

Monsanto

FROM
(NAME-LOCATION-PHONE)

Ashley Peter G3WD 4-8831

DATE : January 22, 1985 cc. Dr. George Roush - G2WG
Dr. W.J.McCarville -G3WD
SUBJECT : Toxicity of Chlorinated Dibenzodioxins
REFERENCE :
TO : J. D. Wilson - G3WD

I have enclosed the relevant pages of two articles dealing with the toxicity of certain chlorinated dibenzodioxins. I have also enclosed a table constructed by myself from a number of references dealing with acute toxicity and some other effects of chlorinated dibenzodioxins. I hope you will find the information to be useful.

Ashley H. Peter
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/vs
Attachments

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Acute Toxicity and Other Effects of Various Chlorinated Dibenzo-p-dioxins

Acute Toxicity - Oral LD50

Induction of AHH Activity

PCDD	Guinea Pig		Rat	Mouse	ED50 (nmoles/kg):		Approx. Activ. Relative to TCDD Chick Embryo Assay ^{4,5}	Binding Aff. K _d (nM) Mouse Liver Cytosol ⁵	Biologic Response (pg/ml)
	(nmoles/kg) ¹	(µg/kg) ²	(µg/kg) ²	(µg/kg) ²	Chick Liver ³	Rat Hepatoma Cell Line ⁴			
,2,3,4							Inactive		
,2,6,7							0.002		
,3,6,8,			}mixed>100,000				Inactive		
,3,7,9									
,3,7,8							0.1		150
2,3,7,8	6	0.6,2.1,2	22(M),45(F)	280	.35	.38	1.0	.27	50
,2,3,7									150
,2,3,8									150
,2,6,9									5000
,2,6,7									5000
,4,7,8									5000
,2,4,7									5000-15,
,2,4,8									5000-15,
,2,3,4,7							0.1		
,2,3,7,8	9	3		340	.70	5.5	0.3	.42	
,2,4,7,8	3150	1100		>5,000		>1.25x10 ⁵		2.3	
,2,4,6,7,9							0.002		
,2,3,6,8,9							0.15		
,2,3,6,7,9							0.3		
,2,3,4,7,8	185	73		825	.88	7.8	0.25	.77	
,2,3,6,7,8	178-255	70-100		1250	.37	32.0	0.25	.57	
,2,3,7,8,9	153-255	60-100		>1440	.66	47.3		.32	
mixed isomers			100,000						
,2,3,4,6,7,9							0.002		
,2,3,4,6,7,8	>1400	>600			5.4	138	0.15	2.1	
DD			>1,000,000	>4,000,000			0.002		

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REFERENCES

1. McConnell, "The Comparative Toxicity of Chlorinated Dibenzo-p-Dioxins in Mice and Guinea Pigs", Toxicol. Appl. Pharmacology; Vol 44, ISS2, 1978, pp. 335-336.
2. K. Payne, J. Chem. Ind. (London), 1982, pp 298-300.
3. J. Knutson, A. Poland, private communication, J. Knutson (In Press).
4. Bradlaw and Casterline, "Induction of Enzyme Activity in Cell Culture: A Rapid Screen for Detection of Planar Polychlorinated Organic Compounds", J. Assoc. Off. Anal. Chem., Vol. 62, ISS4, 1979, pp. 904-916.
5. Activity data provided by A. Poland, found in "Report of the Ad Hoc Study Group on Pentachlorophenol Contaminants", Environmental Health Advisory Committee, Science Advisory Board, U.S. EPA, Dec. 29, 1978.
6. Poland and Glover, "Stereospecific, High Affinity Binding of 2,3,7,8-tetrachlorodibenzo-p-dioxin by Hepatic Cytosol", The Journal of Biological Chemistry, Vol. 251, No. 16, Issue of August 25, 1976, pp. 4936-4946.
7. J. Knutson, A. Poland, private communication, J. Knutson (In Press)

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