Appendix H. Summary of human health effects data for oxamyl

Available human health effects data for oxamyl are summarized below in Tables 1 and 2.[1]

Table 1. Toxicity profile for oxamyl

Guideline No./ Study Type	MRID No. (year)/ Classification /Doses	Results
870.3200 21-Day dermal toxicity in rabbit	40827601 (1988) Acceptable/guideline 0, 2.5, 50 and 250 mg/kg/d (dermal 6 hrs/day) in male and female	NOAEL = 2.5 mg/kg/day LOAEL = 50 mg/kg/day based on plasma, RBC and brain ChE inhibition **No clinical signs were observed.**
870.3200 21-Day dermal toxicity in rabbit	44751201 (1999) Acceptable/guideline 0, 25, 40, 50 and 75 mg/kg/d (dermal 6 hrs/day) in male and female	NOAEL = 50 mg/kg/day for females and 75 mg/kg/day for males LOAEL = 75 mg/kg/day for females and > 75 mg/kg/day for males based on plasma, RBC and brain ChE inhibition
870.3700a Prenatal developmental in rodents	40859201 (1988) Acceptable/guideline 0, 0.2, 0.5, 0.8, & 1.5 mg/kg/d (gavage)	**Maternal NOAEL = 0.5 mg/kg/day** LOAEL = 0.8 mg/kg/day based on 9 body wt. & food consumption and 8 incidence of clinical signs associated with ChE inhibition (8 tremors). **Developmental NOAEL = 0.2 mg/kg/day** LOAEL = 0.5 mg/kg/day based on decreased fetal body weights (not a developmental toxicant).
870.3700b Prenatal developmental in non-rodents	00063009 (1980) Acceptable/guideline 0, 1, 2, & 4 mg/kg/d (gavage)	**Maternal** NOAEL = 1 mg/kg/day LOAEL = 2 mg/kg/day based on decreased body wt. gains **Developmental** NOAEL = 4 mg/kg/day LOAEL = > 4 mg/kg/day (not a developmental toxicant)
870.3800 Reproduction and fertility effects	41660801 (1991) Acceptable/guideline Doses (mg/kg): Male: 0, 1.7, 5.2, 11.6 Female: 0, 2.0, 6.6, 15.8	**Parental/Systemic** NOAEL = 1.7 mg/kg/day for males and 2.0 mg/kg/day for females LOAEL = 5.2 mg/kg/day for males and 6.6 mg/kg/day for females based on deceased food consumption, body weight, and body weight gain. In addition, at HDT hyperactivity, skin sores and alopecia. **Reproductive** NOAEL = 5.2 mg/kg/da for males and 6.6 mg/kg/day for females LOAEL = 11.6 mg/kg/day for males and 15.8 mg/kg/day for females based on decreased body weight during lactation. In addition, at HDT decreased number of live pups per litter during lactation and decreased viability index. **Offspring** NOAEL = 5.2 mg/kg/da for males and 6.6 mg/kg/day for females LOAEL = 11.6 mg/kg/day for males and 15.8 mg/kg/day for females based on decreased body weight during lactation. In addition, at HDT decreased number of live pups per litter during lactation and decreased viability index.

[1] From USEPA. 2000. Internal memorandum from Christina Jarvis (Health Effects Division) to Carmelita White (Special Review and Reregsitration Division). Titled: Oxamyl. The third revised HED chapter of the reregistration eligibility decision document (RED). PC code: 103801. Case # 0253. DP Barcode: D269031. Date: September 18, 2000.

Guideline No./ Study Type	MRID No. (year)/ Classification /Doses	Results
870.4100b Chronic toxicity dogs	41697901, 42052701 & 44737503 (1990-1999) Acceptable/guideline mg/kg/day: Male: 0, 0.372, 0.577, 0.930, 1.364, 1.56, 4.6, 8 Female: 0, 1.46, 4.5, 7.84	**Systemic** NOAEL = 1.56 mg/kg/day for males and 1.46 mg/kg/day for females LOAEL = 4.60 mg/kg/day for males and 4.50 mg/kg/day for females based on decreased body weights and body weight gains. **Cholinesterase** NOAEL = 0.930 mg/kg/day for males and 1.56 mg/kg/day for females LOAEL = 1.36 mg/kg/day for males and 4.50 mg/kg/day for females based on decreased brain cholinesterase levels in males and vomiting, tremors, plasma and brain ChE inhibition in females.
870.4200 Carcinogenicity rats	41963201 (1991) Acceptable/guideline mg/kg/day Male: 0, 0.992, 1.97, 4.19, 6.99 Female: 0, 1.32, 2.69, 6.73, 11.1 Only plasma and red cell ChE was measured from 16 hr fasted rats	NOAEL = 1.97 mg/kg/day for males and 2.69 mg/kg/day for females LOAEL = 4.19 mg/kg/day for males and 6.73 mg/kg/da for females based on hyperactivity, swollen legs/paws, and skin sores, decreased body weights and body weight gains, increased incidence of ocular found in males and females and inhibition of plasma ChE in males. **No evidence of carcinogenicity**
870.4300 Carcinogenicity mice	00076813 (1981) Acceptable/guideline 0, 3.75, 7.5, 15/11.25 mg/kg/d	NOAEL = 3.75 mg/kg/day LOAEL = 7.5 mg/kg/day based on decreased body weights in males and mortality in males and females during initial phase of the study. **No evidence of carcinogenicity**
870.5100 Gene Mutation *Salmonella typhimurium* reverse gene mutation	40606509 (1981) Acceptable/guideline Doses: 50 to 10,000 µg/plate in the +/- of S9 activation	Negative in *S. typhimurium* strains TA1535, TA1537, TA98 and TA100.
870.5300 Gene Mutation CHO assay	40606510 (1982) Acceptable/guideline Doses: up to 1200 µM -S9 and up to 700 µM +S9	Test is negative in trials up to concentrations causing < 80% decrease in cell viability (1200 µM -S9; 700 µM +S9)
870.5375 Chromosomal aberration CHO cell chromosomal assay	40606507 (1982) Acceptable/guideline Doses: 700 µg +S9 to 70 µg/mL -S9 activation	Negative up to cytotoxic concentrations (≤70 µg/mL -S9; 700 µg/mL +S9)
870.5500 Other genotoxic tests Bacterial DNA damage/repair	00049594 (1976) Acceptable/guideline Doses: up to 2000 µg/disc	Test was negative up to the highest dose tested.
870.5550 Other genotoxic tests Unscheduled DNA synthesis	40606508 & 41096001 (1982) Acceptable/guideline Doses: up to ≤ 5 mM	The test was negative up to cytotoxic concentrations.
870.6200a Acute neurotoxicity	44254401, 44420301 & 44740701 (1997)	NOAEL = 0.1 mg/kg/day LOAEL = 0.75 mg/kg/day for females and 1.0

Guideline No./ Study Type	MRID No. (year)/ Classification /Doses	Results
screening battery	Acceptable/guideline Doses: mg/kg/day Male: 0, 0.1, 1.0, 2.0 Female: 0, 0.1, 0.75, 1.5	mg/kg/day for males based on clinical signs, FOB effects, and decreased plasma, red blood cell and brain ChE activity.
870.6200b Subchronic neurotoxicity screening battery	44504901 (1998) Acceptable/guideline Doses: mg/kg/day Male: 0, 0.564, 2.10, 14.9 Female: 0, 0.679, 2.40, 19.9	NOAEL = 2.10 mg/kg/day for males and 2.40 mg/kg/day for females LOAEL = 14.9 mg/kg/day for males and 19.9 mg/kg/day for females based on plasma, RBC and brain ChEI.
870.7485 Metabolism and pharmacokinetics	41520801 (1990) Acceptable/guideline Doses: single oral dose of 14C-oxamyl 1 mg/kg	With oral administration, oxamyl was readily absorbed and eliminated in the urine (80 - 91% of the dose) and feces (< 3% of the dose). The major component present in the urine was β-glucuronide of oxime (31 - 37% of the dose), followed by the metabolite oxime (13 - 18% of the dose) and the parent oxamyl (7 - 11% of the dose). No tissue accumulation was observed.

Table 2: Acute Toxicity Values of Technical Oxamyl

GDLN	Study Type	MRID	Results	Tox Category
81-1	Acute Oral	00063011	LD50 = 3.1 mg/kg (M); 2.5 mg/kg (F)	I
81-2	Acute Dermal (Rabbit)	40606501	LD50 > 5000 mg/kg (M) >2000 mg/kg (F) For abraded skin 90 mg/kg produced death with 50% a.i. in water	IV
81-3	Acute Inhalation	00066902	LC50 = 0.064 mg/L (4 hr) 0.17 mg/L (M) 0.12 mg/L (F) (I hr)	II
81-4	Primary Eye Irritation	00066894	Marked pupillary constriction, conjunctival irritation, reversible by 7 days	III
81-5	Primary Skin Irritation	40606501	Mild erythema and edema. Cleared by day 5, except in one rabbit that cleared by day 12.	IV
81-6	Dermal Sensitization	00066900	4/7 animals died (25% test material) 1/5 animals died (intradermal injection) Effects seen on the test site were slight. Extreme toxicity makes dermal sensitization study relatively unimportant	Not a skin sensitizer (25% test material)
81-8	Acute neurotoxicity-hens 20 and 40 mg/kg as 1% suspension; the hens were protected with 0.5 mg/kg atropine. **Invalid study**	00066893	Clinical signs included: depression, lethargy, ruffled feathers, ataxia, incoordination, and slight respiratory difficulty. 12 hr. Later all symptoms disappeared. No compound-related histological changes were found. No deaths occurred.	NA