UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Dr. Coberly

SUBJECT: PAP-5H-5068 Baygon tolerances on food

DATE: MAR 21 1975

FROM: TB

TO: Product Manager

003704

Food Additive Petition No. 5H-5068

Petitioner: Chemagro

Chemical Name: (Baygon)-o-isopropoxyphenyl methylcarbamate

Tolerance Requested: 0.2ppm in or on food

Recommendation: Establish the tolerance as requested

Related Petitions: FAP 1887, 9G0765, 2F1244

Established Tolerances: none

Background Toxicity Data

Formulation	Species	Sex	Oral LD_{50} mg/kg)	Dermal (LD_{50} mg/kg)	Inhalation (LC_{50} µg/L/60 min.)
Technical	Rat	Male	95		1440
		Female	104		
70% Wettable Powder	Rat	Male			>20,000
		Female			>20,000
50% Hopper Box Seed Treater	Rat	Male			>20,000
		Female			>20,000
50% Wettable Powder	Rat	Female	220	>1000	
50% Wettable Powder	Rat	Male	175-185		
4 lbs/gal ULV	Rat	Male	225	>4000	
1.4 lbs/gal Oil soluble con.	Rat	Male	1145		~3,000
		Female	1135		~3,000

EPA Form 1320-6 (Rev. 6-72)

spraymen, householders, and commensal animals. The vast majority in all groups except spraymen were not affected. The signs of toxicity in humans included: miosis, visual difficulties, headache, nausea, vomiting retching, dizziness, stomach ache, staggering, weakness, excess sweats, clamminess, sleeplessness, spitting, excess salivation, tightness in chest, respiratory irregularity, and pain in heart or chest.

Present Action

The following toxicity studies were submitted with the request for the food additive tolerance.

Acute Rat Oral Cholinesterase-Bayer AG- 10/1/73

The material tested was identified as technical grade (72/61, 98.7%)

Three SPF-Wistar male rats were tested per level of 15, 20, 40 and 60 mg/kg. Dosage for the females were 10, 20, 40 and 60 mg/kg.

The cholinesterase activity in plasma and erythrocytes was determined at 10, 20 and 180 minutes post treatment.

Results- Trembling and cramps were reported amoung the 20, 40, 60 and 180 mg/kg animals at 5 to 10 minutes post treatment. These signs were not evident 20-25 minutes post treatment. ChE inhibition reached its maximum at all tested levels at from 10 to 20 minutes post treatment. The three hour blood sample revealed a marked recovery in the enzyme activity.

The Che NEL for this study is less than 10 mg/kg.

Acute Rat Oral Cholinesterase-Bayer AG- 10/1/73

The material tested was identified as technical grade (72/61, 98.7%)

Three male rats were used per level of 0, 10, 30 and 40 mg/kg. Brain cholinesterase activity was determined at 0.5, 1, 2, 3, and 5 hours post treatment.

Results- A dose dependent decrease in cholinesterase activity was evident at the first observation period. This inhibition reached its maximum level at the 2 hour observation period. Complete recovery was evident for the 10 mg/kg level after 5 hours.

The no effect level for this study is less than 10 mg/kg.

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15 Week Rat Cholinesterase-Bayer AG- 10/1/73

The material tested was identified as technical grade (72/61, 98.7%)

Five male rats were used per level of 0, 250, 750 and 2000 ppm. The test material was incorporated in the diets.

Results-No external symptoms were reported. The cholinesterase activity in the plasma and erythrocytes was not constant nor was it dependent upon dosage levels. These high dosage levels should have produced a definite effect on ChE. On this basis, the value of these data are questionable.

4 Week Rat Intubated Cholinesterase Study-Bayer-10/1/73

The material tested was identified as technical grade (72/61, 98.7%)

Ten rats of each sex were used per level of 0, 3, 10 and 30 mg/kg. The test material was given orally to the test rats everyday during the four week test material. The vehicle was Lutrol.

Observations and tests consisted of cholinesterase activity determinations in plasma and erythrocytes fifteen minutes after applications on days 3, 8, 14, 21 and 28 from three rats of each sex per level. Brain cholinesterase activity was determined in five rats of each sex two hours after the final administration. A final plasma and RBC cholinesterase activity level was determined five hours after the final administration of the test material.

Results- A dose related decrease in brain, plasma and erythrocyte cholinesterase activity was evident at the 10 and 30 mg/kg levels during one or all the deterimenation periods. An increase in enzyme activity was evident in the sample taken five hours after the last administration.

The ChE NEL for this study is 3 mg/kg (60 ppm)

Summary

The toxicity data submitted in this and prior petitions have established the following no effect levels.

2 Year rat feeding-systemic NEL 250 ppm
ChE NEL 60 ppm

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2 Year dog feeding-systemic NEL 250 ppm
Embryotoxic Effect in Rats- NEL 1000 ppm no teratogenic effects were reported.
Mutagenic Effects in Mice- no mutagenic effects at 5.0 mg/kg
3-Generation Rat Reproduction-NEL 250 ppm
Neurotoxicity in Hens-no neurotoxicity noted at highest level tested 4500 ppm.

The most sensitive species for this chemical is the dog with the systemic NEL of 250 ppm. This no effect level will support the ADI of 3.75 mg/kg/day. The theorical quanity of baygon which could be consumed in the human diet if the total intake contained the requested tolerance of 0.2 ppm, would be 0.3 mg/day.

The ADI of 3.75 mg/day will support the theorical intake of 0.3 mg/day.

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