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

OCT 17 1983

10-17-83

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

TO: H. Jacoby, PM 21
Registration Division (TS-767)

THRU: Chad Sandusky
Toxicology Branch
Hazard Evaluation Division (TS-769)
Roger Gardner 10-6-83
for CWS, 10/12/83

SUBJECT: Bayleton in/on Cotton, Coffee and Sugarcane
PP No. 3F2928 CASWELL No. 862 AA

Petitioner: Mobay Chemical Corporation
Kansas City, MO 64120

Action Requested:

Establishment of tolerances for the combined residues of bayleton and its metabolites in/on cotton seed, coffee beans, and sugarcane at 0.2, 0.05, and 0.10 ppm respectively.

Conclusions and Recommendations:

The proposed tolerances for the residues of bayleton on cotton seeds, coffee beans and sugar cane are toxicologically supported.

Adequate margins of safety (over 1000) exist for maternal toxicity and teratogenic effects for dietary exposure based on single serving. Exposure of workers (especially females of child-bearing age) to this chemical must be minimized to the lowest level possible using protective clothing during mixing, loading and application of this chemical and throughout the whole agricultural process.

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Detailed Considerations:

1. Bayleton is teratogenic in rats (cleft palates), with a NOEL of 50 mg/kg/day for embryonic and fetal development and a NOEL of 10 mg/kg/day for maternal toxicity.

2. The ADI was considered to be 0.025 mg/kg/day based on a NOEL of 50 ppm from a 2-year feeding study in the rat with a 100-fold safety factor.

3. TOX approved and published tolerances utilize 33.55% of the ADI. Establishment of bayleton residue tolerance on cotton seeds and coffee bean would increase the utilized portion of the ADI by only 0.07%.

4. Establishment of a tolerance at 0.1 ppm on sugarcane will not change the utilized portion of the ADI since sugar cane is included with sugar beet in one food factor and a tolerance has been established already at a higher level (1.0 ppm) for sugar cane and beet.

5. The margins of safety were calculated assuming single servings ranging between reasonable to extremely high. In all these cases the margins of safety were sufficient (over 1000).

6. Although no data are available on the interaction (synergism) of caffiene and bayleton as a teratogen, it is very unlikely that any potentiation, which could occur, would have a significant effect on such a large margin of safety of $> 3 \times 10^6$ (based on 3 cups of brewed coffee and 7 gm per cup).

Toxicology Profile:

All pertinent toxicology data are summarized as follows. This information was taken from reports by Doherty January 1980; Arce Janauary 1980 and Ghali March 1981.

1. Acute oral, rats, LD_{50} 568 mg/kg (male), 363 mg/kg (female), Core minimum

2. Acute I.P. rats, LD_{50} 293 (female 321 mg/kg (male).

3. Acute dermal, rats LD_{50} >1000 mg/kg, Core minimum

4. Acute inhalation, mice, rabbits, hamsters and rats. LC_{50} >174 mg/m^3, Core minimum

5. Primary skin irritation; rabbits, negative, Core minimum

6. Skin irritation, human, not irritant.

7. Eye irritation, invalid study, dose was not reported.

8. Embryotoxicity and teratology:

   a. Inhalation administration, rats, negative for terata and embryotoxicity at dose level of 11.6 mg/m^3.

   b. Oral administration, rabbits, negative up to and including 50 mg/kg (highest dose tested), Core minimum

   c. Oral administration, rats, NOEL for embryonic and fetal development (cleft palates) 50 mg/kg/day and for maternal toxicity 10 mg/kg/day.

9. Mutagenicity:

Dominant lethal test, negative for mutagenicity.
Micronucleus test, negative for mutagenicity.
Ames test, negative at doses from 5 to 1000 ug/ml.

10. Subchronic toxicity:

Twelve-week feeding, rats NOEL >2000 ppm.
Thirteen-week feeding, dogs, NOEL >2400 ppm.

11. Subacute toxicity:

Thirty-day oral administration, rats, NOEL 3 mg/kg (male), 10 mg/kg (female).

Four-hours inhalation, rats, 15 exposure, NOEL 78.7 mg/m^3.

Cumulative subacute dermal application for four weeks, rabbits, NOEL 250 mg/kg.

12. Chronic toxicity: (memo by G. Z. Ghali, 3/80)

Two-year feeding (oncogenicity) in rats; not oncogenic, systemic NOEL 50 ppm, Core minimum.

Two-year feeding (oncogenicity) in mice, not oncogenic, Core minimum.

Two-year feeding study in dogs, NOEL 100 ppm, Core minimum.

Multi-generation reproduction study, rats, NOEL 50 ppm, Core-Minimum.

Data Gaps: Primary Eye Irritation

Existing Regulatory Actions and RPAR Status:

There are no pending regulatory actions against this chemical, and it is not on the RPAR list.

9/30/83

George Z. Ghali, Ph.D.
Toxicology Branch
Hazard Evaluation Division

TS-769:TOX:GZGhali:77395:9/27/83 #11

File last updated 9/16/83

ACCEPTABLE DAILY INTAKE DATA

RAT,Older mg/kg	NOEL ppm	S.F.	ADI mg/kg/day	MPI mg/day(60kg)
2.500	50.00	100	0.0250	1.5000

Published Tolerances

CROP	Tolerance	Food Factor	mg/day(1.5kg)
Apples(2)	1.000	2.53	0.03795
Barley(8)	1.000	0.03	0.00045
Chick peas (214)	0.100	0.03	0.00005
Eggs(54)	0.040	2.77	0.00166
Cattle(26)	1.000	7.18	0.10777
Grapes, not raisins(67)	1.000	0.45	0.00675
Goats(62)	1.000	0.03	0.00045
Hogs(69)	0.040	3.43	0.00206
Horses(208)	1.000	0.03	0.00045
Milk&Dairy Products(93)	0.040	28.62	0.01717
Pears(116)	1.000	0.26	0.00383
Pineapple(123)	3.000	0.30	0.01334
Poultry(128)	0.040	2.94	0.00177
Sheep(145)	1.000	0.19	0.00291
Wheat(170)	1.000	10.36	0.15544

MPI	TMRC	% ADI
1.5000 mg/day(60kg)	0.3520 mg/day(1.5kg)	23.47

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Unpublished,Tox Approved 2G2638,0E2393,0F2349,3F2837,3F2887

CROP	Tolerance	Food Factor	mg/day(1.5kg)
Almonds(1)	0.100	0.03	0.00005
Apricots(3)	0.000x	0.11	0.00000
Nectarines(100)	0.000x	0.03	0.00000
Peaches(114)	0.000x	0.90	0.00000
Cucumbers,not pickl(47)	0.000xx	0.34	0.00000
Tomatoes(163)	0.200	2.87	0.00862
Melons(92)	0.000xxx	2.00	0.00000
Almonds(1)	0.050	0.03	0.00002
Apricots(3)	4.000	0.11	0.00675
Pumpkin,inc squasn(131)	0.300	0.11	0.00051
Watermelon(169)	0.300	1.43	0.00644
Nectarines(100)	4.000	0.03	0.00180
Peaches(114)	4.000	0.90	0.05396
Plums,inc prunes(125)	4.000	0.13	0.00797
Sugar,cane&beet(154)	1.000	3.64	0.05457
Melons(92)	0.300	2.00	0.00901
Cucumbers,not pickl(47)	0.300	0.34	0.00152

MPI	TMRC	% ADI
1.5000 mg/day(60kg)	0.5033 mg/day(1.5kg)	33.55

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Current Action 3F2938

2G-2638 was Agency approved not TOX approved. Expires 12-31-84

x - approved at 10 ppm

xx - previously approved at 0.1 ppm

xxx - previously approved at 0.2 ppm.

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CROP	Tolerance	Food Factor	mg/day (1.5kg)
Coffee(36)	0.050	0.75	0.00056
Cottonseed (oil)(41)	0.200	0.15	0.00045
Sugar,cane&beet(154)	0.000	3.04	0.00000

IPI	TMRC	% ADI
1.5000 mg/day(60kg)	0.5043 mg/day(1.5kg)	33.62

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