TECHNICAL SUPPORT DOCUMENT FOR CANCER POTENCY FACTORS

APPENDIX H

Exposure Routes and Study Types Used to Derive Cancer Unit Risks and Slope Factors

Chemical		Exposure Route	Study Type	Unit Risk $(\mu g/m^3)^{-1}$	Slope Factor $(mg/kg\text{-}day)^{-1}$	Animal Unit Risk $(\mu g/m^3)^{-1}$	Animal Slope Factor $(mg/kg\text{-}day)^{-1}$
Acetaldehyde		**I**	**A**	**2.7 E-6**	**1.0 E-2**		
Acetamide		D	A	2.0 E-5	7.0 E-2		
Acrylamide		DW	A	1.3 E-3	4.5 E+0		
Acrylonitrile		I	H	2.9 E-4	1.0 E+0	1.5 E-5 (I)	5.4 E-1 (I)
Allyl chloride		G	A	6.0 E-6	2.1 E-2		
2-Aminoanthraquinone		D	A	9.4 E-6	3.3 E-2		
Aniline		D	A	1.6 E-6	5.7 E-3		
Arsenic (inorganic)	**(inhalation)**	**I**	**H**	**3.3 E-3**	**1.2 E+1**	NA	
	(oral)	DW	H		1.5 E+0		NA
Asbestos		**I**	**H**	**6.3 E-2**	**2.2 E+2**	NA	
				1.9 E-4[#]			
Benz[*a*]anthracene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
Benzene		**I**	**H**	**2.9 E-5**	**1.0 E-1**	**5.2 E-5 (C)**	
Benzidine		I	H	1.4 E-1	5.0 E+2	NA	
Benzo[*a*]pyrene	**(inhalation)**	**I**	**A**	**1.1 E-3**	**3.9 E+0**		
	(oral)	**D**	**A**		**1.2 E+1**		
Benzo[*b*]fluoranthrene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
Benzo[*j*]fluoranthrene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
Benzo[*k*]fluoranthrene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
Benzyl chloride		G	A	4.9 E-5	1.7 E-1		
Beryllium	(inhalation)	I	H	2.4 E-3	8.4 E+0	NA	

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Bis(2-chloroethyl) ether	G/D	A	7.1 E-4	2.5 E+0		
Bis(chloromethyl)ether	I	A	1.3 E-2	4.6 E+1		
1,3-Butadiene	**I**	**A**	**1.7 E-4**	**6.0 E-1**		
Cadmium (and compounds)	**I**	**H**	**4.2 E-3**	**1.5 E+1**	1.8 E-1	
Carbon tetrachloride	**G**	**A**	**4.2 E-5**	**1.5 E-1**		
Chlorinated dibenzo-*p*-dioxins[A]	**G**	**A**				
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin			**3.8 E+1**	**1.3 E+5**		
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin			**1.9 E+1**	**6.5 E+4**		
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin			**3.8 E+0**	**1.3 E+4**		
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin			**3.8 E+0**	**1.3 E+4**		
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin			**3.8 E+0**	**1.3 E+4**		
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin			**3.8 E-1**	**1.3 E+3**		
1,2,3,4,5,6,7,8-Octachlorodibenzo-*p*-dioxin			**3.8 E-2**	**1.3 E+2**		
Chlorinated dibenzofurans[A]	**G**	**A**				
2,3,7,8-Tetrachlorodibenzofuran			**3.8 E+0**	**1.3 E+4**		
1,2,3,7,8-Pentachlorodibenzofuran			**1.9 E+0**	**6.5 E+3**		
2,3,4,7,8-Pentachlorodibenzofuran			**1.9 E+1**	**6.5 E+4**		
1,2,3,4,7,8-Hexachlorodibenzofuran			**3.8 E+0**	**1.3 E+4**		
1,2,3,6,7,8-Hexachlorodibenzofuran			**3.8 E+0**	**1.3 E+4**		
1,2,3,7,8,9-Hexachlorodibenzofuran			**3.8 E+0**	**1.3 E+4**		
2,3,4,6,7,8-Hexachlorodibenzofuran			**3.8 E+0**	**1.3 E+4**		
1,2,3,4,6,7,8-Heptachlorodibenzofuran			**3.8 E-1**	**1.3 E+3**		
1,2,3,4,7,8,9-Heptachlorodibenzofuran			**3.8 E-1**	**1.3 E+3**		
1,2,3,4,5,6,7,8-Octachlorodibenzofuran			**3.8 E-2**	**1.3 E+2**		
Chlorinated paraffins	G	A	2.5 E-5	8.9 E-2		
Chloroform	**G**	**A**	**5.3 E-6**	**1.9 E-2**		
4-Chloro-*o*-phenylenediamine	D	A	4.6 E-6	1.6 E-2		

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p-Chloro-*o*-toluidine		D	A	7.7 E-5	2.7 E-1		
Chromium (hexavalent)	**(inhalation)**	**I**	**H**	**1.5 E-1**	**5.1 E+2**	NA	
	(oral)	DW	A		4.2 E-1		
Chrysene^{BaP}	**(inhalation)**			**1.1 E-5**	**3.9 E-2**		
	(oral)				**1.2 E-1**		
Creosote		I	A	*	*		
p-Cresidine		D	A	4.3 E-5	1.5 E-1		
Cupferron		D	A	6.3 E-5	2.2 E-1		
2,4-Diaminoanisole		D	A	6.6 E-6	2.3 E-2		
2,4-Diaminotoluene		D	A	1.1 E-3	4.0 E+0		
Dibenz[*a,h*]acridine^{BaP}	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
Dibenz[*a,j*]acridine^{BaP}				**1.1 E-4**	**3.9 E-1**		
					1.2 E+0		
Dibenz[*a,h*]anthracene^{BaP}				1.2 E-3	4.1 E+0		
Dibenzo[*a,e*]pyrene^{BaP}	**(inhalation)**			**1.1 E-3**	**3.9 E+0**		
	(oral)				**1.2 E+1**		
Dibenzo[*a,h*]pyrene^{BaP}	**(inhalation)**			**1.1 E-2**	**3.9 E+1**		
	(oral)				**1.2 E+2**		
Dibenzo[*a,i*]pyrene^{BaP}	**(inhalation)**			**1.1 E-2**	**3.9 E+1**		
	(oral)				**1.2 E+2**		
Dibenzo[*a,l*]pyrene^{BaP}	**(inhalation)**			**1.1 E-2**	**3.9 E+1**		
	(oral)				**1.2 E+2**		
7H-Dibenzo[*c,g*]carbazole^{BaP}	**(inhalation)**			**1.1 E-3**	**3.9 E+0**		
	(oral)				**1.2 E+1**		
1,2-Dibromo-3-chloropropane		D	A	2.0 E-3	7.0 E+0		

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1,4-Dichlorobenzene		G	A	1.1 E-5	4.0 E-2		
3,3'-Dichlorobenzidine		D	A	3.4 E-4	1.2 E+0		
1,1-Dichloroethane		G	A	1.6 E-6	5.7 E-3		
Diesel exhaust		I	H	3.0 E-4[D]	1.1 E+0		
Diethylhexylphthalate		D	A	2.4 E-6	8.4 E-3		
p-Dimethylaminoazobenzene		D	A	1.3 E-3	4.6 E+0		
7,12-Dimethylbenz[*a*]anthracene[BaP]	(inhalation)			7.1 E-2	2.5 E+2		
1,6-Dinitropyrene[BaP]	**(inhalation)**			**1.1 E-2**	**3.9 E+1**		
	(oral)				**1.2 E+2**		
1,8-Dinitropyrene[BaP]	**(inhalation)**			**1.1 E-3**	**3.9 E+0**		
	(oral)				**1.2 E+1**		
2,4-Dinitrotoluene		D	A	8.9 E-5	3.1 E-1		
1,4-Dioxane		DW	A	7.7 E-6	2.7 E-2		
Epichlorohydrin		DW	A	2.3 E-5	8.0 E-2		
Ethylbenzene		**I**	**A**	**2.5 E-6**	**8.7 E-3**		
Ethylene dibromide		**G**	**A**	**7.1 E-5**	**2.5 E-1**		
Ethylene dichloride		**G**	**A**	**2.1 E-5**	**7.2 E-2**		
Ethylene oxide		**I**	**A**	**8.8 E-5**	**3.1 E-1**		
Ethylene thiourea		D	A	1.3 E-5	4.5 E-2		
Formaldehyde		**I**	**A**	**6.0 E-6**	**2.1 E-2**		
Hexachlorobenzene		D	A	5.1 E-4	1.8 E+0		
Hexachlorocyclohexanes (technical grade)		D	A	1.1 E-3	4.0 E+0		
Hydrazine	(inhalation)	I	A	4.9 E-3	1.7 E+1		
	(oral)	G	A		3.0 E+0		
Indeno[1,2,3-*cd*]pyrene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
Lead and lead compounds	**(inhalation)**	**D**	**A**	**1.2 E-5**	**4.2 E-2**		
	(oral)	**D**	**A**		**8.5 E-3**		
Lindane		D	A	3.1 E-4	1.1 E+0		
Methyl *tert*-butyl ether (MTBE)		**G/I**	**A**	**2.6 E-7**	**1.8 E-3**		
3-Methylcholanthrene[BaP]				6.3 E-3	2.2 E+1		

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5-Methylchrysene[BaP]	**(inhalation)**			**1.1 E-3**	**3.9 E+0**		
	(oral)				**1.2 E+1**		
4, 4'-Methylene bis(2-chloroaniline) (MOCA)		O	A	4.3 E-4	1.5 E+0		
Methylene chloride		**I**	**A**	**1.0 E-6**	**3.5 E-3**		
4,4'-Methylenedianiline		DW	A	4.6 E-4	1.6 E+0		
Michler's ketone		D	A	2.5 E-4	8.6 E-1		
Naphthalene		**I**	**A**	**3.4 E-5**	**1.2 E-1**		
Nickel compounds		**I**	**H**	**2.6 E-4**	**9.1 E-1**	**3.8 E-3 (C)**	
5-Nitroacenaphthene[BaP]				3.7 E-5	1.3 E-1		
6-Nitrochrysene[BaP]	**(inhalation)**			**1.1 E-2**	**3.9 E+1**		
	(oral)				**1.2 E+2**		
2-Nitrofluorene[BaP]	**(inhalation)**			**1.1 E-5**	**3.9 E-2**		
	(oral)				**1.3 E-1**		
1-Nitropyrene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
4-Nitropyrene[BaP]	**(inhalation)**			**1.1 E-4**	**3.9 E-1**		
	(oral)				**1.2 E+0**		
N-Nitrosodi-n-butylamine		DW	A	1.1 E-1	3.1 E-3		
N-Nitroso-N-methylethylamine		DW	A	6.3 E-3	2.2 E+1		
N-Nitrosodi-*n*-propylamine		G	A	2.0 E-3	7.0 E+0		
N-Nitrosodiethylamine		DW	A	1.0 E-2	3.6 E+1		
N-Nitrosodimethylamine		DW	A	4.6 E-3	1.6 E+1		
N-Nitrosodiphenylamine		D, G	A	2.6 E-6	9.0 E-3		
p-Nitrosodiphenylamine		D	A	6.3 E-6	2.2 E-2		
N-Nitrosomorpholine		DW	A	1.9 E-3	6.7 E+0		
N-Nitrosopiperidine		DW	A	2.7 E-3	9.4 E+0		
N-Nitrosopyrrolidine		DW	A	6.0 E-4	2.1 E+0		
Pentachlorophenol		D	A	5.1 E-6	1.8 E-2		
Perchloroethylene	**(inhalation)**	**G**	**A**	**5.9 E-6**	**2.1 E-2**		
	(oral)	G	A		5.1 E-2		
Chemical		Exposure Route	Study Type	Unit Risk	Slope Factor	Animal Unit	Animal Slope

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				$(\mu g/m^3)^{-1}$	$(mg/kg\text{-}day)^{-1}$	Risk $(\mu g/m^3)^{-1}$	Factor $(mg/kg\text{-}day)^{-1}$
Polychlorinated biphenyls (PCBs)	(high risk)[P]	D	A	5.7 E-4	2.0 E+0		
	(low risk)[P]	D	A	1.1 E-4	4.0E-1		
	(lowest risk)[P]	D	A	2.0 E-5	7.0 E-2		
Potassium bromate		DW	A	1.4 E-4	4.9 E-1		
1,1,2,2-Tetrachloroethane		G	A	5.8 E-5	2.0 E-1		
Thioacetamide		D	A	1.7 E-3	6.1 E+0		
2,4-Toluene diisocyanate		G	A	1.1 E-5	3.9 E-2		
2,6-Toluene diisocyanate		G	A	1.1 E-5	3.9 E-2		
1,1,2-Trichloroethane (vinyl trichloride)		G	A	1.6 E-5	5.7 E-2		
Trichloroethylene	**(inhalation)**	**I**	**A**	**2.0 E-6**	**7.0 E-3**		
	(oral)	G	A		1.5 E-2		
2,4,6-Trichlorophenol		D, G	A	2.0 E-5	7.0 E-2		
Urethane		D, DW, G	A	2.9 E-4	1.0 E+0		
Vinyl chloride		**I**	**A**	**7.8 E-5**	**2.7 E-1**		

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