RD-1183
TXR-1446

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

001446

DATE: February 19, 1982

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Rabon, tetrachlorvinphos as a feed through in swine
PP#0H5269 Reg.#677-URA CASWELL 217 A

FROM: Henry Spencer, Ph.D
Toxicology Branch/HED (TS-769)

TO: George LaRocca (15)
Registration Division (TS-767)

THRU: Orville E. Paynter, Chief
Toxicology Branch/HED. (TS-769)

Comment and Recommendations:

1) Toxicology Branch considers this registration request toxicologically supportable.

2) No data was presented on horses and as such, Toxicology Branch can not evaluate the possible effects (1.55 mg/kg/day) for this requested use in addition to other organophosphate ingestions.

3) A feeding study to evaluate weight changes in swine indicate no adverse effects (weight changes) after exposure to 65 ppm (2.6 mg/kg) for about 136 days.

4) Potentiation effects occur with Dimethoate, Guthion, Methyl parathion, parathion, and Ronnel. The most severe effect occurred with Malathion. *Other organophosphate compounds should not be used while the animals are on this treatment.

5) No increase in the TMRC or use of the ADI should result from the requested use.

6) Toxicology Branch does not envision the need for additional tolerances (see the Residue Chemistry Branch review of A. Smith FAP#0H5269 dated 11/7/80) since the requested use in swine and horses will not cause already existing tolerances to be exceeded in horses and swine.

7) Tolerances for these rac's (swine and horses) have previously been established under 40 CFR 180.252.

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Summary of Tox Data Considered:

Route	Formula	Finding	Species	Sex	Evaluation Core	Tox. Cat.
Acute Oral	75 WP	LD50 2420	(95%CL. 2065-2840)	mg/kg rat male	Min.	III
	75 WP	LD50 2295	(95%CL. 2065-2550)	mg/kg rat female	Min.	III
Acute Dermal	75 WP	LD50>2500 mg/kg in H_2O	rabbit		Min.	III
	Technical	LD50>2500 mg/kg in xylene	rabbit		Min.	III
Eye Irritation	Technical	Non Irritating	rabbit		Min.	IV
	75 WP	Non Irritating	rabbit		Min.	IV
Skin Irritation	75 WP	Non Irritating	rabbit		Min.	IV
Acute Inhalation	Technical Vapor	LC50 Not Determined NOEL = 1 hr. sat. vapor	rat		Sup.	---
Acute Inhalation	Technical	LC50>1.81 mg/kg of 10% emulsion guinea pig			Min.	---
Subchronic Oral 28 day	Unknown	CHE LEL>15mg/kg human male minor effects noted to 12 mg/kg day			Invalid	---
Oral Acute Demyelination	Technical	Negative at 21 days 300 mg/kg x 5 day or 1.5 g/kg x 1 day	hen		Min.	---
90 Day Oral	Technical	(rat) LEL=800ppm lowered body wt., PCV, Hgb, (systemic) NOEL = 200 ppm (Systemic and ChE) (brain and whole blood depression at 800 ppm)			Min.	---
90 Day Oral	Technical	(dog) LEL = 3200 ppm lowered body wt. (systemic) NOEL = 800 ppm (systemic) CHE plasma LEL = 800 ppm ChE plasma NOEL = 200 ppm RBC NOEL = 3200 ppm HDT Brain NOEL = 3200 ppm HDT			Min.	---

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Three generation - Reproduction	rat technical LEL = 1000 ppm - liver size increased (in weanlings) NOEL = 333 ppm	Min.
2 Year - Feeding Study	(dog) technical LEL = 2000 ppm (systemic) reduced wt. gain. increased relative liver wts. NOEL = 125 ppm (systemic) CHE plasma LEL = 2000 ppm RBC NOEL = 125 ppm	Min.
2 Year - (Rat) Feeding	Technical LEL = 2000 ppm (systemic) reduced body wts. NOEL = 125 ppm RBC/Plasma LEL = 2000 ppm RBC/Plasma NOEL = 125 ppm	Min. Min.
Potentation Study	positive for greater than additive effects (greater than 1.88) with: methyl parathion dimethoate parathion guthion ronnell Malathion (greatest potentiation)	Invalid
2-Year Mouse Oncogenic	Positive at 8000 ppm 16,000 ppm	Min.

Review:

Effects of Stirofos (SD 8447) on Growing Swine.

Study date: March 13, 1974

Reference: MOLR 1430. pp 1-25
TIR-75-013-74
Shell Chemical Co.

Animal Tested:

Crossbred pigs from BSRC selected at weaning (21 days).

Test Material:

Technical grade Stirofos (< 100 mesh SD 8447, Lot No. 10-31-2-1TKH).

Methods:

The animals were housed 6/pen. Weighed and placed on treatment at 50 days age.

Treatment was for 126 days by mixing the technical material in the feed (18% protein from 21 to 63 days of age). (15% protein from age day 63 to end of study).

Test material was mixed on a weekly basis. At 20, 40, or 80 ppm approximating 5, 10, or 20 mg/kg.

Protocol: 9 control pens
7 pens for each treatment dose random pen assignment.

Animals were weighed each 30 days.

Results:

Test material was:

theoretical ppm	Actual ppm
20	13
40	43
80	65

Treatment weights included both sexes and were not statistically significantly different from controls or among treatment groups.

A further check on a possible weight change was made using only a single sex at any treatment dose. No significant effect on weight was noted.

Males	80 ppm treatment	Controls
Number	21	27
Mean	99.65	104.37
S.D.	17.32	14.932

Females	80 ppm treatment	Controls
Numbers	21	27
Mean	96.32	94.25
S.D.	11.83	16.218

Toxicology Branch considers this study as supplemental data and is adequate to indicate that the dose levels of 80 ppm (65 ppm) did not produce adverse effects on weight gain changes.

Study: Efficency of Swine Oral Larvicide formulated into cubes.

Final Report: January 7, 1981
#AJS 80-05-17

Note:

After a cursory reading, the report was found to not contain data necessary to be able to use the study as a reproductive indicator. The author was contacted and submitted additional data by telephone with a confirmatory (addendum) report to follow for the records.

The subsequent review uses both the original and additional telephoned data 12/21/81. Additional data are asterisked*.

Test Material: Swine Oral Larvicide®
(7.76% Rabon at 1.3 pounds/ton)

Test Animal: Swine
Treated sows: 44
Treated boars: 8
Control gilts: *21 (unbred females)

Methods:

*On May 1, 1980, all treated group females and the 8 boars were on a regimen of ground feed and Rabon at the dosage equivalent in the study. The sows farrowing on Aug. 30, 1980 were bred on May 7-15, 1980. The groups farrowing on Oct. 15, 1980 and Nov. 15 were bred on June 20-25, 1980 and July 20-25, 1980 respectively.

The treatment, using the cubed treatment, started Aug. 11, 1980 and continued through pig weaning. Treatment, however, reverted to ground feed with Rabon supplement (not cubed) during farrowing and cubed ration treatment resumed after farrowing.

Therefore the sows were treated for periods of from 1 to approximately 11 weeks before breeding, through gestation and 5 wks. of lactation. The 8 boars were treated from May 1 to October 11, 1980. The 21 control gilts were bred with the treated boars.

Results:

Wts. were not taken on either sows or new born until weaned, but were observed by experienced breeder personnel at the farm for thriftiness (growth).

Conclusion:

The females and weanling pigs were considered to be normal in number and not abnormal in weight gains (observation only during lactation). Tox Branch D.V.M. reviewers have informally stated that the numbers presented are easily within normal limits and would have to be considered not unusual variation.

Tox. Branch would consider this as supplemental data. This reviewer considers the reproduction data an indication of no adverse reproductive effects on either boar or sows under the conditions of the study.

Reproduction report of Swine treated at label directions (116 ppm in diet as cubes)

Days on 2.6 mg/kg/day Diet before Breeding	Approximate weeks on 2.6 mg/kg/day diet after breeding	#Sows	Piglets born Alive	Born Dead	Percentage (%)	Litter Size Average	# Weaned at approx. 5 weeks	Litter Size Weaned Average	Average* wt. in pounds at Weaning	Percentage Litter Losses
7-15	21	16	167	9	(5.3)	10.43	141	8.81	15.07	15.5%
50-55	21	15	152	16	(10.5)	10.13	128	8.53	14.38	15.78%
80-85	21	13	122	12	(9.8)	9.38	97	7.46	14.67	20.49%
0	0	21*	217*	23	(10.6)	10.3*	164*	7.81*	14.76	24.42%
8 Boars treated from May 1, 1980 to Oct. 11, 1980 7-85 days	-	--	---	No external abnormalities in dead fetuses		----	---	----	-----	-----
Farm data	200*					9.7	---	8.3	-----	----

* Additional telephoned information.