OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

MEMORANDUM

DATE: August 28, 2024

SUBJECT: **Sulfentrazone.** Acute and Chronic Aggregate Dietary (Food and Drinking Water) Exposure and Risk Assessments for the Establishment of Tolerances for Residues in/on Pop Corn Commodities.

PC Code: 129081
CAS No.: 122836-35-5
Petition No.: NA
Risk Assessment Type: Dietary
TXR No.: NA
MRID No.: NA

Task Group No.: 00562132
Parent Case No.: 00561388
Registration No.: NA
Regulatory Action: Section 3 Registration
Reg. Review Case No.: 7231
40 CFR: §180.498

FROM: George F. Kramer, Ph.D., Senior Chemist
Risk Assessment Branch I (RAB1)
Health Effects Division (HED; 7509T)

THRU: Michael A. Doherty, Ph.D., Senior Chemist
Elizabeth Lang, Ph.D., Chemist
Dietary Exposure Science Advisory Council (DESAC)/HED (7509T)

and

Rosanna Louie-Juzwiak, Branch Supervisor
Risk Assessment Branch I (RAB1)
Health Effects Division (HED; 7509T)

TO: Andrew Ertman, Risk Manager Reviewer
Nancy Fitz, Risk Manager RM 05
Registration Division (RD, 7505M)

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

Acute and chronic aggregate dietary (food + drinking water) exposure and risk assessments were conducted for sulfentrazone 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). The analyses were conducted to support the establishment of tolerances for residues in/on pop corn commodities. This assessment has been reviewed by two peer reviewers of the DESAC, per DESAC Standard Operating Procedure (SOP, 09-AUG-2023).

Acute Dietary Exposure Results and Characterization

The acute analysis assumed tolerance-level residues for all commodities, 100% crop treated (PCT), and HED default processing factors. The acute analysis also incorporated the most recent drinking water estimates provided by the Environmental Fate and Effects Division (EFED). The resulting acute food plus water risk estimates are below HED's level of concern [<100% of the acute population-adjusted dose (aPAD)] at the 95th percentile of the exposure distribution for the U.S. general population (<1% aPAD). Although all infants (<1 year old) old had the highest exposure estimate (resulting in a risk estimate of 1.1% aPAD), the population subgroup with the highest risk estimate (6.4% aPAD) was females 13 to 49 years old due to the lower aPAD for that population subgroup.

Chronic Dietary Exposure Results and Characterization

The chronic analysis assumed tolerance-level residues, 100 PCT, and HED default processing factors for all commodities. The chronic analysis also incorporated the most recent drinking water estimates provided by EFED. The resulting chronic risk estimates are below HED's level of concern for the U.S. general population [<100% of the chronic population-adjusted dose (cPAD)], and all population subgroups. The population subgroup with the greatest exposure and risk estimate was all infants (<1 year old), at 7.6% of the cPAD.

Cancer Dietary Exposure Assessment

A cancer dietary assessment was not conducted because sulfentrazone is classified as "not likely to be carcinogenic to humans."

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, including the Food Quality Protection Act (FQPA) Safety Factor.

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 sulfentrazone was conducted by G. Kramer (D443992, 15-MAR-2018).

II. Residue Information

Residues of Concern in Plants and Livestock: The HED Metabolism Assessment Review Committee (MARC) has determined that the parent compound, sulfentrazone, and the metabolite HMS [*N*-(2,4-dichloro-5-(4-(difluoromethyl)-4,5-dihydro-3-hydroxymethyl-5-oxo-1*H*-1,2,4-triazol-yl)phenyl)methanesulfonamide)] are the residues of concern in soybeans, and that sulfentrazone and its metabolites HMS and DMS [(*N*-2,4- dichloro-5-[4-(difluoromethyl)-4,5-dihydro-5-oxo-1*H*-1,2,4-triazol-1-yl)phenyl)methanesulfonamide] are the residues of concern in other primary crops and rotational crops (Memo; D226434, G. Kramer, 14-JUN-1996). HED has concluded that the results of the rotational crop metabolism studies may be translated to support preemergent uses on all types of crops. Additionally, sulfentrazone and its metabolites HMS and DMS were identified as the residues of concern in meat, milk, poultry, and eggs. The HED MARC concluded that parent and 3-carboxylic acid sulfentrazone are the residues of concern for the drinking-water assessment (Memo; D288713, G. Kramer *et al.*, 10-APR-2003).

Table 1. Residues of Concern in Crops, Livestock, and Drinking Water.

Matrix	Tolerance Expression	Residues for Risk Assessment
Primary Crops, except soybean seed	sulfentrazone, HMS, DMS (free and conjugated)	sulfentrazone, HMS, DMS (free and conjugated)
Soybean, seed	sulfentrazone, HMS	sulfentrazone, HMS
Rotational Crops	sulfentrazone, HMS, DMS (free and conjugated)	sulfentrazone, HMS, DMS (free and conjugated)
Livestock	sulfentrazone, HMS, DMS	sulfentrazone, HMS, DMS
Water	not applicable.	sulfentrazone, 3-carboxylic acid sulfentrazone

Established/Recommended Tolerances: A tolerance is currently established under 40 CFR §180.498(a)(1) for the combined residues of sulfentrazone and its major metabolite, HMS, in/on soybean seed at 0.05 ppm. In addition, permanent tolerances are established under 40 CFR §180.498(a)(2) for the combined residues of sulfentrazone and its metabolites HMS and DMS in/on

several food commodities; these established tolerances range from 0.15 ppm (various plant commodities) to 0.50 ppm (teff, forage). Tolerances for the combined residues of sulfentrazone and its metabolites HMS and DMS have been established under 40 CFR §180.498(c) in connection with regional registrations; these include tolerances for residues in/on succulent lima bean, succulent cowpea, and wheat grain at 0.15 ppm. Finally, tolerances are established under 40 CFR §180.498(d) for inadvertent and indirect combined residues of sulfentrazone and its metabolites HMS and DMS in/on cereal grain (excluding sweet corn) bran, forage, grain, hay, hulls, stover, and straw at 0.1-0.6 ppm as a result of the application of sulfentrazone to growing crops.

HED previously reviewed the registered use of sulfentrazone on field corn and recommended for the following tolerances for the combined residues of sulfentrazone and its metabolites HMS and DMS: corn, field, grain at 0.15 ppm and corn, field, stover at 0.30 ppm (Memo; D286879, G. Kramer, 10-JAN-2003). Subsequently, use on pop corn was added to the sulfentrazone label (same use pattern as field corn). RD has requested that HED recommend and evaluate the tolerances required to support this use. By extrapolation from the field corn residue data, HED recommends for the establishment of the following tolerances for the combined residues of sulfentrazone and its metabolites HMS and DMS: corn, pop, grain at 0.15 ppm and corn, pop, stover at 0.3 ppm under §180.498(a)(2) (G. Kramer, 129081_TG00562132_RISK_2024-08-28).

Residues used in the Acute and Chronic Analyses: These analyses employed tolerance-level residues for all commodities, 100 PCT, and HED default processing factors. The established tolerance for succulent vegetable soybean is greater than the 40 CFR §180.498(a)(1) tolerance for soybean seed; therefore, the succulent vegetable soybean tolerance of 0.15 ppm was used for soybean seed as a conservative assumption.

Fish: In general, pesticide residues would not be expected to be found in fish unless the pesticide bioaccumulates or has an aquatic use. Regardless of the pesticide's uses and physicochemical properties, HED checks monitoring data from the USDA's Pesticide Data Program for residues in fish. The PDP monitored pesticide residues in catfish in 2008, 2009, and 2010 and salmon in 2013 and 2014. However, PDP did not analyze catfish or salmon samples for residues of sulfentrazone. As there are no aquatic uses for sulfentrazone and it is unlikely to bioaccumulate (log K_{OW} = 0.99), residues in fish were not included in the assessment.

III. Percent Crop Treated Information

The acute and chronic analyses assumed that 100% of the crops were treated.

IV. Drinking Water Data

Drinking water residues provided by EFED (Memo; D415627, M. Barrett, 21-MAY-2014) were incorporated directly into the acute and chronic dietary analyses as "water, direct, all sources" and "water, indirect, all sources." The estimated drinking water concentrations (EDWCs) were Tier 1 estimates for ground water using the Pesticide Root Zone Model-Ground Water (PRZM-GW) model version 1.07 (Screening Concentration in Ground Water) and surface water using the Pesticide Root Zone Model/Exposure Analysis Modeling System (PRZM/EXAMS) model. Previous estimates of sulfentrazone residues in drinking water were done separately for parent and the 3-carboxylic acid

sulfentrazone degradate. Sulfentrazone and 3-carboxylic acid sulfentrazone have a potential to reach both surface and ground waters that may be used as drinking water sources. The current assessment has now taken a total toxic residues (TTR) approach to assessing exposure, instead of providing values for each compound individually.

For surface water, the highest acute (peak) sulfentrazone TTR value is 37.3 ppb, and the 10-year average value is 5.3 ppb. For ground water, the highest daily (peak) sulfentrazone TTR value is 134 ppb, and the post-breakthrough-average value is 98 ppb. EFED has confirmed that these values remain appropriate for risk assessment purposes (E-mail, M. Barrett, 30-AUG-2017).

Table 2. Estimated Tier 1 Concentrations of Sulfentrazone and 3-Carboxylic Acid Sulfentrazone in Drinking Water Due to the Use of Sulfentrazone.

Scenario	Surface Water (ug/L)		Groundwater (ug/L)	
	Acute	Chronic	Acute	Chronic
FL Sugarcane	37.3	3.2	-	-
LA Corn	31.3	5.3	-	-
Delmarva Sw. corn	-	-	134	98

EDWCs of 0.134 ppm and 0.098 ppm were used in the acute and chronic analyses, respectively.

V. DEEM-FCID Program and Consumption Information

Sulfentrazone acute and chronic dietary exposure assessments were conducted using DEEM-FCID, Version 4.02. This software uses 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. Based on analysis of the 2003-2008 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 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 acute exposure assessments, 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

HED has reevaluated the sulfentrazone database and updated the endpoints as necessary. The toxicological endpoints selected for sulfentrazone are summarized below in Table 3.

Table 3. Summary of Toxicological Doses and Endpoints for Sulfentrazone for Use in Human-Health Risk Assessments.

Exposure Scenario	Point of Departure	Uncertainty/ FQPA Safety Factors	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Acute Dietary (Females 13-49)	NOAEL = 14 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF = 1X	aRfD = aPAD = 0.14 mg/kg/day	Two-Gen. Reproductive Toxicity Study – Rat. Offspring Toxicity LOAEL = 33 (M) and 40 (F) mg/kg/day based on reduced prenatal viability (fetal & litter), reduced litter size, increased no. of stillborn pups, reduced pup and litter postnatal survival, and decreased pup body weights throughout lactation.
Acute Dietary (General population including infants and children)	NOAEL = 250 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF = 1X	aRfD = aPAD = 2.5 mg/kg/day	Acute-Neurotoxicity Study – Rat. LOAEL = 750 mg/kg/day based on increased incidence of clinical signs and FOB parameters and decreased motor activity.
Chronic Dietary (all populations)	NOAEL = 14 mg/kg/day	UF_A = 10X UF_H = 10X FQPA SF = 1X	cRfD = cPAD = 0.14 mg/kg/day	Two-Gen. Reproductive Toxicity Study – Rat. Offspring Toxicity LOAEL = 33 (M) and 40 (F) mg/kg/day based on reduced prenatal viability (fetal & litter), reduced litter size, increased no. of stillborn pups, reduced pup and litter postnatal survival, and decreased pup body weights throughout lactation.
Cancer (oral, dermal, inhalation)	**Classification:** Sulfentrazone is classified as "not likely to be carcinogenic to humans."			

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. LOC = level of concern.

VII. Results/Discussion

As stated above, for acute and chronic assessments, HED is concerned when dietary risk estimates exceed 100% of the PAD. The DEEM-FCID analyses estimate the dietary exposure and risk of the general U.S. population and various population subgroups. The results (Table 4) reported are for the general U.S. population, all infants (<1 year old), children 1-2 years old, children 3-5 years old, children 6-12 years old, youth 13-19 years old, females 13-49 years old, adults 20-49 years old, and adults 50-99 years old.

The resulting acute food plus water risk estimates are below HED's level of concern [<100% of the aPAD)] at the 95th percentile of the exposure distribution for the U.S. general population (<1% aPAD). The aPAD is lower for females 13 to 49 years old. Although all infants (<1 year old) old had the highest exposure estimate (resulting in a risk estimate of 1.1% aPAD), the population subgroup with the highest risk estimate (6.4% aPAD) was females 13 to 49 years old. The chronic analysis also incorporated the most recent drinking water estimates provided by EFED. The resulting chronic risk estimates are below HED's level of concern for the U.S. general population [<100% of the cPAD)], and all population subgroups. The population subgroup with the greatest exposure and risk estimate (7.6% cPAD) was all infants (<1 year old). A cancer dietary assessment was not conducted because sulfentrazone is classified as "not likely to be carcinogenic to humans."

Table 4. Summary of Acute and Chronic Dietary (Food and Drinking Water) Exposure and Risk for Sulfentrazone.[1]

Population Subgroup	95th Percentile			cPAD (mg/kg/day)	Exposure (mg/kg/day)	%cPAD
	aPAD (mg/kg/day)	Exposure (mg/kg/day)	%aPAD			
General U.S. Population	2.5	0.010786	<1.0	0.14	0.003828	2.7
All Infants (<1 year old)		0.028504	1.1		**0.010605**	**7.6**
Children 1-2 years old		0.021085	<1.0		0.009173	6.6
Children 3-5 years old		0.016276	<1.0		0.007314	5.2
Children 6-12 years old		0.010887	<1.0		0.004473	3.2
Youth 13-19 years old		0.008132	<1.0		0.003062	2.2
Adults 20-49 years old		0.009055	<1.0		0.003382	2.4
Adults 50-99 years old		0.007919	<1.0		0.003192	2.3
Females 13-49 years old	0.14	**0.009024**	**6.4**		0.003312	2.4

[1] The populations with the greatest risk estimates are bolded.

VIII. Characterization of Inputs/Outputs

The unrefined acute and chronic analyses assumed HED default processing factors, tolerance-level residues, and 100 PCT for all commodities. These analyses are considered very conservative and could be refined though the use of anticipated-residue estimates (ARs) for all commodities, PCT data for registered commodities, and/or empirical processing factors. However, as there are no risk estimates of concern, further refinement is not necessary.

IX. Conclusions

Acute and chronic dietary risk estimates for sulfentrazone do not exceed HED's level of concern for any population subgroups, including the general U.S. population and those comprised of infants and children. HED is confident that the assessments do not underestimate risk to the general U.S. population or any population subgroup.

X. Attachments

Attachment 1: DEEM-FCID Acute Food + Drinking Water Residue Input File.
Attachment 2: DEEM-FCID Acute Dietary Analysis Results.
Attachment 3: DEEM-FCID Chronic Food + Drinking Water Residue Input File.
Attachment 4: DEEM-FCID Chronic Dietary Analysis Results.

Attachment 1: DEEM-FCID Acute Food + Drinking Water Residue Input File.

```
Filename: C:\Users\gkramer\OneDrive - Environmental Protection Agency (EPA)\RAB1 Chemical
Folders\Sulfentrazone\Pop corn\129081-ACUTE__30 APR 2024.R10
Chemical: Sulfentrazone
RfD(Chronic): .14 mg/kg bw/day  NOEL(Chronic): 14 mg/kg bw/day
RfD(Acute): 2.5 mg/kg bw/day  NOEL(Acute):  250 mg/kg bw/day
Date created/last modified: 04-30-2024/09:52:35       Program ver. 4.02, 05-10-c
```

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
0101190000	1AB	Horseradish	0.200000	1.000	1.000	
0101388000	1AB	Turnip, roots	0.150000	1.000	1.000	
0103015000	1CD	Arrowroot, flour	0.150000	4.800	1.000	
0103015001	1CD	Arrowroot, flour-babyfood	0.150000	4.800	1.000	
0103017000	1CD	Artichoke, Jerusalem	0.150000	1.000	1.000	
0103082000	1CD	Cassava	0.150000	1.000	1.000	
0103082001	1CD	Cassava-babyfood	0.150000	1.000	1.000	
0103139000	1CD	Dasheen, corm	0.150000	1.000	1.000	
0103166000	1CD	Ginger	0.150000	1.000	1.000	
0103166001	1CD	Ginger-babyfood	0.150000	1.000	1.000	
0103167000	1CD	Ginger, dried	0.150000	4.800	1.000	
0103296000	1C	Potato, chips	0.150000	1.000	1.000	
0103297000	1C	Potato, dry (granules/ flakes)	0.150000	6.500	1.000	
0103297001	1C	Potato, dry (granules/ flakes)-b	0.150000	6.500	1.000	
0103298000	1C	Potato, flour	0.150000	6.500	1.000	
0103298001	1C	Potato, flour-babyfood	0.150000	6.500	1.000	
0103299000	1C	Potato, tuber, w/peel	0.150000	1.000	1.000	
0103299001	1C	Potato, tuber, w/peel-babyfood	0.150000	1.000	1.000	
0103300000	1C	Potato, tuber, w/o peel	0.150000	1.000	1.000	
0103300001	1C	Potato, tuber, w/o peel-babyfood	0.150000	1.000	1.000	
0103366000	1CD	Sweet potato	0.150000	1.000	1.000	
0103366001	1CD	Sweet potato-babyfood	0.150000	1.000	1.000	
0103371000	1CD	Tanier, corm	0.150000	1.000	1.000	
0103387000	1CD	Turmeric	0.150000	1.000	1.000	
0103406000	1CD	Yam, true	0.150000	1.000	1.000	
0103407000	1CD	Yam bean	0.150000	1.000	1.000	
0402018000	4B	Arugula	0.600000	1.000	1.000	
0402062000	4B	Broccoli, Chinese	0.600000	1.000	1.000	
0402063000	4B	Broccoli raab	0.600000	1.000	1.000	
0402070000	4B	Cabbage, Chinese, bok choy	0.600000	1.000	1.000	1E0631
		Full comment: 1E06311				
0402117000	4B	Collards	0.600000	1.000	1.000	
0402133000	4B	Cress, garden	0.600000	1.000	1.000	
0402134000	4B	Cress, upland	0.600000	1.000	1.000	
0402194000	4B	Kale	0.600000	1.000	1.000	
0402229000	4B	Mustard greens	0.600000	1.000	1.000	
0402315000	4B	Radish, tops	0.600000	1.000	1.000	
0402318000	4B	Rape greens	0.600000	1.000	1.000	
0402389000	4B	Turnip, greens	0.600000	1.000	1.000	
0402398000	4B	Watercress	0.600000	1.000	1.000	
0500061000	5	Broccoli	0.200000	1.000	1.000	
0500061001	5	Broccoli-babyfood	0.200000	1.000	1.000	
0500064000	5	Brussels sprouts	0.200000	1.000	1.000	
0500069000	5	Cabbage	0.200000	1.000	1.000	1E0631
		Full comment: 1E06311				
0500071000	5	Cabbage, Chinese, napa	0.200000	1.000	1.000	1E0631
		Full comment: 1E06311				
0500072000	5	Cabbage, Chinese, mustard	0.200000	1.000	1.000	1E0631
		Full comment: 1E06311				
0500083000	5	Cauliflower	0.200000	1.000	1.000	
0600347000	6	Soybean, seed	0.150000	1.000	1.000	
0600348000	6	Soybean, flour	0.150000	2.200	1.000	
0600348001	6	Soybean, flour-babyfood	0.150000	2.200	1.000	

0600349000	6	Soybean, soy milk	0.150000	1.000	1.000	
0600349001	6	Soybean, soy milk-babyfood or in	0.150000	1.000	1.000	
0600350000	6	Soybean, oil	0.150000	1.000	1.000	
0600350001	6	Soybean, oil-babyfood	0.150000	1.000	1.000	
0601257000	6A	Pea, edible podded, succulent	0.150000	1.000	1.000	
0601349500	6AB	Soybean, vegetable	0.150000	1.000	1.000	
0602033000	6B	Bean, cowpea, succulent	0.150000	1.000	1.000	
0602037000	6B	Bean, lima, succulent	0.150000	1.000	1.000	
0602255000	6B	Pea, succulent	0.150000	1.000	1.000	
0602255001	6B	Pea, succulent-babyfood	0.150000	1.000	1.000	
0602259000	6B	Pea, pigeon, succulent	0.150000	1.000	1.000	
0603030000	6C	Bean, black, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603032000	6C	Bean, broad, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603034000	6C	Bean, cowpea, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603035000	6C	Bean, great northern, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603036000	6C	Bean, kidney, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603038000	6C	Bean, lima, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603039000	6C	Bean, mung, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603040000	6C	Bean, navy, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603041000	6C	Bean, pink, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603042000	6C	Bean, pinto, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603098000	6C	Chickpea, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603098001	6C	Chickpea, seed-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603099000	6C	Chickpea, flour	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603182000	6C	Guar, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603182001	6C	Guar, seed-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603203000	6C	Lentil, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603256000	6C	Pea, dry	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603256001	6C	Pea, dry-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603258000	6C	Pea, pigeon, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0801173500	8	Goji berry	0.150000	1.000	1.000	
0801374000	8A	Tomatillo	0.150000	1.000	1.000	
0801375000	8A	Tomato	0.150000	1.000	1.000	
0801375001	8A	Tomato-babyfood	0.150000	1.000	1.000	
0801376000	8A	Tomato, paste	0.150000	5.400	1.000	
0801376001	8A	Tomato, paste-babyfood	0.150000	5.400	1.000	
0801377000	8A	Tomato, puree	0.150000	3.300	1.000	
0801377001	8A	Tomato, puree-babyfood	0.150000	3.300	1.000	
0801378000	8A	Tomato, dried	0.150000	14.300	1.000	
0801378001	8A	Tomato, dried-babyfood	0.150000	14.300	1.000	
0801379000	8A	Tomato, juice	0.150000	1.500	1.000	
0801380000	8A	Tree Tomato	0.150000	1.000	1.000	
0802148000	8BC	Eggplant	0.150000	1.000	1.000	
0802234000	8BC	Okra	0.150000	1.000	1.000	
0802270000	8B	Pepper, bell	0.150000	1.000	1.000	
0802270001	8B	Pepper, bell-babyfood	0.150000	1.000	1.000	
0802271000	8B	Pepper, bell, dried	0.150000	13.500	1.000	

0802271001	8B	Pepper, bell, dried-babyfood	0.150000	13.500	1.000
0802272000	8BC	Pepper, nonbell	0.150000	1.000	1.000
0802272001	8BC	Pepper, nonbell-babyfood	0.150000	1.000	1.000
0802273000	8BC	Pepper, nonbell, dried	0.150000	12.800	1.000
0901075000	9A	Cantaloupe	0.150000	1.000	1.000
0901187000	9A	Honeydew melon	0.150000	1.000	1.000
0901399000	9A	Watermelon	0.150000	1.000	1.000
0901400000	9A	Watermelon, juice	0.150000	1.000	1.000
1001106000	10A	Citron	0.150000	1.000	1.000
1001107000	10A	Citrus hybrids	0.150000	1.000	1.000
1001108000	10A	Citrus, oil	0.150000	1.000	1.000
1001240000	10A	Orange	0.150000	1.000	1.000
1001241000	10A	Orange, juice	0.150000	1.800	1.000
1001241001	10A	Orange, juice-babyfood	0.150000	1.800	1.000
1001242000	10A	Orange, peel	0.150000	3.300	1.000
1001369000	10A	Tangerine	0.150000	1.000	1.000
1001370000	10A	Tangerine, juice	0.150000	2.300	1.000
1002197000	10B	Kumquat	0.150000	1.000	1.000
1002199000	10B	Lemon	0.150000	1.000	1.000
1002200000	10B	Lemon, juice	0.150000	2.000	1.000
1002200001	10B	Lemon, juice-babyfood	0.150000	2.000	1.000
1002201000	10B	Lemon, peel	0.150000	3.300	1.000
1002206000	10B	Lime	0.150000	1.000	1.000
1002207000	10B	Lime, juice	0.150000	2.000	1.000
1002207001	10B	Lime, juice-babyfood	0.150000	2.000	1.000
1003180000	10C	Grapefruit	0.150000	1.000	1.000
1003181000	10C	Grapefruit, juice	0.150000	2.100	1.000
1003307000	10C	Pummelo	0.150000	1.000	1.000
1100007000	11	Apple, fruit with peel	0.150000	1.000	1.000
1100008000	11	Apple, peeled fruit	0.150000	1.000	1.000
1100008001	11	Apple, peeled fruit-babyfood	0.150000	1.000	1.000
1100009000	11	Apple, dried	0.150000	8.000	1.000
1100009001	11	Apple, dried-babyfood	0.150000	8.000	1.000
1100010000	11	Apple, juice	0.150000	1.300	1.000
1100010001	11	Apple, juice-babyfood	0.150000	1.300	1.000
1100011000	11	Apple, sauce	0.150000	1.000	1.000
1100011001	11	Apple, sauce-babyfood	0.150000	1.000	1.000
1301055000	13A	Blackberry	0.150000	1.000	1.000
1301056000	13A	Blackberry, juice	0.150000	1.200	1.000
1301056001	13A	Blackberry, juice-babyfood	0.150000	1.200	1.000
1301058000	13A	Boysenberry	0.150000	1.000	1.000
1301208000	13A	Loganberry	0.150000	1.000	1.000
1301320000	13A	Raspberry	0.150000	1.000	1.000
1301320001	13A	Raspberry-babyfood	0.150000	1.000	1.000
1301321000	13A	Raspberry, juice	0.150000	1.200	1.000
1301321001	13A	Raspberry, juice-babyfood	0.150000	1.200	1.000
1302057000	13B	Blueberry	0.150000	1.000	1.000
1302057001	13B	Blueberry-babyfood	0.150000	1.000	1.000
1302136000	13B	Currant	0.150000	1.000	1.000
1302137000	13B	Currant, dried	0.150000	6.500	1.000
1302149000	13B	Elderberry	0.150000	1.000	1.000
1302174000	13B	Gooseberry	0.150000	1.000	1.000
1302191000	13B	Huckleberry	0.150000	1.000	1.000
1303227000	13C	Mulberry	0.150000	1.000	1.000
1304175000	13D	Grape	0.150000	1.000	1.000
1304176000	13D	Grape, juice	0.150000	1.200	1.000
1304176001	13D	Grape, juice-babyfood	0.150000	1.200	1.000
1304178000	13D	Grape, raisin	0.150000	4.300	1.000
1304179000	13D	Grape, wine and sherry	0.150000	1.200	1.000
1304195000	13D	Kiwifruit, fuzzy	0.150000	1.000	1.000
1307130000	13G	Cranberry	0.150000	1.000	1.000
1307130001	13G	Cranberry-babyfood	0.150000	1.000	1.000
1307131000	13G	Cranberry, dried	0.150000	7.900	1.000
1307132000	13G	Cranberry, juice	0.150000	1.200	1.000
1307132001	13G	Cranberry, juice-babyfood	0.150000	1.200	1.000
1307359000	13G	Strawberry	0.150000	1.000	1.000

1307359001	13G	Strawberry-babyfood	0.150000	1.000	1.000	
1307360000	13G	Strawberry, juice	0.150000	1.200	1.000	
1307360001	13G	Strawberry, juice-babyfood	0.150000	1.200	1.000	
1400003000	14	Almond	0.150000	1.000	1.000	
1400003001	14	Almond-babyfood	0.150000	1.000	1.000	
1400004000	14	Almond, oil	0.150000	2.800	1.000	
1400004001	14	Almond, oil-babyfood	0.150000	2.800	1.000	
1400059000	14	Brazil nut	0.150000	1.000	1.000	
1400068000	14	Butternut	0.150000	1.000	1.000	
1400081000	14	Cashew	0.150000	1.000	1.000	
1400092000	14	Chestnut	0.150000	1.000	1.000	
1400155000	14	Hazelnut	0.150000	1.000	1.000	
1400156000	14	Hazelnut, oil	0.150000	1.800	1.000	
1400185000	14	Hickory nut	0.150000	1.000	1.000	
1400213000	14	Macadamia nut	0.150000	1.000	1.000	
1400269000	14	Pecan	0.150000	1.000	1.000	
1400278000	14	Pine nut	0.150000	1.000	1.000	
1400282000	14	Pistachio	0.150000	1.000	1.000	
1400391000	14	Walnut	0.150000	1.000	1.000	
1500025000	15	Barley, pearled barley	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500025001	15	Barley, pearled barley-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500026000	15	Barley, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500026001	15	Barley, flour-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500027000	15	Barley, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500065000	15	Buckwheat	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500066000	15	Buckwheat, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500120000	15	Corn, field, flour	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500120001	15	Corn, field, flour-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500121000	15	Corn, field, meal	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500121001	15	Corn, field, meal-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500122000	15	Corn, field, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500123000	15	Corn, field, starch	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500123001	15	Corn, field, starch-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500124000	15	Corn, field, syrup	0.150000	1.500	1.000	2F0639
		Full comment: 2F06391				
1500124001	15	Corn, field, syrup-babyfood	0.150000	1.500	1.000	2F0639
		Full comment: 2F06391				
1500125000	15	Corn, field, oil	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500125001	15	Corn, field, oil-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500126000	15	Corn, pop	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500226000	15	Millet, grain	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500231000	15	Oat, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500232000	15	Oat, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500232001	15	Oat, flour-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500233000	15	Oat, groats/rolled oats	0.100000	1.000	1.000	Inadve

```
            Full comment: Inadvertent tol.
1500233001 15   Oat, groats/rolled oats-babyfood   0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500323000 15   Rice, white                        0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500323001 15   Rice, white-babyfood               0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500324000 15   Rice, brown                        0.100000   1.250  1.000  Inadve
            Full comment: Inadvertent tol.
1500324001 15   Rice, brown-babyfood               0.100000   1.250  1.000  Inadve
            Full comment: Inadvertent tol.
1500325000 15   Rice, flour                        0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500325001 15   Rice, flour-babyfood               0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500326000 15   Rice, bran                         0.150000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500326001 15   Rice, bran-babyfood                0.150000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500328000 15   Rye, grain                         0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500329000 15   Rye, flour                         0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500344000 15   Sorghum, grain                     0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500345000 15   Sorghum, syrup                     0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500381000 15   Triticale, flour                   0.150000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500381001 15   Triticale, flour-babyfood          0.150000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1500401000 15   Wheat, grain                       0.150000   1.000  1.000
1500401001 15   Wheat, grain-babyfood              0.150000   1.000  1.000
1500402000 15   Wheat, flour                       0.150000   1.000  1.000
1500402001 15   Wheat, flour-babyfood              0.150000   1.000  1.000
1500403000 15   Wheat, germ                        0.150000   1.000  1.000
1500404000 15   Wheat, bran                        0.150000   1.000  1.000
1500405000 15   Wild rice                          0.100000   1.000  1.000  Inadve
            Full comment: Inadvertent tol.
1800002000 18   Alfalfa, seed                      0.150000   1.000  1.000
2001162900 20A  Flax, seed                         0.150000   1.000  1.000
2001163000 20A  Flax seed, oil                     0.150000   2.200  1.000
2002330000 20B  Safflower, oil                     0.200000   1.000  1.000
2002330001 20B  Safflower, oil-babyfood            0.200000   1.000  1.000
2002364000 20B  Sunflower, seed                    0.200000   1.000  1.000
2002365000 20B  Sunflower, oil                     0.200000   1.000  1.000
2002365001 20B  Sunflower, oil-babyfood            0.200000   1.000  1.000
2201001500 22A  Agave                             0.150000   1.000  1.000
2201019000 22A  Asparagus                         0.150000   1.000  1.000  2E0650
            Full comment: 2E06500
2201022000 22A  Bamboo, shoots                    0.150000   1.000  1.000
2201073000 22A  Cactus                           0.150000   1.000  1.000
2201087000 22A  Celtuce                          0.150000   1.000  1.000
2201152000 22A  Fennel, Florence                 0.150000   1.000  1.000
2201196000 22A  Kohlrabi                         0.150000   1.000  1.000
2201243000 22A  Palm heart, leaves               0.150000   1.000  1.000
2202322000 22B  Rhubarb                          0.150000   1.000  1.000
8601000000 86A  Water, direct, all sources       0.134000   1.000  1.000
8602000000 86B  Water, indirect, all sources     0.134000   1.000  1.000
9500177000 O    Grape, leaves                      0.150000   1.000  1.000
9500263000 O    Peanut                             0.200000   1.000  1.000  0F0611
            Full comment: 0F06116
9500264000 O    Peanut, butter                     0.200000   1.200  1.000  0F0611
            Full comment: 0F06116
9500265000 O    Peanut, oil                        0.200000   1.000  1.000  0F0611
            Full comment: 0F06116
```

9500275000	O	Peppermint	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500276000	O	Peppermint, oil	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500352000	O	Spearmint	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500353000	O	Spearmint, oil	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500362000	O	Sugarcane, sugar	0.150000	1.000	1.000	
9500362001	O	Sugarcane, sugar-babyfood	0.150000	1.000	1.000	
9500363000	O	Sugarcane, molasses	0.200000	1.000	1.000	
9500363001	O	Sugarcane, molasses-babyfood	0.200000	1.000	1.000	
9500373500	O	Teff, flour	0.150000	1.000	1.000	

Attachment 2: DEEM-FCID Acute Dietary Analysis Results

```
                                                                    Ver. 4.02, 05-10-c
DEEM-FCID ACUTE Analysis for SULFENTRAZONE                       NHANES 2005-2010 2-Day
Residue file: 129081-ACUTE__30 APR 2024.R10                  Adjustment factor #2 used.
Analysis Date: 05-22-2024/13:00:14    Residue file dated: 05-22-2024/12:54:10
NOEL (Acute) = 250.000000 mg/kg body-wt/day
RAC/FF intake summed over 24 hours
Run Comment: ""
================================================================================

Summary calculations--per capita:
```

95th Percentile			99th Percentile			99.9th Percentile		
Exposure	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
Total US Population:								
0.010786	0.43	23177	0.017615	0.70	14192	0.030153	1.21	8291
All Infants:								
0.028504	1.14	8770	0.037514	1.50	6664	0.047242	1.89	5291
Children 1-2:								
0.021085	0.84	11856	0.030494	1.22	8198	0.048256	1.93	5180
Children 3-5:								
0.016276	0.65	15359	0.020980	0.84	11916	0.030618	1.22	8165
Children 6-12:								
0.010887	0.44	22963	0.016589	0.66	15070	0.024118	0.96	10365
Youth 13-19:								
0.008132	0.33	30742	0.012279	0.49	20360	0.016841	0.67	14844
Adults 20-49:								
0.009055	0.36	27609	0.013118	0.52	19057	0.017174	0.69	14557
Adults 50-99:								
0.007919	0.32	31569	0.011393	0.46	21942	0.016350	0.65	15290
Female 13-49:								
0.009024	0.36	27703	0.012263	0.49	20386	0.017637	0.71	14174

Attachment 3: DEEM-FCID Chronic Food + Drinking Water Residue Input File.

```
Filename: C:\Users\gkramer\OneDrive - Environmental Protection Agency (EPA)\RAB1 Chemical
Folders\Sulfentrazone\Pop corn\129081-CHRON__30 APR 2024.R10
Chemical: Sulfentrazone
RfD(Chronic): .14 mg/kg bw/day  NOEL(Chronic): 14 mg/kg bw/day
RfD(Acute): 2.5 mg/kg bw/day  NOEL(Acute):  250 mg/kg bw/day
Date created/last modified: 04-30-2024/09:54:33       Program ver. 4.02, 05-10-c
```

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
0101190000	1AB	Horseradish	0.200000	1.000	1.000	
0101388000	1AB	Turnip, roots	0.150000	1.000	1.000	
0103015000	1CD	Arrowroot, flour	0.150000	4.800	1.000	
0103015001	1CD	Arrowroot, flour-babyfood	0.150000	4.800	1.000	
0103017000	1CD	Artichoke, Jerusalem	0.150000	1.000	1.000	
0103082000	1CD	Cassava	0.150000	1.000	1.000	
0103082001	1CD	Cassava-babyfood	0.150000	1.000	1.000	
0103139000	1CD	Dasheen, corm	0.150000	1.000	1.000	
0103166000	1CD	Ginger	0.150000	1.000	1.000	
0103166001	1CD	Ginger-babyfood	0.150000	1.000	1.000	
0103167000	1CD	Ginger, dried	0.150000	4.800	1.000	
0103296000	1C	Potato, chips	0.150000	1.000	1.000	
0103297000	1C	Potato, dry (granules/ flakes)	0.150000	6.500	1.000	
0103297001	1C	Potato, dry (granules/ flakes)-b	0.150000	6.500	1.000	
0103298000	1C	Potato, flour	0.150000	6.500	1.000	
0103298001	1C	Potato, flour-babyfood	0.150000	6.500	1.000	
0103299000	1C	Potato, tuber, w/peel	0.150000	1.000	1.000	
0103299001	1C	Potato, tuber, w/peel-babyfood	0.150000	1.000	1.000	
0103300000	1C	Potato, tuber, w/o peel	0.150000	1.000	1.000	
0103300001	1C	Potato, tuber, w/o peel-babyfood	0.150000	1.000	1.000	
0103366000	1CD	Sweet potato	0.150000	1.000	1.000	
0103366001	1CD	Sweet potato-babyfood	0.150000	1.000	1.000	
0103371000	1CD	Tanier, corm	0.150000	1.000	1.000	
0103387000	1CD	Turmeric	0.150000	1.000	1.000	
0103406000	1CD	Yam, true	0.150000	1.000	1.000	
0103407000	1CD	Yam bean	0.150000	1.000	1.000	
0402018000	4B	Arugula	0.600000	1.000	1.000	
0402062000	4B	Broccoli, Chinese	0.600000	1.000	1.000	
0402063000	4B	Broccoli raab	0.600000	1.000	1.000	
0402070000	4B	Cabbage, Chinese, bok choy	0.600000	1.000	1.000	1E0631
		Full comment: 1E06311				
0402117000	4B	Collards	0.600000	1.000	1.000	
0402133000	4B	Cress, garden	0.600000	1.000	1.000	
0402134000	4B	Cress, upland	0.600000	1.000	1.000	
0402194000	4B	Kale	0.600000	1.000	1.000	
0402229000	4B	Mustard greens	0.600000	1.000	1.000	
0402315000	4B	Radish, tops	0.600000	1.000	1.000	
0402318000	4B	Rape greens	0.600000	1.000	1.000	
0402389000	4B	Turnip, greens	0.600000	1.000	1.000	
0402398000	4B	Watercress	0.600000	1.000	1.000	
0500061000	5	Broccoli	0.200000	1.000	1.000	
0500061001	5	Broccoli-babyfood	0.200000	1.000	1.000	
0500064000	5	Brussels sprouts	0.200000	1.000	1.000	
0500069000	5	Cabbage	0.200000	1.000	1.000	1E0631
		Full comment: 1E06311				
0500071000	5	Cabbage, Chinese, napa	0.200000	1.000	1.000	1E0631
		Full comment: 1E06311				
0500072000	5	Cabbage, Chinese, mustard	0.200000	1.000	1.000	1E0631
		Full comment: 1E06311				
0500083000	5	Cauliflower	0.200000	1.000	1.000	
0600347000	6	Soybean, seed	0.150000	1.000	1.000	
0600348000	6	Soybean, flour	0.150000	2.200	1.000	
0600348001	6	Soybean, flour-babyfood	0.150000	2.200	1.000	
0600349000	6	Soybean, soy milk	0.150000	1.000	1.000	

0600349001	6	Soybean, soy milk-babyfood or in	0.150000	1.000	1.000	
0600350000	6	Soybean, oil	0.150000	1.000	1.000	
0600350001	6	Soybean, oil-babyfood	0.150000	1.000	1.000	
0601257000	6A	Pea, edible podded, succulent	0.150000	1.000	1.000	
0601349500	6AB	Soybean, vegetable	0.150000	1.000	1.000	
0602033000	6B	Bean, cowpea, succulent	0.150000	1.000	1.000	
0602037000	6B	Bean, lima, succulent	0.150000	1.000	1.000	
0602255000	6B	Pea, succulent	0.150000	1.000	1.000	
0602255001	6B	Pea, succulent-babyfood	0.150000	1.000	1.000	
0602259000	6B	Pea, pigeon, succulent	0.150000	1.000	1.000	
0603030000	6C	Bean, black, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603032000	6C	Bean, broad, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603034000	6C	Bean, cowpea, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603035000	6C	Bean, great northern, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603036000	6C	Bean, kidney, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603038000	6C	Bean, lima, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603039000	6C	Bean, mung, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603040000	6C	Bean, navy, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603041000	6C	Bean, pink, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603042000	6C	Bean, pinto, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603098000	6C	Chickpea, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603098001	6C	Chickpea, seed-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603099000	6C	Chickpea, flour	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603182000	6C	Guar, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603182001	6C	Guar, seed-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603203000	6C	Lentil, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603256000	6C	Pea, dry	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603256001	6C	Pea, dry-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0603258000	6C	Pea, pigeon, seed	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
0801173500	8	Goji berry	0.150000	1.000	1.000	
0801374000	8A	Tomatillo	0.150000	1.000	1.000	
0801375000	8A	Tomato	0.150000	1.000	1.000	
0801375001	8A	Tomato-babyfood	0.150000	1.000	1.000	
0801376000	8A	Tomato, paste	0.150000	5.400	1.000	
0801376001	8A	Tomato, paste-babyfood	0.150000	5.400	1.000	
0801377000	8A	Tomato, puree	0.150000	3.300	1.000	
0801377001	8A	Tomato, puree-babyfood	0.150000	3.300	1.000	
0801378000	8A	Tomato, dried	0.150000	14.300	1.000	
0801378001	8A	Tomato, dried-babyfood	0.150000	14.300	1.000	
0801379000	8A	Tomato, juice	0.150000	1.500	1.000	
0801380000	8A	Tree Tomato	0.150000	1.000	1.000	
0802148000	8BC	Eggplant	0.150000	1.000	1.000	
0802234000	8BC	Okra	0.150000	1.000	1.000	
0802270000	8B	Pepper, bell	0.150000	1.000	1.000	
0802270001	8B	Pepper, bell-babyfood	0.150000	1.000	1.000	
0802271000	8B	Pepper, bell, dried	0.150000	13.500	1.000	
0802271001	8B	Pepper, bell, dried-babyfood	0.150000	13.500	1.000	

0802272000	8BC	Pepper, nonbell	0.150000	1.000	1.000
0802272001	8BC	Pepper, nonbell-babyfood	0.150000	1.000	1.000
0802273000	8BC	Pepper, nonbell, dried	0.150000	12.800	1.000
0901075000	9A	Cantaloupe	0.150000	1.000	1.000
0901187000	9A	Honeydew melon	0.150000	1.000	1.000
0901399000	9A	Watermelon	0.150000	1.000	1.000
0901400000	9A	Watermelon, juice	0.150000	1.000	1.000
1001106000	10A	Citron	0.150000	1.000	1.000
1001107000	10A	Citrus hybrids	0.150000	1.000	1.000
1001108000	10A	Citrus, oil	0.150000	1.000	1.000
1001240000	10A	Orange	0.150000	1.000	1.000
1001241000	10A	Orange, juice	0.150000	1.800	1.000
1001241001	10A	Orange, juice-babyfood	0.150000	1.800	1.000
1001242000	10A	Orange, peel	0.150000	3.300	1.000
1001369000	10A	Tangerine	0.150000	1.000	1.000
1001370000	10A	Tangerine, juice	0.150000	2.300	1.000
1002197000	10B	Kumquat	0.150000	1.000	1.000
1002199000	10B	Lemon	0.150000	1.000	1.000
1002200000	10B	Lemon, juice	0.150000	2.000	1.000
1002200001	10B	Lemon, juice-babyfood	0.150000	2.000	1.000
1002201000	10B	Lemon, peel	0.150000	3.300	1.000
1002206000	10B	Lime	0.150000	1.000	1.000
1002207000	10B	Lime, juice	0.150000	2.000	1.000
1002207001	10B	Lime, juice-babyfood	0.150000	2.000	1.000
1003180000	10C	Grapefruit	0.150000	1.000	1.000
1003181000	10C	Grapefruit, juice	0.150000	2.100	1.000
1003307000	10C	Pummelo	0.150000	1.000	1.000
1100007000	11	Apple, fruit with peel	0.150000	1.000	1.000
1100008000	11	Apple, peeled fruit	0.150000	1.000	1.000
1100008001	11	Apple, peeled fruit-babyfood	0.150000	1.000	1.000
1100009000	11	Apple, dried	0.150000	8.000	1.000
1100009001	11	Apple, dried-babyfood	0.150000	8.000	1.000
1100010000	11	Apple, juice	0.150000	1.300	1.000
1100010001	11	Apple, juice-babyfood	0.150000	1.300	1.000
1100011000	11	Apple, sauce	0.150000	1.000	1.000
1100011001	11	Apple, sauce-babyfood	0.150000	1.000	1.000
1301055000	13A	Blackberry	0.150000	1.000	1.000
1301056000	13A	Blackberry, juice	0.150000	1.200	1.000
1301056001	13A	Blackberry, juice-babyfood	0.150000	1.200	1.000
1301058000	13A	Boysenberry	0.150000	1.000	1.000
1301208000	13A	Loganberry	0.150000	1.000	1.000
1301320000	13A	Raspberry	0.150000	1.000	1.000
1301320001	13A	Raspberry-babyfood	0.150000	1.000	1.000
1301321000	13A	Raspberry, juice	0.150000	1.200	1.000
1301321001	13A	Raspberry, juice-babyfood	0.150000	1.200	1.000
1302057000	13B	Blueberry	0.150000	1.000	1.000
1302057001	13B	Blueberry-babyfood	0.150000	1.000	1.000
1302136000	13B	Currant	0.150000	1.000	1.000
1302137000	13B	Currant, dried	0.150000	6.500	1.000
1302149000	13B	Elderberry	0.150000	1.000	1.000
1302174000	13B	Gooseberry	0.150000	1.000	1.000
1302191000	13B	Huckleberry	0.150000	1.000	1.000
1303227000	13C	Mulberry	0.150000	1.000	1.000
1304175000	13D	Grape	0.150000	1.000	1.000
1304176000	13D	Grape, juice	0.150000	1.200	1.000
1304176001	13D	Grape, juice-babyfood	0.150000	1.200	1.000
1304178000	13D	Grape, raisin	0.150000	4.300	1.000
1304179000	13D	Grape, wine and sherry	0.150000	1.200	1.000
1304195000	13D	Kiwifruit, fuzzy	0.150000	1.000	1.000
1307130000	13G	Cranberry	0.150000	1.000	1.000
1307130001	13G	Cranberry-babyfood	0.150000	1.000	1.000
1307131000	13G	Cranberry, dried	0.150000	7.900	1.000
1307132000	13G	Cranberry, juice	0.150000	1.200	1.000
1307132001	13G	Cranberry, juice-babyfood	0.150000	1.200	1.000
1307359000	13G	Strawberry	0.150000	1.000	1.000
1307359001	13G	Strawberry-babyfood	0.150000	1.000	1.000

1307360000	13G	Strawberry, juice	0.150000	1.200	1.000	
1307360001	13G	Strawberry, juice-babyfood	0.150000	1.200	1.000	
1400003000	14	Almond	0.150000	1.000	1.000	
1400003001	14	Almond-babyfood	0.150000	1.000	1.000	
1400004000	14	Almond, oil	0.150000	2.800	1.000	
1400004001	14	Almond, oil-babyfood	0.150000	2.800	1.000	
1400059000	14	Brazil nut	0.150000	1.000	1.000	
1400068000	14	Butternut	0.150000	1.000	1.000	
1400081000	14	Cashew	0.150000	1.000	1.000	
1400092000	14	Chestnut	0.150000	1.000	1.000	
1400155000	14	Hazelnut	0.150000	1.000	1.000	
1400156000	14	Hazelnut, oil	0.150000	1.800	1.000	
1400185000	14	Hickory nut	0.150000	1.000	1.000	
1400213000	14	Macadamia nut	0.150000	1.000	1.000	
1400269000	14	Pecan	0.150000	1.000	1.000	
1400278000	14	Pine nut	0.150000	1.000	1.000	
1400282000	14	Pistachio	0.150000	1.000	1.000	
1400391000	14	Walnut	0.150000	1.000	1.000	
1500025000	15	Barley, pearled barley	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500025001	15	Barley, pearled barley-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500026000	15	Barley, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500026001	15	Barley, flour-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500027000	15	Barley, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500065000	15	Buckwheat	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500066000	15	Buckwheat, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500120000	15	Corn, field, flour	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500120001	15	Corn, field, flour-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500121000	15	Corn, field, meal	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500121001	15	Corn, field, meal-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500122000	15	Corn, field, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500123000	15	Corn, field, starch	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500123001	15	Corn, field, starch-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500124000	15	Corn, field, syrup	0.150000	1.500	1.000	2F0639
		Full comment: 2F06391				
1500124001	15	Corn, field, syrup-babyfood	0.150000	1.500	1.000	2F0639
		Full comment: 2F06391				
1500125000	15	Corn, field, oil	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500125001	15	Corn, field, oil-babyfood	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500126000	15	Corn, pop	0.150000	1.000	1.000	2F0639
		Full comment: 2F06391				
1500226000	15	Millet, grain	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500231000	15	Oat, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500232000	15	Oat, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500232001	15	Oat, flour-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500233000	15	Oat, groats/rolled oats	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				

1500233001	15	Oat, groats/rolled oats-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500323000	15	Rice, white	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500323001	15	Rice, white-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500324000	15	Rice, brown	0.100000	1.250	1.000	Inadve
		Full comment: Inadvertent tol.				
1500324001	15	Rice, brown-babyfood	0.100000	1.250	1.000	Inadve
		Full comment: Inadvertent tol.				
1500325000	15	Rice, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500325001	15	Rice, flour-babyfood	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500326000	15	Rice, bran	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500326001	15	Rice, bran-babyfood	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500328000	15	Rye, grain	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500329000	15	Rye, flour	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500344000	15	Sorghum, grain	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500345000	15	Sorghum, syrup	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500381000	15	Triticale, flour	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500381001	15	Triticale, flour-babyfood	0.150000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1500401000	15	Wheat, grain	0.150000	1.000	1.000	
1500401001	15	Wheat, grain-babyfood	0.150000	1.000	1.000	
1500402000	15	Wheat, flour	0.150000	1.000	1.000	
1500402001	15	Wheat, flour-babyfood	0.150000	1.000	1.000	
1500403000	15	Wheat, germ	0.150000	1.000	1.000	
1500404000	15	Wheat, bran	0.150000	1.000	1.000	
1500405000	15	Wild rice	0.100000	1.000	1.000	Inadve
		Full comment: Inadvertent tol.				
1800002000	18	Alfalfa, seed	0.150000	1.000	1.000	
2001162900	20A	Flax, seed	0.150000	1.000	1.000	
2001163000	20A	Flax seed, oil	0.150000	2.200	1.000	
2002330000	20B	Safflower, oil	0.200000	1.000	1.000	
2002330001	20B	Safflower, oil-babyfood	0.200000	1.000	1.000	
2002364000	20B	Sunflower, seed	0.200000	1.000	1.000	
2002365000	20B	Sunflower, oil	0.200000	1.000	1.000	
2002365001	20B	Sunflower, oil-babyfood	0.200000	1.000	1.000	
2201001500	22A	Agave	0.150000	1.000	1.000	
2201019000	22A	Asparagus	0.150000	1.000	1.000	2E0650
		Full comment: 2E06500				
2201022000	22A	Bamboo, shoots	0.150000	1.000	1.000	
2201073000	22A	Cactus	0.150000	1.000	1.000	
2201087000	22A	Celtuce	0.150000	1.000	1.000	
2201152000	22A	Fennel, Florence	0.150000	1.000	1.000	
2201196000	22A	Kohlrabi	0.150000	1.000	1.000	
2201243000	22A	Palm heart, leaves	0.150000	1.000	1.000	
2202322000	22B	Rhubarb	0.150000	1.000	1.000	
8601000000	86A	Water, direct, all sources	0.098000	1.000	1.000	
8602000000	86B	Water, indirect, all sources	0.098000	1.000	1.000	
9500177000	O	Grape, leaves	0.150000	1.000	1.000	
9500263000	O	Peanut	0.200000	1.000	1.000	0F0611
		Full comment: 0F06116				
9500264000	O	Peanut, butter	0.200000	1.200	1.000	0F0611
		Full comment: 0F06116				
9500265000	O	Peanut, oil	0.200000	1.000	1.000	0F0611
		Full comment: 0F06116				
9500275000	O	Peppermint	0.300000	1.000	1.000	1E0631

		Full comment: 1E06311				
9500276000	O	Peppermint, oil	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500352000	O	Spearmint	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500353000	O	Spearmint, oil	0.300000	1.000	1.000	1E0631
		Full comment: 1E06311				
9500362000	O	Sugarcane, sugar	0.150000	1.000	1.000	
9500362001	O	Sugarcane, sugar-babyfood	0.150000	1.000	1.000	
9500363000	O	Sugarcane, molasses	0.200000	1.000	1.000	
9500363001	O	Sugarcane, molasses-babyfood	0.200000	1.000	1.000	
9500373500	O	Teff, flour	0.150000	1.000	1.000	

Attachment 4: DEEM-FCID Chronic Analysis Results.

```
 Evaluation Copy                                                Ver. 4.02, 05-10-c
DEEM-FCID Chronic analysis for SULFENTRAZONE              NHANES 2005-2010 2-day
Residue file name: C:\Users\gkramer\OneDrive - Environmental Protection Agency (EPA)\RAB1
Chemical Folders\Sulfentrazone\Pop corn\129081-CHRON__30 APR 2024.R10
                                                  Adjustment factor #2 NOT used.
Analysis Date 05-22-2024/12:57:48     Residue file dated: 05-22-2024/12:54:59
Reference dose (RfD, Chronic) = .14 mg/kg bw/day
================================================================================
                    Total exposure by population subgroup
--------------------------------------------------------------------------------
```

Population Subgroup	Total Exposure mg/kg body wt/day	Total Exposure Percent of Rfd
Total US Population	0.003828	2.7%
Hispanic	0.004086	2.9%
Non-Hisp-White	0.003785	2.7%
Non-Hisp-Black	0.003536	2.5%
Non-Hisp-Other	0.004304	3.1%
Nursing Infants	0.003761	2.7%
Non-Nursing Infants	0.013746	9.8%
Female 13+ PREG	0.003750	2.7%
Children 1-6	0.007771	5.6%
Children 7-12	0.004187	3.0%
Male 13-19	0.003082	2.2%
Female 13-19/NP	0.003039	2.2%
Male 20+	0.003252	2.3%
Female 20+/NP	0.003332	2.4%
Seniors 55+	0.003118	2.2%
All Infants	0.010605	7.6%
Female 13-50	0.003321	2.4%
Children 1-2	0.009173	6.6%
Children 3-5	0.007314	5.2%
Children 6-12	0.004473	3.2%
Youth 13-19	0.003062	2.2%
Adults 20-49	0.003382	2.4%
Adults 50-99	0.003192	2.3%
Female 13-49	0.003312	2.4%