REFERENCE DOSES (RFDs) FOR ORAL EXPOSURE

Chemical: Propetamphos

CAS #: 31218-83-4
Caswell #: 706A

Carcinogenicity: No evidence of oncogenicity in rats and mice.

Systemic Toxicity: See below.

Preparation Date: 8/07/86

Endpoint	Experimental Doses	UF	MF	RfD
Wil Laboratory (1982) Lifetime Feeding/ Oncogenic in Mice	0.05 mg/kg/day ChE NOEL	10	--	0.005 mg/kg/day
brain, plasma, RBC ChE inhibition	1.0 mg/kg/day ChE LEL			
liver and kidney pathology	6.0 mg/kg/day Systemic LEL			
6-Month Dog Feeding Study	2 ppm (0.05 mg/kg/day) NOEL			
ChE inhibition	40 ppm (0.1 mg/kg/day) LEL			

Conversion factor (dog): 1 ppm = 0.025 mg/kg/day

Endpoint and Experimental Doses:

Wil Laboratory
Lifetime Feeding/Oncogenic in Mice
Study No. 79218; March 30, 1982

Groups of 80 male and 80 female Charles River CD-1 mice were fed diets containing 0, 1.0, 6.0 and 21.0 mg/kg/day of Propetamphos in the diet for 92 weeks. Additionally a group of 10 male and 10 female were fed diets containing 0.05 mg/kg/day for cholinesterase determination only. There was a significant and dose-related decrease in plasma, RBC and brain cholinesterase activity at 1, 6, and 21 mg/kg/day. The NOEL for systemic toxicity was 1.0 mg/kg/day. At the LEL of 6 mg/kg/day, hepatic vacuolization and interstitial nephritis was observed.

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Uncertainty Factors (UFs):

An uncertainty factor of 10 has been used to account for the cholinesterase depression differences in the extrapolation from mouse to man.

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Modifying Factors (MFs):

None

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Additional Comments:

Data Considered for Establishing the RfD

1) Lifetime Feeding/Oncogenicity - Mice ChE NOEL = 0.05 mg/kg/day, ChE LEL = 1 mg/kg/day (plasma, RBC, liver and brain); Systemic NOEL = 1 mg/kg/day, Systemic LEL = 6 mg/kg/day (increased incidence of hepatic vacuolization in males and increased incidence of interstitial nephritis in both sexes); Oncogenic NOEL > 21 mg/kg/day; core grade minimum

2) 2-Year Feeding - Rat ChE NOEL = 6 ppm (0.3 mg/kg/day), ChE LEL = 12 ppm (0.6 mg/kg/day)(plasma ChE); Systemic NOEL = 12 ppm (0.6 mg/kg/day), Systemic LEL = 120 ppm (6 mg/kg/day)(alopecia; hyperflexia, decreased body weight); core grade minimum

3) 6-Month Feeding - Dog NOEL = 2 ppm (0.05 mg/kg/day), LEL = 40 ppm (0.1 mg/kg/day) (ChE inhibition); core grade minimum

4) 3-Generation Reproduction - Rat NOEL = 20 ppm (1 mg/kg/day); Food consumption and body weight data not provided; core grade supplementary

5) Teratology - Rat Maternal NOEL = 1.5 mg/kg/day, Maternal LEL = 3 mg/kg/day (decreased body weight gain and toxic symptoms); Fetotoxic NOEL = 6 mg/kg/day (HDT); Teratogenic NOEL > 6 mg/kg/day (HDT); core grade minimum

6) Teratology - Rabbit NOEL = 8 mg/kg (HDT), LEL = 8 mg/kg (slight maternal toxicity); no core grade

Data Gap(s)

1) Rat Reproduction Study

Other Data Considered

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Confidence in the RfD:

Study: High Data Base: Medium RfD: Medium

The critical study appears to be of good quality and therefore, is given a high confidence rating. Additional studies are of medium to high quality. Therefore, the RfD is given a medium confidence rating.

Documentation of RfD and Review:

Registration Files

Agency RfD Review:

First Review: 10/28/86
Second Review:
Verification Date: 10/28/86

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