



OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

MEMORANDUM

DATE: July 16, 2024

SUBJECT: **Ethaboxam.** Chronic Aggregate (Food and Drinking Water) Dietary Exposure and Risk Assessment for New Uses of the Fungicide on Leaf Petiole Vegetables, Subgroup 22B.

PC Code: 090205

CAS No.: 162650-77-3

Decision No.: 591231

Petition No.: 3E9052

Risk Assessment Type: Dietary

TXR No.: NA

MRID No.: NA

DP Barcode: D468316

Task Group No.: 00484701

Parent Case No.: 00475265

Registration No.: 59639-185, 59639-211

Regulatory Action: Section 3

Reg. Review Case No.: NA

40 CFR: §180.622

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The conclusions conveyed in this assessment were developed in full compliance with *EPA Scientific Integrity Policy for Transparent and Objective Science*, and EPA Scientific Integrity Program's *Approaches for Expressing and Resolving Differing Scientific Opinions*. The full text of *EPA Scientific Integrity Policy for Transparent and Objective Science*, as updated and approved by the Scientific Integrity Committee and EPA Science Advisor can be found here: https://www.epa.gov/system/files/documents/2023-12/scientific_integrity_policy_2012_accessible.pdf. The full text of the EPA Scientific Integrity Program's *Approaches for Expressing and Resolving Differing Scientific Opinions* can be found here: <https://www.epa.gov/scientific-integrity/approaches-expressing-and-resolving-differing-scientific-opinions>.

Executive Summary

A chronic aggregate dietary [food and drinking water] exposure and risk assessment was conducted using the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM-FCID) Version 4.02. This software uses 2005-2010 food consumption data from the U.S. Department of Agriculture's (USDA's) National Health and Nutrition Examination Survey, What We Eat in America, (NHANES/WWEIA). For registration actions: The analysis was conducted in support of a human-health risk assessment for the proposed Section 3 uses of ethaboxam on Leaf Petiole Vegetables, Subgroup 22B. This memorandum was reviewed by two peer reviewers of the DESAC (and the entire DESAC on 08-NOV-2023), per the DESAC Standard Operating Procedure (SOP, 27-JUL-2023).

Acute Dietary Exposure Assessment

An acute endpoint attributable to a single dose exposure was not identified. Therefore, an acute dietary risk assessment was neither required nor conducted, and acute dietary risk from ethaboxam is not of concern.

Chronic Dietary Exposure Assessment

The resulting chronic dietary (food and drinking water) exposure estimates for ethaboxam are not of concern to HED. Chronic risk estimates are 8.2% of the chronic population-adjusted dose (cPAD) for the general US population, and 39% of the cPAD for children 1-2 years old, the population subgroup with the highest exposure. The chronic analysis is based on tolerance-level residues and assumes 100 percent crop treated (PCT). HED's default processing factors were used in the assessment, except for potato and grape processed commodities, in which processing studies demonstrated no concentration. Conservative assumptions were used in the drinking water modeling, resulting in upper-bound estimates of potential residues of ethaboxam in surface and groundwater sources of drinking water. Although conservative assumptions were used, chronic dietary risk estimates are not of concern for the general population or any of the population subgroups.

Cancer Dietary Exposure Assessment

Ethaboxam is classified as showing "suggestive evidence of carcinogenicity, based on increased incidence of Leydig cell tumors in males." The Agency has determined that quantification of cancer risk using a nonlinear approach would adequately account for all chronic toxicity, including carcinogenicity,

which could result from exposure to ethaboxam. Ergo, HED considers the noncancer chronic reference dose protective of cancer dietary risk; a separate cancer dietary risk assessment was not conducted.

I. Introduction

Dietary risk assessment incorporates both exposure and toxicity of a given pesticide. For acute and chronic assessments, the risk is expressed as a percentage of a maximum acceptable dose (i.e., the dose that HED has concluded will result in no unreasonable adverse health effects). This dose is referred to as the population-adjusted dose (PAD). The PAD is equivalent to the point of departure (POD) divided by all applicable uncertainty factors (UFs), including the Food Quality Protection Act (FQPA) Safety Factor (SF).

For acute and non-cancer chronic exposures, HED is concerned when estimated dietary risk exceeds 100% of the PAD. References that discuss the acute and chronic risk assessments in more detail are available on the EPA/pesticides web site: "Available Information on Assessing Exposure from Pesticides, A User's Guide," 21-JUN-2000, web link: <https://www.regulations.gov/document?D=EPA-HQ-OPP-2007-0780-0001>; or see SOP 99.6 (20-AUG-1999).

The most recent dietary risk assessment for ethaboxam was conducted by W. Drew (D461186, 06-DEC-2021).

II. Residue Information

Residues of Concern: The nature of the residue in primary crops and drinking water is adequately understood (see Table 1, below). The residue definition for risk assessment and tolerance enforcement is the parent compound in plant commodities. The residue definition for risk assessment is the parent compound in drinking water.

TABLE 1. Summary of Metabolites and Degradates to be included in the Risk Assessment and Tolerance Expression			
Matrix		Residues included in Risk Assessment	Residues included in Tolerance Expression
Plants	Primary Crop	Ethaboxam	Ethaboxam
	Rotational Crop	Ethaboxam	Ethaboxam
Livestock*	Ruminant	Not Applicable	Not Applicable
	Poultry	Not Applicable	Not Applicable
Drinking Water		Ethaboxam	Not Applicable

* HED has not yet established the residue of concern in livestock commodities. Based on current estimates of dietary burden and anticipated total residues in livestock commodities, residue definitions are not needed at this time.

Residue Levels: The chronic assessment is based on tolerance-level ethaboxam residues in all commodities. The established tolerance levels can be found under 40CFR §180.622[a]. Regarding the proposed new uses, the recommended tolerance level is 0.15 ppm in Leaf Petiole Vegetables, Subgroup 22B (*Ethaboxam. Review of the Petition Proposing the Establishment of Permanent Tolerances in, and Section 3 Registration for New Uses of the Fungicide on, Leaf Petiole Vegetables,*

Subgroup 22B. Summary of Analytical Chemistry and Residue Data.; D468315, A. Leahigh, 16-JUL-2024).

Processing Factors: HED's default processing factors were used in the assessment, except for potato, grape and sugar beet processed commodities, in which processing studies demonstrated no concentration. The HED Default Processing Factors used in the assessment are provided in Table 2, below.

Processed Commodity	Processing Factor
Arrowroot flour	4.8
Dried ginger	4.8
Dried bell pepper	13.5
Dried nonbell pepper	12.8

Residues in Fish: In general, pesticide residues would not be expected to be found in fish unless the pesticide bioaccumulates or has an aquatic use. To determine whether residues are present in fish, HED now routinely checks USDA's Pesticide Data Program (PDP) monitoring data, regardless of the pesticide's uses and physicochemical properties. The PDP monitored pesticide residues in catfish in 2008, 2009 and 2010, and in salmon in 2013 and 2014. However, ethaboxam was not registered for domestic use until 2017, so PDP did not monitor for ethaboxam residues in those years. Therefore, residues in fish were not included in the chronic dietary assessment.

III. Percent Crop Treated Information

In the chronic assessment, 100 PCT was assumed for all commodities.

IV. Drinking Water Data

Estimates of ethaboxam in surface and groundwater sources of drinking water were provided by EFED for use in the chronic dietary risk assessment (*Ethaboxam - Drinking Water Assessment for Proposed New Foliar Use on Commodities in Brassica, Leafy greens Subgroup 4-16B and Vegetable, Brassica, head and stem Group 5-16*; D460984, I. Abdel-Saheb, 6-OCT-2021). The estimated drinking water concentrations (EDWCs) for ethaboxam were modeled using conservative assumptions for registered foliar uses. The highest chronic exposure resulted from groundwater in the Florida citrus scenario, where the maximum seasonal application rate was 0.5 pounds of active ingredient per acre (lbs ai/A). EFED confirmed (via email communication between A. Leahigh and T. Johnson on 10/18/2023) that the previously calculated EDWCs remain unchanged for the proposed new uses on subgroup 22B. The EDWCs reflect the very conservative assumption that ethaboxam is stable to all routes of metabolism and degradation. The ethaboxam EDWCs were modeled with EFED's surface water model *Pesticide in Water Calculator* (PWC), and groundwater model *Pesticide Root Zone Model for GroundWater* (PRZM-

GW). The models and their descriptions are available at the EPA internet site <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/about-water-exposure-models-used-pesticide>.

For the chronic dietary assessment, HED used the higher chronic EDWC in groundwater calculated for the Florida citrus scenario (0.0074 ppm). This EDWC (see Table 3, below) was incorporated directly into the chronic dietary assessment via the food categories “water, direct, all sources” and “water, indirect, all sources.”

Residue Source (Model)	Use Rate (lb ai/A)	Chronic EDWC (µg/L)
Surface Water (PWC)	0.5	3.91
Groundwater (PRZM-GW)	0.5	7.4*

* The higher EDWC for the evaluated use scenarios is shown in bold.

V. DEEM-FCID Program and Consumption Information

The ethaboxam chronic dietary exposure assessment was conducted using the DEEM-FCID, Version 4.02, which incorporates 2005-2010 consumption data from USDA’s NHANES/WWEIA. The data are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days. Foods “as consumed” (e.g., apple pie) are linked to EPA-defined food commodities (e.g., apples, peeled fruit - cooked; fresh or N/S; baked; or wheat flour - cooked; fresh or N/S, baked) using publicly available recipe translation files developed jointly by USDA/ARS and EPA. For chronic exposure assessment, consumption data are averaged for the entire U.S. population and within population subgroups. However, for acute exposure assessment, consumption data are retained as individual consumption events. Based on analysis of the 2005-2010 WWEIA consumption data, which took into account dietary patterns and survey respondents, HED concluded that it is most appropriate to report risk for the following population subgroups: the general U.S. population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, adults 20-49, females 13-49, and adults 50-99 years old.

For a chronic dietary exposure assessment, an estimate of the residue level in each food or food-form (e.g., orange or orange juice) on the food-commodity residue list is multiplied by the average daily consumption estimate for that food/food form to produce a residue intake estimate. The resulting residue intake estimate for each food/food form is summed with the residue intake estimates for all other food/food forms on the commodity residue list to arrive at the total average estimated exposure. Exposure is expressed in mg/kg body weight/day and as a percent of the cPAD. This procedure is performed for each population subgroup.

For an acute exposure assessment, individual one-day food consumption data are used on an individual-by-individual basis. The reported consumption amounts of each food item can be multiplied by a residue point estimate and summed to obtain a total daily pesticide exposure for a deterministic exposure assessment, or “matched” in multiple random pairings with residue values and then summed in a probabilistic assessment. The resulting distribution of exposures is expressed as a percentage of the aPAD on both a user (i.e., only those who reported eating relevant commodities/food forms) and a per-capita (i.e., those who reported eating the relevant commodities as well as those who did not) basis. In accordance with HED policy, *per capita* exposure and risk are reported for analyses performed

at all levels of refinement. However, for deterministic assessments, any significant differences in user vs. per capita exposure and risk are specifically identified and noted in the risk assessment.

VI. Toxicological Information

The toxicology database for ethaboxam is complete. For ethaboxam, HED selected the most sensitive and protective endpoint from the database to establish a POD for the risk assessment. The scientific quality is relatively high, and the toxicity profile of ethaboxam can be characterized for most effects, including potential carcinogenic, mutagenic, developmental, and neurotoxic effects.

No evidence of increased quantitative or qualitative susceptibility was seen in developmental toxicity studies in rats and rabbits. However, there was evidence of increased qualitative susceptibility in a reproduction study in rats. Decreased pup weights and viability in both generations, and delayed sexual maturation were seen, with maternal toxicity limited to decreased body weight and body weight gains. In paternal animals, adverse effects were observed in the male reproductive organs of both generations, and there was decreased fertility in F1 adult males.

Although there is evidence of increased qualitative susceptibility in the reproduction study, there are no residual uncertainties regarding pre- and/or post-natal toxicity following *in utero* exposure to rats or rabbits and pre- and/or post-natal exposures to rats. Considering the overall toxicity profile and the doses and endpoints selected for risk assessment, the degree of concern for the effects observed in the study is low, because the offspring effects observed in the study are well characterized, and clear NOAELs/LOAELs have been identified in the study for the effects of concern. Additionally, the PODs selected for risk assessment are protective of potential offspring effects. Thus, the Agency believes the FQPA SF can be reduced to 1X and still be conservatively protective of human health risk.

The doses and endpoints are summarized in Table 4 (below). An acute dietary assessment was not performed because an acute endpoint attributable to a single dose exposure was not identified. All representative population groups have been assessed for chronic exposure.

TABLE 4. Toxicological Doses and Endpoints for Ethaboxam for Use in Dietary Risk Assessments				
Exposure Scenario	Point of Departure	Uncertainty/FQPA Safety Factors	RfD, PAD	Study and Toxicological Effects
Acute dietary (all populations)	No appropriate endpoint attributable to a single dose was identified.			
Chronic dietary (all populations)	NOAEL = 5.5 mg/kg/day	UF _A = 10X UF _H = 10X FQPA SF = 1X	Chronic RfD = 0.055 mg/kg/day cPAD = 0.055 mg/kg/day	<u>Combined Chronic/Carcinogenicity, Rat</u> LOAEL = 16.4 mg/kg/day, based on effects observed in the male reproductive organs (testes, epididymides, prostate, seminal vesicles).
Cancer (all routes)	Classification: "Suggestive evidence of carcinogenicity, based on increased incidence of Leydig cell tumors in males."			

Point of departure (POD) = a data point or an estimated point that is derived from observed dose-response data, and used to mark the beginning of extrapolation to determine risk associated with lower environmentally relevant human exposures. NOAEL = no-observed-adverse-effect-level. LOAEL = lowest-observed-adverse-effect-level. UF = uncertainty factor. UF_A = extrapolation from animal to human

(interspecies). UF_H = potential variation in sensitivity among members of the human population (intraspecies). FQPA SF = FQPA Safety Factor. PAD = population-adjusted dose (a = acute, c = chronic). RfD = reference dose.

VII. Results/Discussion

As stated above, for acute and chronic assessments, HED is concerned when dietary risk exceeds 100% of the PAD. The DEEM-FCID analyses estimate the dietary exposure of the general US population and various population subgroups. The results reported in Table 5 (below) are for the general US population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, females 13-49, adults 20-49, and adults 50-99 years.

An acute endpoint attributable to a single dose exposure was not identified. Therefore, acute dietary risk from ethaboxam is not of concern.

The ethaboxam chronic risk estimates in Table 5, below, are not of concern for the general US population or any population subgroup. Chronic risk estimates are 8.2% of the cPAD for the general US population, and 39% of the cPAD for children 1-2 years old, the population subgroup with the highest exposure.

Ethaboxam is classified as showing “suggestive evidence of carcinogenicity, based on increased incidence of Leydig cell tumors in males.” The Agency has determined that quantification of cancer risk using a nonlinear approach would adequately account for all chronic toxicity, including carcinogenicity, which could result from exposure to ethaboxam. Ergo, HED considers the noncancer chronic reference dose protective of cancer dietary risk; therefore, a separate cancer dietary risk assessment was not conducted.

Population Subgroup	Chronic	
	Exposure (mg/kg/day)	% cPAD
General US Population (total)	0.004501	8.2
All infants (<1 year)	0.006852	13
Children 1-2 years*	0.021662	39
Children 3-5 years	0.012519	23
Children 6-12 years	0.005321	9.7
Youth 13-19 years	0.002225	4.0
Adults 20-49 years	0.003254	5.9
Adults 50-99 years	0.003919	7.1
Females 13-49 years	0.003563	6.5

* Population subgroup with the highest exposure and risk estimate.

VIII. Characterization of Inputs/Outputs

The chronic dietary analysis is a conservative assessment that provides overestimates of residues that people will be exposed to in their diets. Tolerance-level residues and 100 PCT assumptions are both very conservative. In addition, conservative processing factors were used for several commodities.

Finally, the EDWCs are overestimates of residues in drinking water. EFED made the very conservative assumption that ethaboxam is stable to all routes of metabolism and degradation. For these reasons, HED is confident that dietary exposure and risk are not being underestimated.

IX. Conclusions

Although HED made very conservative assumptions in the chronic dietary exposure assessment, the risk estimates are not of concern for the general US population nor any population subgroup. HED is confident that dietary exposure and risk have not been underestimated.

ATTACHMENTS

1. Chronic Dietary Input File for Ethaboxam
2. Results of Chronic Dietary Exposure Assessment for Ethaboxam

ATTACHMENT 1. Chronic Dietary Input File for Ethaboxam

Filename: C:\Users\aleahigh\OneDrive - Environmental Protection Agency
(EPA)\Ethaboxam\Ethaboxam_Chronic.R10

Chemical: Ethaboxam

RfD(Chronic): .055 mg/kg bw/day NOEL(Chronic): 5.5 mg/kg bw/day

RfD(Acute): 0 mg/kg bw/day NOEL(Acute): 0 mg/kg bw/day

Date created/last modified: 12-08-2023/10:49:46 Program ver. 4.02, 05-10-c

Comment: No acute endpoint attributable to a single dose identified

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	Adj.Factors #2	Comment
0101052000	1A	Beet, sugar	0.030000	1.000	1.000	
0101052001	1A	Beet, sugar-babyfood	0.030000	1.000	1.000	
0101053000	1A	Beet, sugar, molasses	0.030000	1.000	1.000	
0101053001	1A	Beet, sugar, molasses-babyfood	0.030000	1.000	1.000	
0101168000	1AB	Ginseng, dried	0.100000	1.000	1.000	
0103015000	1CD	Arrowroot, flour	0.010000	4.800	1.000	
0103015001	1CD	Arrowroot, flour-babyfood	0.010000	4.800	1.000	
0103017000	1CD	Artichoke, Jerusalem	0.010000	1.000	1.000	
0103082000	1CD	Cassava	0.010000	1.000	1.000	
0103082001	1CD	Cassava-babyfood	0.010000	1.000	1.000	
0103139000	1CD	Dasheen, corm	0.010000	1.000	1.000	
0103166000	1CD	Ginger	0.010000	1.000	1.000	
0103166001	1CD	Ginger-babyfood	0.010000	1.000	1.000	
0103167000	1CD	Ginger, dried	0.010000	4.800	1.000	
0103296000	1C	Potato, chips	0.010000	1.000	1.000	
0103297000	1C	Potato, dry (granules/ flakes)	0.010000	1.000	1.000	
0103297001	1C	Potato, dry (granules/ flakes)-b	0.010000	1.000	1.000	
0103298000	1C	Potato, flour	0.010000	1.000	1.000	
0103298001	1C	Potato, flour-babyfood	0.010000	1.000	1.000	
0103299000	1C	Potato, tuber, w/peel	0.010000	1.000	1.000	
0103299001	1C	Potato, tuber, w/peel-babyfood	0.010000	1.000	1.000	
0103300000	1C	Potato, tuber, w/o peel	0.010000	1.000	1.000	
0103300001	1C	Potato, tuber, w/o peel-babyfood	0.010000	1.000	1.000	
0103366000	1CD	Sweet potato	0.010000	1.000	1.000	
0103366001	1CD	Sweet potato-babyfood	0.010000	1.000	1.000	
0103371000	1CD	Tanier, corm	0.010000	1.000	1.000	
0103387000	1CD	Turmeric	0.010000	1.000	1.000	
0103406000	1CD	Yam, true	0.010000	1.000	1.000	
0103407000	1CD	Yam bean	0.010000	1.000	1.000	
0200317000	2	Radish, Oriental, tops	7.000000	1.000	1.000	
0402018000	4B	Arugula	7.000000	1.000	1.000	
0402062000	4B	Broccoli, Chinese	7.000000	1.000	1.000	
0402063000	4B	Broccoli raab	7.000000	1.000	1.000	
0402070000	4B	Cabbage, Chinese, bok choy	7.000000	1.000	1.000	
0402117000	4B	Collards	7.000000	1.000	1.000	
0402133000	4B	Cress, garden	7.000000	1.000	1.000	
0402134000	4B	Cress, upland	7.000000	1.000	1.000	
0402194000	4B	Kale	7.000000	1.000	1.000	
0402229000	4B	Mustard greens	7.000000	1.000	1.000	
0402315000	4B	Radish, tops	7.000000	1.000	1.000	
0402318000	4B	Rape greens	7.000000	1.000	1.000	
0402389000	4B	Turnip, greens	7.000000	1.000	1.000	
0402398000	4B	Watercress	7.000000	1.000	1.000	
0500061000	5	Broccoli	3.000000	1.000	1.000	
0500061001	5	Broccoli-babyfood	3.000000	1.000	1.000	
0500064000	5	Brussels sprouts	3.000000	1.000	1.000	

0500069000	5	Cabbage	3.000000	1.000	1.000
0500071000	5	Cabbage, Chinese, napa	3.000000	1.000	1.000
0500072000	5	Cabbage, Chinese, mustard	7.000000	1.000	1.000
0500083000	5	Cauliflower	3.000000	1.000	1.000
0802148000	8BC	Eggplant	0.900000	1.000	1.000
0802234000	8BC	Okra	0.900000	1.000	1.000
0802270000	8B	Pepper, bell	0.900000	1.000	1.000
0802270001	8B	Pepper, bell-babyfood	0.900000	1.000	1.000
0802271000	8B	Pepper, bell, dried	0.900000	13.500	1.000
0802271001	8B	Pepper, bell, dried-babyfood	0.900000	13.500	1.000
0802272000	8BC	Pepper, nonbell	0.900000	1.000	1.000
0802272001	8BC	Pepper, nonbell-babyfood	0.900000	1.000	1.000
0802273000	8BC	Pepper, nonbell, dried	0.900000	12.800	1.000
0901075000	9A	Cantaloupe	0.300000	1.000	1.000
0901187000	9A	Honeydew melon	0.300000	1.000	1.000
0901399000	9A	Watermelon	0.300000	1.000	1.000
0901400000	9A	Watermelon, juice	0.300000	1.000	1.000
0902021000	9B	Balsam pear	0.300000	1.000	1.000
0902088000	9B	Chayote, fruit	0.300000	1.000	1.000
0902102000	9B	Chinese waxgourd	0.300000	1.000	1.000
0902135000	9B	Cucumber	0.300000	1.000	1.000
0902308000	9B	Pumpkin	0.300000	1.000	1.000
0902309000	9B	Pumpkin, seed	0.300000	1.000	1.000
0902356000	9B	Squash, summer	0.300000	1.000	1.000
0902356001	9B	Squash, summer-babyfood	0.300000	1.000	1.000
0902357000	9B	Squash, winter	0.300000	1.000	1.000
0902357001	9B	Squash, winter-babyfood	0.300000	1.000	1.000
1304175000	13D	Grape	6.000000	1.000	1.000
1304176000	13D	Grape, juice	6.000000	1.000	1.000
1304176001	13D	Grape, juice-babyfood	6.000000	1.000	1.000
1304178000	13D	Grape, raisin	6.000000	1.000	1.000
1304179000	13D	Grape, wine and sherry	6.000000	1.000	1.000
2202076000	22B	Cardoon	0.150000	1.000	1.000
2202085000	22B	Celery	0.150000	1.000	1.000
2202085001	22B	Celery-babyfood	0.150000	1.000	1.000
2202086000	22B	Celery, juice	0.150000	1.400	1.000
2202322000	22B	Rhubarb	0.150000	1.000	1.000
8601000000	86A	Water, direct, all sources	0.007400	1.000	1.000
8602000000	86B	Water, indirect, all sources	0.007400	1.000	1.000
9500177000	O	Grape, leaves	6.000000	1.000	1.000

ATTACHMENT 2. Results of Chronic Dietary Exposure Assessment for Ethaboxam

Evaluation Copy
 DEEM-FCID Chronic analysis for ETHABOXAM
 Residue file name: C:\Users\aleahigh\OneDrive - Environmental Protection Agency (EPA)\Ethaboxam\Ethaboxam_Chronic.R10

Ver. 4.02, 05-10-c
 NHANES 2005-2010 2-day

Adjustment factor #2 used.

Analysis Date 07-16-2024/11:14:44 Residue file dated: 07-16-2024/11:13:44

Reference dose (RfD, Chronic) = .055 mg/kg bw/day

COMMENT 1: No acute endpoint attributable to a single dose identified

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 Total exposure by population subgroup

Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
Total US Population	0.004501	8.2%
Hispanic	0.003757	6.8%
Non-Hisp-White	0.004574	8.3%
Non-Hisp-Black	0.005064	9.2%
Non-Hisp-Other	0.004322	7.9%
Nursing Infants	0.002534	4.6%
Non-Nursing Infants	0.008834	16.1%
Female 13+ PREG	0.003039	5.5%
Children 1-6	0.015347	27.9%
Children 7-12	0.004487	8.2%
Male 13-19	0.002095	3.8%
Female 13-19/NP	0.002360	4.3%
Male 20+	0.003044	5.5%
Female 20+/NP	0.004001	7.3%
Seniors 55+	0.004081	7.4%
All Infants	0.006852	12.5%
Female 13-50	0.003544	6.4%
Children 1-2	0.021662	39.4%
Children 3-5	0.012519	22.8%
Children 6-12	0.005321	9.7%
Youth 13-19	0.002225	4.0%
Adults 20-49	0.003254	5.9%
Adults 50-99	0.003919	7.1%
Female 13-49	0.003563	6.5%
