US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Human Studies						
Study	**Route**	**Dose (mg/kg)**	**Subjects**	**Half-life/ % absorbed**	**ChE inhibition (peak)/time**	**Comments**
Kisicki, 1999	Oral (acute) Single dose	0.5 1.0 2.0	6 males/dose 6 females/dose	Half-life of elimination of TCP from blood **30.4, 29.1, 35.8 hr** with increasing dose	one female at 2 mg/kg RBC 8 hr (25%0 12 hr (30%) 24 hr (28%) 36 hr (21% 48 hr (23%)	Blood sampled at -10 and 0 hr pretreatment and at 2, 4, 8, 12, 24, 36, 48, 72, 96, 120 144 and 168 hours post treatment and analyzed for RBC AChE, chlorpyrifos and its metabolites. (plasma ChE not determined) Chlorpyrifos, oxon, and TCP monitored in blood and urine METHOD (ChE): Ellman, (1961)
Nolan, 1982	Oral (acute) Single dose	0.5 mg/kg lactose tablet (99.8% a.i.) methylene chloride	5 males (1 pilot) age 27-50 yrs	Oral/dermal half-life of elimination of TCP from blood **26.9 hrs** (both oral and dermal) 72% oral absorption	Oral Plasma 6 hr (88%) 1/6 males 12 hr (83-89%) 3/6 males 24 hr (71-84%) 2/6 males	Pre-dose blood & urine sample; every 2 hours for 8 hours post dose; blood sampled over 24 hours; total void volumes of urine collected over 100 hours Concentration of diethylphosphate & diethylthiophosphate determined in urine
	Dermal (acute) Single dose 100 cm^2 Dermal (acute) Not washed off for 12-24 hrs	5.0 mg/kg (416 mg chlorpyrifos) organic solvent no washed-off amt established 0.5 mg/kg	5 males 1 male	**dermal absorption** 0.95 ±0.559% (based on the 5 subjects receiving 5 mg/kg dermal dose) and 3.18% (based on one subject receiving 0.5 mg/kg dermal dose) 1.28%±0.83 of applied dose recovered in urine as TCP; elimination half-life in urine 26.9 hours	Dermal Plasma 2-3 days (21-35%) 2/5	Plasma and RBC cholinesterase monitored METHOD (ChE): Mason, HJ and Lewis PJ. (1989). A study of the intra-individual variation in plasma and red cell cholinesterase activity and its application to the detection of organophosphate pesticides. J. Soc. Occup. Med. 39: 121-124.
Griffin, 1999	Oral (acute) sugar cube	1 mg (2852 nmol) 0.01-0.014 mg/kg	4 males 1 female (age 26-45 yrs; wt 73-92 kg)	Half-life of elimination of dialkyl metabolites (corrected for creatinine) 15.5 hr	Plasma and RBC ChE not affected by either route never less than 10% of pre-	Cholinesterase (plasma & RBC) activity monitored at 2, 6, and 12 hours, and 1, 2, 3, 4, 8, 14, 22, 27, and 30 days post dose,

US EPA ARCHIVE DOCUMENT

Human Studies						
Study	**Route**	**Dose (mg/kg)**	**Subjects**	**Half-life/ % absorbed**	**ChE inhibition (peak)/time**	**Comments**
	Dermal (8 hours exposure period) forearm 78 cm^2	28.58 mg (water) 81567 nmol 0.31-0.39 mg/kg	4 males 1 female	1% dermal absorption 53% of applied dose washed off after 8 hours 46% dose not accounted for elimination half-life calculated to be 41 hrs (range 27-88 hrs) 30 hrs (corrected for creatinine) maximum concentration urinary metabolites at 24-48 hrs	dose values	Chlorpyrifos and TCP not monitored in blood or urine alkylphosphate & alkyldithiophosphate metabolites of CPF monitored in blood & urine samples METHOD (ChE): Michel, OH. (1961). Cholinesterase in human RBC and plasma. In Standard methods of Clinical Chemistry (D. Seligson, ed), pp 93-98. Academic Press, NY
Meuling, 2005	Dermal (acute) Single dose 4 hours (exposure time)	5 mg (0.067) 15 mg (0.199)	3 males 3 males 75 kg average	Elimination half-life 41 hours	not monitored	Chlorpyrifos and TCP monitored in urine