US EPA ARCHIVE DOCUMENT

CASWell # 129041 1

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HEALTH EFFECTS DIVISION
SCIENTIFIC DATA REVIEWS
EPA SERIES 361

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

DEC 11 1995

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: AC 263,222 Dietary Exposure Analysis for the Proposed Use on Peanuts (PP# 4F4390).

FROM: Barbara Madden
Registration Section
Risk Characterization and Analysis Branch
Health Effects Division (7509C)

THROUGH: Elizabeth A. Doyle, Section Head
Dietary Risk Evaluation Section
SAB/Health Effects Division (7509C)

TO: Karen Hicks/Robert Taylor, PM-25
Fungicide - Herbicide Branch
Registration Division (7505C)

Action Requested

Provide a Dietary Risk Evaluation System (DRES) analysis to estimate the chronic dietary risk from AC 263,222 in/on peanuts at 0.1 ppm resulting from permanent tolerance petition (#4F4390). AC 263,222 is the ammonium salt of (±) 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-methyl-3-pyridine carboxylic acid.

Discussion

Toxicological Endpoint

The DRES chronic analysis used a Reference Dose (RfD) of 0.5 mg/kg body weight/day, based upon a 1-year chronic toxicity study in dogs (MRID 427114-21) with a lowest effect dose level (LOEL) of 5000 ppm (137 mg/kg/day for males, and 180 mg/kg/day for females). The 1-year dog study failed to demonstrate a no-observable effect level (NOEL). The RfD committee determined that the overall NOEL most likely would not be much lower than the LOEL and therefore, that a new study would not be required. An uncertainty factor (UF) of 100 was applied to account for inter-species extrapolation and intra-species variability and an additional UF of 3 was applied to account for the lack of an overall NOEL for the 1-year dog study.

AC 263,222 has been classified on the basis of its carcinogenic potential as Group E carcinogen by the RfD Committee (RfD memo, G.Ghali to R. Taylor, 9/27/95).

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

No acute dietary toxicological endpoint was identified by the Less-Than-Lifetime Committee (Meeting Minutes, 8/29/95). An acute dietary risk assessment is not required for AC 263,222.

Note, data to support the registration of AC 263,222 was submitted on the free acid form of AC 263,222. Only one reproduction study (MRID 433203-05) was conducted using the Ammonium Salt form of AC 263,222 as the test material. The PC Code for the free acid is 129041 and no Caswell number was assigned for the free acid. The PC Code for the Ammonium Salt is 128943 and the Caswell number is 946C. DRES files for this chemical are stored under PC Code 129041 as are the RfD documents.

Residue Information

This is the first food use for AC 263,222. Therefore this analysis only includes the proposed tolerances on peanuts at 0.1 ppm (CBTS memo, J. Garbus to R. Taylor, 9/18/95).

No anticipated residue data or percent crop treated information was included in this analysis. All residues used were at tolerance level. A summary of the residue information used in the analysis is attached as Table 1.

Results

A DRES chronic exposure analysis was performed using tolerance level residues and 100 percent crop treated information to estimate the Theoretical Maximum Residue Contribution (TMRC) for the general population and 22 subgroups.

Summaries of the TMRCs and their representations as percentages of the RfD for AC 263,222 are attached as Table 2 and Table 3.

For chronic dietary exposure from the new use of AC 263,222 on peanuts the TMRC for the general U.S. population and the most highly exposed subgroups are as follows (as percent of the Reference Dose):

U.S. population 0.0015%
Children (1-6 Years Old) 0.0047%
Children (6-12 Years Old) 0.0034%

The analysis for AC 263,222 has been a worst case estimate of dietary risk and exposure, using tolerance level residues and 100% crop treated assumptions. Even considering this overestimation, the dietary risk from exposure to AC 263,222 appears to be minimal for peanuts.

Attachments

cc: DRES, CBTS, Tox I, RCAB, Caswell #946C & 129041

TABLE 1

CHEMICAL INFORMATION FOR CASWELL NUMBER 129041 DATE: 11/01/95 PAGE: 1

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
AC 263222 (Cadre herbicide) Caswell #129041 CAS No. 81334-60-3 A.I. CODE: 129041 CFR No.	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 137.0000 mg/kg 5000.00 ppm ONCO: E (RfD/PR Committee)	Minimal degeneration and/ or necrosis w/minimal lymphocyte & macrophage infiltration in skeletal muscle of the thigh &/or abdomen of M&F.	ADI UF -->300 OPP RfD= 0.500000 EPA RfD= 0.000000	No data gaps. [This is the free acid form of Casdre; the ammonium salt is 128943, CASRN is 104098-49-9.	RfD/PR reviewed 04/21/94 EPA verified 12/09/94 RfD/PR reviewed 08/24/95

FOOD CODE	FOOD NAME	PETITION NUMBER	TOLERANCE (PPM) NEW	PENDING	PUBLISHED
15006AA	PEANUTS-WHOLE	4F4390	0.100000		
270070A	PEANUTS-OIL	4F4390	0.100000		

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TABLE 2

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/01/95 PAGE: 1

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
AC 263222 (Cadre herbicide) Caswell #129041 CAS No. 81334-60-3 A.I. CODE: 129041 CFR No.	1yr feeding- dog NOEL= 0.0000 mg/kg 0.00 ppm LEL= 137.0000 mg/kg 5000.00 ppm ONCO: E (RfD/PR Committee)	Minimal degeneration and/ or necrosis w/minimal lymphocyte & macrophage infiltration in skeletal muscle of the thigh &/or abdomen of M&F.	ADI UF -->300 OPP RfD= 0.500000 EPA RfD= 0.000000 -	No data gaps. [This is the free acid form of Casdre; the ammonium salt is 128943, CASRN is 104098-49-9.	RfD/PR reviewed 04/21/94 EPA verified 12/09/94 RfD/PR reviewed 08/24/95

POPULATION SUBGROUP	TOTAL TMRC (MG/KG BODY WEIGHT/DAY) CURRENT TMRC*	NEW TMRC**	NEW TMRC AS PERCENT OF RFD	DIFFERENCE AS PERCENT OF RFD	EFFECT OF ANTICIPATED RESIDUES ARC	%RFD
U.S. POPULATION - 48 STATES	0.000000	0.000007	0.001496	0.001496		
U.S. POPULATION - SPRING SEASON	0.000000	0.000008	0.001534	0.001534		
U.S. POPULATION - SUMMER SEASON	0.000000	0.000008	0.001645	0.001645		
U.S. POPULATION - FALL SEASON	0.000000	0.000007	0.001439	0.001439		
U.S. POPULATION - WINTER SEASON	0.000000	0.000007	0.001367	0.001367		
NORTHEAST REGION	0.000000	0.000008	0.001617	0.001617		
NORTH CENTRAL REGION	0.000000	0.000008	0.001599	0.001599		
SOUTHERN REGION	0.000000	0.000006	0.001174	0.001174		
WESTERN REGION	0.000000	0.000009	0.001742	0.001742		
HISPANICS	0.000000	0.000004	0.000751	0.000751		
NON-HISPANIC WHITES	0.000000	0.000008	0.001660	0.001660		
NON-HISPANIC BLACKS	0.000000	0.000004	0.000817	0.000817		
NON-HISPANIC OTHERS	0.000000	0.000006	0.001235	0.001235		
NURSING INFANTS (< 1 YEAR OLD)	0.000000	0.000002	0.000360	0.000360		
NON-NURSING INFANTS (< 1 YEAR OLD)	0.000000	0.000003	0.000586	0.000586		
FEMALES (13+ YEARS, PREGNANT)	0.000000	0.000006	0.001124	0.001124		
FEMALES 13+ YEARS, NURSING	0.000000	0.000008	0.001587	0.001587		
CHILDREN (1-6 YEARS OLD)	0.000000	0.000024	0.004705	0.004705		
CHILDREN (7-12 YEARS OLD)	0.000000	0.000017	0.003410	0.003410		
MALES (13-19 YEARS OLD)	0.000000	0.000008	0.001626	0.001626		
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.000000	0.000006	0.001105	0.001105		
MALES (20 YEARS AND OLDER)	0.000000	0.000005	0.000909	0.000909		
FEMALES (20 YEARS AND OLDER, NOT PREG. OR NURS)	0.000000	0.000003	0.000640	0.000640		

*Current TMRC does not include new or pending tolerances.
**New TMRC includes new, pending, and published tolerances.

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TABLE 3

TOLERANCE ASSESSMENT SUMMARY FOR AC 263222 (Cadre herbicide) DATE: 11/01/95
CASWELL #129041

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

EXISTING TOLERANCES (PUBLISHED ONLY)		
RESULT IN A TMRC OF:	0.000000	MG/KG/DAY
THE EXISTING TMRC IS EQUIVALENT TO:	0.000	% OF THE ADI.
PROPOSED NEW TOLERANCES (CURRENT PETITION ONLY)		
RESULT IN A TMRC OF:	0.000008	MG/KG/DAY
THESE NEW TOLERANCES WILL OCCUPY:	0.001	% OF THE ADI.
IF THE NEW TOLERANCES (CURRENT PETITION ONLY)		
ARE APPROVED THE RESULTANT TMRC WILL BE:	0.000008	MG/KG/DAY
THE NEW TMRC WILL OCCUPY	0.001	% OF THE ADI.

NO OTHER PENDING TOLERANCES ARE IN THE FILE

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

EXISTING TOLERANCES (PUBLISHED ONLY)		
RESULT IN A TMRC OF:	0.000000	MG/KG/DAY
THE EXISTING TMRC IS EQUIVALENT TO:	0.000	% OF THE ADI.
PROPOSED NEW TOLERANCES (CURRENT PETITION ONLY)		
RESULT IN A TMRC OF:	0.000024	MG/KG/DAY
THESE NEW TOLERANCES WILL OCCUPY:	0.005	% OF THE ADI.
IF THE NEW TOLERANCES (CURRENT PETITION ONLY)		
ARE APPROVED THE RESULTANT TMRC WILL BE:	0.000024	MG/KG/DAY
THE NEW TMRC WILL OCCUPY	0.005	% OF THE ADI.

NO OTHER PENDING TOLERANCES ARE IN THE FILE