee of the Health Council of the Netherlands

no reprints available.

to

the Minister of Health, Welfare and Sports

the Minister and State Secretary of Social Affairs and Employment

No. 1994/24, The Hague, 15 December 1994

Preferred citation:

Health Council of the Netherland: Dutch Expert Committee on Occupational Standards (DECOS): 1- and 2-Propanol. The Hague: Health Council of the Netherlands, 1994; publication no. 1994/24.

all rights reserved

ISBN: 90-5549-061-X

Contents

	Samenvatting en advieswaarde 11
	Executive summary 15
1	Scope 19
1.1	Background 19
1.2	Committee and method of work 20
1.3	Data 20
2	Identity, physical and chemical properties, monitoring 21
2.1	Identity 21
2.1.1	Structure 21
2.1.2	Chemical names and synonyms/registry numbers 21
2.2	Physical and chemical properties 22
2.3	Analytical methods 23
2.3.1	Environmental monitoring 23
2.3.2	Biological monitoring 24
3	Sources of exposure 25
3.1	Natural occurrence 25
3.2	Man-made sources 25
3.2.1	Production 25

3.2.2	Uses 26
4	Environmental levels and human exposure 27
4.1	Environmental levels 27
4.1.1	Water 27
4.1.2	Food 28
4.1.3	Air (ambient, occupational) 28
4.2	Human exposure 30
4.2.1	General population 30
4.2.2	Working population 32
5	Guidelines and standards 33
5.1	General population 33
5.2	Working population 33
5.2.1	Occupational exposure limits 33
5.2.2	Biological exposure limits 33
6	Toxicokinetics 35
6.1	Absorption 35
6.1.1	Pulmonary 35
6.1.2	Percutaneous 36
6.1.3	Oral 37
6.2	Distribution 38
6.3	Biotransformation 42
6.4	Excretion 44
6.5	Biological monitoring 48
6.6	Summary 49
7	Effects 53
7.1	Animal experiments 53
7.1.1	Irritation and sensitisation 53
7.1.2	Acute toxicity 54
7.1.3	Short-term toxicity 60
7.1.4	Long-term toxicity and carcinogenicity 64
7.1.5	Mutagenicity 65
7.1.6	Reproduction toxicology 67
7.1.7	Other studies 72
7.2	Observations in man 73
7.2.1	Irritation and sensitisation 73

7.2.2 7.2.3 7.2.4 7.3	Acute toxicity (incidents) 74 Short- and long-term exposure (case studies, human experiments) 75 Epidemiological studies 76 Summary 78
8	Previous evaluation by national and international bodies 81
9	Evaluation of human health risk 83
9.1	Groups at extra risk 83
9.2	Assessment of health risk 83
9.3	Recommendations for research 85
9.4	Recommended occupational exposure limit 85
	References 87
	Annexes 97
A	Request for advice 99
В	Membership of the committee 101
C	Comments on the public review draft 103
D	Abbreviations 105
F	DFCOS-documents 113

9

1.2 Committee and method of work

This document presents the assessment of DECOS of the toxicity of 1-propanol and 2-propanol. The members of the DECOS are listed in appendix B. The first draft of this report was prepared by JTJ Stouten, from the Medical Biological Laboratory TNO, Rijswijk, by contract with the Ministry of Social Affairs and Employment.

In 1994 the DECOS released a draft of the report for public review. The individuals and organisations that commented on the draft are listed in appendix C. The DECOS has taken these comments into account in deciding on the final version of the report.

1.3 Data

Starting point in searching literature on *1-propanol* and *2-propanol* were recent WHO reviews (WHO 1990a,b; see chapter 10). Unless otherwise indicated, data were obtained from these documents. Data that the committee considered to be critical were evaluated by reviewing the original publications.

In addition, literature was retrieved from the on-line databases Chem Abs and Medline. The final search has been carried out in September, 1992 and included Chem Abs 1992 vol 116/16 and Medline 06-92.