



3F 4177

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

MAR -9 1994

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: Dietary Exposure Analysis for the Proposed Use of
Dimethenamid (San 582H) on Soybeans (PP#3F04177)

FROM: Stephen A. Schaible *Stephen A. Schaible*
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Science Analysis Branch/ HED (7509C)

TO: Cynthia Giles-Parker/James Stone, PM 22
Fungicide-Herbicide Branch
Registration Division (7505C)

THROUGH: James P. Kariya, Head *James P. Kariya*
DRES/SAB
Health Effects Division (7509C)

Action Requested

Provide estimates of dietary exposure and risk for the proposed use of SAN 582H on soybeans. This permanent tolerance would replace a temporary tolerance on soybeans which expired 3/1/94.

Discussion

1. Toxicological Endpoint: This DRES chronic exposure analysis used a Reference Dose (RfD) of 0.05 mg/kg body weight/day, based on a No Observed Effect Level (NOEL) of 5.1 mg/kg bwt/day and an uncertainty factor of 100 (G. Ghali memorandum to J. Miller, 11/25/92). The NOEL was taken from a two year feeding study in rats which demonstrated as effects parathyroid hyperplasia in males and bile duct hyperplasia in females. There are no data gaps in the studies supporting the RfD.

The HED Carcinogenicity Peer Review Committee has classified SAN 582H as a Group C possible human carcinogen; the committee has also recommended that for the purpose of risk characterization, the Reference Dose approach should be used for quantification of human risk (D. McCall and E. Rinde memo to C. Giles-Parker, 7/15/92).

2. Residue Information: Food uses evaluated in this analysis were the published use on corn grain (at 0.01 ppm) listed in 40 CFR 180.464 and in TIS, and the proposed use on soybeans. While the petition being recommended in favor of by CBTS proposes a



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tolerance of 0.01 ppm; the recommendation is made in M. Bradley's 2/18/94 memo to use a residue of 0.2 ppm for the purpose of assessing dietary exposure and risk. This value represents the total radioactive residue observed in the soybean metabolism study, and is entered in the analysis as the anticipated residue (AR) for soybean commodities. The HED Metabolism Committee concluded no meat or milk tolerances were needed for corn grain (M. Flood memo, 1/4/93), and the feed use of soybean forage, hay and straw is restricted (M. Bradley, 2/18/94); therefore, no meat or milk tolerances are needed for the present uses of SAN 582H.

A summary of the residue information included in this analysis is attached as Table 1.

3. Exposure Analysis: The DRES chronic exposure analysis used tolerance level residues and 100 percent crop treated to estimate the Theoretical Maximum Residue Contribution (TMRC) for the overall U.S. population and 22 population subgroups. The Anticipated Residue Contributions (ARCs) for these population groups reflect 100 percent crop treated for both uses, but the recommended residue of 0.2 ppm instead of the proposed tolerance of 0.01 ppm for soybeans. The ARC can therefore be considered to more accurately estimate exposure from the residue of concern. A summary of the TMRCs, the ARCs and their representations as percentages of the RfD is attached as Table 2.

The ARC for the U.S. population from the published use on corn is 0.000003 mg/kg bwt/day, which represents 0.007% of the RfD. The proposed use on soybeans would contribute an additional 0.000068 mg/kg bwt/day, raising the ARC to 0.000071 mg/kg bwt/day, or 0.14% of the RfD. The ARC from the published use for the subgroup most highly exposed, children aged one through six, is 0.000009 mg/kg bwt/day (0.017% of the RfD). If the proposed use on soybeans is added, the ARC is raised to 0.000136 mg/kg bwt/day, or 0.27% of the RfD. Given these risk estimates, it appears that chronic dietary exposure from these uses of SAN 582H is minimal.

Attachments

cc: DRES
CBTS
Tox 2
Caswell # 195J

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Table 1

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 195J

DATE: 03/07/94

PAGE: 1

CHEMICAL			STUDY TYPE	EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS
FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)	
No data gaps.									
RfD/PR reviewed 08/13/92.									
AD1 UF -->100									
OPP RfD= 0.050000									
EPA RfD= 0.000000									
Parathyroid hyperplasia in M; Bile duct hyperplasia in F (both are threshold effects); Evidence of onco in rats (M: liver; F: Ovaries)									
SAN 582H	Caswell #195J	2yr feeding- rat							
	CAS No. 87674-68-8	NOEL= 5.1000 mg/kg							
	A.I. CODE: 129051	100.00 ppm							
	CFR No. 180.	LEL= 36.0000 mg/kg							
		700.00 ppm							
		ONCO: C (HED)							
00 NOT SPECIFIED (NO CONSUMPTION)									
15029AA	SOYBEAN-SPROUTED		3F4177	N 0.010000	0.200000		100.00	0.200000	
24002EA	CORN, GRAIN-ENDO	10 RAW-FRESH OR NFS	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002EA	CORN, GRAIN-ENDO	21 COOKED-NFS	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002EA	CORN, GRAIN-ENDO	22 COOKED-FRESH-BAKED	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002EA	CORN, GRAIN-ENDO	23 COOKED-FRESH-BOILED	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002HA	CORN, GRAIN-BRAN	00 NOT SPECIFIED (NO CONSUMPTION)	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002SA	CORN SUGAR	10 RAW-FRESH OR NFS	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002SA	CORN SUGAR	21 COOKED-NFS	0F3918	P 0.010000	0.010000		100.00	0.010000	
24002SA	CORN SUGAR	22 COOKED-FRESH-BAKED	0F3918	P 0.010000	0.010000		100.00	0.010000	
270020A	CORN, GRAIN-OIL	18 PROCESSED OIL	3F4177	N 0.010000	0.200000	0.2 represents total radio-	100.00	0.200000	
270100A	SOYBEANS-OIL	21 COOKED-NFS	3F4177	N 0.010000	0.200000	active residue	100.00	0.200000	
28023AA	SOYBEANS-UNSPEC	10 RAW-FRESH OR NFS	3F4177	N 0.010000	0.200000	(M.Bradley memo	100.00	0.200000	
28023AB	SOYBEANS-DRY	21 COOKED-NFS	3F4177	N 0.010000	0.200000	to C.Giles-	100.00	0.200000	
28023AB	SOYBEANS-DRY	23 COOKED-FRESH-BOILED	3F4177	N 0.010000	0.200000	Parker, 2/18/94)	100.00	0.200000	
28023AB	SOYBEANS-DRY	25 COOKED-FRESH-FRIED	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023AB	SOYBEANS-DRY	31 COOKED-FRESH OR CANNED	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WA	SOY-FL, FULL FAT	21 COOKED-NFS	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WA	SOY-FL, FULL FAT	22 COOKED-FRESH-BAKED	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WA	SOY-FL, FULL FAT	31 COOKED-FRESH OR CANNED	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WA	SOY-FL, LOW FAT	21 COOKED-NFS	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WC	SOY-FL, DEFAT	10 RAW-FRESH OR NFS	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WC	SOY-FL, DEFAT	21 COOKED-NFS	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WC	SOY-FL, DEFAT	22 COOKED-FRESH-BAKED	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WC	SOY-FL, DEFAT	51 COOKED-CANNED	3F4177	N 0.010000	0.200000		100.00	0.200000	
28023WC	SOY-FL, DEFAT	53 COOKED-CANNED-BOILED	3F4177	N 0.010000	0.200000		100.00	0.200000	

Table 2

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 03/07/94

PAGE: 1

CHEMICAL INFORMATION			STUDY TYPE		EFFECTS	REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS	
SAN 582H	Caswell #195J	2yr feeding- rat	NOEL=	5,1000 mg/kg	Parathyroid hyperplasia in M; Bile duct hyperplasia in F (both are threshold effects); Evidence of onco in rats (M: liver; F: Ovaries)	ADI	UF -->100	OPP RfD= 0.050000	EPA RfD= 0.000000	No data gaps.	RfD/PR reviewed 08/13/92.
	CAS No. 87674-68-8			100.00 ppm							
	A.I. CODE: 129051		LEL=	36,0000 mg/kg							
	CFR No. 180.			700.00 ppm							
			ONCO: C (RED)								
TOTAL TMRC (MG/KG BODY WEIGHT/DAY)											
POPULATION SUBGROUP					CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES		%RFD
U.S. POPULATION - 48 STATES					0.000003	0.000007	0.013478	0.006800	0.000071	0.14264	
U.S. POPULATION - SPRING SEASON					0.000003	0.000007	0.013058	0.006560	0.000069	0.13767	
U.S. POPULATION - SUMMER SEASON					0.000003	0.000007	0.013606	0.006782	0.000071	0.14246	
U.S. POPULATION - FALL SEASON					0.000003	0.000007	0.013838	0.007018	0.000074	0.14713	
U.S. POPULATION - WINTER SEASON					0.000003	0.000007	0.013416	0.006838	0.000072	0.14333	
NORTHEAST REGION					0.000002	0.000005	0.010898	0.006152	0.000064	0.12777	
NORTH CENTRAL REGION					0.000003	0.000006	0.012872	0.006836	0.000071	0.14279	
SOUTHERN REGION					0.000004	0.000007	0.014954	0.006852	0.000073	0.14517	
WESTERN REGION					0.000004	0.000008	0.015276	0.007518	0.000079	0.15815	
HISPANICS					0.000006	0.000010	0.019006	0.007104	0.000077	0.15401	
NON-HISPANIC WHITES					0.000003	0.000006	0.012760	0.006854	0.000071	0.14298	
NON-HISPANIC BLACKS					0.000005	0.000008	0.015604	0.006328	0.000068	0.13582	
NON-HISPANIC OTHERS					0.000003	0.000006	0.012492	0.006516	0.000068	0.13629	
NURSING INFANTS (< 1 YEAR OLD)					0.000003	0.000007	0.014128	0.007782	0.000081	0.16199	
NON-NURSING INFANTS (< 1 YEAR OLD)					0.000010	0.000026	0.052158	0.032616	0.000336	0.67187	
FEMALES (13+ YEARS, PREGNANT)					0.000002	0.000005	0.009210	0.004532	0.000048	0.09534	
FEMALES 13+ YEARS, NURSING					0.000002	0.000005	0.010150	0.005956	0.000062	0.12334	
CHILDREN (1-6 YEARS OLD)					0.000009	0.000015	0.030042	0.012724	0.000136	0.27179	
CHILDREN (7-12 YEARS OLD)					0.000006	0.000011	0.022306	0.009784	0.000104	0.20819	
MALES (13-19 YEARS OLD)					0.000004	0.000007	0.014712	0.007056	0.000074	0.14878	
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)					0.000003	0.000006	0.012118	0.005886	0.000062	0.12394	
MALES (20 YEARS AND OLDER)					0.000002	0.000005	0.009582	0.005396	0.000056	0.11215	
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)					0.000002	0.000004	0.008462	0.004810	0.000050	0.09988	

TOLERANCE ASSESSMENT SUMMARY FOR SAN 582H
USING ANTICIPATED RESIDUES
CASWELL #195J

DATE: 03/07/94

ANALYSIS FOR POPULATION SUB-GROUP: U.S. POPULATION - 48 STATES

EXISTING ANTICIPATED RESIDUES (PUBLISHED ONLY)
RESULT IN AN ARC OF: 0.000003 MG/KG/DAY
THE EXISTING ARC IS EQUIVALENT TO: 0.007 % OF THE ADI.

PROPOSED NEW ANTICIPATED RESIDUES (CURRENT PETITION ONLY)
RESULT IN AN ARC OF: 0.000068 MG/KG/DAY
THESE NEW ANTICIPATED RESIDUES WILL OCCUPY: 0.136 % OF THE ADI.

IF THE NEW ANTICIPATED RESIDUES (CURRENT PETITION ONLY)
ARE APPROVED THE RESULTANT ARC WILL BE: 0.000071 MG/KG/DAY
THE NEW ARC WILL OCCUPY 0.143 % OF THE ADI.

NO OTHER PENDING ANTICIPATED RESIDUES ARE IN THE FILE

ANALYSIS FOR POPULATION SUB-GROUP: NON-NURSING INFANTS (< 1 YEAR OLD)

EXISTING ANTICIPATED RESIDUES (PUBLISHED ONLY)
RESULT IN AN ARC OF: 0.000010 MG/KG/DAY
THE EXISTING ARC IS EQUIVALENT TO: 0.020 % OF THE ADI.

PROPOSED NEW ANTICIPATED RESIDUES (CURRENT PETITION ONLY)
RESULT IN AN ARC OF: 0.000326 MG/KG/DAY
THESE NEW ANTICIPATED RESIDUES WILL OCCUPY: 0.652 % OF THE ADI.

IF THE NEW ANTICIPATED RESIDUES (CURRENT PETITION ONLY)
ARE APPROVED THE RESULTANT ARC WILL BE: 0.000336 MG/KG/DAY
THE NEW ARC WILL OCCUPY 0.672 % OF THE ADI.

NO OTHER PENDING ANTICIPATED RESIDUES ARE IN THE FILE

ANALYSIS FOR POPULATION SUB-GROUP: CHILDREN (1-6 YEARS OLD)

EXISTING ANTICIPATED RESIDUES (PUBLISHED ONLY)
RESULT IN AN ARC OF: 0.000009 MG/KG/DAY
THE EXISTING ARC IS EQUIVALENT TO: 0.017 % OF THE ADI.

PROPOSED NEW ANTICIPATED RESIDUES (CURRENT PETITION ONLY)
RESULT IN AN ARC OF: 0.000127 MG/KG/DAY
THESE NEW ANTICIPATED RESIDUES WILL OCCUPY: 0.254 % OF THE ADI.

IF THE NEW ANTICIPATED RESIDUES (CURRENT PETITION ONLY)
ARE APPROVED THE RESULTANT ARC WILL BE: 0.000136 MG/KG/DAY
THE NEW ARC WILL OCCUPY 0.272 % OF THE ADI.

NO OTHER PENDING ANTICIPATED RESIDUES ARE IN THE FILE