SAFETY EVALUATION DOSSIER SUPPORTING A GENERALLY RECOGNIZED AS SAFE (GRAS) CONCLUSION FOR ORANGE POMACE

SUBMITTED BY:

PepsiCo, Inc.
700 Anderson Hill Road
Purchase, NY 10577

SUBMITTED TO:

U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
Office of Food Additive Safety
HFS-200
5100 Paint Branch Parkway
College Park, MD 20740-3835

CONTACT FOR TECHNICAL OR OTHER INFORMATION:

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1. SIGNED STATEMENTS AND CERTIFICATION

The current GRAS Notice is hereby submitted in accordance with Title 21 of the U.S. Code of Federal Regulations (CFR), Chapter I, Subchapter B, Part 170, Subpart E, to inform the Agency that the proposed uses of orange pomace described herein are considered to be generally recognized as safe (GRAS).

A. Name and Address of Notifier

PepsiCo hereby concludes that the use of orange pomace described below is exempt from the pre-market approval requirements of the Federal Food, Drug, and Cosmetic Act because PepsiCo has determined that such use is generally recognized as safe (GRAS) through scientific procedures.

(b) (6)

7/13/2017
Date

Jan Weststrate
Senior Vice-President, R&D Global Functions, Governance, and Compliance
PepsiCo, Inc.
700 Anderson Hill Road
Purchase, NY 10577

B. Name of GRAS Substance

The subject of this GRAS Notice is Orange pomace.

C. Intended Use and Consumer Exposure

Orange pomace is proposed for use in orange juice, fruit juice blends, juice drinks, smoothies, spoonable sauce, grain-based bars, hot cereals, pastries (pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins, etc.), pie filling, salad dressings, sauces and dips, major and minor condiments, pastes (up to 75% water content), fruit butters (orange), and fruit leathers at levels ranging from 1-50%, depending on the product. The physical or technical effect of orange pomace is to add a source of nutrients (primarily fiber where no standard of identity exists), as a stabilizer, as a thickener, and as a texturizing agent. Based on these use levels and daily estimates derived from the NHANES 2009-2010 and 2011-2012 database (NCHS, 2012, 2014), the conservative estimated daily intake (EDI) of orange pomace from all proposed uses (and assuming the maximum proposed use level for each food category) is less than or equal 1.1 g/kg bw/day at the mean and 2.5 g/kg bw/day at the 90th percentile of intake among users in the total U.S. population (equivalent to 62 g/day and 132 g/day, respectively). As outlined in more detail below (see *History of Orange Product Use*), even using conservative upper estimates of intake

for orange pomace, the cumulative EDI for oranges and orange products is less than consuming a large orange.

D. Basis for GRAS Conclusion

Regulatory Framework

The regulatory framework for determining whether a substance can be considered generally recognized as safe (GRAS) in accordance with section 201(s) (21 U.S.C. § 321(s)) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. § 301 et. Seq.) (the "Act"), is set forth at 21 CFR §170.30, which states:

> General recognition of safety may be based only on the view of experts qualified by scientific training and experience to evaluate the safety of substances directly or indirectly added to food. The basis of such views may be either (1) scientific procedures or (2) in the case of a substance used in food prior to January 1, 1958, through experience based on common use in food. General recognition of safety requires common knowledge about the substance throughout the scientific community knowledgeable about the safety of substances directly or indirectly added to food.
>
> General recognition of safety based upon scientific procedures shall require the same quantity and quality of scientific evidence as is required to obtain approval of a food additive regulation for the ingredient. General recognition of safety through scientific procedures shall ordinarily be based upon published studies which may be corroborated by unpublished studies and other data and information.

GRAS Conclusion

The basis for the GRAS conclusion for orange pomace is through scientific procedures in accordance with 21 CFR §170.30(a) and (b).

The criteria stated above are applied herein in an analysis of whether the use of orange pomace is GRAS for the intended conditions of use, i.e. as a source of nutrients (21 CFR §170.3(o)(20)), as a stabilizer and thickener (21 CFR §170.3(o)(28)), and as a texturizing agent (21 CFR §170.3(o)(32)) in selected foods and beverages.

The safety assessment of orange pomace is based upon its source (commonly consumed oranges), manufacture (standard processes) and composition (water, protein, carbohydrates, and fiber). Three substances similar to orange pomace have achieved GRAS status and FDA Letters of No Objection (GRN No. 154, 487, 599). To ensure that no untoward effects might occur from minor constituents, the totality of the evidence of publically available published scientific literature regarding orange pomace constituents and their structurally-related compounds were evaluated, with a focus on hesperidin as the biomarker constituent This includes metabolism, short- and long-term preclinical toxicity, developmental and reproduction toxicity, carcinogenicity, *in vitro* and *in vivo* mutagenicity/genotoxicity studies, and several published

clinical studies performed with orange pomace constituents and their structurally-related compounds. The entire body of available information relevant to the safety of orange pomace, including identity, specifications, manufacturing process, probable consumer exposure, dietary reference intake values for major constituents, and toxicology/safety profile of minor constituents, provides a basis upon which to conclude that there is a reasonable certainty that orange pomace is not harmful under its intended conditions of use.

The members of an Expert Panel (the Panel) were convened to evaluate the safety of orange pomace and its general recognition. The Panel's Opinion is provided as Exhibit III of this Notice. The Panel critically evaluated the information summarized herein and other information they deemed appropriate and relevant. The Panel unanimously concluded that the totality of the evidence satisfies the safety standard of reasonable certainty of no harm for the intended conditions of uses of orange pomace. In addition, because the information supporting safety is widely known and accepted by qualified experts, the Panel concluded that orange pomace is not only safe, but generally recognized as safe (GRAS) for the intended condition of use described herein.

Based upon our findings and knowledge of the information compiled in this Notice, supported by the Expert Panel, we conclude that orange pomace is GRAS for the intended conditions of use described herein.

To the best of our knowledge, the current GRAS Notice is a complete, representative, and balanced submission that includes unfavorable information, as well as favorable information, known to us and pertinent to the evaluation of the safety and GRAS status of the use of orange pomace.

E. Availability of Information

The data and information that serve as the basis for the GRAS conclusion are appended to this Notice. Questions or requests for additional information may be directed to: Toxicology Regulatory Services Inc, 154 Hansen Road, Suite 201, Charlottesville, VA 22911 [contact: Andrey Nikiforov (Consultant to PepsiCo), telephone (434) 977-5957; email: anikiforov@toxregserv.com].

None of the data and information in Parts 2 through 7 of the current GRAS Notice are considered to be exempt from disclosure under the Freedom of Information Act (FOIA; 5 U.S.C. 552).

2. IDENTITY, METHOD OF MANUFACTURE, SPECIFICATIONS, AND PHYSICAL OR TECHNICAL EFFECT

This section of the GRAS notice fulfills the requirements of 21 CFR §170.230 by providing information in regard to the GRAS material identity, method of manufacture, specifications, and physical or technical effect including product characteristics and analytical data.

A. Trade or Common Name

The subject of this GRAS Notice is Orange pomace.

B. Chemical Name

Not applicable.

C. CAS Registry Number

Not applicable.

D. Molecular and Structural Formula

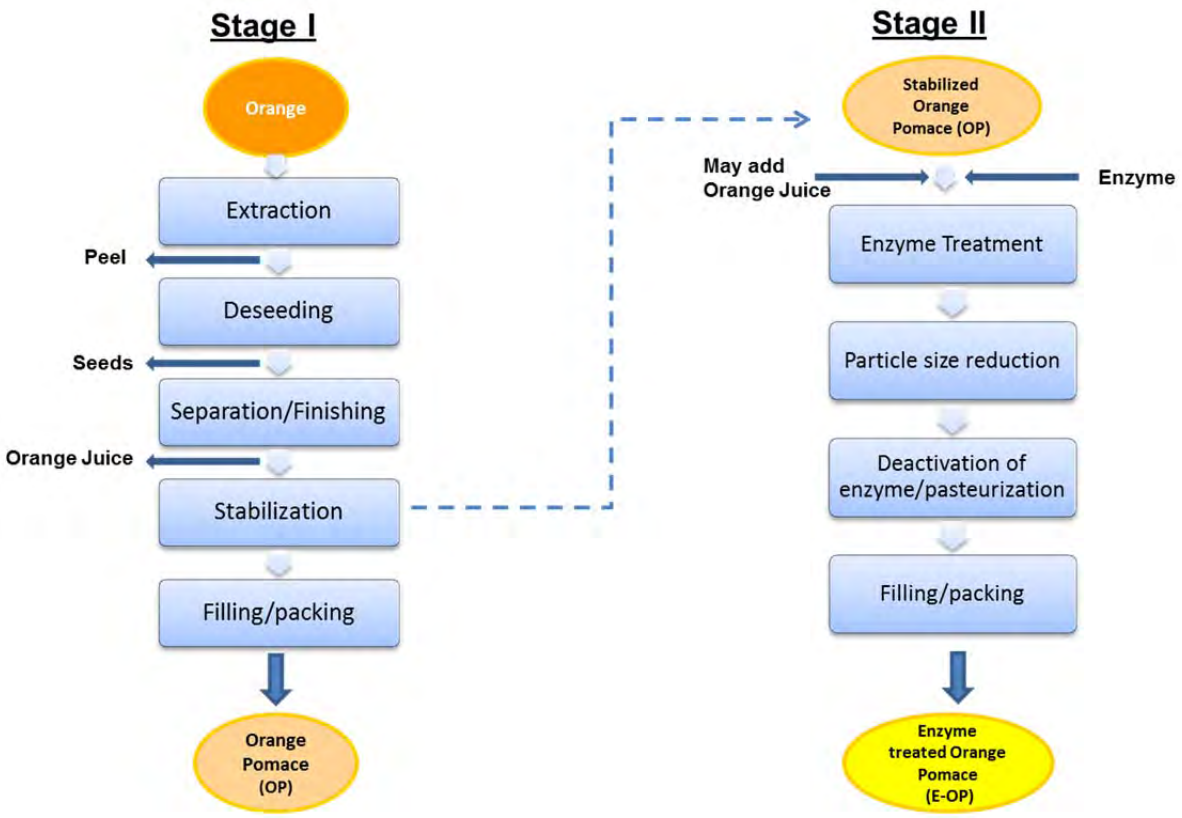
Not applicable.

E. Production Process

Commonly consumed sweet oranges (*Citrus sinensis*), such as Hamlin and Valencia, are harvested, transported, inspected, cleaned, and graded using standard industry practices and FDA current good manufacturing practices (cGMP). The peel is separated from the juice, pulp, membrane, and seeds creating a free-flowing stream substantially devoid of any peel. Next, the seeds are removed creating a free-flowing mixture of juice, pulp, and membrane. This mixture is then pressed to obtain the juice, leaving a mass of "orange pomace." Orange pomace is pasteurized to provide stability, deactivate native enzymes, and kill microorganisms (stage I, see Figure 1). Heat-stabilized pomace can be further diluted with orange juice and treated with food-grade pectinase enzymes. Polygalacturonase and pectin lyase from *Aspergillus niger* are used alone or in combination to reduce viscosity of the pomace and increase processing ability (stage II, see Figure 1). Both enzymes comply with relevant FCC specifications and are GRAS for this use (GRN No. 89). After a suitable reaction period, enzyme-treated orange pomace is further processed to reduce the particle size and is pasteurized (> 205°F) to deactivate the added pectinases. The absence of residual enzyme activity is confirmed through the analysis of viscosity and fiber content, which remains unchanged after at least one month. Orange pomace and enzyme-treated orange pomace are stored using standard industry practices in various aseptic or frozen storage packages.

The term “Orange pomace” in this Notice refers to both orange pomace and enzyme-treated orange pomace. Details related to enzyme-treated orange pomace are presented to demonstrate that orange pomace and enzyme-treated orange pomace are the same in terms of composition and safety.

Figure 1. Process Flow Diagram for Orange Pomace



F. Product Characteristics

Orange pomace is a mass created when a mixture of deseeded orange juice, pulp, and membrane are pressed to remove the juice. Orange pomace is the edible part of oranges with the seeds and juices removed. The physical characteristics of orange pomace are summarized below.

Appearance:

Orange Pomace: Shredded orange segment membranes

Enzyme-Treated Orange Pomace: Viscous liquid with ground orange segment membranes

Color (Description): Dark yellow to light orange

Odor: Characteristic of peeled oranges and orange juice

Taste: Characteristic of peeled oranges and orange juice; slightly bitter

Stability: Taste stability over shelf life is dependent upon storage conditions, and is comparable to that of orange juice (see Exhibit I-A). Under typical storage conditions, no degradation is expected.

G. Product Composition

The specifications for orange pomace and enzyme-treated orange pomace are in Table 1. Results of recent nutritional analyses of non-consecutive lots/batches for orange pomace, enzyme-treated orange pomace, and orange juice are provided in Table 2. These data show that orange pomace is compositionally similar to orange juice and demonstrates conformance to specifications and consistency of manufacturing. Fiber content of orange pomace is dependent on the separation condition which maximizes yield and orange juice quality. Sugars, acids, limonoids, flavonoids, and other minor constituents are highly dependent on fruit variety and maturity.

Orange pomace contains commonly consumed macronutrients such as water, carbohydrates, fiber, protein, and fat. The minor constituents of orange pomace include limonin and hesperidin, as well as related polyphenolic flavonoids such as narirutin, didymin, and poly-methoxylated flavones.

Table 1. Specifications for Orange Pomace and Enzyme-Treated Orange Pomace

Analytical Parameter [a]	Acceptable Target/Range	Methods of Analysis
Moisture (%)	70-85	AOAC 934.06
Protein (%)	1-2	AOAC 968.06
Fat (%)	<0.5	AOAC 996.06
Total Sugars (%)	4-9	AOAC 982.14
Carbohydrates (%)	9-14	Calculated from Analytical Protein, Fat and Ash (AOAC 923.03)
Brix (°)	9-15	AOAC 932.14C
Total Dietary Fiber (TDF, %)	4-13	AOAC 991.43/AOAC 2009.01
Acidity (as % Citric)	0.6-1.2	AOAC 942.15
Limonin (mg/L)	not more than 25	PepsiCo Internal Method #900.238.1
Hesperidin (mg/L) [b]	not more than 3,000	AOAC 999.05, Modified
Vitamin C (mg/100g)	20-50	AOAC 967.22
pH	3.5-4.3	AOAC 981.12
Scott Oil (%)	0.006-0.025	AOAC 968.20
Lead (ppm)*	≤ 0.1	AOAC 993.14

AOAC - Association of Official Analytical Chemists

[*] Lead serves as a marker analyte for other heavy metals not listed in specification. Mercury, arsenic, and cadmium were not detected (Limit of Detection: 10 ppb) in representative batches of orange pomace (see Table 2) and are not expected to be present in raw material.

[a] Nutrient content ranges are highly correlated to moisture content and seasonal/varietal variability.

[b] Method difference between AOAC and PepsiCo Method for hesperidin: Hesperidin is not soluble in water. PepsiCo uses a solvent extraction, while the standard method uses water extraction.

Table 2. Nutritional Analysis of Orange Pomace and Orange Juice

	Batch 1			**Batch 2**		**Batch 3**		**Orange Juice**
	Before enzyme treatment^	After enzyme treatment (Condition A)	After enzyme treatment (Condition B)	Before enzyme treatment^	After enzyme treatment (Condition A)	Before enzyme treatment	After enzyme treatment (Condition B)	
Sample ID(s)	**IL2016020647/ IL20160649/ IL2016020651**	**IL2016020650**	**IL2015080559**	**IL201603795/ IL201603796**	**IL2016030794**	**IL2016030797**	**IL2016020907**	USDA Database
Moisture (%)	84.1	85.9	84.8	82.5	82.2	81.6	83.0	88.0
Protein (%)	1.4	1.1	1.3	1.5	1.2	1.1	1.3	0.7
Fat (%)	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1
Carbohydrates (%)	12.1	10.8	11.7	12.0	14.2	14.8	11.9	10.4
Fructose (%)	1.9	2.0	2.0	1.9	2.1	1.8	2.1	NR
Glucose (%)	1.8	1.9	1.8	1.8	2.0	1.7	1.9	NR
Sucrose (%)	3.8	2.7	3.2	3.9	3.2	3.9	3.5	NR
Total Sugars (%)	7.5	6.6	7.0	7.5	7.2	7.4	7.5	8.4
Total Dietary Fiber (%)	4.8	4.3	4.7	5.6	4.6	4.9	5.1	0.2
Limonin (mg/L)	7.1	5.8	5.8	7.9	8	7.4	6.7	*0.5-4* [a]
Hesperidin (µg/g)	890	1075	957	1498	1123	626	973	*300-700*[b]
Potassium (mg/100g)	195	220	224	200	212	212	220	190-200
Magnesium (mg/100g)	16.3	15.0	15.6	16.3	15.4	16.2	16.2	10-11
Iron (mg/100g)	0.2	0.2	0.2	0.5	0.5	0.3	0.3	0.1-0.2
Copper (mg/100g)	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.04
Calcium (mg/100g)	40.2	38.9	40.1	46.3	47.6	50.5	46.2	11

Table 2. Nutritional Analysis of Orange Pomace and Orange Juice (*continued*)

	Batch 1			Batch 2		Batch 3		Orange Juice
	Before enzyme treatment^	After enzyme treatment (Condition A)	After enzyme treatment (Condition B)	Before enzyme treatment^	After enzyme treatment (Condition A)	Before enzyme treatment	After enzyme treatment (Condition B)	
Sample ID(s)	**IL2016020647/ IL20160649/ IL2016020651**	**IL2016020650**	**IL2015080559**	**IL201603795/ IL201603796**	**IL2016030794**	**IL2016030797**	**IL2016020907**	USDA Database
Phosphorus (mg/100g)	25.3	24.5	25.2	27.6	26.0	26.6	27.2	16-17
Vitamin C (mg/100g)	31.8	36.4	36.5	38.2	35.4	32.6	40.4	38-50
Folic Acid (ug/100g)	29.7	27.2	27.4	35.4	29.5	36.0	31.5	30-44
Niacin (mg/100g)	0.4	0.4	0.4	0.4	0.3	0.5	0.4	0.2-0.4
Riboflavin (mg/100g)	0.05	0.07	0.08	0.09	0.12	0.11	0.08	0.02-0.03
Thiamine (mg/100g)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vitamin B6 (mg/100g)	0.07	0.06	0.07	0.07	0.07	0.06	0.06	0.04
Beta-Carotene (mg/100g)	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.02-0.03
Pantothenic Acid (mg/100g)	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2
pH	4.3	3.5	3.8	4.1	3.6	4.2	3.8	NR
Titratable Acidity (%Citric)	0.5	0.7	0.7	0.5	0.8	0.5	0.8	NR
Brix by Refract (%)	10.8	13	13	10.8	14.5	12	15	NR
Brix Corrected (%)	10.9	13.1	13.1	10.9	14.6	12.1	15.2	NR
Scott Oil (%)	0.01	0.01	0.01	0.01	0.001	0.01	0.01	NR

Table 2. Nutritional Analysis of Orange Pomace and Orange Juice (*continued*)

	Batch 1			Batch 2		Batch 3		Orange Juice
	Before enzyme treatment^	After enzyme treatment (Condition A)	After enzyme treatment (Condition B)	Before enzyme treatment^	After enzyme treatment (Condition A)	Before enzyme treatment	After enzyme treatment (Condition B)	
Sample ID(s)	**IL2016020647/ IL20160649/ IL2016020651**	**IL2016020650**	**IL2015080559**	**IL201603795/ IL201603796**	**IL2016030794**	**IL2016030797**	**IL2016020907**	USDA Database
Lead (mg/100g)	ND	ND	ND	ND	ND	ND	ND	NR
Mercury (mg/100g)	ND	ND	ND	ND	ND	ND	ND	NR
Arsenic (mg/100g)	ND	ND	ND	ND	ND	ND	ND	NR
Cadmium (mg/100g)	ND	ND	ND	ND	ND	ND	ND	NR

Condition A: Pectinase
Condition B: Pectinase/ Pectin Lyase
^ Mean values presented for multiple samples analyzed.
BQL – Below quantification limit
ND – Not Detected [Limit of Detection: 5 ppb (lead), 10 ppb (mercury, arsenic, cadmium)]
NR – Not Reported
[a] PepsiCo internal data. USDA does not report limonin.
[b] PepsiCo internal data. USDA hesperidin data is under-determined due to methodology differences (solvent versus water extraction).

H. Physical or Technical Effect

Orange pomace is intended for addition to conventional foods for which no standard of identity exists as a source of nutrients (primarily fiber) (21 CFR §170.3(o)(20)), as a stabilizer and thickener (21 CFR §170.3(o)(28)), and as a texturizing agent (21 CFR §170.3(o)(32)).

3. DIETARY EXPOSURE

This section of the GRAS Notice fulfills requirements of 21 CFR § 170.235 in regard to the dietary exposure of orange pomace as a result of its intended uses and use levels in a variety of foods.

A. Intended Uses and Use Levels

Orange pomace and enzyme-treated orange pomace are proposed for use in a variety of food categories at the levels in Table 3, below. Orange pomace and enzyme-treated orange pomace are interchangeable in foods depending upon the need for viscosity. Higher use levels associated with enzyme-treated orange pomace are due to its lower viscosity and inherent dilution.

Table 3. Proposed Uses and Levels of Orange Pomace

Food Category	Orange Pomace (%)	Enzyme-treated Orange Pomace (%)
Orange Juice	10-15	10-25
Fruit Juice Blends	1-15	1-25
Juice Drinks	1-10	1-20
Smoothies	10-15	10-25
Spoonable Sauce	25-30	25-40
Grain-based Bars	1-15	1-15
Hot Cereals	1-15	1-15
Pies, Cobblers, Fruit Crisps, Turnovers, Rolls, Cakes, Muffins or Other Pastries	10-25	10-25
Pie Filling	10-25	10-25
Salad Dressings	10-25	10-25
Sauces and Dips	20-35	20-35
Condiments, Major	20-35	20-35
Condiments, Minor	20-35	20-35
Pastes (up to 75% water content)	30-50	30-50
Fruit Butters (Orange)	30-50	30-50
Fruit Leathers	10-50	10-50

B. Estimated Daily Intake (EDI) of Orange Pomace

Available Data and Methods

The estimated daily intake (EDI) of orange pomace from the proposed uses was estimated based on the proposed use levels in Table 3, using Exponent Inc.'s Foods and Residue Evaluation Program (FARE™ version 11.199) software and data from a recent National Health and Nutrition Examination Survey (NHANES 2009-2012). Individual food codes selected for inclusion in each proposed use category are provided in Exhibit II, Appendix A.

The NHANES 2009-2010 and 2011-2012 (NCHS, 2012, 2014) is a complex multistage probability sample designed to be representative of the civilian U.S. population. The survey collects two days of food intake data, in addition to nutrition, demographic, and health information. Exponent Inc. used the statistically weighted values from the survey in the analyses. The statistical weights compensate for variable probabilities of selection, adjust for non-response, and provide intake estimates that are representative of the U.S. population and the selected age-gender subgroups.

Exponent Inc. estimated the daily intake on a per "user" basis. In this analysis, a "user" is anyone who reported consuming at least one category of food in which it is proposed to use orange pomace (orange pomace food category) on either of the survey days, i.e. United States Department of Agriculture's (USDA's) "user" definition. Each individual who reported consuming an orange pomace food on either of the survey days was identified, and that individual's responses for both survey days was used. Because orange pomace is likely to be consumed over a lifetime, it is appropriate to average exposures over a longer period than one day. Therefore, Exponent Inc. used each respondent's food consumption averaged over the two days of the NHANES 2009-2010 and 2011-2012 surveys. A 2-day average typically overestimates lifetime average daily intake especially for foods eaten infrequently; however, only two nonconsecutive days' worth of food consumption data are available in the most recent NHANES 2009-2010 and 2011-2012 surveys database. It is well known that food consumption data collected over longer periods of time, e.g., 14 days as in Market Research Corporation of America (MRCA) consumer surveys, yield estimates of daily intake that may be significantly lower than 2-day averages (Lambe *et al.*, 2000). Therefore, actual consumer exposures are lower than these estimates.

Estimated Daily Intake

The EDI of orange pomace was calculated by multiplying each NHANES respondents' 2-day average food intake by the use levels described in Table 5, above. Each individual's intake of orange pomace was divided by his/her bodyweight to provide the per capita and per user intakes on a bodyweight basis. Mean and 90th percentile daily intakes on a per user basis, as g orange pomace/kg bw/day, were estimated for the proposed uses of orange pomace. Separate analyses were conducted for both orange pomace and enzyme-treated orange pomace based on varied use levels proposed for each material. However, because users will consume the proposed foods and beverages containing *either* orange pomace or enzyme-treated orange pomace (not both), the calculated intake estimates for these two ingredients are not cumulative. There are higher

proposed use levels for enzyme-treated orange pomace for several categories (see Table 3), and therefore these levels will be used to calculate the daily intake of orange pomace. The results for enzyme-treated orange pomace (associated with the maximum proposed use level in each category) are presented in Table 4 below. Results for orange pomace without enzyme treatment are presented in Exhibit II, Appendix A.

Table 4. Estimated Daily Intake of Orange Pomace from Proposed Uses at Maximum Use Levels (Total U.S. Population)

Food Category		*Per User* Intake of Enzyme-Treated Orange Pomace (g/kg bw/day)		*Per User* Intake of Enzyme-Treated Orange Pomace (g/day)	
	N (Unweighted)	Mean	90th Percentile	Mean	90th Percentile
Orange Juice	3,493	0.8	1.6	45.7	83.7
Fruit Juice Blends	1,472	1.2	2.5	48.0	88.2
Fruit Juice Drinks	5,206	1.1	2.5	60.1	126
Smoothies	617	1.0	2.0	55.1	105
Spoonable Sauce	583	0.8	1.7	29.0	50.7
Grain-based Bars	1,134	0.1	0.1	3.4	6.0
Hot Cereals	2,004	0.4	0.8	24.1	42.4
Pies, Cobblers, Fruit Crisps, Turnovers, Rolls, Cakes, Muffins or Other Pastries	5,610	0.3	0.6	17.2	35.6
Pie Filling	6[#]	0.2	NA	12.9	NA
Salad Dressings	7,352	0.1	0.1	4.4	9.7
Sauces and Dips	9,805	0.3	0.7	19.5	43.3
Condiments, Major	5,799	0.1	0.2	3.9	9.3
Condiments, Minor	2,771	0.03	0.1	1.8	3.7
Pastes (up to 75% water)	29[#]	0.3	1.2	14.7	55.9
Fruit Butters (Orange)	34[#]	0.1	0.1	8.4	13.3
Fruit Leathers	594	0.3	0.6	8.8	14.1
Total (all food categories)	**15,043**	**1.1**	**2.5**	**62**	**132**

[#] Intake estimate at the per user mean and 90th percentile are statistically unreliable due to small user sample size.

NA - Not available; estimate not calculated when the unweighted number of users is 10 or less.

Note: Data are as presented in Exponent EDI Report (Exhibit II); therefore, g/day values cannot be calculated directly from g/kg bw/day data.

The total EDI for orange pomace from all proposed uses assuming the maximum proposed use level for each food category (i.e. based on enzyme-treated orange pomace use levels) is not more than 1.1 g/kg bw/day at the mean and 2.5 g/kg bw/day at the 90th percentile of intake among users in the total U.S. population (equivalent to 62 g/day and 132 g/day, respectively). When considering the relatively high EDI of 132 g/day, recall that 70-85% (up to 112 g) of orange pomace is water (Table 1). A further breakout of estimated orange pomace intakes by age/sex subgroups is shown below in Table 5.

Table 5. Estimated Daily Intake of Orange Pomace from All Proposed Uses (Maximum Use Levels)* by Population Subgroup (Infants, Children, Teenagers and Adults)

Population	Unweighted Users	*Per User* Intake of Enzyme-Treated Orange Pomace (g/kg bw/day)		*Per User* Intake of Enzyme-Treated Orange Pomace (g/day)	
		Mean	90th Percentile	Mean	90th Percentile
Infants 0-11 months	161[#]	2.2	5.7	20.8	60.1
Children 1-6 years	2,118	3.6	7.1	60.7	122
Children 7-12 years	1,874	1.8	3.6	63.2	125
Male Teenagers (13-19 years)	940	1.0	2.4	69.9	161
Female Teenagers (13-19 years)	890	1.1	2.4	65.5	135
Male >20 years	4,357	0.8	1.7	68.0	148
Females >20 years	4,704	0.8	1.7	55.1	119

Note: Data are as presented in Exponent EDI Report (Exhibit II); therefore, g/day values cannot be calculated directly from g/kg bw/day data.

* Highest proposed use levels are associated with enzyme-treated orange pomace (see Table 3). Use levels and respective intakes for orange pomace without enzyme treatment are lower (see Exhibit II, Appendix A).

[#] Intake estimate at the 90th percentile and higher are statistically unreliable due to small user sample size.

On a bodyweight basis, the highest per user mean and 90th percentile intake estimates are among children 1-6 years at 3.6 g/kg bw/day and 7.1 g/kg bw/day, respectively. The second highest per user intake levels on a bodyweight basis are among infants 0-11 months with mean and 90th percentile estimates of 2.2 g/kg bw/day and 5.7 g/kg bw/day, respectively; however, the 90th percentile estimate is based on a statistically unreliable sample size of 161. Per user mean and 90th percentile intake estimates on a bodyweight basis among children 7-12 years are 1.8 g/kg bw/day and 3.6 g/kg bw/day, respectively. Although these 90th percentile estimates for children and infants are up to approximately 3-fold higher than the 90th percentile total population EDI (i.e. 7.1 versus 2.5 g/kg bw/day), they are sufficiently below the acceptable daily intake determined for orange pomace (discussed below in Part 6). The range of exposures among remaining population subgroups is similar to the total population EDI, e.g., 0.8 to 1.1 g/kg bw/day (mean) and 1.7 to 2.4 g/kg bw/day (90th percentile).

As noted in the EDI report (Exponent, 2016, Exhibit II), the above estimates based on 2-day average intakes do not necessarily represent long-term intakes, because (1) they may not capture infrequent consumers of foods proposed to contain orange pomace, (2) assume that subjects who consumed orange pomace containing products on both survey days actually consume these orange pomace products every day of the year, and (3) do not adjust for potential day-to-day variation in orange pomace intake. A 2-day average typically overestimates long-term (chronic) daily intake and does not necessarily represent long-term intakes.

C. Estimated Daily Intake (EDI) of Orange Pomace Constituents

Based on the EDI of orange pomace from all proposed uses (and assuming the maximum proposed use level for each food category), the following 90th percentile estimates of exposure to constituents of orange pomace were calculated for the total U.S. population.

Table 6. Estimated Exposure (g/day) to Major Orange Pomace Constituents (Total U.S. Population, 90th Percentile)

Orange Pomace Constituent	Maximum Constituent Level in Orange Pomace (mg/L)[a]	Per User, 90th Percentile Exposure (g/day)[b]	Current Dietary Reference Intake Values (g/day)[c]
Moisture	850,000	112	AI *Total water*: 2400-3700 (M); 2100-2700 (F)
Carbohydrates	140,000	19	RDA 130 (M & F)
Fiber	130,000	17	AI 30-38 (M); 21-26 (F)
Protein	20,000	3	RDA 34-56 (M); 34-46 (F)
Fat	5,000	1	AMDR 25-35 (M & F)

ND - Not Determined.

[a]Maximum constituent levels based on current specifications (Table 1) for orange pomace.

[b]Estimated intake based on 90th percentile Total Population EDI (132 g/day) for all proposed uses and maximum use level of orange pomace (see Table 4). Sum exceeds 132 g/day due to the use of **maximum** potential constituent levels for each calculation.

[c] Values given for males (M) and females (F) > 9 years old (NRC, 2005).

AI: Adequate Intake; RDA: Recommended Dietary Allowance; AMDR: Acceptable Macronutrient Distribution Range (NRC, 2005).

Table 7. Estimated Exposure (mg/kg bw/day) to Minor Orange Pomace Constituents (Total U.S. Population, 90th Percentile)

Orange Pomace Constituent	Maximum Constituent Level in Orange Pomace (mg/L) *	Per User, 90th Percentile Exposure (mg/kg bw/day)**
Hesperidin	3,000	8
Polyphenols	*2,050*[#]	5
Narirutin	*706*[#]	2
Didymin	*265*[#]	0.7
Limonin	25	0.06
Poly-methoxylated Flavones	*25*[#]	0.06

* Except otherwise noted, maximum constituent levels are based on current specifications (Table 1) for orange pomace.

[#] Values based on PepsiCo internal data (on-file); constituents not included in specifications.

** Estimated intake based on 90th percentile EDI (2.5 g/kg bw/day) for all proposed uses and maximum use level of orange pomace (see Table 4).

For example:

25 mg limonin/L orange pomace x 1 L/1,000 g x 1 g/1,000 mg x 2500 mg orange pomace /kg bw/day = 0.06 mg limonin/kg bw/day

4. SELF-LIMITING LEVELS OF USE

This section of the GRAS Notice fulfills requirements of 21 CFR §170.240 by providing information about any self-limiting characteristics of orange pomace use.

The use of orange pomace in the proposed food and beverage categories is considered self-limiting due to its viscosity and high water-retention capacity; at high levels, these foods become too thick to consume.

5. EXPERIENCE BASED ON COMMON USE IN FOOD BEFORE 1958

General recognition of safety for the notified substance, orange pomace, is established through scientific procedures; therefore, information regarding experience based on common use of the notified substance in food prior 1958 is not applicable. The historical consumption of oranges and orange products is discussed in Part 6 as supporting information.

6. BASIS FOR CONCLUSION OF GRAS STATUS FOR ORANGE POMACE (NARRATIVE)

This section of the GRAS Notice fulfills the requirements of 21 CFR §170.250 by providing a narrative in regard to the generally available and accepted scientific data, information, methods, or principles that are relied on to establish safety.

Introduction

The current safety evaluation of orange pomace is based on a large number of reliable peer-reviewed publications concerning metabolism, safety, and toxicity of the components of orange pomace. The major constituents found in orange pomace (water, carbohydrates, fiber, and protein) are nutritional components of food and are encouraged to be consumed. The absorption, distribution, metabolism, and excretion (ADME) of the minor components (primarily flavonoid glycosides) are well understood and have been described in publicly available studies. Limited information is available on the toxicity of the flavonoid components of *Citrus* fruits. ADME studies show that flavonoids found in oranges and orange juice have similar pharmacokinetic profiles. Hesperidin and its structurally related compounds are used as markers for the safety of orange pomace because of the available toxicity data and similar metabolic profile to other constituents. For support, clinical studies of some components of orange pomace in human volunteers were evaluated.

The following subsections of this Notice provide a general description of the historical consumption, ADME, toxicological, and clinical studies on the components of orange pomace that support the above conclusions. In addition, the conclusions reached by the Expert Panel are presented in Exhibit III and are considered to be accurate by the Notifier.

History of Orange Product Use

Oranges have been consumed by humans for centuries and are believed to have originated in Southeast Asia and India. They were cultivated in Italy by the end of the Roman Empire, and spread to the rest of Europe during the Middle Ages. Christopher Columbus brought the first oranges to Florida in 1493. By law, each sailor on every Spanish ship that sailed to the Americas carried 100 seeds with him. Ponce de Leon carried citrus seeds to Florida in 1513 and directed his sailors to plant seeds upon landing (Hui, 1999). Anson Van Leuven brought the first orange trees to the California San Bernardino Valley in 1857 (National Orange Show Foundation, 2004). In 1893, the U.S. Department of Agriculture (USDA) initiated the systematic breeding of sweet oranges in Florida (Hui, 1999). Recipes for the use of oranges in foods can be found in several historical cookbooks. *Culinary Chemistry,* published in 1821 by Fredrick Accum, contains a recipe for orange marmalade (Kansas State University Library, 2003).

In 2014, the average person in the U.S. ingested approximately 120 pounds of fresh and processed fruit, with oranges being the most consumed (USDA, 2014). A typical American consumed approximately 4 gallons of orange juice (equal to 31 pounds of fruit) and 3 pounds of

fresh oranges, totaling 34 pounds of oranges (USDA, 2014). Based upon these data, a typical American ingests approximately 15,558 grams of oranges (fresh and processed) per year or 43 g/day. The addition of orange pomace into new food categories may increase overall orange consumption within the U.S. population. The EDI of orange pomace at the 90th percentile for all proposed uses and maximum use levels of orange pomace is 132 g/day. Taking these two estimations, the cumulative EDI for oranges and orange products is 175 g/day. According to the USDA, oranges can range from 150-326 grams (USDA, 1996). Even using conservative upper estimates of intake for orange pomace, the cumulative EDI for oranges and orange products is less than consuming a large orange.

A typical orange contains 4-5 g of juice pulp cells per 100 g of fruit (Braddock, 1983, 1999). These juice pulp cells are the juicy flesh of the fruit and contain 95% moisture. They can be pressed to make orange juice or consumed (FAO, 2001). The orange peel and the soft, white spongy layer just beneath the peel, known as the albedo, are the principle source of pectin. Leached, dried citrus peel (mainly lime and lemon), is termed pectin pomace and can be treated to make either a moist or dry peel fiber. This dietary fiber contains both soluble and insoluble fiber sources. The Institute of Medicine of The National Academies (IOM) currently recommends an Adequate Intake level of 38 and 25 g fiber/day for adult males and females (ages 19-50 years), respectively (NRC, 2005). Most people do not consume the recommended amount of fiber (USDA, 2015); therefore the addition of orange pomace into new food categories is beneficial. Several sources of citrus dietary fiber have been shown to be useful food ingredients in meat emulsions, possessing excellent water- and fat-binding properties (FAO, 2001).

Regulatory Status of Related Orange Products

Three substances similar to orange pomace have achieved GRAS status and FDA Letters of No Objection.

Citri-Fi™ Citrus Fiber 100 (a dried orange pulp) is an orange product consisting of washed orange juice pulp cells that have been dewatered, sheared, stabilized/dried, and ground to a 10 to 200 mesh. This product has achieved GRAS status for moisture retention and a flavor enhancing agent in food. A thorough review of the publicly available scientific literature revealed no evidence of any adverse effects associated with Citrus Fiber. In addition, an independent scientific expert critically evaluated the available pertinent information and concluded that Citri-Fi™ Citrus Fiber 100 is GRAS under the conditions of intended use through experience based on common use in foods (GRN No. 154; FDA Letter of No Objection dated December 13, 2004). The data and information presented in this Notification for Citrus Fiber are considered to support the current GRAS conclusion for orange pomace.

A GRAS conclusion has been made for citrus flour (also known as “dried citrus pulp”), which is also similar to orange pomace. It is made from juice cells, peels, cores, rags or segment membranes from mandarin oranges, lemons, limes, grapefruits, and tangerines. It is used as a moisture retention agent in a variety of food and beverage categories at a maximum level of 5% (GRN No. 487; FDA Letter of No Objection dated September 24, 2014). In addition to discussing published data on the safety of flavonoids, this Notification reports the results of a

published study in which no adverse effects were reported in male rats that received 8 g/kg bw/d of citrus flour in the diet for 27 weeks (Reddy et al., 1981). The data and information presented in this Notification for citrus flour (also known as "dried citrus pulp"), are considered to support the current GRAS conclusion for orange pomace.

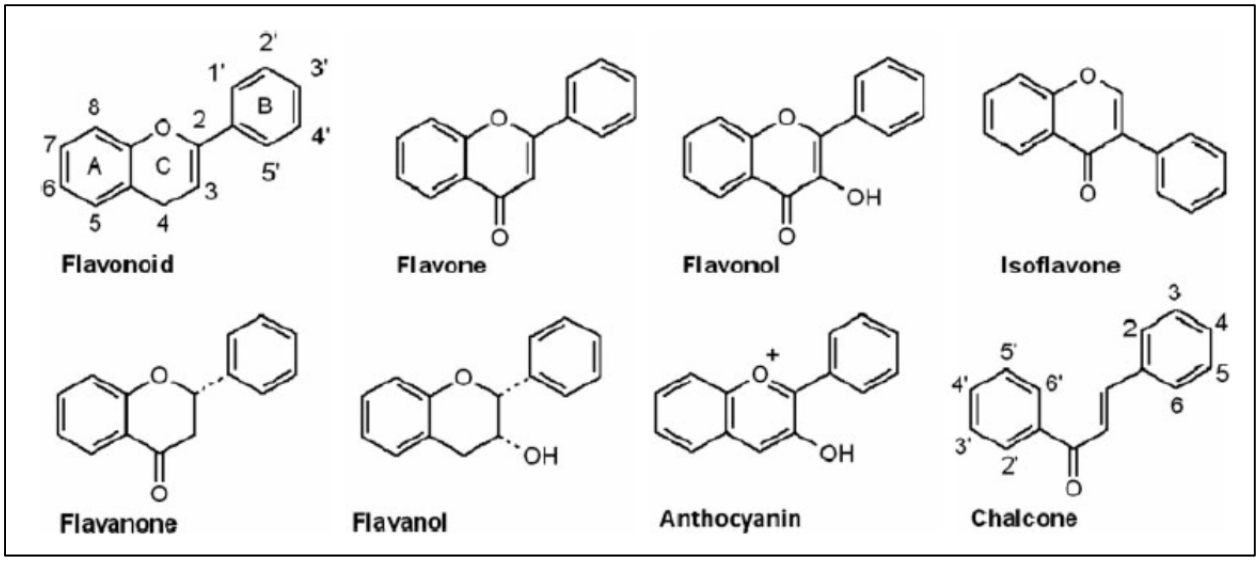
Citrus fiber obtained from the peels of lemons, limes, sweet oranges, and bitter orange has also been the subject of a recent GRAS Notification for use as a texturizer and moisture retention agent in a variety of foods at a maximum level of 4% (GRN No. 599; FDA Letter of No Objection dated February 17, 2016). This Notification reviews the results of the studies of citrus fruits and citrus fiber sources in humans and/or animals that have demonstrated its beneficial effects as well as safety. Safety studies of other fiber sources (e.g., cellulose, modified celluloses, vegetable/grain-based fiber) have also demonstrated a lack of toxicity at high levels of consumption (GRN 599). The data and information presented in this Notification for citrus fiber are considered to support the current GRAS conclusion for orange pomace.

Components of Orange Pomace

Carbohydrates, fiber, protein and fats will not be discussed as they are nutrients that are part of the normal human diet and already determined to be GRAS. A discussion of the Adequate/Upper Intake levels for these constituents compared to their estimated exposure from orange pomace consumption is presented below in Part 6, *Summary of Safety Assessment and GRAS Conclusion*. Since the macronutrients pose no safety concerns, the most prominent minor constituents were evaluated to establish safety of orange pomace in the event they are concentrated.

Citrus and *Citrus*-based products are rich in flavonoids, a large group of naturally occurring, low molecular weight molecules (Peterson *et al.*, 2006). These polyphenolic compounds are widely distributed in the plant kingdom as secondary metabolites. They are based on the parent flavone compound (2-phenyl benzopyrone) and occur both as aglycones and as glycosides. Flavonoids, share a common structure consisting of two aromatic rings (A and B) that are bound together by three carbon atoms that form an oxygenated heterocycle (ring C) (see Figure 2, below). They may be divided into seven subclasses as a function of the type of heterocycle involved: flavones, flavonols, flavanones, anthocyanins, flavanols (catechins and proanthocyanidins), dihydrochalcones and chalcones, and isoflavones (Scheline, 1991, Brand *et al.*, 2010).

Figure 2. Basic Chemical Flavonoid Structure and Basic Chemical Structure of Different Flavonoid Subclasses

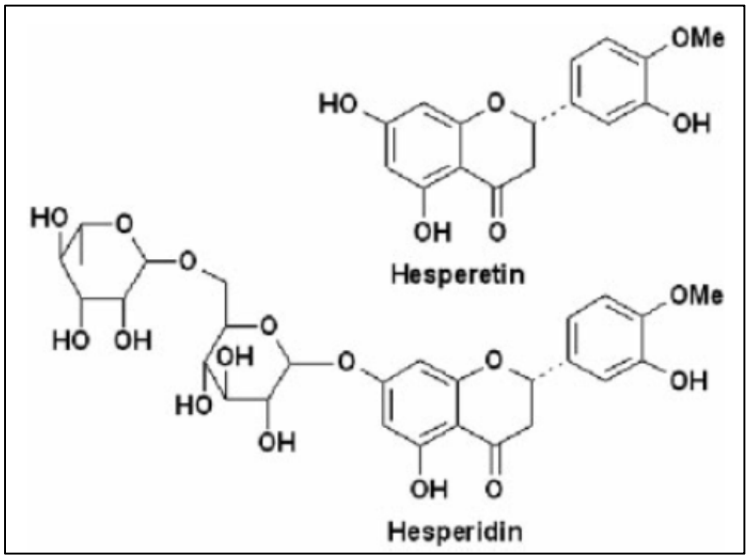


Source: Brand *et al*., 2010

Flavonoids occur in practically all parts of plants including fruit, vegetables, nuts, seeds, leaves, flowers and bark (Middleton, 1984). Fruit often contains between 5 and 10 different flavonol glycosides (Macheix *et al.*, 1990). Marked differences in concentration exist between pieces of fruit on the same tree and even between different sides of a single piece of fruit, depending on its exposure to sunlight (Price *et al.*, 1995). The three main flavonoid aglycones found in *Citrus* fruit are hesperetin, naringenin and eriodictyol and their respective glycosides are hesperidin (oranges), narirutin (grapefruit), and eriocitrin (lemons) (Manach *et al*., 2003, 2004). *Citrus* fruit are unique because they are the only food where flavanones are present in high concentrations (Manach *et al*., 2004).

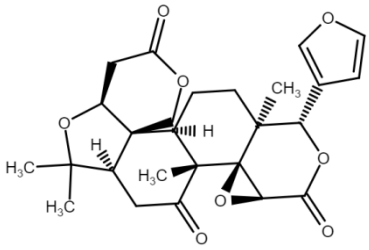
The primary flavonoid components of orange pomace are hesperidin and limonin (see Tables 1 and 2), as well as related polyphenolic flavonoids such as, narirutin, didymin, and polymethoxylated flavones (PMFs) (PepsiCo internal data on file). Hesperidin is the major flavonoid in sweet oranges. In mature fruit of *C. sinensis*, hesperidin is found at higher levels in the albedo, membranes and the pith, as compared to the juice pulp cells and seeds (Garg *et al*., 2001). The chemical structure of hesperidin is presented in Figure 3 (below) and the chemical structures of limonin, narirutin, and didymin are presented below in Figure 4.

Figure 3. Chemical Structure of the Rutinoside Hesperidin and its Aglycone Hesperetin ((±)-4'-Methoxy-3',5,7-Trihydroxyflavone)

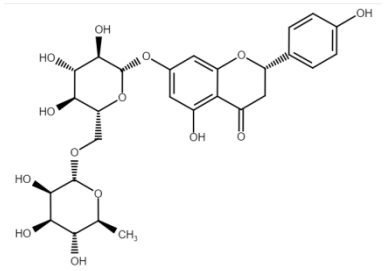


Source: Brand *et al.*, 2010

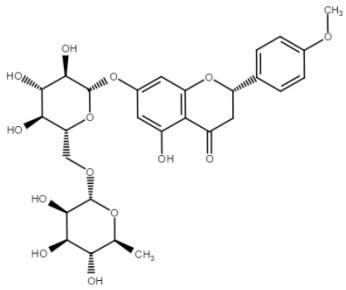
Figure 4. Chemical Structures of Additional Flavonoid Components of Orange Pomace (Limonin, Narirutin, and Didymin)



Limonin



Narirutin



Didymin

Source: U.S. National Library of Medicine TOXNET: ChemID*plus* (NLM, 2017).

Orange juice contains between 200-600 mg/L of hesperidin and 15–85 mg/L of narirutin (Manach *et al*., 2004). A single glass of orange juice (volume not specified) may contain 40-140 mg of flavanone glycosides (Manach *et al*., 2004). Because the solid parts of *Citrus* fruit have high flavanone content, the whole fruit may contain up to 700 mg of flavanone glycosides (Tomás-Barberán and Clifford, 2000). PMFs are found in orange juice ranging from 0.4 – 3 ppm (Leuzzi *et al.*, 2000). The concentrations of heptamethoxyflavone, tangeretin, and nobiletin in orange juice are 0.4-3.4, 1.0-4.3, and 2.0-10.7 mM, respectively (Takanaga *et al.,* 2000; Veldhuis *et al.*, 1970; Sendra *et al.*, 1988; Mouly *et al.*, 1998).

Absorption, Distribution, Metabolism, and Excretion (ADME) of the Minor Constituents of Orange Pomace

Human bioavailability studies demonstrated that flavanone metabolites appeared in plasma 3 hours after ingesting 0.5 or 1 L of orange juice delivering 444 mg/L of hesperidin and 96.4 mg/L of narirutin (Manach *et al.*, 2003). The maximum concentrations of hesperetin metabolites peaked in plasma at 5–7 hours, then returned to baseline at 24 hours (Manach *et al.*, 2003). The peak plasma concentration for hesperetin alone was 1.3 µM after ingesting 220 mg of hesperetin equivalents (Manach *et al.*, 2003). A previous study reported an average peak

plasma value of 2.2 μM hesperetin after the ingestion of orange juice providing 126 mg hesperetin (Erlund et al, 2001). Brett *et al.*, (2009) reported that the levels of hesperidin and narirutin in one large glass of orange juice (300 g) ranged from 200-590 mg/L and 16-84 mg/L, respectively. After ingesting 300 g of orange juice, the mean peak plasma concentrations of hesperetin was 30.9 μg/L (0.1 μM) and 14.3 μg/L (0.05 μM) for naringenin, with a T_{max} of 6-7 hours (Brett *et al.*, 2009).

In a more recent study, Silveira *et al.* (2014) compared the pharmacokinetics of flavanone glycosides after the ingestion of fresh-squeezed orange juice and commercially processed orange juice in healthy humans. The authors reported that there were no significant differences in the pharmacokinetic curves for the metabolites of hesperidin and narirutin (i.e. hesperetin glucuronide, hesperetin glucuronide sulfate, hesperetin sulfate and naringenin glucuronide, as measured by AUC, C_{max} and T_{max}) following the consumption of the two styles of juices (11.5 mL juice/kg bw given over a 10-minute period). There were also no significant differences in the absorption of these compounds.

Absorption of hesperidin from the gastrointestinal tract was less than 25% after oral administration in various forms, including orange juice (Garg *et al.*, 2001). Glycosides are cleaved in the large intestine by microflora allowing for their respective aglycones to be absorbed (Brett *et al.*, 2009). Flavones and flavanones are excreted primarily in the urine either unchanged or as glucuronide conjugates (Scheline, 1991). The unabsorbed flavonoids are excreted in the feces unchanged or as metabolites of intestinal microflora (Marín *et al*., 2015). For hesperetin and naringenin, urinary excretion is nearly complete 24 hours after orange juice ingestion (Manach *et al.*, 2003). Animal studies showed virtually complete elimination of Daflon-500 mg® (comprised of 50 mg hesperidin and 450 mg diosmin), 96 hours after administration, without any untoward accumulation in any particular organ (Meyer, 1994).

The plasma pharmacokinetic profile of limonin was determined after oral administration to rats and dogs. Although the absorption of limonin was determined to be slower in beagle dogs as compared to rats, rapid elimination was demonstrated in both species (Liu *et al.*, 2013; Wang *et al.*, 2013). Intakes of monomeric flavonols, flavones, and flavanols are relatively low, and plasma concentrations rarely exceed 1 μM because of their limited absorption and rapid elimination (Manach *et al.*, 2004). In a randomized cross-over study with 12 healthy volunteers, urinary excretion of citrus flavanones was not significantly different following the ingestion of fresh orange fruit (1,774 μmol total flavanones) or orange juice (751 μmol total flavanones), despite a 2.4-fold increase in dose (Aschoff *et al.*, 2016).

In summary, flavonoid oral absorption and bioavailability appear to be relatively low following ingestion of *Citrus* products. Those which are absorbed are rapidly excreted in the urine either unchanged or as glucuronide conjugates and therefore do not accumulate. The unabsorbed flavonoids are excreted in the feces unchanged or as metabolites of intestinal microflora.

Toxicological Studies of the Minor Constituents of Orange Pomace

Limited information is available regarding the toxicity of the minor constituents of orange pomace. Relevant studies regarding these minor constituents or structurally-related compounds are summarized below.

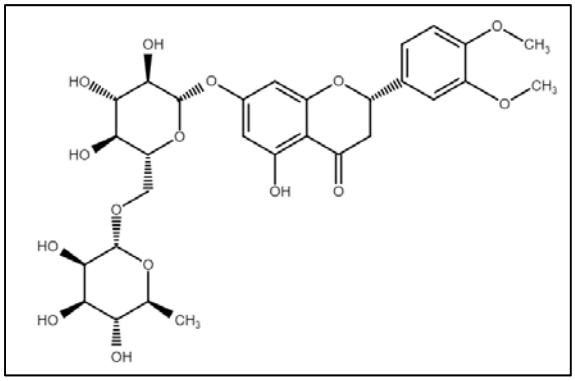
Hesperidin and Hesperetin

Hardigree and Epler (1978) showed that hesperidin and hesperetin were not mutagenic, with or without metabolic activation, in an Ames assay with the *Salmonella* frameshift TA98 strain.

Methyl Hesperidin

Methyl hesperidin (Figure 5) is not mutagenic (Bjeldanes and Chang, 1977; Ishidate et al., 1984) and exhibited no toxic or carcinogenic effects in mice given up to 5% in the diet for 13 to 96 weeks (Kawabe *et al.*, 1993; Kurata *et al.*, 1990). In the 13-week dose range-finding study, there were no significant treatment-related differences in body weights, food and water consumption, hematology and clinical chemistry parameters, or organ weights of the treated animals compared to controls, and no gross or histopathological findings suggestive of toxicity were observed. The investigators concluded that the NOAEL for methyl hesperidin was considered to be 5% in the diet, the highest dose level tested (Kawabe *et al.*, 1993). Reduced body weight gain in the 1.25% (females only) and 5% (males and females) methyl hesperidin treatment groups were observed during the 96-week carcinogenicity study but were not associated with any effects on survival rate (Kurata *et al.*, 1990). There were no treatment-related adverse effects, changes in urinalysis, hematology, or clinical chemistry parameters, and no significant alteration in the incidence of non-neoplastic or neoplastic histopathological lesions observed in the 96-week study. A NOAEL of 5% in the diet, the highest dose level tested, was identified from this study, which corresponds to intake levels of 7,500 mg/kg bw/day for males and 8,600 mg/kg bw/day for females (Kurata *et al.*, 1990).

Figure 5. Chemical Structure of Methyl Hesperidin

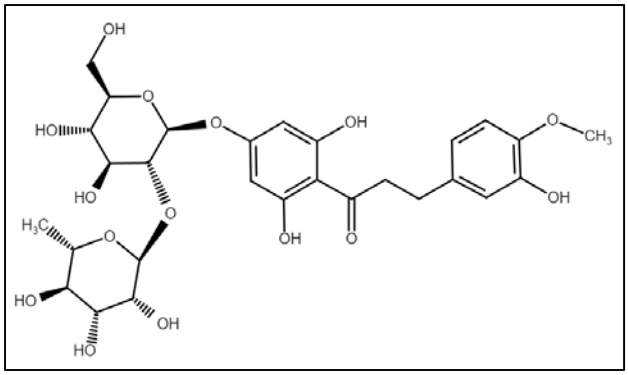


Source: U.S. National Library of Medicine TOXNET: ChemID*plus* (NLM, 2017).

Neohesperidin Dihydrochalcone

Published safety data for structurally-related neohesperidin dihydrochalcone (NHDC; Figure 6) are summarized below for completeness.

Figure 6. Chemical structure of neohesperidin dihydrochalcone (NHDC)



Source: U.S. National Library of Medicine TOXNET: ChemID*plus* (NLM, 2017).

NHDC, a synthetic form of hesperidin with FEMA GRAS status as a flavoring substance (No. 3811) (Smith *et al*., 1996), was not mutagenic or genotoxic *in vitro* (Batzinger, 1977) or clastogenic *in vivo* at dose levels up to 5 g/kg bodyweight (MacGregor *et al.*, 1979; MacGregor *et al.*, 1983). However, Sahu *et al.* (1981) found that NHDC was clastogenic in mice between 200 – 400 mg/kg when administered intraperitoneally. Doses of NHDC up to 5% in the diet, equivalent to 3,300 mg/kg/day, were not fetotoxic, embryotoxic, teratogenic, and did not result in maternal toxicity (Waalkens-Berendsen *et al.*, 2004). NHDC was evaluated in a series of safety studies including a long-term toxicity and a 2-year carcinogenicity study in rats given up to 10% in the diet (assumed to be equivalent to approximately 5,000 mg/kg bw/day[1]), a 3-generation reproduction and teratogenicity study in rats given up to 5% in the diet, and a 2-year toxicity study in dogs at 2 g/kg bw/day (Gumbmann *et al.*, 1978). The majority of the biological alterations observed in these studies were regarded as possible adaptive and reversible responses associated with the metabolism of high NHDC doses (Gumbmann *et al.*, 1978). The incidence of testicular atrophy and degeneration in dogs fed ≥ 1 g/kg bw/day for two years (one of three dogs in each group) was considered to exceed the normal background incidence rate (Gumbmann *et al.*, 1978). The validity of these findings is questionable due to small group sizes and lack of standardized testing guidelines or Good Laboratory Practices employed. It should also be noted that NHDC was reported to be readily absorbed in rodents with over 90% of the administered dose excreted (Gumbmann *et al.*, 1978) demonstrating a higher systemic exposure potential compared to hesperidin which has low oral bioavailability (< 25%) in humans. There were no teratological abnormalities and no increase in tumor incidence associated with ingestion of NHDC (Gumbmann *et al.*, 1978).

[1] A 10% dietary concentration corresponds to 100,000 ppm. Per WHO (1990), 1 ppm in the diet of an older adult rat is equivalent to 0.050 mg/kg body weight per day. Consequently, 100,000 ppm is equivalent to 5,000 mg/kg bw/day (100,000 x 0.050).

Daflon-500 mg®

Daily administration of Daflon-500 mg® (50 mg hesperidin and 450 mg diosmin) to rats at a dose level of 100 mg/kg bw by gastric intubation for 26 weeks resulted in no deaths, changes in weight or abnormalities (Damon *et al.*, 1987). Moreover, rats given up to 10% hesperidin in the diet for 30 days did not exhibit changes in daily food intake, bodyweight gain, or food efficiency (Kawaguchi *et al.*, 1997).

Phosphorylated Hesperidin

There have been reports on the antifertility activity of phosphorylated hesperidin (Beiler and Martin, 1948). However, this activity was not reproducible by Chang and Pincus (1953) and Thompson *et al.* (1953) confirmed that 150 mg/kg/day of dietary phosphorylated hesperidin or hesperidin methyl chalcone did not affect fertility in mice.

Polyphenols and Flavonoid Mixtures

Several animal studies have been conducted on the safety and tolerance of polyphenols and other flavonoid mixtures. No treatment-related adverse effects of polyphenols extracted from lychee fruit or green tea leaves were observed in subchronic oral toxicity studies at doses up to 800 mg/kg bw/day in rats (gavage administration) and up to 200 mg/kg bw/day in mice (dietary administration) (GRN No. 497; FDA Letter of No Objection dated June 12, 2014).

Summary

In summary, the results of publically available toxicological studies on the flavonoid constituents of orange pomace show little to no toxicity in animals. This is likely due to their low oral bioavailability and rapid systemic elimination. Hesperidin and its structurally related compounds are non-mutagenic, non-carcinogenic, and do not produce adverse effects in animal studies. The pivotal safety study for orange pomace is a 2-year oral toxicity and carcinogenicity mouse study with methyl hesperidin (Kurata *et al*., 1990).

Pharmacological Studies of the Minor Constituents of Orange Pomace

High exposures to certain flavonoid constituents in *Citrus* fruit can potentially result in biological activity and drug interactions. However, it can be concluded from the review of the published studies that the risks for biological activity and drug interactions are low in orange pomace consumers because of low exposure levels, low oral bioavailability and rapid systemic elimination of *Citrus* flavonoids. Additionally, although furanocoumarins present in grapefruit juice have been identified as CYP3A4 inhibitors resulting in increased bioavailability of administered medications that are substrates, common orange juice does not contain furanocoumarins and has been used as a negative control in drug-food interaction studies (Malhotra *et al*., 2000; Uesawa and Mohri, 2005; Paine *et al*., 2006).

Two studies have shown that hesperetin, naringenin and limonin can inhibit specific cytochrome P450 isozymes including CYP1A1, CYP1A2, CYP1B1 and CYP3A4 in *in vitro* experiments (Doostdar *et al.* 2000; Han *et al*., 2011). Flavonoid constituents of *Citrus* fruit have also been shown to inhibit P-glycoprotein (P-gp), a membrane transporter that mediates drug efflux from cells (Takanaga *et al.*, 2000; Mertens-Talcott *et al.*, 2007; Min *et al*., 2007; El-Readi *et al*., 2010). At high exposure levels, there have been reports of interactions between the aglycone hesperetin and conventional drugs as well (Mitsunaga *et al.*, 2000). These effects are observed when peak plasma concentrations of hesperetin were at 35 and 50 µM. In comparison, maximal plasma concentrations of hesperetin noted clinically in humans following ingestion of 1 L of orange juice (delivering 126-220 mg hesperetin) were approximately 1-2 µM (Manach *et al.*, 2003; Erlund *et al*., 2001). Since the conservative upper estimate of intake for hesperidin from the proposed uses of orange pomace is 86 mg/kg bw/day (or 529 mg hesperetin for a 70 kg adult), the potential plasma concentration of hesperetin at these dietary intake levels (i.e., approximately 5 µM assuming a 2.5-fold increase above clinical doses) would be well below those plasma levels associated with reported drug interaction effects described above.

Hesperetin and hesperidin have demonstrated anti-inflammatory activity in experimental rodent models (Rotelli *et al.*, 2003). Feng *et al*. (1988) reported that 40 mg/kg of methyl hesperidin administered intravenously markedly reduced the vascular resistance and significantly increased blood flow in the coronary, internal carotid and renal arteries of anesthetized dogs. However, the conservative upper estimate of intake for hesperidin from the proposed uses of orange pomace is only 8 mg/kg bw/day, and low oral bioavailability of hesperidin (< 25%) has been demonstrated in humans.

In a study of hesperidin isolated from *Valeriana wallichii*, 25% of a recrystallized citrus hesperidin sample (obtained via extraction from citrus peels) contained an isomer [2S(-)-hesperidin] that is reported to be pharmacologically active with some sedative-like and sleep enhancing properties (Marder *et al.*, 2003). Both the citrus and valeriana-derived hesperidin test articles increased sodium thiopental sleeping time in mice compared to the vehicle control. Doses of up to 9 mg/kg were administered via intraperitoneal injection (Marder *et al.*, 2003), which is considerably higher than the systemic exposure to hesperidin that would be expected via dietary ingestion of orange pomace. Therefore, the risk of sedative or sleep-enhancing effects from the consumption of orange pomace is extremely low because of the small amounts of the pharmacologically active isomer of hesperidin present in orange pomace and the reduced bioavailability (< 25%) of hesperidin.

In addition to providing a source of dietary fiber and other nutrients, some minor constituents of orange pomace (i.e. polyphenolic flavonoids such as hesperidin and limonin) are reported to have potential therapeutical effects in various diseases, such as neurological disorders, psychiatric disorders, and cardiovascular diseases and others, due to their anti-inflammatory, antioxidant, lipid-lowering, and insulin-sensitizing properties (Gualdani et al., 2016; Li and Schluesener, 2017).

Clinical Studies of the Minor Constituents of Orange Pomace

The clinical data that are available demonstrate that hesperidin and other minor constituents of orange pomace are well tolerated in humans.

In studies evaluating the potential health benefits of hesperidin, daily doses of up to 500 mg of hesperidin or glucosyl hesperidin were administered to human volunteers as an acute single dose or repeated doses (3-12 weeks) via orange juice, supplement, or food matrix. Study populations consisted mainly of healthy male and female subjects with the exception of one study (Rizza *et al.*, 2011) that included individuals with metabolic syndrome. No serious adverse events were reported (Rizza *et al.*, 2011; Perche *et al.*, 2014; Schär *et al.*, 2015; Martin *et al.*, 2016; Ohara *et al.*, 2016). Hesperidin (213 mg) and narirutin (30 mg) given daily for 4 weeks was well tolerated in 25 male volunteers with mild hypercholesterolemia (Constans *et al.*, 2015). In another clinical study, healthy subjects received a daily oral dose consisting of 1152 mg of naringin, 200 mg of hesperidin and 98 mg of p-synephrine (a bitter orange extract) for 60 days did not produce any adverse events (Kaats *et al*., 2013).

Treatment with Daflon-500 mg® (50 mg hesperidin and 450 mg diosmin) has been shown to be beneficial in humans with chronic venous insufficiency. Daflon-500 mg® was well tolerated in 215 subjects when administered as one tablet, twice daily for one year (Guillot *et al.*, 1989; Meyer, 1994). Meyer (1994) reports that the proportion of patients with side effects (10%) after treatment with Daflon 500 mg at the dosage of two tablets per day for six weeks to one year, essentially of a gastrointestinal or autonomic nature, is less than described in patients given a placebo (14%) in controlled trials.

In addition to safety, human clinical trials have demonstrated the potential therapeutic effects of hesperidin and its aglycone hesperetin in various diseases. These include neurological disorders, psychiatric disorders, and cardiovascular diseases due to their anti-inflammatory, antioxidant, lipid lowering, and insulin-sensitizing properties (Li and Schluesener, 2017).

In summary, human clinical data demonstrate that the minor constituents of orange pomace are well tolerated. The safety of orange pomace is supported by the lack of reported adverse events when flavonoids are consumed.

It can be concluded that hesperidin and other flavonoid constituents of orange pomace pose no safety risk to consumers.

Summary of Safety Assessment and GRAS Conclusion

Acceptable Daily Intake (ADI) for Orange Pomace and Constituents

There is no published scientific literature on orange pomace itself. Dietary Reference Intake levels for fiber, carbohydrates, fat, and protein were considered in the current safety assessment of orange pomace. As presented in Table 6 and discussed below, the Adequate Intake (AI) levels for fiber are 30-38 g/day and 21-26 g/day for males and females, respectively (NRC, 2005). The Recommended Daily Allowances (RDAs) are 130 g/day for carbohydrates and 34-56 g/day for protein (NRC, 2005). The Acceptable Macronutrient Distribution Range (AMDR) is 25-35 for total fat (NRC, 2005). Because the primary components of orange pomace are water and nutrients (fiber, protein, and carbohydrates) which are encouraged to be consumed, and there are no toxic effects associated with oranges or orange products, an ADI of "not specified" is most appropriate.

As a precaution, minor constituents of orange pomace were evaluated for safety. An ADI for hesperidin, the predominant flavonoid among the constituents in orange pomace (see Table 8 below), is calculated using the oral toxicity data for the structurally-related flavanone methyl hesperidin. The pivotal safety study with methyl hesperidin is a 2-year mouse oral toxicity and carcinogenicity study (Kurata *et al.*, 1990). The NOAEL from this study is also corroborated by a 90-day dose range-finding toxicity study with methyl hesperidin in mice (Kawabe *et al*., 1993).

The ADI for hesperidin is based on the chronic toxicity NOAEL of 7,500 mg/kg bw/day in male mice for methyl hesperidin (Kurata *et al.*, 1990). The default safety factor typically used in estimating the acceptable daily intake from toxicological data as outlined in this GRAS Notice is 100-fold. This factor is based on an interspecies factor of 10 and an intra-species factor of 10. An ADI of 75 mg/kg bw/day is calculated for methyl hesperidin as presented in Table 8 below. Methyl hesperidin and hesperidin are 99% similar according to Tanimoto's structure similarity (NCBI, 2017). Therefore, it is appropriate to derive the ADI for hesperidin from the NOAEL of methyl hesperidin.

Table 8. Methyl Hesperidin Acceptable Daily Intake

Pivotal Study	Key Data	Safety Factor	ADI for Methyl Hesperidin
Kurata *et al.*, 1990 Methyl Hesperidin Chronic Toxicity/ Carcinogenicity Study	NOAEL = 7,500 mg/kg bw/day (males)	100	75 **mg/kg bw/day**

It was previously noted (Section 6: *Toxicological Studies* and *Clinical Studies*) that the other flavonoid constituents of orange pomace have a similar safety profile to hesperidin. The safety/toxicity profile of hesperidin was judged to be the most relevant marker to assess the safety of orange pomace. Additional information supporting the safety of constituents of orange

pomace is provided by several human bioavailability and clinical studies with orange juice or orange pomace constituents. These data show flavonoids have low bioavailability and are rapidly excreted following ingestion of *Citrus* products and therefore pose a low risk of biological activity. In summary, the totality of scientific evidence from the chronic and carcinogenicity study of dietary methyl hesperidin demonstrates the lack of systemic toxicity and carcinogenicity of methyl hesperidin and subsequently hesperidin.

Comparison of Recommended Dietary Reference Intake Values and EDI for Orange Pomace Macronutrients

For macronutrients, there is no tolerable upper level of intake to compare to the EDI (NRC, 2005). Conservative estimates of potential high consumer intake of fiber from foods containing orange pomace at the maximum proposed use levels [approximately 17 g/day for the Total Population; all food categories combined (Table 6)] are similar to or below the current Dietary Reference Intake values for fiber [Adequate Intake levels are 30-38 g/day and 21-26 g/day for males and females, respectively (NRC, 2005)]. Similarly, conservative intake estimates for carbohydrates, protein, and fat [approximately 19, 3, and 1 g/day, respectively for the Total Population (Table 6)], are well below the acceptable/recommended dietary thresholds for adult males and females [Recommended Daily Allowances are 130 g/day for carbohydrates and 34-56 g/day for protein; Acceptable Macronutrient Distribution Range is 25-35 for total fat (NRC, 2005)]. Intake of these macronutrients from orange pomace consumption therefore represents an appropriate addition to the total daily diet.

Comparison of ADI and EDI for Hesperidin

The conservative upper estimate of intake for hesperidin from orange pomace for all food categories is 8 mg/kg bw/day for the total population (Table 7). This EDI is 10-fold lower than the calculated ADI of 75 mg/kg bw/day. Even at the highest EDI for hesperidin among specific population subgroups (21 mg/kg bw/day)[2], children (ages 1-6) would have to consume over 3 times more orange pomace to approach the ADI for hesperidin.

Given that orange pomace is not the only dietary source of hesperidin, a cumulative EDI was derived for this minor constituent. The primary dietary sources of hesperidin are from the consumption of oranges and orange juice (Somerset and Johannot, 2008). The average consumption of oranges in 2014 was approximately 43 g/day (USDA, 2014). Since oranges (fresh and processed) were the most consumed fruit in America, it is assumed that 70% of the U.S. population ingests oranges or orange juice on a daily basis. Using PepsiCo's internal data for hesperidin content in oranges (1,800 mg/L; *unpublished data on-file*), the EDI for hesperidin in fresh and processed oranges is 77 mg/day[3] or 1 mg/kg bw/day for a 70 kg adult. When the conservative estimate of intake for hesperidin from orange pomace (8 mg/kg bw/day; refer to Table 7 above) is added, the cumulative EDI for hesperidin with the addition of orange pomace

[2] 3,000 mg hesperidin/L orange pomace x 1 L/1,000 g x 1 g/1,000 mg x 7,100 mg orange pomace/kg bw/day (Table 5) = 21 mg hesperidin/kg bw/day.

[3] 1,800 mg hesperidin/L in oranges x 1 L/1,000 g x 1 g/1,000 mg x 43 g oranges/day = 77 mg hesperidin/day.

into the market is 9 mg/kg bw/day, which is well below the calculated ADI for hesperidin (75 mg/kg bw/day).

In summary, the totality of scientific evidence of publically available information relevant to the safety of orange pomace, including identity, specifications, manufacturing process, probable consumer exposure, dietary reference intake values for major constituents, and toxicology/safety profile of minor constituents, provides a basis upon which to conclude that there is a reasonable certainty that orange pomace, produced in accordance with current good manufacturing practices, is not harmful under its proposed intended conditions of use.

General Recognition of the Safety of Orange Pomace

The safety assessment of orange pomace is based upon its source (commonly consumed oranges), manufacture (standard processes) and composition (water, protein, carbohydrates, and fiber). As discussed above (see *History of Orange Product Use*), even using conservative upper estimates of intake for orange pomace, the cumulative EDI for oranges and orange products is less than consuming a large orange. To ensure that no untoward effects might occur from concentrating minor constituents, the totality of the evidence of publically available published scientific literature regarding orange pomace constituents or structurally-related compounds was evaluated, with a focus on hesperidin as the marker constituent. This evaluation includes metabolism, short- and long-term preclinical toxicity, developmental and reproduction toxicity, carcinogenicity, *in vitro* and *in vivo* mutagenicity/genotoxicity studies, and several published clinical studies conducted with orange pomace constituents or structurally-related compounds. Further, three similar substances derived from oranges have achieved GRAS status and received FDA Letters of No Objection (GRN No. 154, 487, 599).

The totality of the evidence provides a basis upon which to conclude that the uses of orange pomace described in this GRAS Notice satisfy the safety standard of Reasonable Certainty of No Harm. In addition, these data and information are known and accepted by a consensus of qualified experts in the general scientific community. This not only assures that the intended uses of orange pomace described in this Notice are safe, but also comprises common knowledge that orange pomace is also generally recognized as safe under its proposed conditions of use.

In order to assure that the common knowledge about the safety of orange pomace is generally accepted by a consensus of qualified experts, the Notifier has convened an independent review of this document by prominent experts in the field of food and food ingredient safety. The individuals comprising this Panel are qualified by scientific training and experience to evaluate the safety of substances intended to be added to food. They have critically evaluated the available information summarized in this document and have individually and collectively concluded that orange pomace, produced consistent with current Good Manufacturing Practice and meeting the specifications described herein, is safe under its intended conditions of use. The Panel further concluded that these uses of orange pomace satisfy the safety standard of reasonable certainty of no harm. The Panel's GRAS opinion is included as an attachment to this document (See Exhibit III).

The Notifier is not aware of information that would be inconsistent with a conclusion that the proposed uses of orange pomace, meeting appropriate specifications and used according to current Good Manufacturing Practice, are GRAS.

None of the data or information included in this GRAS Notification has been claimed as exempt from disclosure under FOIA.

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Note: All references listed herein may be considered *generally available*.

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EXHIBIT I.

TECHNICAL DOCUMENTATION FOR ORANGE POMACE

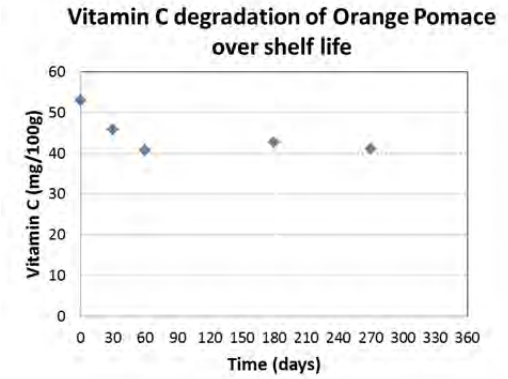
I-A: Orange Pomace Stability Data

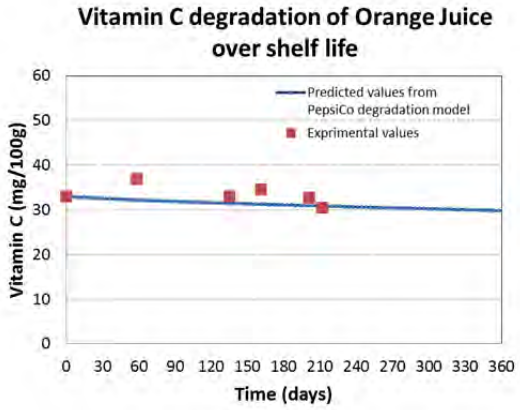
Orange Pomace Shelf Life

- Orange pomace can be stored for 1 year at aseptic and chilled conditions.
- Similarly, orange juice can be stored for 1 year or more at aseptic and chilled condition.
- Vitamin C , fiber, and flavor acceptability are the main indicators of shelf life for pomace

Comparison 1: Vitamin C Degradation in OJ and Pomace in OJ at 35F

Pomace follows a similar Vitamin C degradation reaction as Orange Juice over shelf life. At 9 months storage, the Vitamin C degradation in Pomace has been minimal, and is anticipated to meet stability requirements at >1 year storage.

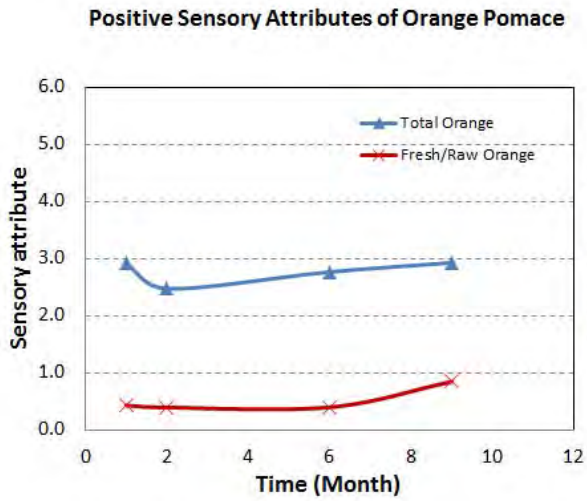


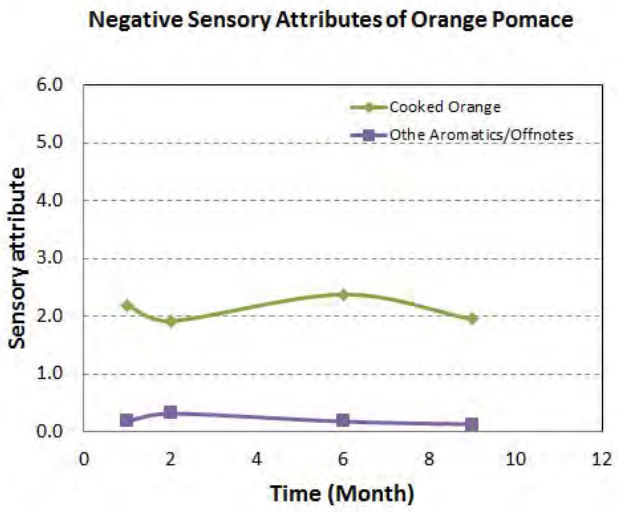


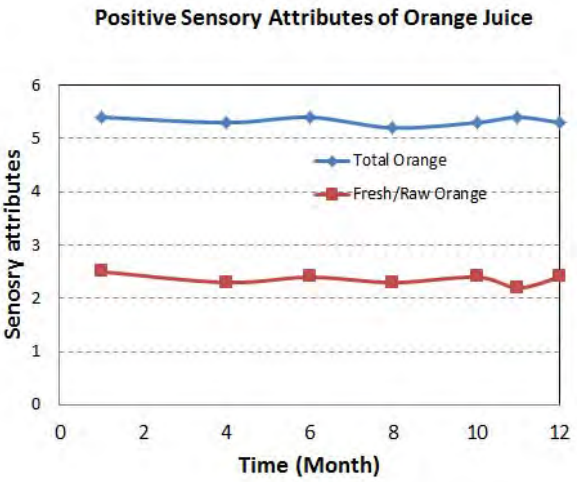
Source: PepsiCo Orange Pomace Stability Study, Aseptic Tank Storage Data, and Predictive Modeling (2013)

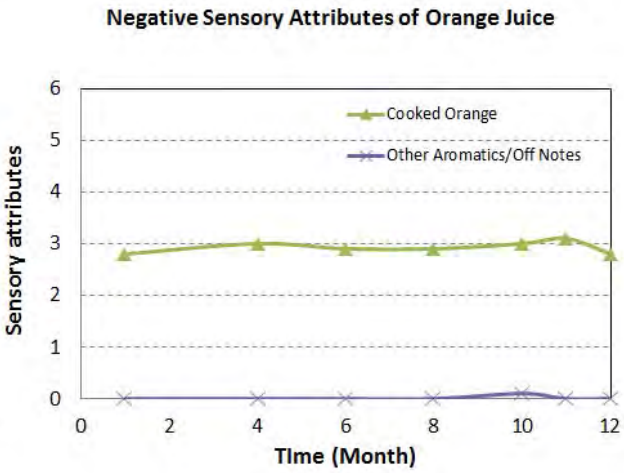
Comparison 2: Flavor Change in OJ and Pomace

Pomace flavor change is minimal, and follows similar profile as Orange Juice over shelf life at 35F. It is anticipated that flavor degradation and stability will be acceptable out to 1 year, based on data received so far out to 9 months.







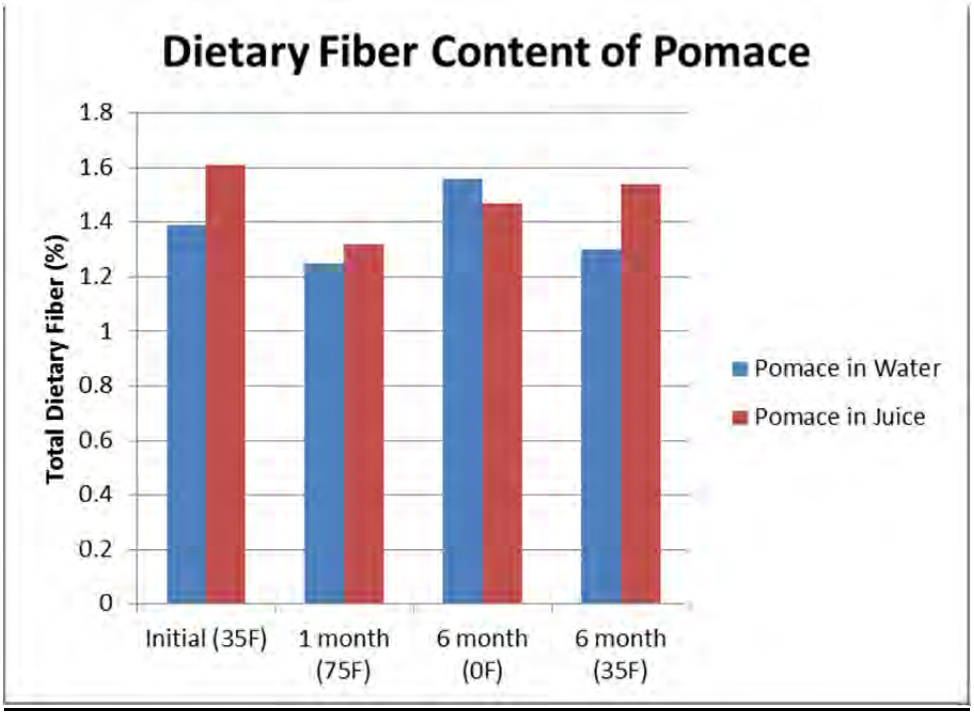


Source: PepsiCo Descriptive Panel (2011, 2013)

Fiber Stability in Pomace

(note- there is no reference stability data for fiber in OJ because levels of fiber in juice are negligible)

Fiber content is stable (minimal change/within analytical error) at 6 months of storage in water and juice bases, at refrigerated and frozen storage conditions.



Source: PepsiCo Orange Pomace Stability Study, 2013

EXHIBIT II.

Orange Pomace EDI Report (Exponent, 2016)

Exponent®

Center for Chemical Regulation and Food Safety

Estimated Daily Intake of Orange Pomace and Enzyme Treated Orange Pomace in Selected Foods and Beverages

Estimated Daily Intake of Orange Pomace and Enzyme Treated Orange Pomace in Selected Foods and Beverages

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November 4, 2016

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List of Acronyms

DHHS	U.S. Department of Health and Human Services
EDI	Estimated Daily Intake
FDA	U.S. Food and Drug Administration
NCHS	National Center for Health Statistics
NHANES	National Health and Nutrition Examination Survey
USDA	U.S. Department of Agriculture

Introduction

At the request of PepsiCo (Pepsi), Exponent conducted an intake assessment to estimate the total daily intake of orange pomace and enzyme treated orange pomace from 17 categories of foods and beverages. The estimated daily intake (EDI) of orange pomace and enzyme treated orange pomace was based on food consumption data from the 2009-2012 National Health and Examination Survey (NHANES) and provided for the total US populations and 7 subpopulations including: 1.) infants, ages 0 to 11 months, 2.) children, ages 1 to 6 years, 3.) children, ages 7 to 12 years, 4.) female teenagers, ages 13 to 19 years, 5.) male teenagers, ages 13 to 19 years, 6.) female adults, ages 20 years and older, and 7.) male adults, ages 20 years and older. The data and methods used to conduct the intake assessment and results are summarized in this report.

Data and Methods

Proposed Use and Levels

Orange pomace and enzyme treated orange pomace are proposed for use in 17 categories of foods and beverages. The list of food categories and proposed maximum use levels included in this assessment are provided below in Table 1. It should be noted that users will consume the proposed foods and beverages containing either orange pomace or enzyme treated orange pomace (not both); therefore, intake estimates reported herein for these two ingredients are not cumulative.

Table 1. Proposed Food Uses and Levels

Food Category	Orange Pomace	Enzyme Treated Orange Pomace
	Maximum Use Level (%)	
Orange Juice	15	25
Blends with other juices	15	25
Juice Drinks	10	20
Smoothies	15	25
Spoonable Sauce	30	40
Grain-based bars	15	15
Hot cereals	15	15
Pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins or other pastries	25	25
Pie filling	25	25
Salad dressings	25	25
Sauces and Dips	35	35
Condiments, major	35	35
Condiments, minor	35	35
Pastes (up to 75% water content)	50	50
Fruit butters (orange)	50	50
Fruit leathers	50	50

Consumption Data

Orange pomace and enzyme treated orange pomace intakes from select food categories were based on food consumption records collected as part of the National Health and Nutrition

Examination Surveys (NHANES) conducted in 2009-2010 and 2011-2012. This continuous survey is a complex multistage probability sample designed to be representative of the civilian U.S. population (NCHS 2012, 2014). The NHANES datasets provide nationally representative nutrition and health data and prevalence estimates for nutrition and health status measures in the U.S. Statistical weights are provided by the National Center for Health Statistics (NCHS) for the surveys to adjust for the differential probabilities of selection. As part of the examination, trained dietary interviewers collect detailed information on all foods and beverages consumed by respondents in the previous 24-h time period (midnight to midnight). A second dietary recall is administered by telephone 3 to 10 days after the first dietary interview, but not on the same day of the week as the first interview. The dietary component of the survey is conducted as a partnership between the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (DHHS). DHHS is responsible for the sample design and data collection, and USDA is responsible for the survey's dietary data collection methodology, maintenance of the databases used to code and process the data, and data review and processing. A total of 16,011 individuals in the survey period 2009-2012 provided 2 complete days of dietary recalls.

Analysis

Using the NHANES consumption data, Exponent estimated the daily intake on a "per capita" and "per user" basis. In this analysis, a user is anyone who reported consuming any of the proposed foods on either of the survey days. We identify each participant who reported consuming any of the proposed foods on either of the survey days, and we use that individual's responses for both survey days. Zero consumption days are included in calculating that individual's average daily intake. For example, if someone reported consuming 100 grams of orange juice on day 1 and 50 grams of orange juice on day 2, his/her 2-day average orange juice consumption would be 75 grams ([100 + 50]/2). The analysis was limited to individuals who provided two complete and reliable dietary recalls as determined by NCHS. The 2-day average intakes by each individual were estimated using Exponent's Foods and Residues Evaluation Program (FARE® version 11.199) software. Exponent uses the statistically weighted values from

the survey in its analyses. The statistical weights compensate for variable probabilities of selection, adjust for non-response, and provide intake estimates that are representative of the U.S. population.

In the analysis, the 2-day average intake of orange pomace and enzyme treated orange pomace was estimated by multiplying the reported intake of foods from the 24-hr recall with the proposed use level (see Table 1) and the cumulative sum over the two 24-hr recalls was divided by two. Estimates were also derived per kilogram bodyweight (kg bw) based on each participant's reported bodyweight.

Consumption data in the NHANES survey are reported on an "as consumed" basis. That is, if a survey participant consumed an apple pie, the consumption amount reported in the survey for that subject would be for the amount of pie consumed, and not for the ingredients (flour, butter, apples, sugar, etc.) used to make that pie. Exponent identified foods reported consumed for each proposed food category. A summary of the NHANES foods identified for each category that were included in the analysis are presented in Table 2 below and the comprehensive list of NHANES food codes and their description are provided in Appendix A. Exponent utilized USDA's Food and Nutrient Database for Dietary Studies (FNDDS) that translates the food as consumed into its corresponding ingredients (and gram amounts) or recipes. Exponent applied FNDDS version 2011-2012 recipes (which corresponds to dietary consumption for NHANES 2011-2012) (USDA 2014a) to process dietary recall data reported in NHANES 2009-2012 and FNDDS version 5.0 recipes (which corresponds to dietary consumption for NHANES 2009-2010) (USDA 2012a) for foods that were only reported consumed in NHANES 2009-2010. Consumption of the foods with proposed use of orange pomace and enzyme treated orange pomace was estimated using these USDA recipes when the target food was a component of the reported food (i.e., applesauce component in a cake made with applesauce, juice component in an alcoholic drink, mayonnaise in sandwiches and salads, barbecue sauce in a sloppy joe sandwich, etc.).

Table 2. Summary of NHANES Foods Included in Analysis

Food Category	Examples of NHANES foods
Orange Juice	Orange juice, all types including canned, bottled, or in a carton; frozen. Includes orange juice as a component in alcoholic and non-alcoholic drinks (i.e., mimosa, sangria, fruit punch).
Blends with other juices	Fruit juice blends and vegetable and fruit juice blends.
Juice Drinks	Juice drinks and fruit flavored drinks.
Smoothies	Fruit smoothie drinks.
Spoonable Sauce	Applesauce.
Grain-based bars	Breakfast bar, granola bars, oatmeal snack bar, cereal bars.
Hot cereals	Grits, cornmeal mush, oatmeal, cream of rice, cream of wheat, wheat cereal, oat bran cereal, hominy.
Pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins or other pastries	All types and flavors of sweet rolls, croissants, muffins, cakes, pies, cobblers, crisps, fritters, crepes, strudels, turnovers or dumplings, doughnuts, other pastries.
Pie filling	Lemon, cherry, and blueberry pie fillings.
Salad dressings	All types including Caesar, coleslaw, French, honey mustard, Russian, Italian, poppy seed, yogurt, thousand island, and mayonnaise. Includes salad dressing and mayonnaise as a component in sandwiches, burgers, and salads.
Sauces and Dips	Dips (i.e., spinach, bean, guacamole, eggplant), cheese sauces (i.e., white sauce, milk gravy, cheese sauce, alfredo), gravies, other sauces (i.e., peanut sauce, cranberry sauce, salsa, tomato sauce, barbecue sauce, garlic sauce, hollandaise sauce, tartar sauce, sweet and sour sauce). Includes cheese sauce, gravy, and other sauces as a component in mixed dishes such as pasta, pizza, beef sloppy joe and other sandwiches, vegetables with cheese sauce, meat with gravy dishes, etc.
Condiments, major	Catsup, teriyaki sauce, soy sauce, hoisin sauce, steak sauce, vinegar. Includes major condiments as a component in mixed dishes such as stir-fry and soy-based mixtures, burgers and wraps, fried rice, potato salad, etc.
Condiments, minor	Mustard, horseradish, hot sauce, Worcestershire sauce, fish sauce, plum sauce. Includes minor condiments as a component in mixed dishes such as enchiladas, stuffed pepper with rice and meat, omelet with chili sauce, etc.
Pastes (up to 75% water content)	Miso (fermented soybean paste), almond paste, sesame paste, guava paste, and bean paste
Fruit butters (orange)	Fruit butter, all flavors
Fruit leathers	Fruit leather and fruit snacks candy

Two-day average estimates were derived for each proposed use category as well as for all proposed use categories together. Estimates were derived for the total US population and the following age and sex-specific subpopulations:

- Infants, ages 0 to 11 months;
- Children, ages 1 to 6 years;
- Children, ages 7 to 12 years;
- Female teenagers, ages 13 to 19 years;
- Male teenagers, ages 13 to 19 years;
- Female adults, ages 20 years and older;
- Male adults, ages 20 years and older.

Flagging of Statistically Unreliable Estimates

Estimates of consumption that may be less statistically reliable are flagged based on guidance from NCHS (NCHS 1996). Specifically, estimated mean consumption values are flagged when based on a sample size of less than 30 times the variance inflation factor (VIF) and estimates of 90th percentiles of consumption are flagged when based on a sample size of less than 8 times the VIF and divided by 0.10. VIF estimates of 2.04 and 2.5 were estimated by USDA for the NHANES periods 2009-2010 and 2011-2012, respectively (USDA 2012b, 2014b). Exponent is not aware of a published VIF estimate for the combined NHANES 2009-2012. Using the higher, more conservative VIF of 2.5, estimated mean consumption is flagged when based on a sample size of less than 75 (30 x 2.5). Similarly, using a VIF of 2.5, estimated 90th percentile consumption is flagged when based on a sample size of less than 200 (8 x 2.5/0.10).

Results

Total Orange Pomace and Enzyme Treated Orange Pomace Intakes

Two-day average orange pomace and enzyme treated orange pomace intake estimates from all proposed uses were calculated based on food consumption data collected in NHANES 2009-2012. Both the *per capita* and *per user* mean and 90th percentile results for the U.S. populations, infants age 0-11 mo; children 1-6 y, 7-12 y; males/females 13-19 y; and males/females 20+ y in g/day and g/kg bw/day are provided in Tables 3 and 4, respectively.

Table 3. Total Orange Pomace and Enzyme Treated Orange Pomace Intake Among the Total U.S. Population and by Population Group, 2-day Average (grams/day), NHANES 2009-2012

Population	N[1]	% User	Orange Pomace (g/day)				Enzyme Treated Orange Pomace (g/day)			
			Per Capita		Per User		Per Capita		Per User	
			Mean	90th	Mean	90th	Mean	90th	Mean	90th
Infants 0-11 mo*	161	24.1	3.7	12.4	15.4	40.9	5.0	13.2	20.8	60.1
Children 1-6 y	2,118	97.0	40.2	80.0	41.4	81.1	58.9	121	60.7	122
Children 7-12 y	1,874	97.7	43.9	85.8	44.9	86.3	61.8	125	63.2	125
Males 13-19 y	940	97.2	49.8	106	51.2	106	68.0	160	69.9	161
Females 13-19 y	890	97.8	46.2	96.7	47.2	97.1	64.1	134	65.5	135
Males 20+ y	4,357	97.7	51.5	107	52.7	107	66.4	147	68.0	148
Females 20+ y	4,704	97.2	41.1	83.8	42.3	84.3	53.6	117	55.1	119
Total U.S.	15,043	96.4	45.0	94.2	46.7	95.4	59.6	130	61.9	132

[1]Unweighted number of users; % user, *per capita* and *per user* estimates derived using the statistical weights provided by the National Center for Health Statistics (NCHS).
*Intake estimate at the 90th percentile and higher are statistically unreliable due to small user sample size.

Table 4. Total Orange Pomace and Enzyme Treated Orange Pomace Intake Among the Total US Population and by Population Group, 2-day Average (grams/kg bw/day), NHANES 2009-2012

Population	N[1]	% User	Orange Pomace (g/kg-bw/day)				Enzyme Treated Orange Pomace (g/kg-bw/day)			
			Per Capita		Per User		Per Capita		Per User	
			Mean	90th	Mean	90th	Mean	90th	Mean	90th
Infants 0-11 mo*	161	24.1	0.38	1.32	1.59	4.14	0.52	1.53	2.15	5.68
Children 1-6 y	2,118	97.0	2.41	4.78	2.48	4.87	3.52	7.00	3.63	7.08
Children 7-12 y	1,874	97.7	1.22	2.48	1.25	2.50	1.71	3.62	1.75	3.64
Males 13-19 y	940	97.2	0.73	1.64	0.75	1.66	0.99	2.35	1.02	2.38
Females 13-19 y	890	97.8	0.78	1.68	0.79	1.68	1.08	2.35	1.10	2.36
Males 20+ y	4,357	97.7	0.60	1.26	0.62	1.28	0.78	1.72	0.80	1.73
Females 20+ y	4,704	97.2	0.58	1.21	0.59	1.22	0.75	1.67	0.77	1.70
Total U.S.	15,043	96.4	0.80	1.73	0.83	1.76	1.08	2.47	1.12	2.52

[1]Unweighted number of users; % user, per capita and per user estimates derived using the statistical weights provided by the National Center for Health Statistics (NCHS).
*Intake estimate at the 90th percentile and higher are statistically unreliable due to small user sample size.

Among the entire US population, 96.4% were identified as consumers of foods that are proposed to contain orange pomace or enzyme treated orange pomace. Estimated daily intake of orange pomace and enzyme treated orange pomace among the total US population at the *per user* mean was 46.7 g/day and 61.9 g/day, respectively (corresponding to 0.83 and 1.12 g/kg bw/day). At the 90th percentile of intake, the estimated intake of orange pomace and enzyme treated orange pomace was 95.4 g/day and 132 g/day, respectively. This corresponds

to 1.76 and 2.52 g/kg bw/day of orange pomace and enzyme treated orange pomace, respectively, at the 90th percentile of intake. *Per user* mean intake from all proposed food uses range from 15.4 g/day among infants based on orange pomace proposed levels to 69.9 g/day among male teenagers using enzyme treated orange pomace proposed levels. On a bodyweight basis, the highest *per user* mean intake is among children 1-6 y at 2.48 g/kg bw/day and 3.63 g/kg bw/day of orange pomace and enzyme treated orange pomace, respectively. *Per user* 90th percentile intake estimates range from 40.9 g/day among infants using orange pomace proposed levels to 161 g/day among male teenagers based on enzyme treated orange pomace proposed levels. The highest *per user* 90th percentile of intake on a bodyweight basis is estimated in children 1-6 y (4.87 g/kg bw/day and 7.08 g/kg bw/day for orange pomace and enzyme treated orange pomace, respectively).

Orange Pomace Intake and Enzyme Treated Orange Pomace Intakes by Proposed Food Category

Per capita and *per user* mean and 90th percentile orange pomace and enzyme treated orange pomace intakes among the total US population and each subpopulation for each food category proposed for use, in grams per day and adjusted for bodyweight, are summarized in Tables 5 and 6, respectively. At the subpopulation level, several of the sample sizes within a category were too small to allow reliable estimation of the per user mean and/or upper percentiles. Among the total US population, the highest intake estimates were observed as a result of "juice drinks" consumption with estimated enzyme treated orange pomace intake at the *per user* mean and 90th percentile of 60.1 g/day and 126 g/day, respectively. On a bodyweight basis, the highest intake estimates were from "blends with other juices" with the per user mean and 90th percentile enzyme treated orange pomace intakes of 1.19 and 2.53 g/kg bw/day, respectively. This is largely driven by the intake estimates among infants and children 1-6 y.

Table 5. Orange Pomace Intake by Category of Proposed Use in the Total US Population and by Population Group, 2-day Average (grams/day), NHANES 2009-2012

Proposed food category	Population	N	% User	Orange Pomace (g/day)				Enzyme Treated Orange Pomace (g/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
Orange Juice	Infants 0-11 mo*	15	2.3	0.3	0	11.3	14.1	0.4	0	18.8	23.4
	Children 1-6 y	586	25.1	4.8	18.6	19.1	37.1	8.0	31.0	31.9	61.8
	Children 7-12 y	510	25.1	5.5	22.9	21.9	38.2	9.2	38.1	36.5	63.7
	Males 13-19 y	240	20.1	6.8	24.5	33.8	69.1	11.3	40.8	56.3	115
	Females 13-19 y	235	23.7	7.4	25.5	31.1	51.4	12.3	42.5	51.9	85.7
	Males 20+ y	961	21.2	6.9	25.6	32.6	64.9	11.5	42.7	54.4	108
	Females 20+ y	947	18.8	4.6	18.8	24.5	43.9	7.7	31.3	40.8	73.2
	Total U.S.	3,493	20.7	5.7	23.2	27.4	50.2	9.5	38.7	45.7	83.7
Blends with other juices	Infants 0-11 mo*	24	2.7	0.4	0	15.8	25.7	0.7	0	26.4	42.8
	Children 1-6 y	499	22.8	5.7	19.0	25.2	48.9	9.6	31.6	41.9	81.5
	Children 7-12 y**	191	8.8	1.8	0	20.1	37.6	2.9	0	33.4	62.7
	Males 13-19 y*	49	5.3	1.6	0	29.4	51.7	2.6	0	49.1	86.1
	Females 13-19 y*	69	5.0	1.4	0	29.1	64.2	2.4	0	48.5	107
	Males 20+ y	266	5.7	2.0	0	35.5	71.9	3.4	0	59.1	120
	Females 20+ y	374	7.4	2.1	0	28.8	49.0	3.6	0	48.0	81.6
	Total U.S.	1,472	7.9	2.3	0	28.8	52.9	3.8	0	48.0	88.2
Juice Drinks	Infants 0-11 mo*	35	4.3	0.5	0	10.5	15.4	0.9	0	20.9	30.8
	Children 1-6 y	1,068	46.5	10.6	31.2	22.8	46.3	21.1	62.4	45.5	92.6
	Children 7-12 y	1,063	50.9	11.7	34.0	23.0	43.5	23.4	67.9	46.0	87.1
	Males 13-19 y	384	35.8	11.5	39.8	32.2	67.8	23.1	79.5	64.4	136
	Females 13-19 y	383	36.4	10.6	32.5	29.1	68.9	21.2	64.9	58.3	138
	Males 20+ y	1,054	22.5	8.3	27.3	36.9	80.6	16.6	54.6	73.7	161
	Females 20+ y	1,220	22.5	6.8	23.8	30.3	66.1	13.6	47.5	60.5	132
	Total U.S.	5,206	27.8	8.3	27.2	30.1	63.2	16.7	54.5	60.1	126
Smoothies	Infants 0-11 mo*	5	0.8	0.2	NA	19.5	NA	0.3	NA	32.6	NA
	Children 1-6 y**	99	3.3	0.6	0	18.5	33.3	1.0	0	30.9	55.5
	Children 7-12 y**	114	6.3	1.3	0	20.9	34.8	2.2	0	34.9	57.9
	Males 13-19 y*	32	2.9	1.4	0	46.9	65.7	2.3	0	78.1	110
	Females 13-19 y*	45	4.7	1.5	0	33.1	47.8	2.6	0	55.2	79.6
	Males 20+ y**	122	2.2	0.8	0	36.4	57.3	1.4	0	60.6	95.6

Proposed food category	Population	N	% User	Orange Pomace (g/day)				Enzyme Treated Orange Pomace (g/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Females 20+ y	200	4.0	1.5	0	36.9	88.1	2.4	0	61.6	147
	Total U.S.	617	3.4	1.1	0	33.1	62.9	1.9	0	55.1	105
Spoonable Sauce	Infants 0-11 mo*	29	5.8	0.9	0	14.8	33.9	1.1	0	19.8	45.2
	Children 1-6 y**	199	11.3	2.2	8.5	19.2	35.8	2.9	11.4	25.6	47.8
	Children 7-12 y**	101	5.5	1.3	0	24.1	42.1	1.8	0	32.2	56.2
	Males 13-19 y*	18	2.2	0.5	0	21.8	42.5	0.6	0	29.0	56.6
	Females 13-19 y*	24	4.2	1.1	0	25.8	38.1	1.5	0	34.4	50.8
	Males 20+ y*	74	2.1	0.5	0	23.6	38.0	0.7	0	31.4	50.6
	Females 20+ y**	138	2.6	0.6	0	21.5	36.6	0.8	0	28.7	48.8
	Total U.S.	583	3.5	0.8	0	21.8	38.0	1.0	0	29.0	50.7
Grain-based bars	Infants 0-11 mo*	3	1.4	0.02	NA	1.4	NA	0.02	NA	1.4	NA
	Children 1-6 y**	196	12.3	0.4	1.7	3.1	5.7	0.4	1.7	3.1	5.7
	Children 7-12 y**	186	12.6	0.4	1.8	3.0	5.3	0.4	1.8	3.0	5.3
	Males 13-19 y*	73	8.0	0.3	0	3.7	5.8	0.3	0	3.7	5.8
	Females 13-19 y**	92	10.8	0.3	1.6	3.2	6.4	0.3	1.6	3.2	6.4
	Males 20+ y	248	7.0	0.3	0	3.9	6.4	0.3	0	3.9	6.4
	Females 20+ y	337	8.6	0.3	0	3.2	6.0	0.3	0	3.2	6.0
	Total U.S.	1,134	8.6	0.3	0	3.4	6.0	0.3	0	3.4	6.0
Hot cereals	Infants 0-11 mo*	29	3.6	0.4	0	9.8	22.7	0.4	0	9.8	22.7
	Children 1-6 y	298	12.6	2.1	8.9	16.9	28.9	2.1	8.9	16.9	28.9
	Children 7-12 y**	122	6.1	1.4	0	22.9	38.5	1.4	0	22.9	38.5
	Males 13-19 y*	33	2.6	0.7	0	26.6	32.8	0.7	0	26.6	32.8
	Females 13-19 y*	42	2.8	0.5	0	16.2	25.8	0.5	0	16.2	25.8
	Males 20+ y	627	12.8	3.6	13.7	28.3	57.9	3.6	13.7	28.3	57.9
	Females 20+ y	853	16.5	3.7	17.5	22.5	36.9	3.7	17.5	22.5	36.9
	Total U.S.	2,004	12.5	3.0	12.8	24.1	42.4	3.0	12.8	24.1	42.4
Pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins or other pastries	Infants 0-11 mo*	23	2.9	0.2	0	7.7	18.7	0.2	0	7.7	18.7
	Children 1-6 y	727	36.8	3.8	12.5	10.2	20.3	3.8	12.5	10.2	20.3
	Children 7-12 y	776	40.7	6.3	20.0	15.6	32.2	6.3	20.0	15.6	32.2
	Males 13-19 y	310	32.3	5.9	20.2	18.2	30.6	5.9	20.2	18.2	30.6
	Females 13-19 y	299	33.5	5.6	17.0	16.8	37.9	5.6	17.0	16.8	37.9
	Males 20+ y	1,671	37.7	7.5	26.5	20.0	40.2	7.5	26.5	20.0	40.2

Proposed food category	Population	N	% User	Orange Pomace (g/day)				Enzyme Treated Orange Pomace (g/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Females 20+ y	1,805	37.6	6.1	20.3	16.3	33.1	6.1	20.3	16.3	33.1
	Total U.S.	5,610	36.8	6.3	21.2	17.2	35.6	6.3	21.2	17.2	35.6
Pie filling	Infants 0-11 mo*	0	0	0	0	0	0	0	0	0	0
	Children 1-6 y*	0	0	0	0	0	0	0	0	0	0
	Children 7-12 y*	0	0	0	0	0	0	0	0	0	0
	Males 13-19 y*	0	0	0	0	0	0	0	0	0	0
	Females 13-19 y*	1	0.5	0.04	NA	8.3	NA	0.04	NA	8.3	NA
	Males 20+ y*	1	0.1	0.01	NA	16.4	NA	0.01	NA	16.4	NA
	Females 20+ y*	4	0.04	0.01	NA	12.9	NA	0.01	NA	12.9	NA
	Total U.S.*	6	0.1	0.01	NA	12.9	NA	0.01	NA	12.9	NA
Salad dressings	Infants 0-11 mo*	14	1.5	0.01	0	0.9	2.6	0.01	0	0.9	2.6
	Children 1-6 y	606	29.4	0.6	1.8	1.9	4.3	0.6	1.8	1.9	4.3
	Children 7-12 y	739	39.4	1.1	3.6	2.7	5.9	1.1	3.6	2.7	5.9
	Males 13-19 y	428	43.1	2.1	6.9	5.0	11.1	2.1	6.9	5.0	11.1
	Females 13-19 y	428	51.6	2.2	7.4	4.3	9.8	2.2	7.4	4.3	9.8
	Males 20+ y	2,369	57.8	2.9	8.3	5.0	10.8	2.9	8.3	5.0	10.8
	Females 20+ y	2,768	61.7	2.7	7.5	4.3	9.2	2.7	7.5	4.3	9.2
	Total U.S.	7,352	53.7	2.4	7.3	4.4	9.7	2.4	7.3	4.4	9.7
Sauces and Dips	Infants 0-11 mo**	91	13.5	0.8	2.5	6.1	12.6	0.8	2.5	6.1	12.6
	Children 1-6 y	1,269	57.8	7.2	21.3	12.4	27.2	7.2	21.3	12.4	27.2
	Children 7-12 y	1,262	64.3	10.2	27.9	15.9	34.1	10.2	27.9	15.9	34.1
	Males 13-19 y	632	65.5	14.8	41.0	22.6	55.5	14.8	41.0	22.6	55.5
	Females 13-19 y	586	69.1	12.8	37.1	18.6	43.7	12.8	37.1	18.6	43.7
	Males 20+ y	2,960	68.3	16.1	43.1	23.5	52.9	16.1	43.1	23.5	52.9
	Females 20+ y	3,006	64.6	11.3	30.6	17.5	37.3	11.3	30.6	17.5	37.3
	Total U.S.	9,805	64.8	12.6	34.7	19.5	43.3	12.6	34.7	19.5	43.3
Condiments, major	Infants 0-11 mo*	18	2.2	0.02	0	1.1	2.7	0.02	0	1.1	2.7
	Children 1-6 y	856	42.2	1.2	3.5	2.7	5.3	1.2	3.5	2.7	5.3
	Children 7-12 y	838	45.0	1.9	5.3	4.2	9.0	1.9	5.3	4.2	9.0
	Males 13-19 y	450	47.0	2.8	8.8	5.9	11.5	2.8	8.8	5.9	11.5
	Females 13-19 y	374	42.6	1.9	5.3	4.4	10.5	1.9	5.3	4.4	10.5
	Males 20+ y	1,711	40.5	1.8	5.3	4.4	10.5	1.8	5.3	4.4	10.5

Proposed food category	Population	N	% User	Orange Pomace (g/day)				Enzyme Treated Orange Pomace (g/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Females 20+ y	1,552	32.3	1.0	3.0	3.1	6.9	1.0	3.0	3.1	6.9
	Total U.S.	5,799	37.7	1.5	4.6	3.9	9.3	1.5	4.6	3.9	9.3
Condiments, minor	Infants 0-11 mo*	5	0.7	<0.005	NA	0.2	NA	<0.005	NA	0.2	NA
	Children 1-6 y**	180	9.6	0.1	0	0.7	1.4	0.1	0	0.7	1.4
	Children 7-12 y	260	13.4	0.2	0.4	1.3	2.7	0.2	0.4	1.3	2.7
	Males 13-19 y**	189	20.5	0.6	1.0	2.9	6.0	0.6	1.0	2.9	6.0
	Females 13-19 y**	135	14.9	0.2	0.4	1.4	2.7	0.2	0.4	1.4	2.7
	Males 20+ y	1,070	26.0	0.6	1.8	2.3	5.3	0.6	1.8	2.3	5.3
	Females 20+ y	932	20.0	0.3	0.9	1.4	2.7	0.3	0.9	1.4	2.7
	Total U.S.	2,771	20.2	0.4	0.9	1.8	3.7	0.4	0.9	1.8	3.7
Pastes (up to 75% water content)	Infants 0-11 mo*	0	0	0	NA	0	0	0	NA	0	0
	Children 1-6 y*	3	0.1	0.01	NA	8.7	NA	0.01	NA	8.7	NA
	Children 7-12 y*	5	0.3	0.01	NA	3.1	NA	0.01	NA	3.1	NA
	Males 13-19 y*	0	0	0	NA	0	0	0	NA	0	0
	Females 13-19 y*	2	0.2	0.01	NA	4.8	NA	0.01	NA	4.8	NA
	Males 20+ y*	6	0.1	0.03	NA	34.4	NA	0.03	NA	34.4	NA
	Females 20+ y*	13	0.2	0.02	0	11.4	14.2	0.02	0	11.4	14.2
	Total U.S.*	29	0.1	0.02	0	14.7	55.9	0.02	0	14.7	55.9
Fruit butters (orange)	Infants 0-11 mo*	0	0	0	NA	0	0	0	NA	0	0
	Children 1-6 y*	3	0.1	<0.005	NA	5.7	NA	<0.005	NA	5.7	NA
	Children 7-12 y*	1	0.04	<0.005	NA	1.5	NA	<0.005	NA	1.5	NA
	Males 13-19 y*	1	0.3	0.03	NA	9.0	NA	0.03	NA	9.0	NA
	Females 13-19 y*	0	0	0	NA	0	0	0	NA	0	0
	Males 20+ y*	11	0.3	0.03	0	12.4	61.2	0.03	0	12.4	61.2
	Females 20+ y*	18	0.4	0.02	0	6.0	13.3	0.02	0	6.0	13.3
	Total U.S.*	34	0.3	0.02	0	8.4	13.3	0.02	0	8.4	13.3
Fruit leathers	Infants 0-11 mo*	5	1.0	0.1	NA	9.0	NA	0.1	NA	9.0	NA
	Children 1-6 y	261	13.5	1.0	4.0	7.7	13.6	1.0	4.0	7.7	13.6
	Children 7-12 y**	155	9.6	0.8	0	7.9	13.0	0.8	0	7.9	13.0
	Males 13-19 y*	39	5.2	0.9	0	16.6	49.0	0.9	0	16.6	49.0
	Females 13-19 y*	46	5.5	0.5	0	9.5	22.0	0.5	0	9.5	22.0
	Males 20+ y*	34	0.6	0.1	0	11.8	22.2	0.1	0	11.8	22.2

Proposed food category	Population	N	% User	Orange Pomace (g/day)				Enzyme Treated Orange Pomace (g/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Females 20+ y*	54	1.2	0.1	0	6.7	12.9	0.1	0	6.7	12.9
	Total U.S.	594	3.1	0.3	0	8.8	14.1	0.3	0	8.8	14.1

[1]Unweighted number of users; % user, *per capita* and *per user* estimates derived using the statistical weights provided by the National Center for Health Statistics (NCHS)
*Intake estimate at the *per user* mean and 90th percentile and higher are statistically unreliable due to small user sample size.
**Intake estimate at the *per user* 90th percentile and higher are statistically unreliable due to small user sample size.
NA = Not available, estimate not calculated when the unweighted number of users is 10 or less.

Table 6. Orange Pomace Intake by Category of Proposed Use in the Total US Population and by Population Group, 2-day Average (grams/kg bw/day), NHANES 2009-2012

Proposed food category	Population	N[1]	% User	Orange Pomace (g/kg-bw/day)				Enzyme Treated Orange Pomace (g/kg-bw/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
Orange Juice	Infants 0-11 mo*	15	2.3	0.02	0	1.07	1.47	0.04	0	1.79	2.45
	Children 1-6 y	586	25.1	0.28	1.03	1.12	2.20	0.47	1.71	1.86	3.66
	Children 7-12 y	510	25.1	0.15	0.58	0.60	1.16	0.25	0.96	1.00	1.94
	Males 13-19 y	240	20.1	0.10	0.33	0.50	1.04	0.17	0.56	0.83	1.74
	Females 13-19 y	235	23.7	0.13	0.43	0.53	1.01	0.21	0.71	0.88	1.69
	Males 20+ y	961	21.2	0.08	0.31	0.39	0.77	0.14	0.52	0.66	1.29
	Females 20+ y	947	18.8	0.07	0.28	0.35	0.67	0.11	0.47	0.58	1.11
	Total U.S.	3,493	20.7	0.10	0.36	0.48	0.95	0.17	0.60	0.80	1.58
Blends with other juices	Infants 0-11 mo*	24	2.7	0.05	0	1.79	3.68	0.08	0	2.98	6.14
	Children 1-6 y	499	22.8	0.37	1.27	1.62	3.20	0.61	2.11	2.70	5.33
	Children 7-12 y**	191	8.8	0.05	0	0.57	1.06	0.08	0	0.96	1.77
	Males 13-19 y*	49	5.3	0.02	0	0.40	0.69	0.04	0	0.67	1.16
	Females 13-19 y*	69	5.0	0.02	0	0.47	0.98	0.04	0	0.79	1.63
	Males 20+ y	266	5.7	0.02	0	0.43	0.92	0.04	0	0.72	1.53
	Females 20+ y	374	7.4	0.03	0	0.41	0.84	0.05	0	0.68	1.41
	Total U.S.	1,472	7.9	0.06	0	0.72	1.52	0.09	0	1.19	2.53
Juice Drinks	Infants 0-11 mo*	35	4.3	0.05	0	1.09	1.75	0.09	0	2.18	3.50
	Children 1-6 y	1,068	46.5	0.61	1.76	1.31	2.57	1.22	3.53	2.62	5.14
	Children 7-12 y	1,063	50.9	0.32	0.95	0.63	1.24	0.64	1.90	1.26	2.47
	Males 13-19 y	384	35.8	0.17	0.53	0.47	1.03	0.34	1.07	0.94	2.06
	Females 13-19 y	383	36.4	0.18	0.59	0.49	1.08	0.36	1.18	0.98	2.15
	Males 20+ y	1,054	22.5	0.09	0.32	0.42	0.88	0.19	0.65	0.84	1.76
	Females 20+ y	1,220	22.5	0.09	0.30	0.40	0.84	0.18	0.59	0.80	1.68
	Total U.S.	5,206	27.8	0.16	0.50	0.57	1.24	0.32	1.00	1.14	2.47
Smoothies	Infants 0-11 mo*	5	0.8	0.01	NA	1.62	NA	0.02	NA	2.70	NA
	Children 1-6 y**	99	3.3	0.04	0	1.13	1.99	0.06	0	1.88	3.32
	Children 7-12 y**	114	6.3	0.04	0	0.60	0.99	0.06	0	0.99	1.64
	Males 13-19 y*	32	2.9	0.02	0	0.72	1.21	0.03	0	1.20	2.01
	Females 13-19 y*	45	4.7	0.02	0	0.51	0.73	0.04	0	0.86	1.21

Proposed food category	Population	N[1]	% User	Orange Pomace (g/kg-bw/day)				Enzyme Treated Orange Pomace (g/kg-bw/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Males 20+ y**	122	2.2	0.01	0	0.44	0.77	0.02	0	0.74	1.28
	Females 20+ y	200	4.0	0.02	0	0.57	1.25	0.04	0	0.94	2.08
	Total U.S.	617	3.4	0.02	0	0.59	1.21	0.03	0	0.98	2.02
Spoonable Sauce	Infants 0-11 mo*	29	5.8	0.09	0	1.51	2.86	0.12	0	2.01	3.81
	Children 1-6 y**	199	11.3	0.14	0.55	1.21	2.16	0.18	0.74	1.61	2.88
	Children 7-12 y**	101	5.5	0.04	0	0.72	1.27	0.05	0	0.96	1.69
	Males 13-19 y*	18	2.2	0.01	0	0.33	0.82	0.01	0	0.44	1.09
	Females 13-19 y*	24	4.2	0.02	0	0.48	0.70	0.03	0	0.64	0.93
	Males 20+ y*	74	2.1	0.01	0	0.28	0.51	0.01	0	0.38	0.68
	Females 20+ y**	138	2.6	0.01	0	0.30	0.52	0.01	0	0.40	0.69
	Total U.S.	583	3.5	0.02	0	0.63	1.31	0.03	0	0.83	1.74
Grain-based bars	Infants 0-11 mo*	3	1.4	<0.005	NA	0.13	NA	<0.005	NA	0.13	NA
	Children 1-6 y**	196	12.3	0.02	0.10	0.20	0.40	0.02	0.10	0.20	0.40
	Children 7-12 y**	186	12.6	0.01	0.05	0.09	0.16	0.01	0.05	0.09	0.16
	Males 13-19 y*	73	8.0	<0.005	0	0.06	0.11	<0.005	0	0.06	0.11
	Females 13-19 y**	92	10.8	0.01	0.02	0.06	0.13	0.01	0.02	0.06	0.13
	Males 20+ y	248	7.0	<0.005	0	0.05	0.08	<0.005	0	0.05	0.08
	Females 20+ y	337	8.6	<0.005	0	0.04	0.08	<0.005	0	0.04	0.08
	Total U.S.	1,134	8.6	0.01	0	0.07	0.14	0.01	0	0.07	0.14
Hot cereals	Infants 0-11 mo*	29	3.6	0.04	0	1.01	2.25	0.04	0	1.01	2.25
	Children 1-6 y	298	12.6	0.14	0.53	1.14	2.29	0.14	0.53	1.14	2.29
	Children 7-12 y**	122	6.1	0.04	0	0.66	1.12	0.04	0	0.66	1.12
	Males 13-19 y*	33	2.6	0.01	0	0.41	0.54	0.01	0	0.41	0.54
	Females 13-19 y*	42	2.8	0.01	0	0.27	0.59	0.01	0	0.27	0.59
	Males 20+ y	627	12.8	0.04	0.16	0.34	0.66	0.04	0.16	0.34	0.66
	Females 20+ y	853	16.5	0.05	0.24	0.33	0.60	0.05	0.24	0.33	0.60
	Total U.S.	2,004	12.5	0.05	0.17	0.42	0.79	0.05	0.17	0.42	0.79
Pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins or other pastries	Infants 0-11 mo*	23	2.9	0.02	0	0.76	1.69	0.02	0	0.76	1.69
	Children 1-6 y	727	36.8	0.22	0.72	0.59	1.12	0.22	0.72	0.59	1.12
	Children 7-12 y	776	40.7	0.18	0.58	0.44	0.92	0.18	0.58	0.44	0.92
	Males 13-19 y	310	32.3	0.09	0.31	0.28	0.49	0.09	0.31	0.28	0.49

Proposed food category	Population	N[1]	% User	Orange Pomace (g/kg-bw/day)				Enzyme Treated Orange Pomace (g/kg-bw/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Females 13-19 y	299	33.5	0.10	0.32	0.29	0.58	0.10	0.32	0.29	0.58
	Males 20+ y	1,671	37.7	0.09	0.30	0.23	0.48	0.09	0.30	0.23	0.48
	Females 20+ y	1,805	37.6	0.09	0.29	0.23	0.48	0.09	0.29	0.23	0.48
	Total U.S.	5,610	36.8	0.10	0.34	0.28	0.58	0.10	0.34	0.28	0.58
Pie filling	Infants 0-11 mo*	0	0	0	0	0	0	0	0	0	0
	Children 1-6 y*	0	0	0	0	0	0	0	0	0	0
	Children 7-12 y*	0	0	0	0	0	0	0	0	0	0
	Males 13-19 y*	0	0	0	0	0	0	0	0	0	0
	Females 13-19 y*	1	0.5	<0.005	NA	0.17	NA	<0.005	NA	0.17	NA
	Males 20+ y*	1	0.1	<0.005	NA	0.21	NA	<0.005	NA	0.21	NA
	Females 20+ y*	4	0.04	<0.005	NA	0.18	NA	<0.005	NA	0.18	NA
	Total U.S.*	6	0.1	<0.005	NA	0.19	NA	<0.005	NA	0.19	NA
Salad dressings	Infants 0-11 mo*	14	1.5	<0.005	0	0.10	0.29	<0.005	0	0.10	0.29
	Children 1-6 y	606	29.4	0.03	0.10	0.10	0.26	0.03	0.10	0.10	0.26
	Children 7-12 y	739	39.4	0.03	0.09	0.07	0.16	0.03	0.09	0.07	0.16
	Males 13-19 y	428	43.1	0.03	0.09	0.07	0.15	0.03	0.09	0.07	0.15
	Females 13-19 y	428	51.6	0.04	0.11	0.07	0.17	0.04	0.11	0.07	0.17
	Males 20+ y	2,369	57.8	0.03	0.09	0.06	0.13	0.03	0.09	0.06	0.13
	Females 20+ y	2,768	61.7	0.04	0.10	0.06	0.13	0.04	0.10	0.06	0.13
	Total U.S.	7,352	53.7	0.03	0.10	0.06	0.14	0.03	0.10	0.06	0.14
Sauces and Dips	Infants 0-11 mo**	91	13.5	0.09	0.27	0.65	1.47	0.09	0.27	0.65	1.47
	Children 1-6 y	1,269	57.8	0.43	1.25	0.74	1.63	0.43	1.25	0.74	1.63
	Children 7-12 y	1,262	64.3	0.28	0.80	0.44	1.05	0.28	0.80	0.44	1.05
	Males 13-19 y	632	65.5	0.21	0.61	0.33	0.73	0.21	0.61	0.33	0.73
	Females 13-19 y	586	69.1	0.21	0.59	0.31	0.70	0.21	0.59	0.31	0.70
	Males 20+ y	2,960	68.3	0.19	0.51	0.27	0.60	0.19	0.51	0.27	0.60
	Females 20+ y	3,006	64.6	0.16	0.43	0.25	0.54	0.16	0.43	0.25	0.54
	Total U.S.	9,805	64.8	0.20	0.56	0.32	0.71	0.20	0.56	0.32	0.71
Condiments, major	Infants 0-11 mo*	18	2.2	<0.005	0	0.12	0.27	<0.005	0	0.12	0.27
	Children 1-6 y	856	42.2	0.06	0.22	0.15	0.34	0.06	0.22	0.15	0.34
	Children 7-12 y	838	45.0	0.05	0.13	0.12	0.25	0.05	0.13	0.12	0.25

Proposed food category	Population	N[1]	% User	Orange Pomace (g/kg-bw/day)				Enzyme Treated Orange Pomace (g/kg-bw/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Males 13-19 y	450	47.0	0.04	0.12	0.09	0.19	0.04	0.12	0.09	0.19
	Females 13-19 y	374	42.6	0.03	0.08	0.07	0.20	0.03	0.08	0.07	0.20
	Males 20+ y	1,711	40.5	0.02	0.06	0.05	0.12	0.02	0.06	0.05	0.12
	Females 20+ y	1,552	32.3	0.01	0.04	0.04	0.10	0.01	0.04	0.04	0.10
	Total U.S.	**5,799**	**37.7**	**0.03**	**0.07**	**0.07**	**0.16**	**0.03**	**0.07**	**0.07**	**0.16**
Condiments, minor	Infants 0-11 mo*	5	0.7	<0.005	NA	0.02	NA	<0.005	NA	0.02	NA
	Children 1-6 y**	180	9.6	<0.005	0	0.04	0.08	<0.005	0	0.04	0.08
	Children 7-12 y	260	13.4	<0.005	0.01	0.03	0.07	<0.005	0.01	0.03	0.07
	Males 13-19 y**	189	20.5	0.01	0.02	0.04	0.11	0.01	0.02	0.04	0.11
	Females 13-19 y**	135	14.9	<0.005	0.01	0.02	0.05	<0.005	0.01	0.02	0.05
	Males 20+ y	1,070	26.0	0.01	0.02	0.03	0.06	0.01	0.02	0.03	0.06
	Females 20+ y	932	20.0	<0.005	0.01	0.02	0.04	<0.005	0.01	0.02	0.04
	Total U.S.	**2,771**	**20.2**	**0.01**	**0.01**	**0.03**	**0.05**	**0.01**	**0.01**	**0.03**	**0.05**
Pastes (up to 75% water content)	Infants 0-11 mo*	0	0	0	0	0	0	0	0	0	0
	Children 1-6 y*	3	0.1	<0.005	NA	0.50	NA	<0.005	NA	0.50	NA
	Children 7-12 y*	5	0.3	<0.005	NA	0.08	NA	<0.005	NA	0.08	NA
	Males 13-19 y*	0	0	0	0	0	0	0	0	0	0
	Females 13-19 y*	2	0.2	<0.005	NA	0.07	NA	<0.005	NA	0.07	NA
	Males 20+ y*	6	0.1	<0.005	NA	0.56	NA	<0.005	NA	0.56	NA
	Females 20+ y*	13	0.2	<0.005	0	0.19	0.25	<0.005	0	0.19	0.25
	Total U.S.*	**29**	**0.1**	**<0.005**	**0**	**0.27**	**1.22**	**<0.005**	**0**	**0.27**	**1.22**
Fruit butters (orange)	Infants 0-11 mo*	0	0	0	0	0	0	0	0	0	0
	Children 1-6 y*	3	0.1	<0.005	NA	0.29	NA	<0.005	NA	0.29	NA
	Children 7-12 y*	1	0.04	<0.005	NA	0.03	NA	<0.005	NA	0.03	NA
	Males 13-19 y*	1	0.3	<0.005	NA	0.12	NA	<0.005	NA	0.12	NA
	Females 13-19 y*	0	0	0	0	0	0	0	0	0	0
	Males 20+ y*	11	0.3	<0.005	0	0.17	0.88	<0.005	0	0.17	0.88
	Females 20+ y*	18	0.4	<0.005	0	0.07	0.11	<0.005	0	0.07	0.11
	Total U.S.*	**34**	**0.3**	**<0.005**	**0**	**0.12**	**0.13**	**<0.005**	**0**	**0.12**	**0.13**
Fruit leathers	Infants 0-11 mo*	5	1.0	0.01	NA	0.91	NA	0.01	NA	0.91	NA
	Children 1-6 y	261	13.5	0.06	0.23	0.46	0.82	0.06	0.23	0.46	0.82

Proposed food category	Population	N[1]	% User	Orange Pomace (g/kg-bw/day)				Enzyme Treated Orange Pomace (g/kg-bw/day)			
				Per Capita		Per User		Per Capita		Per User	
				Mean	90th	Mean	90th	Mean	90th	Mean	90th
	Children 7-12 y**	155	9.6	0.02	0	0.25	0.49	0.02	0	0.25	0.49
	Males 13-19 y*	39	5.2	0.01	0	0.27	0.77	0.01	0	0.27	0.77
	Females 13-19 y*	46	5.5	0.01	0	0.16	0.32	0.01	0	0.16	0.32
	Males 20+ y*	34	0.6	<0.005	0	0.13	0.23	<0.005	0	0.13	0.23
	Females 20+ y*	54	1.2	<0.005	0	0.10	0.18	<0.005	0	0.10	0.18
	Total U.S.	594	3.1	0.01	0	0.29	0.63	0.01	0	0.29	0.63

[1]Unweighted number of users; % user, per capita and per user estimates derived using the statistical weights provided by the National Center for Health Statistics (NCHS)
*Intake estimate at the *per user* mean and 90th percentile and higher are statistically unreliable due to small user sample size.
**Intake estimate at the *per user* 90th percentile and higher are statistically unreliable due to small user sample size.
NA = Not available, estimate not calculated when the unweighted number of users is 10 or less.

Conclusions

Consumption data and information pertaining to the individual proposed food-uses of orange pomace and enzyme treated orange pomace were used to estimate the per capita and per user intakes of orange pomace and enzyme treated orange pomace for the total U.S. population and select age-sex subpopulations. The methodology in this study relied on dietary recall component of the NHANES survey which consists of two non-consecutive 24-hr recalls. The estimates based on 2-day average intakes do not necessarily represent long-term intakes, since they (1) may not capture infrequent consumers of foods proposed to contain orange pomace and enzyme treated orange pomace, (2) assume that subjects who consumed orange pomace and enzyme treated orange pomace -containing products on both survey days actually consume these products every day of the year, and (3) do not adjust for potential day-to-day variation in orange pomace intake. A 2-day average typically overestimates long-term (chronic) daily intake and does not necessarily represent long-term intakes.

In summary, on a *per capita* basis, the mean intake of orange pomace and enzyme treated orange pomace by the total U.S. population from all proposed food-uses was estimated to be 45.0 and 59.6 g/person/day, respectively, or 0.80 and 1.08 g/kg bw/day. At the *per user* 90th percentile (i.e., heavy users), intake of orange pomace and enzyme treated orange pomace by the total U.S. population from all proposed food-uses was estimated to be 95.4 and 132 g/person/day, respectively, or 1.76 and 2.52 g/kg bw/day. As stated above, users will consume the proposed foods and beverages containing either orange pomace or enzyme treated orange pomace (not both); therefore, intake estimates reported herein for these two ingredients are not cumulative.

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Appendix A. NHANES food codes selected for inclusion in each proposed use category (NHANES 2009-2012).

Proposed Food Category	Food Code	Description
Orange Juice	61210000	Orange juice, NFS
	61210220	Orange juice, canned, bottled or in a carton
	61210250	Orange juice, with calcium added, canned, bottled or in a carton
	61210620	Orange juice, frozen (reconstituted with water)
	61210820	Orange juice, frozen, with calcium added (reconstituted with water)
	91361020	Fruit sauce*
	92510730	Fruit punch, made with soda, fruit juice, and sherbet or ice cream*
	93301115	Mimosa*
	93301140	Screwdriver*
	93301320	Tequila Sunrise*
	93404500	Sangria*
Blends with other juices	61213800	Fruit juice blend, including citrus, 100% juice
	61213900	Fruit juice blend, including citrus, 100% juice, with calcium added
	64100100	Fruit juice, NFS
	64100110	Fruit juice blend, 100% juice
	64100200	Fruit juice blend, with cranberry, 100% juice
	78101000	Vegetable and fruit juice blend, 100% juice, with high vitamin C plus added vitamin E and vitamin A
	95342000	MonaVie acai blend beverage
Juice Drinks	92432000	Carbonated citrus juice drink
	92433000	Carbonated noncitrus juice drink
	92510610	Fruit juice drink
	92510650	Tamarind drink, Puerto Rican (Refresco de tamarindo)
	92511010	Fruit flavored drink (formerly lemonade)
	92511250	Citrus fruit juice drink, containing 40-50% juice
	92530410	Fruit flavored drink, with high vitamin C
	92530510	Cranberry juice drink or cocktail, with high vitamin C
	92530610	Fruit juice drink, with high vitamin C
	92530950	Vegetable and fruit juice drink, with high vitamin C
	92531030	Fruit juice drink, with thiamin (vitamin B1) and high vitamin C
	92541010	Fruit flavored drink, made from powdered mix
	92542000	Fruit flavored drink, made from powdered mix,with high vitamin C
	92550030	Fruit juice drink, low calorie, with high vitamin C
	92550040	Fruit juice drink, low calorie
	92550110	Cranberry juice drink or cocktail, low calorie, with high vitamin

Proposed Food Category	Food Code	Description
		C
	92550350	Light orange juice beverage, 40-50% juice, lower sugar and calories, with artificial sweetener
	92550400	Vegetable and fruit juice drink, low calorie, with high vitamin C
	92550405	Vegetable and fruit juice drink, low calorie, with high vitamin C plus added vitamin E and vitamin A
	92550610	Fruit flavored drink, low calorie, with high vitamin C
	92550620	Fruit flavored drink, low calorie
	92552000	Fruit flavored drink, made from powdered mix, low calorie, with high vitamin C
	92552010	Fruit flavored drink, made from powdered mix, low calorie
	92552020	Fruit juice drink, reduced sugar, with thiamin (vitamin B1) and high vitamin C
	92552030	Fruit juice drink, reduced sugar, with vitamin E
	92582100	Fruit juice drink, with high vitamin C, plus added calcium
	92582110	Fruit juice drink, with thiamin (vitamin B1) and high vitamin C plus calcium
	92582120	Fruit flavored drink, reduced sugar, with high vitamin C, plus added calcium
	93301032	Cape Cod*
	93301141	Seabreeze*
Smoothies	11551050	Milk fruit drink
	11552200	Orange Julius
	11553000	Fruit smoothie drink, made with fruit or fruit juice and dairy products
	11553100	Fruit smoothie drink, NFS
	64134000	Fruit smoothie drink, made with fruit or fruit juice only (no dairy products)
	92513000	Fruit flavored frozen drink
Spoonable Sauce	63101110	Applesauce, stewed apples, NS as to sweetened or unsweetened; sweetened, NS as to type of sweetener
	63101120	Applesauce, stewed apples, unsweetened
	63101130	Applesauce, stewed apples, with sugar
	63101140	Applesauce, stewed apples, sweetened with low calorie sweetener
	63101150	Applesauce with other fruits
Grain-based bars	53540000	Breakfast bar, NFS
	53540200	Breakfast bar, cereal crust with fruit filling, lowfat
	53540300	Fiber One Chewy Bar
	53540400	Kellogg's Nutri-Grain Cereal Bar
	53540402	Kellogg's Nutri-Grain Yogurt Bar
	53540404	Kellogg's Nutri-Grain Fruit and Nut Bar
	53540500	Breakfast bar, date, with yogurt coating
	53540600	Milk 'n Cereal bar
	53540700	Kellogg's Special K bar

Proposed Food Category	Food Code	Description
	53540800	Kashi GOLEAN Chewy Bars
	53540802	Kashi TLC Chewy Granola Bar
	53540806	Kashi TLC Crunchy Granola Bar
	53540900	Nature Valley Chewy Trail Mix Granola Bar
	53540902	Nature Valley Chewy Granola Bar with Yogurt Coating
	53540904	Nature Valley Sweet and Salty Nut Granola Bar
	53540906	Nature Valley Crunchy Granola Bar
	53541000	Quaker Chewy Granola Bar
	53541002	Quaker Chewy 90 Calorie Granola Bar
	53541004	Quaker Chewy 25% Less Sugar Granola Bar
	53541006	Quaker Chewy Dipps Granola Bar
	53542000	Snack bar, oatmeal
	53542100	Granola bar, NFS
	53542200	Granola bar, lowfat, NFS
	53542210	Granola bar, nonfat
	53543100	Granola bar, peanuts, oats, sugar, wheat germ
	53544200	Granola bar, chocolate-coated, NFS
	53544210	Granola bar, with coconut, chocolate-coated
	53544220	Granola bar with nuts, chocolate-coated
	53544250	Granola bar, coated with non-chocolate coating
	53544300	Granola bar, high fiber, coated with non-chocolate yogurt coating
	53544400	Granola bar, with rice cereal
	53544410	Quaker Granola Bites
	53710400	Fiber One Chewy Bar
	53710500	Kellogg's Nutri-Grain Cereal Bar
	53710502	Kellogg's Nutri-Grain Yogurt Bar
	53710504	Kellogg's Nutri-Grain Fruit and Nut Bar
	53710600	Milk 'n Cereal bar
	53710700	Kellogg's Special K bar
	53710800	Kashi GOLEAN Chewy Bars
	53710802	Kashi TLC Chewy Granola Bar
	53710804	Kashi GOLEAN Crunchy Bars
	53710806	Kashi TLC Crunchy Granola Bar
	53710900	Nature Valley Chewy Trail Mix Granola Bar
	53710902	Nature Valley Chewy Granola Bar with Yogurt Coating
	53710904	Nature Valley Sweet and Salty Granola Bar
	53710906	Nature Valley Crunchy Granola Bar
	53711000	Quaker Chewy Granola Bar
	53711002	Quaker Chewy 90 Calorie Granola Bar
	53711004	Quaker Chewy 25% Less Sugar Granola Bar
	53711006	Quaker Chewy Dipps Granola Bar
	53712000	Snack bar, oatmeal
	53712100	Granola bar, NFS
	53712200	Granola bar, lowfat, NFS

Proposed Food Category	Food Code	Description
	53712210	Granola bar, nonfat
	53714200	Granola bar, chocolate-coated, NFS
	53714210	Granola bar, with coconut, chocolate-coated
	53714220	Granola bar with nuts, chocolate-coated
	53714230	Granola bar, oats, nuts, coated with non-chocolate coating
	53714250	Granola bar, coated with non-chocolate coating
	53714300	Granola bar, high fiber, coated with non-chocolate yogurt coating
	53714400	Granola bar, with rice cereal
	53714500	Breakfast bar, NFS
	53714520	Breakfast bar, cereal crust with fruit filling, lowfat
Hot cereals	56200300	Cereal, cooked, NFS
	56200350	Cereal, cooked, instant, NS as to grain
	56200990	Grits, cooked, corn or hominy, NS as to regular, quick, or instant, NS as to fat added in cooking
	56201000	Grits, cooked, corn or hominy, NS as to regular, quick, or instant, fat not added in cooking
	56201010	Grits, cooked, corn or hominy, regular, fat not added in cooking
	56201020	Grits, cooked, corn or hominy, regular, fat added in cooking
	56201030	Grits, cooked, corn or hominy, regular, NS as to fat added in cooking
	56201040	Grits, cooked, corn or hominy, NS as to regular, quick, or instant, fat added in cooking
	56201071	Grits, cooked, corn or hominy, with cheese, regular, fat not added in cooking
	56201072	Grits, cooked, corn or hominy, with cheese, regular, fat added in cooking
	56201081	Grits, cooked, corn or hominy, with cheese, quick, fat not added in cooking
	56201082	Grits, cooked, corn or hominy, with cheese, quick, fat added in cooking
	56201091	Grits, cooked, corn or hominy, with cheese, instant, fat not added in cooking
	56201092	Grits, cooked, corn or hominy, with cheese, instant, fat added in cooking
	56201110	Grits, cooked, corn or hominy, quick, fat not added in cooking
	56201120	Grits, cooked, corn or hominy, quick, fat added in cooking
	56201210	Grits, cooked, corn or hominy, instant, fat not added in cooking
	56201220	Grits, cooked, corn or hominy, instant, fat added in cooking
	56201230	Grits, cooked, corn or hominy, instant, NS as to fat added in cooking
	56201300	Grits, cooked, corn or hominy, NS as to regular, quick, or instant, made with milk, NS as to fat added in cooking
	56201510	Cornmeal mush, made with water
	56201520	Cornmeal mush, fried

Proposed Food Category	Food Code	Description
	56201530	Cornmeal mush, made with milk
	56201540	Cornmeal, made with milk and sugar, Puerto Rican Style (Harina de maiz)
	56201700	Cornstarch with milk, eaten as a cereal (2 tbsp cornstarch in 2-1/2 cups milk)
	56202960	Oatmeal, cooked, NS as to regular, quick or instant; NS as to fat added in cooking
	56202970	Oatmeal, cooked, quick (1 or 3 minutes), NS as to fat added in cooking
	56202980	Oatmeal, cooked, regular, NS as to fat added in cooking
	56203000	Oatmeal, cooked, NS as to regular, quick or instant, fat not added in cooking
	56203010	Oatmeal, cooked, regular, fat not added in cooking
	56203020	Oatmeal, cooked, quick (1 or 3 minutes), fat not added in cooking
	56203030	Oatmeal, cooked, instant, fat not added in cooking
	56203040	Oatmeal, cooked, NS as to regular, quick, or instant, fat added in cooking
	56203050	Oatmeal, cooked, regular, fat added in cooking
	56203060	Oatmeal, cooked, quick (1 or 3 minutes), fat added in cooking
	56203070	Oatmeal, cooked, instant, fat added in cooking
	56203080	Oatmeal, cooked, instant, NS as to fat added in cooking
	56203200	Oatmeal with fruit, cooked
	56203210	Oatmeal, NS as to regular, quick, or instant, made with milk, fat not added in cooking
	56203211	Oatmeal, cooked, regular, made with milk, fat not added in cooking
	56203212	Oatmeal, cooked, quick (1 or 3 minutes), made with milk, fat not added in cooking
	56203213	Oatmeal, cooked, instant, made with milk, fat not added in cooking
	56203220	Oatmeal, NS as to regular, quick, or instant, made with milk, fat added in cooking
	56203221	Oatmeal, cooked, regular, made with milk, fat added in cooking
	56203222	Oatmeal, cooked, quick (1 or 3 minutes), made with milk, fat added in cooking
	56203223	Oatmeal, cooked, instant, made with milk, fat added in cooking
	56203230	Oatmeal, NS as to regular, quick, or instant, made with milk, NS as to fat added in cooking
	56203231	Oatmeal, cooked, regular, made with milk, NS as to fat added in cooking
	56203232	Oatmeal, cooked, quick (1 or 3 minutes), made with milk, NS as to fat added in cooking
	56203540	Oatmeal, made with milk and sugar, Puerto Rican style
	56203610	Oatmeal, multigrain, cooked, fat not added in cooking

Proposed Food Category	Food Code	Description
	56205050	Rice, cream of, cooked, fat not added in cooking
	56205080	Rice, creamed, made with milk and sugar, Puerto Rican style
	56205090	Rice, cream of, cooked, fat added in cooking
	56206970	Wheat, cream of, cooked, quick, NS as to fat added in cooking
	56207010	Wheat, cream of, cooked, regular, fat not added in cooking
	56207020	Wheat, cream of, cooked, quick, fat not added in cooking
	56207030	Wheat, cream of, cooked, instant, fat not added in cooking
	56207040	Wheat, cream of, cooked, made with milk
	56207060	Wheat, cream of, cooked, instant, fat added in cooking
	56207080	Wheat, cream of, cooked, NS as to regular, quick, or instant, fat added in cooking
	56207190	Whole wheat cereal, cooked, NS as to fat added in cooking
	56207200	Whole wheat cereal, cooked, fat not added in cooking
	56207210	Whole wheat cereal, cooked, fat added in cooking
	56207220	Wheat, cream of, cooked, regular, fat added in cooking
	56207230	Wheat, cream of, cooked, quick, fat added in cooking
	56207300	Whole wheat cereal, wheat and barley, cooked, fat not added in cooking
	56207330	Whole wheat cereal, wheat and barley, cooked, fat added in cooking
	56207350	Wheat cereal, chocolate flavored, cooked, made with milk
	56208500	Oat bran cereal, cooked, fat not added in cooking
	56208510	Oat bran cereal, cooked, fat added in cooking
	58174000	Upma (Indian breakfast dish)
	75217500	Hominy, cooked, fat not added in cooking
	75217520	Hominy, cooked, fat added in cooking
Pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins or other pastries	51160000	Roll, sweet, no frosting
	51160010	Roll, sweet, toasted
	51160100	Roll, sweet, cinnamon bun, no frosting
	51160110	Roll, sweet, cinnamon bun, frosted
	51161000	Roll, sweet, with fruit, no frosting
	51161020	Roll, sweet, with fruit, frosted
	51161030	Roll, sweet, with fruit, frosted, diet
	51161050	Roll, sweet, frosted
	51161070	Roll, sweet, with fruit, frosted, fat free
	51161100	Roll, sweet, with fruit and nuts, no frosting
	51161150	Roll, sweet, with fruit and nuts, frosted
	51161200	Roll, sweet, with nuts, no frosting
	51161250	Roll, sweet, no topping, Mexican (Pan Dulce)
	51161270	Roll, sweet, sugar topping, Mexican (Pan Dulce)
	51161280	Roll, sweet, with raisins and icing, Mexican (Pan Dulce)
	51165000	Coffee cake, yeast type

Proposed Food Category	Food Code	Description
	51165060	Coffee cake, yeast type, made from home recipe or purchased at a bakery
	51166000	Croissant
	51166100	Croissant, cheese
	51166200	Croissant, chocolate
	51166500	Croissant, fruit
	51167000	Brioche
	51188100	Pannetone (Italian-style sweet bread)
	52301000	Muffin, NFS
	52302010	Muffin, fruit
	52302020	Muffin, fruit, low fat
	52302100	Muffin, fruit, fat free, cholesterol free
	52302500	Muffin, chocolate chip
	52302600	Muffin, chocolate
	52302610	Muffin, chocolate, lowfat
	52303010	Muffin, whole wheat
	52304000	Muffin, whole grain
	52304010	Muffin, wheat bran
	52304040	Muffin, bran with fruit, lowfat
	52304100	Muffin, oatmeal
	52304150	Muffin, oat bran
	52304200	Muffin, oat bran with fruit and/or nuts
	52306010	Muffin, plain
	52306300	Muffin, cheese
	52306500	Muffin, pumpkin
	52306550	Muffin, zucchini
	52306700	Muffin, carrot
	52307120	Muffin, multigrain, with fruit
	52311010	Popover
	53100100	Cake or cupcake, NS as to type
	53101100	Cake, angel food, without icing or filling
	53101200	Cake, angel food, with icing or filling
	53101250	Cake, angel food, with fruit and icing or filling
	53102100	Cake or cupcake, applesauce, without icing or filling
	53102200	Cake or cupcake, applesauce, with icing or filling
	53102600	Cake or cupcake, banana, without icing or filling
	53102700	Cake or cupcake, banana, with icing or filling
	53102800	Cake or cupcake, black forest (chocolate-cherry)
	53103000	Cake, Boston cream pie
	53103550	Cake, butter, without icing
	53104100	Cake or cupcake, carrot, without icing or filling
	53104260	Cake or cupcake, carrot, with icing or filling
	53104400	Cake or cupcake, coconut, with icing or filling
	53104500	Cheesecake
	53104520	Cheesecake, diet

Proposed Food Category	Food Code	Description
	53104550	Cheesecake with fruit
	53104580	Cheesecake -type dessert, made with yogurt, with fruit
	53104600	Cheesecake, chocolate
	53105100	Cake, chocolate, devil's food, or fudge, standard-type mix (eggs and water added to dry mix), without icing or filling
	53105160	Cake, chocolate, devil's food, or fudge, without icing or filling, made from home recipe or purchased ready-to-eat
	53105200	Cake, chocolate, devil's food, or fudge, standard-type mix (eggs and water added to dry mix), with icing, coating, or filling
	53105260	Cake, chocolate, devil's food, or fudge, with icing, coating, or filling, made from home recipe or purchased ready-to-eat
	53105270	Cake or cupcake, chocolate, devil's food or fudge, with icing or filling
	53105275	Cake or cupcake, chocolate, devil's food or fudge, without icing or filling
	53105300	Cake or cupcake, German chocolate, with icing or filling
	53105500	Cake, chocolate, with icing, diet
	53105600	Cake, chocolate, devil's food, or fudge, pudding-type mix, made by "Lite" recipe (eggs and water added to dry mix, no oil added to dry mix), with icing, coating, or filling
	53106000	Cake, chocolate, devil's food, or fudge, pudding-type mix (oil, eggs, and water added to dry mix), without icing or filling
	53106050	Cake, chocolate, devil's food, or fudge, pudding-type mix (oil, eggs, and water added to dry mix), with icing, coating, or filling
	53106500	Cake, cream, without icing or topping
	53107200	Cake, cupcake, NS as to type, with icing
	53108100	Cake, cupcake, chocolate, without icing or filling
	53108200	Snack cake, chocolate, with icing or filling
	53109100	Cake, cupcake, not chocolate, without icing or filling
	53109200	Snack cake, not chocolate, with icing or filling
	53109210	Cake, cupcake, not chocolate, with icing or filling, lowfat, cholesterol free
	53109220	Snack cake, not chocolate, with icing or filling, reduced fat and calories
	53109270	Cake, cupcake, chocolate, with or without icing, fruit filling or cream filling, lowfat, cholesterol free
	53109300	Cake, Dobos Torte (non-chocolate layer cake with chocolate filling and icing)
	53110000	Cake, fruit cake, light or dark, holiday type cake
	53111000	Cake or cupcake, gingerbread
	53112000	Cake, ice cream and cake roll, chocolate
	53112100	Cake, ice cream and cake roll, not chocolate
	53113000	Cake, jelly roll
	53114000	Cake or cupcake, lemon, without icing or filling
	53114100	Cake or cupcake, lemon, with icing or filling

Proposed Food Category	Food Code	Description
	53114250	Cake, lemon, lowfat, with icing
	53115100	Cake or cupcake, marble, without icing or filling
	53115200	Cake or cupcake, marble, with icing or filling
	53115310	Cake or cupcake, nut, without icing or filling
	53115320	Cake or cupcake, nut, with icing or filling
	53115410	Cake or cupcake, oatmeal
	53115600	Cake, poppyseed, without icing
	53116000	Cake, pound, without icing or filling
	53116020	Cake, pound, with icing or filling
	53116270	Cake, pound, chocolate
	53116390	Cake, pound, reduced fat, cholesterol free
	53116490	Cake, pumpkin, NS as to icing
	53116500	Cake or cupcake, pumpkin, without icing or filling
	53116510	Cake or cupcake, pumpkin, with icing or filling
	53116560	Cake, raisin-nut, with icing
	53116600	Cake, rice flour, without icing or filling
	53117100	Cake or cupcake, spice, without icing or filling
	53117200	Cake or cupcake, spice, with icing or filling
	53118100	Cake, sponge, without icing or filling
	53118200	Cake, sponge, with icing or filling
	53118310	Cake, sponge, chocolate, with icing
	53118410	Rum cake, without icing (Sopa Borracha)
	53118500	Cake, torte
	53118550	Cake, tres leche
	53119000	Cake, upside down (all fruits)
	53120100	Cake, white, standard-type mix (egg whites and water added to mix), without icing
	53120160	Cake, white, without icing, made from home recipe or purchased ready-to-eat
	53120200	Cake, white, standard-type mix (egg whites and water added to mix), with icing
	53120260	Cake, white, with icing, made from home recipe or purchased ready-to-eat
	53120270	Cake or cupcake, white, with icing or filling
	53120275	Cake or cupcake, white, without icing or filling
	53120330	Cake, white, pudding-type mix (oil, egg whites, and water added to dry mix), without icing
	53120350	Cake, white, pudding-type mix (oil, egg whites, and water added to dry mix), with icing
	53120500	Cake, whole wheat, with fruit and nuts, without icing
	53121060	Cake, yellow, made from home recipe or purchased ready-to-eat, NS as to icing
	53121100	Cake, yellow, standard-type mix (eggs and water added to dry mix), without icing
	53121160	Cake, yellow, without icing, made from home recipe or

Proposed Food Category	Food Code	Description
		purchased ready-to-eat
	53121200	Cake, yellow, standard-type mix (eggs and water added to dry mix), with icing
	53121260	Cake, yellow, with icing, made from home recipe or purchased ready-to-eat
	53121270	Cake or cupcake, yellow, with icing or filling
	53121275	Cake or cupcake, yellow, without icing or filling
	53121300	Cake, yellow, pudding-type mix (oil, eggs, and water added to dry mix), without icing
	53121330	Cake, yellow, pudding-type mix (oil, eggs, and water added to dry mix), with icing
	53122070	Cake, shortcake, biscuit type, with whipped cream and fruit
	53122080	Cake, shortcake, biscuit type, with fruit
	53123070	Cake, shortcake, sponge type, with whipped cream and fruit
	53123080	Cake, shortcake, sponge type, with fruit
	53123500	Cake, shortcake, with whipped topping and fruit, diet
	53124110	Cake or cupcake, zucchini
	53300100	Pie, NFS
	53300170	Pie, individual size or tart, NFS
	53301000	Pie, apple, two crust
	53301070	Pie, apple, individual size or tart
	53301080	Pie, apple, fried pie
	53301500	Pie, apple, one crust
	53301750	Pie, apple, diet
	53302070	Pie, apricot, individual size or tart
	53303000	Pie, blackberry, two crust
	53303500	Pie, berry, not blackberry, blueberry, boysenberry, huckleberry, raspberry, or strawberry; two crust
	53303510	Pie, berry, not blackberry, blueberry, boysenberry, huckleberry, raspberry, or strawberry; one crust
	53303570	Pie, berry, not blackberry, blueberry, boysenberry, huckleberry, raspberry, or strawberry, individual size or tart
	53304000	Pie, blueberry, two crust
	53304050	Pie, blueberry, one crust
	53305000	Pie, cherry, two crust
	53305010	Pie, cherry, one crust
	53305070	Pie, cherry, individual size or tart
	53305700	Pie, lemon (not cream or meringue)
	53305720	Pie, lemon (not cream or meringue), individual size or tart
	53306000	Pie, mince, two crust
	53307000	Pie, peach, two crust
	53307050	Pie, peach, one crust
	53308000	Pie, pineapple, two crust
	53309000	Pie, raisin, two crust
	53309070	Pie, raisin, individual size or tart

Proposed Food Category	Food Code	Description
	53310050	Pie, raspberry, two crust
	53311000	Pie, rhubarb, two crust
	53311050	Pie, rhubarb, one crust
	53312000	Pie, strawberry, one crust
	53313000	Pie, strawberry-rhubarb, two crust
	53340500	Pie, cherry, made with cream cheese and sour cream
	53341000	Pie, banana cream
	53341070	Pie, banana cream, individual size or tart
	53341500	Pie, buttermilk
	53342000	Pie, chocolate cream
	53342070	Pie, chocolate cream, individual size or tart
	53343000	Pie, coconut cream
	53343070	Pie, coconut cream, individual size or tart
	53344000	Pie, custard
	53344070	Pie, custard, individual size or tart
	53344200	Mixed fruit tart filled with custard or cream cheese
	53344300	Dessert pizza
	53345000	Pie, lemon cream
	53346000	Pie, peanut butter cream
	53347000	Pie, pumpkin
	53347600	Pie, squash
	53360000	Pie, sweet potato
	53365000	Pie, vanilla cream
	53366000	Pie, yogurt, frozen
	53381000	Pie, lemon meringue
	53381070	Pie, lemon meringue, individual size or tart
	53382000	Pie, chocolate-marshmallow
	53385000	Pie, pecan
	53385070	Pie, pecan, individual size or tart
	53385500	Pie, oatmeal
	53386000	Pie, pudding, flavors other than chocolate
	53386250	Pie, pudding, chocolate, with chocolate coating, individual size
	53386500	Pie, pudding, flavors other than chocolate, with chocolate coating, individual size
	53387000	Pie, Toll house chocolate chip
	53390000	Pie, shoo-fly
	53400200	Blintz, cheese-filled
	53400300	Blintz, fruit-filled
	53410100	Cobbler, apple
	53410300	Cobbler, berry
	53410500	Cobbler, cherry
	53410800	Cobbler, peach
	53415100	Crisp, apple, apple dessert
	53415120	Fritter, apple
	53415200	Fritter, banana

Proposed Food Category	Food Code	Description
	53415300	Crisp, blueberry
	53415400	Crisp, cherry
	53420100	Cream puff, eclair, custard or cream filled, not iced
	53420200	Cream puff, eclair, custard or cream filled, iced
	53420300	Air filled fritter or fried puff, without syrup, Puerto Rican style (Bunuelos de viento)
	53420400	Sopaipilla, without syrup or honey
	53430000	Crepe, dessert type, NS as to filling
	53430100	Crepe, dessert type, chocolate-filled
	53430200	Crepe, dessert type, fruit-filled
	53430750	Tamale, sweet, with fruit
	53440000	Strudel, apple
	53440500	Strudel, cherry
	53440600	Strudel, cheese
	53441110	Baklava
	53441210	Basbousa (semolina dessert dish)
	53450000	Turnover or dumpling, apple
	53450500	Turnover or dumpling, cherry
	53451000	Turnover or dumpling, peach
	53452100	Pastry, fruit-filled
	53452120	Pastry, Asian, made with bean or lotus seed paste filling (baked)
	53452130	Pastry, Asian, made with bean paste and salted egg yolk filling (baked)
	53452200	Pastry, Italian, with cheese
	53452400	Pastry, puff
	53452420	Pastry, puff, custard or cream filled, iced or not iced
	53452450	Cheese pastry puffs
	53452500	Pastry, mainly flour and water, fried
	53453150	Empanada, Mexican turnover, fruit-filled
	53453170	Empanada, Mexican turnover, pumpkin
	53500100	Breakfast pastry, NFS
	53510000	Danish pastry, plain or spice
	53510100	Danish pastry, with fruit
	53510200	Danish pastry, with nuts
	53511000	Danish pastry, with cheese
	53511500	Danish pastry, with cheese, fat free, cholesterol free
	53520000	Doughnut, NS as to cake or yeast
	53520110	Doughnut, cake type
	53520120	Doughnut, chocolate, cake type
	53520140	Doughnut, cake type, chocolate covered
	53520160	Doughnut, chocolate, cake type, with chocolate icing
	53520200	Churros
	53520500	Doughnut, Asian
	53520700	French cruller

Proposed Food Category	Food Code	Description
	53521100	Doughnut, chocolate, raised or yeast, with chocolate icing
	53521110	Doughnut, raised or yeast
	53521120	Doughnut, chocolate, raised or yeast
	53521130	Doughnut, raised or yeast, chocolate covered
	53521140	Doughnut, jelly
	53521210	Doughnut, custard-filled
	53521220	Doughnut, chocolate cream-filled
	53521230	Doughnut, custard-filled, with icing
	53521250	Doughnut, wheat
	53530000	Breakfast tart
	53530010	Breakfast tart, lowfat
	53610000	Coffee cake, NFS
	53610100	Coffee cake, crumb or quick-bread type
	53610120	Coffee cake, crumb or quick-bread type, reduced fat, cholesterol free
	53610170	Coffee cake, crumb or quick-bread type, with fruit
	53610200	Coffee cake, crumb or quick-bread type, cheese-filled
	53610250	Coffee cake, crumb or quick-bread type, custard filled
	55801000	Funnel cake with sugar
	58123120	Sweet bread dough, filled with bean paste, meatless, steamed
	58124210	Pastry, cheese-filled
Pie filling	61113500	Lemon pie filling
	63113030	Cherry pie filling
	63203700	Blueberry pie filling
Salad dressings	14640000	Cheese sandwich*
	27250040	Crab cake*
	27416250	Beef salad*
	27420020	Ham or pork salad*
	27446200	Chicken or turkey salad, made with mayonnaise*
	27446205	Chicken or turkey salad with nuts and/or fruits*
	27446220	Chicken or turkey salad with egg*
	27446225	Chicken or turkey salad, made with light mayonnaise*
	27446230	Chicken or turkey salad, made with mayonnaise-type salad dressing*
	27446235	Chicken or turkey salad, made with light mayonnaise-type salad dressing*
	27446240	Chicken or turkey salad, made with creamy dressing*
	27446245	Chicken or turkey salad, made with light creamy dressing*
	27446260	Chicken or turkey salad, made with any type of fat free dressing*
	27450010	Crab salad*
	27450020	Lobster salad*
	27450030	Salmon salad*
	27450060	Tuna salad, made with mayonnaise*
	27450061	Tuna salad, made with light mayonnaise*

Proposed Food Category	Food Code	Description
	27450062	Tuna salad, made with mayonnaise-type salad dressing*
	27450063	Tuna salad, made with light mayonnaise-type salad dressing*
	27450066	Tuna salad, made with Italian dressing*
	27450067	Tuna salad, made with light Italian dressing*
	27450068	Tuna salad, made with any type of fat free dressing*
	27450070	Shrimp salad*
	27450080	Seafood salad*
	27450090	Tuna salad with cheese*
	27450100	Tuna salad with egg*
	27450130	Crab salad made with imitation crab*
	27500050	Sandwich, NFS*
	27510230	Cheeseburger, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510250	Cheeseburger, 1/4 lb meat, with mayonnaise or salad dressing, on bun*
	27510280	Double cheeseburger (2 patties), with mayonnaise or salad dressing, on bun*
	27510300	Double cheeseburger (2 patties), with mayonnaise or salad dressing, on double-decker bun*
	27510340	Double cheeseburger (2 patties), with mayonnaise or salad dressing and tomatoes and/or catsup, on bun*
	27510350	Cheeseburger, 1/4 lb meat, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510355	Cheeseburger, 1/3 lb meat, with mayonnaise or salad dressing, tomato and/or catsup on bun*
	27510360	Bacon cheeseburger, with mayonnaise or salad dressing, tomato and/or catsup, on bun*
	27510370	Double cheeseburger (2 patties, 1/4 lb meat each), with mayonnaise or salad dressing, on bun*
	27510380	Triple cheeseburger (3 patties, 1/4 lb meat each), with mayonnaise or salad dressing and tomatoes and/or catsup, on bun*
	27510385	Double bacon cheeseburger (2 patties), with tomato and/or catsup, on bun*
	27510425	Double bacon cheeseburger (2 patties, 1/4 lb meat each), with mayonnaise or salad dressing, on bun*
	27510430	Double bacon cheeseburger (2 patties, 1/4 lb meat each), with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510435	Double bacon cheeseburger (2 patties,1/3 lb meat each), with mayonnaise or salad dressing, on bun*
	27510440	Bacon cheeseburger, 1/4 lb meat, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510520	Hamburger, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*

Proposed Food Category	Food Code	Description
	27510560	Hamburger, 1/4 lb meat, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510570	Hamburger, 2-1/2 oz meat, with mayonnaise or salad dressing and tomatoes, on bun*
	27510670	Double hamburger (2 patties), with mayonnaise or salad dressing and tomatoes, on bun*
	27510690	Double hamburger (2 patties, 1/4 lb meat each), with mayonnaise or salad dressing and tomatoes and/or catsup, on double-decker bun*
	27510950	Reuben sandwich (corned beef sandwich with sauerkraut and cheese), with spread*
	27513040	Roast beef submarine sandwich, with lettuce, tomato and spread*
	27513041	Roast beef submarine sandwich, with cheese, lettuce, tomato and spread*
	27517000	Wrap sandwich filled with beef patty, cheese and spread and/or sauce*
	27517010	Wrap sandwich filled with beef patty, cheese, tomato and/or catsup, and spread and/or sauce*
	27520130	Bacon, chicken, and tomato club sandwich, with lettuce and spread*
	27520150	Bacon, lettuce, and tomato sandwich with spread*
	27520165	Bacon, chicken fillet (breaded, fried), and tomato club with lettuce and spread*
	27520300	Ham sandwich, with spread*
	27520320	Ham and cheese sandwich, with lettuce and spread*
	27520370	Hot ham and cheese sandwich, on bun*
	27520390	Ham and cheese submarine sandwich, with lettuce, tomato and spread*
	27540110	Chicken sandwich, with spread*
	27540111	Chicken sandwich, with cheese and spread*
	27540120	Chicken salad or chicken spread sandwich*
	27540170	Chicken patty sandwich, miniature, with spread*
	27540210	Wrap sandwich filled with chicken strips (breaded, fried), cheese, lettuce, and spread*
	27540230	Chicken patty sandwich with cheese, on wheat bun, with lettuce, tomato and spread*
	27540240	Chicken fillet, (broiled), sandwich, on whole wheat roll, with lettuce, tomato and spread*
	27540250	Chicken fillet, broiled, sandwich with cheese, on whole wheat roll, with lettuce, tomato and non-mayonnaise type spread*
	27540260	Chicken fillet, broiled, sandwich, on oat bran bun, with lettuce, tomato, spread*
	27540270	Chicken fillet, broiled, sandwich, with lettuce, tomato, and non-mayonnaise type spread*

Proposed Food Category	Food Code	Description
	27540290	Chicken submarine sandwich, with lettuce, tomato, and spread*
	27540291	Chicken submarine sandwich, with cheese, lettuce, tomato, and spread*
	27540300	Wrap sandwich filled with chicken strips (broiled), cheese, lettuce, and spread*
	27540310	Turkey sandwich, with spread*
	27540350	Turkey submarine sandwich, with cheese, lettuce, tomato and spread*
	27541000	Turkey, ham, and roast beef club sandwich, with lettuce, tomato and spread*
	27541001	Turkey, ham, and roast beef club sandwich with cheese, lettuce, tomato, and spread*
	27550720	Tuna salad sandwich*
	27550751	Tuna salad submarine sandwich, with cheese, lettuce and tomato*
	27560500	Pepperoni and salami submarine sandwich, with lettuce, tomato, and spread
		*
	27570310	Hors d'oeuvres, with spread*
	32102000	Egg, deviled*
	32103000	Egg salad, made with mayonnaise*
	32103015	Egg salad, made with light mayonnaise*
	32103020	Egg salad, made with mayonnaise-type salad dressing*
	32103025	Egg salad, made with light mayonnaise-type salad dressing*
	32103050	Egg Salad, made with any type of fat free dressing*
	41203030	Black bean salad*
	58127500	Vegetable submarine sandwich, with fat free spread*
	58134640	Tortellini, cheese-filled, meatless, with vinaigrette dressing*
	58148110	Macaroni or pasta salad, made with mayonnaise*
	58148111	Macaroni or pasta salad, made with light mayonnaise*
	58148112	Macaroni or pasta salad, made with mayonnaise-type salad dressing*
	58148114	Macaroni or pasta salad, made with Italian dressing*
	58148115	Macaroni or pasta salad, made with light Italian dressing*
	58148116	Macaroni or pasta salad, made with creamy dressing*
	58148118	Macaroni or pasta salad, made with any type of fat free dressing*
	58148120	Macaroni or pasta salad with egg*
	58148130	Macaroni or pasta salad with tuna*
	58148150	Macaroni or pasta salad with shrimp*
	58148160	Macaroni or pasta salad with tuna and egg*
	58148170	Macaroni or pasta salad with chicken*
	58148180	Macaroni or pasta salad with cheese*

Proposed Food Category	Food Code	Description
	58148550	Macaroni or pasta salad with meat*
	63401010	Apple salad with dressing*
	63401020	Apple and cabbage salad with dressing*
	63402950	Fruit salad (excluding citrus fruits) with salad dressing or mayonnaise*
	63402980	Fruit salad (excluding citrus fruits) with marshmallows*
	63403010	Fruit salad (including citrus fruits) with salad dressing or mayonnaise*
	63403040	Fruit salad (including citrus fruits) with marshmallows*
	63412010	Pear salad with dressing*
	71601015	Potato salad with egg, made with light mayonnaise*
	71601020	Potato salad with egg, made with mayonnaise-type salad dressing*
	71601025	Potato salad with egg, made with light mayonnaise-type salad dressing*
	71601035	Potato salad with egg, made with light creamy dressing*
	71601050	Potato salad with egg, made with any type of fat free dressing*
	71603010	Potato salad, made with mayonnaise*
	71603015	Potato salad, made with light mayonnaise*
	71603020	Potato salad, made with mayonnaise-type salad dressing*
	71603025	Potato salad, made with light mayonnaise-type salad dressing*
	71603040	Potato salad, made with Italian dressing*
	71603050	Potato salad, made with any type of fat free dressing*
	73101110	Carrots, raw, salad*
	73101210	Carrots, raw, salad with apples*
	75140500	Broccoli salad with cauliflower, cheese, bacon bits, and dressing*
	75140510	Broccoli slaw salad*
	75141000	Cabbage salad or coleslaw, made with coleslaw dressing*
	75141005	Cabbage salad or coleslaw, made with light coleslaw dressing*
	75141020	Cabbage salad or coleslaw, made with Italian dressing*
	75141030	Cabbage salad or coleslaw, made with creamy dressing*
	75141035	Cabbage salad or coleslaw, made with light creamy dressing*
	75141040	Cabbage salad or coleslaw, made with any type of fat free dressing*
	75141100	Cabbage salad or coleslaw with apples and/or raisins, with dressing*
	75141200	Cabbage salad or coleslaw with pineapple, with dressing*
	75142500	Cucumber salad, made with sour cream dressing*
	75142550	Cucumber salad, made with Italian dressing*
	75145000	Seven-layer salad (lettuce salad made with a combination of onion, celery, green pepper, peas, mayonnaise, cheese, eggs, and/or bacon)*
	75302080	Bean salad, yellow and/or green string beans*
	75416500	Pea salad*

Proposed Food Category	Food Code	Description
	75416600	Pea salad with cheese*
	83100100	Salad dressing, NFS, for salads
	83100200	Salad dressing, NFS, for sandwiches
	83101000	Blue or roquefort cheese dressing
	83101500	Bacon dressing (hot)
	83102000	Caesar dressing
	83103000	Coleslaw dressing
	83104000	French or Catalina dressing
	83105100	Fruit dressing, made with honey, oil, and water
	83105500	Honey mustard dressing
	83106000	Italian dressing, made with vinegar and oil
	83107000	Mayonnaise, regular
	83107200	Mayonnaise, made with tofu
	83108000	Mayonnaise, imitation
	83108100	Mayonnaise, imitation, cholesterol free
	83109000	Russian dressing
	83110000	Mayonnaise-type salad dressing
	83110010	Mayonnaise-type salad dressing, cholesterol-free
	83112000	Avocado dressing
	83112500	Creamy dressing
	83112950	Poppy seed dressing
	83112960	Peppercorn Dressing
	83112980	Celery seed dressing
	83112990	Sesame dressing
	83113000	Sweet and sour dressing
	83114000	Thousand Island dressing
	83115000	Yogurt dressing
	83200100	Salad dressing, light, NFS
	83201000	Blue or roquefort cheese dressing, light
	83201050	Blue or roquefort cheese dressing, reduced calorie
	83201200	Blue or roquefort cheese dressing, reduced calorie, fat-free, cholesterol-free
	83202000	French dressing, low-calorie
	83202010	French dressing, reduced calorie, fat-free, cholesterol-free
	83202020	French or Catalina dressing, light
	83203000	Caesar dressing, light
	83203250	Mayonnaise-type salad dressing, fat-free
	83204000	Mayonnaise, light
	83204020	Mayonnaise, reduced calorie or diet, cholesterol-free
	83204030	Mayonnaise, reduced fat, with olive oil
	83204050	Mayonnaise-type salad dressing, light
	83204060	Mayonnaise-type salad dressing, low-calorie or diet, cholesterol-free
	83204500	Honey mustard dressing, light
	83205000	Italian dressing, low calorie

Proposed Food Category	Food Code	Description
	83205450	Italian dressing, light
	83205500	Italian dressing, reduced calorie, fat-free
	83206500	Sesame dressing, light
	83207000	Thousand Island dressing, light
	83207100	Thousand Island dressing, reduced calorie, fat-free, cholesterol-free
	83208000	Vinegar, sugar, and water dressing
	83210000	Creamy dressing, made with sour cream and/or buttermilk and oil, diet, NS as to low or reduced calorie
	83210050	Creamy dressing made with sour cream and/or buttermilk and oil, low calorie
	83210100	Creamy dressing, light
	83210200	Creamy dressing, made with sour cream and/or buttermilk and oil, reduced calorie, fat-free, cholesterol-free
	83210250	Creamy dressing, made with sour cream and/or buttermilk and oil, reduced calorie, cholesterol-free
	83300100	Blue or roquefort cheese dressing, fat free
	83300200	Caesar dressing, fat free
	83300300	Creamy dressing, fat free
	83300400	French or Catalina dressing, fat free
	83300600	Italian dressing, fat free
	83300700	Mayonnaise, fat free
	83300900	Salad dressing, fat free, NFS
	83301000	Thousand Island dressing, fat free
Sauces and Dips	12350000	Dip, sour cream base
	12350020	Dip, sour cream base, reduced calorie
	12350100	Spinach dip
	12350110	Spinach and artichoke dip
	13411000	White sauce, milk sauce
	13412000	Milk gravy, quick gravy
	14620150	Dip, cheese with chili pepper (chili con queso)
	14620200	Dip, cheese base other than cream cheese
	14620300	Topping from cheese pizza*
	14620310	Topping from vegetable pizza*
	14620320	Topping from meat pizza*
	14620330	Topping from meat and vegetable pizza*
	14630100	Cheese fondue
	14650100	Cheese sauce
	14650150	Cheese sauce made with lowfat cheese
	14650160	Alfredo sauce
	21304200	Beef, shortribs, barbecued, with sauce, NS as to fat eaten*
	21304210	Beef, shortribs, barbecued, with sauce, lean and fat eaten*
	21304220	Beef, shortribs, barbecued, with sauce, lean only eaten*
	22701030	Pork, spareribs, barbecued, with sauce, NS as to fat eaten*
	22701040	Pork, spareribs, barbecued, with sauce, lean and fat eaten*

Proposed Food Category	Food Code	Description
	22701050	Pork, spareribs, barbecued, with sauce, lean only eaten*
	24302010	Duck, pressed, Chinese*
	25210170	Frankfurter or hot dog, chili-filled*
	26119160	Herring, pickled, in cream sauce*
	27111000	Beef with tomato-based sauce (mixture)*
	27111050	Spaghetti sauce with beef or meat other than lamb or mutton, homemade-style*
	27111100	Beef goulash*
	27111200	Beef burgundy (beef bourguignonne)*
	27111300	Mexican style beef stew, no potatoes, tomato-based sauce (mixture) (Carne guisada sin papas)*
	27111310	Mexican style beef stew, no potatoes, with chili peppers, tomato-based sauce (mixture) (Carne guisada con chile)*
	27111400	Chili con carne, NS as to beans*
	27111410	Chili con carne with beans*
	27111420	Chili con carne without beans*
	27111430	Chili con carne, NS as to beans, with cheese*
	27111440	Chili con carne with beans and cheese*
	27111500	Beef sloppy joe (no bun)*
	27112000	Beef with gravy (mixture)*
	27112010	Salisbury steak with gravy (mixture)*
	27113000	Beef with cream or white sauce (mixture)*
	27113100	Beef stroganoff*
	27113200	Creamed chipped or dried beef*
	27113300	Swedish meatballs with cream or white sauce (mixture)*
	27114000	Beef with (mushroom) soup (mixture)*
	27116100	Beef curry*
	27116200	Beef with barbecue sauce (mixture)*
	27116350	Stewed, seasoned, ground beef, Mexican style (Picadillo de carne de rez)*
	27116400	Steak tartare (raw ground beef and egg)*
	27118120	Stewed seasoned ground beef, Puerto Rican style (Picadillo guisado, picadillo de carne)*
	27118130	Stewed dried beef, Puerto Rican style (Tasajo guisado, carne cecina guisada)*
	27118180	Puerto Rican style beef stew, meat with gravy (potatoes reported separately)*
	27120020	Ham or pork with gravy (mixture)*
	27120030	Ham or pork with barbecue sauce (mixture)*
	27120090	Ham or pork with (mushroom) soup (mixture)*
	27120100	Ham or pork with tomato-based sauce (mixture)*
	27120110	Sausage with tomato-based sauce (mixture)*
	27120120	Sausage gravy*
	27120130	Mexican style pork stew, no potatoes, tomato-based sauce (mixture) (cerdo guisado sin papas)*

Proposed Food Category	Food Code	Description
	27120160	Pork curry*
	27120250	Frankfurters or hot dogs with tomato-based sauce (mixture)*
	27121000	Pork with chili and tomatoes (mixture) (Puerco con chile)*
	27121010	Stewed pork, Puerto Rican style*
	27121410	Chili con carne with beans, made with pork*
	27130010	Lamb or mutton with gravy (mixture)*
	27130040	Spaghetti sauce with lamb or mutton, homemade-style*
	27130100	Lamb or mutton curry*
	27133010	Stewed goat, Puerto Rican style (Cabrito en fricase, chilindron de chivo)*
	27135010	Veal with gravy (mixture)*
	27135050	Veal Marsala*
	27135110	Veal parmigiana*
	27136050	Venison/deer with tomato-based sauce (mixture)*
	27136100	Chili con carne with venison/deer and beans*
	27141000	Chicken or turkey cacciatore*
	27141030	Spaghetti sauce with poultry, home-made style*
	27141050	Stewed chicken with tomato-based sauce, Mexican style (mixture) (Pollo guisado con tomate)*
	27141500	Chili con carne with chicken or turkey and beans*
	27142000	Chicken with gravy (mixture)*
	27142100	Chicken or turkey fricassee*
	27143000	Chicken or turkey with cream sauce (mixture)*
	27144000	Chicken or turkey with (mushroom) soup (mixture)*
	27146000	Chicken or turkey with barbecue sauce, skin eaten*
	27146010	Chicken or turkey with barbecue sauce, skin not eaten*
	27146150	Chicken curry*
	27146160	Chicken with mole sauce*
	27146200	Chicken or turkey with cheese sauce (mixture)*
	27146250	Chicken or turkey cordon bleu*
	27146300	Chicken or turkey parmigiana*
	27146400	Chicken kiev*
	27148010	Stuffed chicken, drumstick or breast, Puerto Rican style (Muslo de pollo o pechuga rellena)*
	27150010	Fish with cream or white sauce, not tuna or lobster (mixture)*
	27150030	Crab imperial*
	27150060	Lobster newburg*
	27150070	Lobster with butter sauce (mixture)*
	27150100	Shrimp curry*
	27150110	Shrimp cocktail (shrimp with cocktail sauce)*
	27150130	Seafood newburg*
	27150200	Oyster sauce (white sauce-based)*
	27150310	Fish with tomato-based sauce (mixture)*
	27150320	Fish curry*
	27150350	Sardines with tomato-based sauce (mixture)*

Proposed Food Category	Food Code	Description
	27151050	Shrimp in garlic sauce, Puerto Rican style (mixture) (Camarones al ajillo)*
	27151070	Stewed codfish, Puerto Rican style, no potatoes (potatoes reported separately)*
	27160010	Meat with barbecue sauce, NS as to type of meat (mixture)*
	27160100	Meatballs, NS as to type of meat, with sauce (mixture)*
	27162010	Meat with tomato-based sauce (mixture)*
	27162050	Spaghetti sauce with combination of meats, homemade-style*
	27162060	Spaghetti sauce with meat and vegetables, homemade-style*
	27162500	Stewed, seasoned, ground beef and pork, Mexican style (Picadillo de carne de rez y puerco)*
	27211100	Beef stew with potatoes, tomato-based sauce (mixture)*
	27211110	Mexican style beef stew with potatoes, tomato-based sauce (mixture) (Carne guisada con papas)*
	27211150	Beef goulash with potatoes*
	27211190	Beef and potatoes with cream sauce, white sauce or mushroom soup-based sauce (mixture)*
	27211200	Beef stew with potatoes, gravy*
	27211300	Beef (roast) hash*
	27211400	Corned beef hash*
	27211500	Beef and potatoes with cheese sauce (mixture)*
	27211550	Stewed, seasoned, ground beef with potatoes, Mexican style (Picadillo de carne de rez con papas)*
	27212050	Beef and macaroni with cheese sauce (mixture)*
	27212100	Beef and noodles with tomato-based sauce (mixture)*
	27212120	Chili con carne with beans and macaroni*
	27212150	Beef goulash with noodles*
	27212200	Beef and noodles with gravy (mixture)*
	27212300	Beef and noodles with cream or white sauce (mixture)*
	27212350	Beef stroganoff with noodles*
	27213010	Biryani with meat*
	27213100	Beef and rice with tomato-based sauce (mixture)*
	27213120	Porcupine balls with tomato-based sauce (mixture)*
	27213200	Beef and rice with gravy (mixture)*
	27213300	Beef and rice with cream sauce (mixture)*
	27213420	Porcupine balls with (mushroom) soup (mixture)*
	27213600	Beef and rice with cheese sauce (mixture)*
	27214100	Meat loaf made with beef*
	27214110	Meat loaf made with beef, with tomato-based sauce*
	27218210	Puerto Rican style beef stew with potatoes (Carne guisada con papas)*
	27218310	Stewed corned beef, Puerto Rican style ("Corned beef" guisado)*
	27220010	Meat loaf made with ham (not luncheon meat)*
	27220020	Ham and noodles with cream or white sauce (mixture)*

Proposed Food Category	Food Code	Description
	27220110	Pork and rice with tomato-based sauce (mixture)*
	27220120	Sausage and rice with tomato-based sauce (mixture)*
	27220170	Sausage and rice with cheese sauce (mixture)*
	27220190	Sausage and noodles with cream or white sauce (mixture)*
	27220510	Ham or pork and potatoes with gravy (mixture)*
	27220520	Ham or pork and potatoes with cheese sauce (mixture)*
	27221100	Stewed pig's feet, Puerto Rican style (Patitas de cerdo guisadas)*
	27221150	Mexican style pork stew, with potatoes, tomato-based sauce (mixture) (cerdo guisado con papas)*
	27231000	Lamb or mutton and potatoes with gravy (mixture)*
	27241010	Chicken or turkey and potatoes with gravy (mixture)*
	27242200	Chicken or turkey and noodles with gravy (mixture)*
	27242250	Chicken or turkey and noodles with (mushroom) soup (mixture)*
	27242300	Chicken or turkey and noodles with cream or white sauce (mixture)*
	27242310	Chicken or turkey and noodles with cheese sauce (mixture)*
	27242350	Chicken or turkey tetrazzini*
	27242400	Chicken or turkey and noodles, tomato-based sauce (mixture)*
	27243100	Biryani with chicken*
	27243300	Chicken or turkey and rice with cream sauce (mixture)*
	27243400	Chicken or turkey and rice with (mushroom) soup (mixture)*
	27243500	Chicken or turkey and rice with tomato-based sauce (mixture)*
	27246505	Meat loaf made with chicken or turkey, with tomato-based sauce*
	27250122	Shrimp and noodles with gravy (mixture)*
	27250124	Shrimp and noodles with (mushroom) soup (mixture)*
	27250126	Shrimp and noodles with cream or white sauce (mixture)*
	27250130	Shrimp and noodles with cheese sauce (mixture)*
	27250132	Shrimp and noodles with tomato sauce (mixture)*
	27250610	Tuna noodle casserole with cream or white sauce*
	27250630	Tuna noodle casserole with (mushroom) soup*
	27250710	Tuna and rice with (mushroom) soup (mixture)*
	27250810	Fish and rice with tomato-based sauce*
	27250820	Fish and rice with cream sauce*
	27250830	Fish and rice with (mushroom) soup*
	27250900	Fish and noodles with (mushroom) soup*
	27250950	Shellfish mixture and noodles, tomato-based sauce (mixture)*
	27260050	Meatballs, with breading, NS as to type of meat, with gravy*
	27260100	Meat loaf made with beef and pork, with tomato-based sauce*
	27260500	Vienna sausages stewed with potatoes, Puerto Rican style (Salchichas guisadas)*
	27311310	Beef stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce*

Proposed Food Category	Food Code	Description
	27311320	Beef stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce*
	27311410	Beef stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy*
	27311420	Beef stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy*
	27311510	Shepherd's pie with beef*
	27311600	Beef, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27311605	Beef, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27311610	Beef, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27311620	Beef, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27311625	Beef, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27311630	Beef, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27311640	Beef, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*
	27313210	Beef, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27313220	Beef, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27313320	Beef, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), (mushroom) soup (mixture)*
	27313410	Beef, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27313420	Beef, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27315210	Beef, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27315220	Beef, rice, and vegetables (excluding carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27315250	Stuffed cabbage rolls with beef and rice*
	27315270	Stuffed grape leaves with beef and rice*
	27315310	Beef, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), (mushroom) soup (mixture)*
	27315340	Beef, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*
	27315410	Beef, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*

Proposed Food Category	Food Code	Description
	27320030	Ham or pork, noodles and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*
	27320070	Ham or pork, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27320080	Sausage, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce*
	27320090	Sausage, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce*
	27320100	Pork, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27320110	Pork, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27320120	Sausage, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27320130	Sausage, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27320140	Pork, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27320150	Pork, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27320340	Pork, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27320350	Pork, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27330030	Lamb or mutton stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy*
	27330050	Lamb or mutton, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27330060	Lamb or mutton, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27330110	Lamb or mutton stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy*
	27330210	Lamb or mutton stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce*
	27332100	Veal stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce*
	27336150	Venison/deer stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce*
	27336310	Venison/deer, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27341000	Chicken or turkey, potatoes, corn, and cheese, with gravy*
	27341025	Chicken or turkey, potatoes, and vegetables (including carrots,

Proposed Food Category	Food Code	Description
		broccoli, and/or dark-green leafy), gravy (mixture)*
	27341030	Chicken or turkey, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27341035	Chicken or turkey, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27341040	Chicken or turkey, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27341050	Chicken or turkey, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*
	27341055	Chicken or turkey, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27341060	Chicken or turkey, potatoes, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27341310	Chicken or turkey stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy*
	27341320	Chicken or turkey stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy*
	27341510	Chicken or turkey stew with potatoes and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce*
	27341520	Chicken or turkey stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce*
	27343410	Chicken or turkey, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27343420	Chicken or turkey, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27343470	Chicken or turkey, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27343480	Chicken or turkey, noodles, and vegetables (excluding carrots, broccoli, and/or dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27343510	Chicken or turkey, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27343520	Chicken or turkey, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27343950	Chicken or turkey, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), cheese sauce (mixture)*
	27343960	Chicken or turkey, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*

Proposed Food Category	Food Code	Description
	27345210	Chicken or turkey, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27345220	Chicken or turkey, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), gravy (mixture)*
	27345230	Chicken or turkey, rice, corn, and cheese, with gravy*
	27345410	Chicken or turkey, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27345420	Chicken or turkey, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), cream sauce, white sauce, or mushroom soup-based sauce (mixture)*
	27345440	Chicken or turkey, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), cheese sauce (mixture)*
	27345450	Chicken or turkey, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*
	27345510	Chicken or turkey, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), tomato-based sauce (mixture)*
	27345520	Chicken or turkey, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-based sauce (mixture)*
	27347220	Chicken or turkey, stuffing, and vegetables (including carrots, broccoli, and/or dark-green leafy), gravy (mixture)*
	27347240	Chicken or turkey, dumplings, and vegetables (including carrots, broccoli, and/or dark green leafy), gravy (mixture)*
	27347250	Chicken or turkey, dumplings, and vegetables (excluding carrots, broccoli, and dark green leafy), gravy (mixture)*
	27348100	Chicken fricassee, Puerto Rican style (Fricase de pollo)*
	27350020	Paella with seafood*
	27350030	Seafood stew with potatoes and vegetables (excluding carrots, broccoli, and dark-green leafy), tomato-base sauce*
	27350060	Shrimp creole, with rice*
	27350080	Tuna noodle casserole with vegetables, cream or white sauce*
	27350090	Fish, noodles, and vegetables (including carrots, broccoli, and/or dark green leafy), cheese sauce (mixture)*
	27350100	Fish, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), cheese sauce (mixture)*
	27350110	Bouillabaisse*
	27350410	Tuna noodle casserole with vegetables and (mushroom) soup*
	27360000	Stew, NFS*
	27360010	Goulash, NFS*
	27360090	Paella, NFS*
	27361010	Stewed variety meats, Puerto Rican style (mostly liver) (Gandinga)*
	27362000	Stewed tripe, Puerto Rican style, with potatoes (Mondongo)*
	27363000	Gumbo with rice (New Orleans type with shellfish, pork, and/or

Proposed Food Category	Food Code	Description
		poultry, tomatoes, okra, rice)*
	27363100	Jambalaya with meat and rice*
	27411100	Beef with vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27411150	Beef rolls, stuffed with vegetables or meat mixture, tomato-based sauce*
	27411200	Beef with vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27414100	Beef with vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), (mushroom) soup (mixture)*
	27414200	Beef with vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), (mushroom) soup (mixture)*
	27416450	Beef and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), gravy (mixture)*
	27416500	Beef and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), gravy (mixture)*
	27418210	Puerto Rican style beef stew with vegetables, excluding potatoes (Carne a la Judia)*
	27418310	Corned beef with tomato sauce and onion, Puerto Rican style (mixture)*
	27418410	Beef steak with onions, Puerto Rican style (mixture) (Biftec encebollado)*
	27420010	Cabbage with ham hocks (mixture)*
	27420080	Greens with ham or pork (mixture)*
	27420400	Pork and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27420410	Pork and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27420450	Sausage and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27420460	Sausage and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27422010	Pork chop stewed with vegetables, Puerto Rican style (mixture) (Chuletas a la jardinera)*
	27430400	Lamb or mutton stew with vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), gravy*
	27430410	Lamb or mutton stew with vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), gravy*
	27442110	Chicken or turkey and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), gravy (mixture)*
	27442120	Chicken or turkey and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), gravy (mixture)*
	27443110	Chicken or turkey a la king with vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), cream, white, or soup-based sauce*

Proposed Food Category	Food Code	Description
	27443120	Chicken or turkey a la king with vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), cream, white, or soup-based sauce*
	27443150	Chicken or turkey divan*
	27445125	Chicken or turkey and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27445130	Chicken or turkey and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27446400	Chicken or turkey and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), cheese sauce (mixture)*
	27446410	Chicken or turkey and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), cheese sauce (mixture)*
	27448020	Chicken or turkey fricassee, with sauce, no potatoes, Puerto Rican style (potatoes reported separately)*
	27450650	Shellfish mixture and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), (mushroom) soup (mixture)*
	27450660	Shellfish mixture and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), (mushroom) soup (mixture)*
	27450700	Fish and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27450710	Fish and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), tomato-based sauce (mixture)*
	27451030	Lobster with sauce, Puerto Rican style (Langosta a la criolla)*
	27464000	Gumbo, no rice (New Orleans type with shellfish, pork, and/or poultry, tomatoes, okra)*
	27510110	Beef barbecue sandwich or Sloppy Joe, on bun*
	27510130	Beef barbecue submarine sandwich, on bun*
	27510260	Cheeseburger, 1/4 lb meat, with mushrooms in sauce, on bun*
	27510480	Cheeseburger (hamburger with cheese sauce), 1/4 lb meat, with grilled onions, on rye bun*
	27510700	Meatball and spaghetti sauce submarine sandwich*
	27513060	Roast beef sandwich with bacon and cheese sauce*
	27515050	Fajita-style beef sandwich with cheese, on pita bread, with lettuce and tomato*
	27517000	Wrap sandwich filled with beef patty, cheese and spread and/or sauce*
	27520500	Pork sandwich, on white roll, with onions, dill pickles and barbecue sauce*
	27520510	Pork barbecue sandwich or Sloppy Joe, on bun*
	27540130	Chicken barbecue sandwich*

Proposed Food Category	Food Code	Description
	27540200	Fajita-style chicken sandwich with cheese, on pita bread, with lettuce and tomato*
	28355440	Shrimp gumbo*
	28500000	Gravy, poultry
	28500010	Gravy, meat or poultry, with wine*
	28500040	Gravy, beef or meat
	28500050	Gravy, giblet*
	28500070	Gravy, beef or meat, home recipe
	28500080	Gravy, poultry, home recipe
	28500100	Gravy, mushroom
	28522000	Mole poblano (sauce)
	28522050	Mole verde (sauce)
	32101530	Egg curry*
	32105180	Huevos rancheros*
	41202500	Beans and tomatoes, NS as to fat added in cooking*
	41202505	Beans and tomatoes, fat not added in cooking*
	41202510	Beans and tomatoes, fat added in cooking*
	41205050	Bean dip, made with refried beans
	41210100	Stewed red beans, Puerto Rican style (Habichuelas coloradas guisadas)*
	41221020	Chili with beans, without meat*
	41310150	Stewed chickpeas, Puerto Rican style*
	41310200	Chickpeas stewed with pig's feet, Puerto Rican style (Garbanzos guisados con patitas de cerdo)*
	41420100	Miso sauce
	41601100	Portuguese bean soup, home recipe, canned or ready-to-serve*
	41811950	Swiss steak, with gravy, meatless*
	42204050	Peanut sauce
	55502000	Flour and water gravy
	58100000	Burrito, taco, or quesadilla with egg*
	58100005	Burrito, taco, or quesadilla with egg and potato*
	58100010	Burrito, taco, or quesadilla with egg and breakfast meat*
	58100015	Burrito, taco, or quesadilla with egg, potato, and breakfast meat*
	58100020	Burrito, taco, or quesadilla with egg, beans, and breakfast meat*
	58100100	Burrito with meat*
	58100120	Burrito with meat and beans*
	58100135	Burrito with meat and sour cream*
	58100140	Burrito with meat, beans, and sour cream*
	58100155	Burrito with beef, rice, and cheese*
	58100160	Burrito with meat, beans, and rice*
	58100165	Burrito with meat, beans, rice, and sour cream*
	58100200	Burrito with chicken*

Proposed Food Category	Food Code	Description
	58100220	Burrito with chicken, beans, and cheese*
	58100230	Burrito with chicken and cheese*
	58100235	Burrito with chicken and sour cream*
	58100240	Burrito with chicken, NFS*
	58100245	Burrito with chicken, beans, and sour cream*
	58100250	Burrito with chicken, rice, and cheese*
	58100255	Burrito with chicken, beans, and rice*
	58100260	Burrito with chicken, beans, rice, and sour cream*
	58100300	Burrito with beans and rice, meatless*
	58100320	Burrito with beans and cheese, meatless*
	58100330	Burrito with beans, rice, and sour cream, meatless*
	58100360	Chilaquiles, tortilla casserole with salsa, cheese, and egg*
	58100370	Chilaquiles, tortilla casserole with salsa and cheese, no egg*
	58100520	Enchilada with meat and beans, red-chile or enchilada sauce*
	58100525	Enchilada with meat and beans, green-chile or enchilada sauce*
	58100530	Enchilada with meat, red-chile or enchilada sauce*
	58100535	Enchilada with meat, green-chile or enchilada sauce*
	58100600	Enchilada with chicken, tomato-based sauce*
	58100620	Enchilada with chicken and beans, red-chile or enchilada sauce*
	58100625	Enchilada with chicken and beans, green-chile or enchilada sauce*
	58100630	Enchilada with chicken, red-chile or enchilada sauce*
	58100635	Enchilada with chicken, green-chile or enchilada sauce*
	58100710	Enchilada with beans, meatless*
	58100720	Enchilada with beans, meatless, red-chile or enchilada sauce*
	58100725	Enchilada with beans, green-chile or enchilada sauce*
	58100800	Enchilada, just cheese, meatless, no beans, red-chile or enchilada sauce*
	58100805	Enchilada, just cheese, meatless, no beans, green-chile or enchilada sauce*
	58101310	Taco or tostada with beef, lettuce, tomato and salsa*
	58101320	Taco or tostada with meat*
	58101325	Taco or tostada with meat and sour cream*
	58101345	Soft taco with meat*
	58101350	Soft taco with meat and sour cream*
	58101450	Soft taco with chicken*
	58101460	Soft taco with chicken and sour cream*
	58101510	Taco or tostada with chicken or turkey, lettuce, tomato and salsa*
	58101520	Taco or tostada with chicken*
	58101525	Taco or tostada with chicken and sour cream*
	58101530	Soft taco with beef, cheese, lettuce, tomato and salsa*
	58101540	Taco or tostada with fish*

Proposed Food Category	Food Code	Description
	58101555	Soft taco with fish*
	58101610	Soft taco with beans*
	58101615	Soft taco with beans and sour cream*
	58101620	Soft taco with meat and beans*
	58101625	Soft taco with chicken and beans*
	58101630	Soft taco with meat, beans, and sour cream*
	58101635	Soft taco with chicken, beans, and sour cream*
	58101710	Taco or tostada with beans, meatless, with lettuce, tomato and salsa*
	58101720	Taco or tostada with beans*
	58101725	Taco or tostada with beans and sour cream*
	58101730	Taco or tostada with meat and beans*
	58101735	Taco or tostada with chicken and beans*
	58101745	Taco or tostada with meat, beans, and sour cream*
	58101750	Taco or tostada with chicken, beans, and sour cream*
	58101800	Ground beef with tomato sauce and taco seasonings on a cornbread crust*
	58101820	Mexican casserole made with ground beef, beans, tomato sauce, cheese, taco seasonings, and corn chips*
	58101830	Mexican casserole made with ground beef, tomato sauce, cheese, taco seasonings, and corn chips*
	58103210	Tamale, meatless, with sauce, Puerto Rican or Caribbean style*
	58104090	Nachos with cheese and sour cream*
	58104130	Nachos with meat and cheese*
	58104150	Nachos with chicken and cheese*
	58104260	Gordita, sope, or chalupa with beans*
	58104270	Gordita, sope, or chalupa with beans and sour cream*
	58104280	Gordita, sope, or chalupa with meat and sour cream*
	58104290	Gordita, sope, or chalupa with meat*
	58104320	Gordita, sope, or chalupa with chicken and sour cream*
	58104340	Gordita, sope, or chalupa with chicken*
	58104500	Chimichanga with meat*
	58104510	Chimichanga with beef, cheese, lettuce and tomato*
	58104520	Chimichanga, meatless*
	58104530	Chimichanga with chicken*
	58104535	Chimichanga with meat and sour cream*
	58104550	Chimichanga with chicken and sour cream*
	58104905	Taquito or flauta with egg and breakfast meat*
	58105000	Fajita with chicken and vegetables*
	58105050	Fajita with meat and vegetables*
	58105075	Fajita with vegetables*
	58106235	Pizza, cheese, from school lunch, thin crust*
	58106236	Pizza, cheese, from school lunch, thick crust*
	58106570	Pizza with pepperoni, from school lunch, thin crust*

Proposed Food Category	Food Code	Description
	58106580	Pizza with pepperoni, from school lunch, thick crust*
	58106635	Pizza, with meat other than pepperoni, from school lunch, thin crust*
	58106636	Pizza, with meat other than pepperoni, from school lunch, thick crust*
	58107050	Pizza, no cheese, thin crust*
	58107100	Pizza, no cheese, thick crust*
	58116110	Meat turnover, Puerto Rican style (Pastelillo de carne; Empanadilla)*
	58120110	Crepes, filled with meat, fish, or poultry, with sauce*
	58121510	Dumpling, meat-filled*
	58122220	Gnocchi, potato*
	58126110	Turnover, meat-filled, no gravy*
	58126140	Turnover, meat- and bean-filled, no gravy*
	58126150	Turnover, meat- and cheese-filled, tomato-based sauce*
	58126160	Turnover, cheese-filled, tomato-based sauce*
	58126180	Turnover, meat-, potato-, and vegetable-filled, no gravy*
	58126300	Turnover, meat- and cheese-filled, tomato-based sauce, lower in fat*
	58128000	Biscuit with gravy*
	58130011	Lasagna with meat*
	58130013	Lasagna with meat, canned*
	58130020	Lasagna with meat and spinach*
	58130140	Lasagna with chicken or turkey*
	58130150	Lasagna, with chicken or turkey, and spinach*
	58130310	Lasagna, meatless*
	58130320	Lasagna, meatless, with vegetables*
	58131110	Ravioli, NS as to filling, with tomato sauce*
	58131120	Ravioli, NS as to filling, with cream sauce*
	58131320	Ravioli, meat-filled, with tomato sauce or meat sauce*
	58131323	Ravioli, meat-filled, with tomato sauce or meat sauce, canned*
	58131330	Ravioli, meat-filled, with cream sauce*
	58131520	Ravioli, cheese-filled, with tomato sauce*
	58131523	Ravioli, cheese-filled, with tomato sauce, canned*
	58131530	Ravioli, cheese-filled, with meat sauce*
	58131535	Ravioli, cheese-filled, with cream sauce*
	58131600	Ravioli, cheese and spinach-filled, with cream sauce*
	58131610	Ravioli, cheese and spinach filled, with tomato sauce*
	58132110	Spaghetti with tomato sauce, meatless*
	58132113	Pasta with tomato sauce and cheese, canned*
	58132310	Spaghetti with tomato sauce and meatballs or spaghetti with meat sauce or spaghetti with meat sauce and meatballs*
	58132313	Pasta with tomato sauce and meat or meatballs, canned*
	58132340	Spaghetti with tomato sauce and vegetables*
	58132350	Spaghetti with tomato sauce, meatless, whole wheat noodles*

Proposed Food Category	Food Code	Description
	58132360	Spaghetti with tomato sauce and meatballs, whole wheat noodles or spaghetti with meat sauce, whole wheat noodles or spaghetti with meat sauce and meatballs, whole wheat noodles*
	58132450	Spaghetti with tomato sauce, meatless, made with spinach noodles*
	58132460	Spaghetti with tomato sauce and meatballs made with spinach noodles, or spaghetti with meat sauce made with spinach noodles, or spaghetti with meat sauce and meatballs made with spinach noodles*
	58132710	Spaghetti with tomato sauce and frankfurters or hot dogs*
	58132713	Pasta with tomato sauce and frankfurters or hot dogs, canned*
	58132800	Spaghetti with clam sauce, NS as to red or white*
	58132820	Spaghetti with white clam sauce*
	58132910	Spaghetti with tomato sauce and poultry*
	58133110	Manicotti, cheese-filled, no sauce*
	58133120	Manicotti, cheese-filled, with tomato sauce, meatless*
	58133130	Manicotti, cheese-filled, with meat sauce*
	58133140	Manicotti, vegetable- and cheese-filled, with tomato sauce, meatless*
	58134110	Stuffed shells, cheese-filled, no sauce*
	58134120	Stuffed shells, cheese-filled, with tomato sauce, meatless*
	58134130	Stuffed shells, cheese-filled, with meat sauce*
	58134210	Stuffed shells, with chicken, with tomato sauce*
	58134610	Tortellini, meat-filled, with tomato sauce*
	58134620	Tortellini, cheese-filled, meatless, with tomato sauce*
	58134660	Tortellini, cheese-filled, with cream sauce*
	58134710	Tortellini, spinach-filled, with tomato sauce*
	58145115	Macaroni or noodles with cheese, from boxed mix with already prepared cheese sauce*
	58146100	Pasta with tomato sauce, meatless*
	58146110	Pasta with meat sauce*
	58146120	Pasta with cheese and meat sauce*
	58146130	Pasta with carbonara sauce*
	58146150	Pasta with cheese and tomato sauce, meatless*
	58146200	Pasta, meat-filled, with gravy, canned*
	58146300	Pasta, whole wheat, with meat sauce*
	58147100	Pasta with pesto sauce*
	58147110	Macaroni or noodles with beans or lentils and tomato sauce*
	58147310	Macaroni, creamed*
	58147350	Macaroni, creamed, with vegetables*
	58147510	Flavored pasta*
	58155110	Rice with chicken, Puerto Rican style (Arroz con Pollo)*
	58155310	Paella, Valenciana style, with meat (Paella Valenciana)*
	58155320	Seafood paella, Puerto Rican style*

Proposed Food Category	Food Code	Description
	58155410	Soupy rice with chicken, Puerto Rican style (Asopao de pollo)*
	58155810	Stewed rice, Puerto Rican style (arroz guisado)*
	58156210	Rice with vienna sausage, Puerto Rican style (arroz con salchichas)*
	58156310	Rice with Spanish sausage, Puerto Rican style*
	58160000	Biryani with vegetables*
	58160220	Rice with vegetables, tomato-based sauce (mixture)*
	58160520	Rice, white, with tomatoes (and/or tomato based sauce), NS as to fat added in cooking*
	58160530	Rice, white, with tomatoes (and/or tomato based sauce), fat not added in cooking*
	58160540	Rice, white, with tomatoes (and/or tomato based sauce), fat added in cooking*
	58160580	Rice, white, with carrots and tomatoes (and/or tomato-based sauce), NS as to fat added in cooking*
	58160590	Rice, white, with carrots and tomatoes (and/or tomato-based sauce), fat not added in cooking*
	58160600	Rice, white, with carrots and tomatoes (and/or tomato-based sauce), fat added in cooking*
	58160610	Rice, white, with dark green vegetables and tomatoes (and/or tomato-based sauce), NS as to fat added in cooking*
	58160630	Rice, white, with dark green vegetables and tomatoes (and/or tomato-based sauce), fat added in cooking*
	58160670	Rice, white, with carrots, dark green vegetables, and tomatoes (and/or tomato-based sauce), NS as to fat added in cooking*
	58160690	Rice, white, with carrots, dark green vegetables, and tomatoes (and/or tomato-based sauce), fat added in cooking*
	58161110	Rice casserole with cheese*
	58161120	Brown rice casserole with cheese*
	58161300	White rice with tomato sauce*
	58161310	Rice, brown, with tomato sauce*
	58161460	Rice, brown, with tomatoes (and/or tomato based sauce), NS as to fat added in cooking*
	58161462	Rice, brown, with tomatoes (and/or tomato based sauce), fat not added in cooking*
	58161464	Rice, brown, with tomatoes (and/or tomato based sauce), fat added in cooking*
	58163110	Rice with gravy*
	58163210	Rice, creamed*
	58164500	Rice, white, with cheese and/or cream based sauce, NS as to fat added in cooking*
	58164510	Rice, white, with cheese and/or cream based sauce, fat not added in cooking*
	58164520	Rice, white, with cheese and/or cream based sauce, fat added in cooking*

Proposed Food Category	Food Code	Description
	58164530	Rice, white, with gravy, NS as to fat added in cooking*
	58164540	Rice, white, with gravy, fat not added in cooking*
	58164550	Rice, white, with gravy, fat added in cooking*
	58164820	Rice, brown, with cheese and/or cream based sauce, fat added in cooking*
	58164840	Rice, brown, with gravy, fat not added in cooking*
	58165000	Rice, white, with vegetables, cheese and/or cream based sauce, NS as to fat added in cooking*
	58165010	Rice, white, with vegetables, cheese and/or cream based sauce, fat not added in cooking*
	58165020	Rice, white, with vegetables, cheese and/or cream based sauce, fat added in cooking*
	58165040	Rice, white, with vegetables and gravy, fat not added in cooking*
	58165410	Rice, brown, with vegetables, cheese and/or cream based sauce, fat not added in cooking*
	58165430	Rice, brown, with vegetables and gravy, NS as to fat added in cooking*
	58421010	Sopa Seca de Fideo, Mexican style, made with dry noodles, home recipe*
	58421060	Sopa seca de arroz (dry rice soup), Mexican style, home recipe*
	63207000	Cranberries, NS as to raw, cooked, or canned
	63207110	Cranberries, cooked or canned
	63408010	Guacamole with tomatoes
	63409010	Guacamole
	71301000	White potato, cooked, with sauce, NS as to sauce*
	71507040	White potato, stuffed, baked, peel not eaten, stuffed with broccoli and cheese sauce*
	71507050	White potato, stuffed, baked, peel not eaten, stuffed with meat in cream sauce*
	71508040	White potato, stuffed, baked, peel eaten, stuffed with broccoli and cheese sauce*
	71508050	White potato, stuffed, baked, peel eaten, stuffed with meat in cream sauce*
	71508120	White potato, stuffed with ham, broccoli and cheese sauce, baked, peel eaten*
	71931010	Cassava with creole sauce, Puerto Rican style (Yuca al mojo)*
	72125230	Spinach, NS as to form, creamed*
	72125231	Spinach, from fresh, creamed*
	72125232	Spinach, from frozen, creamed*
	72125250	Spinach, cooked, NS as to form, with cheese sauce*
	72125251	Spinach, cooked, from fresh, with cheese sauce*
	72125252	Spinach, cooked, from frozen, with cheese sauce*
	72125310	Palak Paneer or Saag Paneer (Indian)*

Proposed Food Category	Food Code	Description
	72201230	Broccoli, cooked, NS as to form, with cheese sauce*
	72201231	Broccoli, cooked, from fresh, with cheese sauce*
	72201232	Broccoli, cooked, from frozen, with cheese sauce*
	72201240	Broccoli, cooked, NS as to form, with mushroom sauce*
	72201250	Broccoli, cooked, NS as to form, with cream sauce*
	72201251	Broccoli, cooked, from fresh, with cream sauce*
	72201252	Broccoli, cooked, from frozen, with cream sauce*
	72202010	Broccoli casserole (broccoli, noodles, and cream sauce)*
	72202020	Broccoli casserole (broccoli, rice, cheese, and mushroom sauce)*
	73102230	Carrots, cooked, NS as to form, creamed*
	73102231	Carrots, cooked, from fresh, creamed*
	73102252	Carrots, cooked, from frozen, with cheese sauce*
	73111031	Peas and carrots, from fresh, creamed*
	73111400	Carrots in tomato sauce*
	73211110	Sweet potato and pumpkin casserole, Puerto Rican style*
	74401110	Tomato catsup, reduced sodium
	74402100	Salsa, NFS
	74402110	Salsa, pico de gallo
	74402150	Salsa, red, commercially-prepared
	74402200	Salsa, red, homemade
	74402250	Enchilada sauce, red*
	74402260	Enchilada sauce, green
	74402300	Salsa made with fruit*
	74402310	Green tomato-chile sauce, raw (Salsa de tomate verde cruda)
	74402350	Salsa verde or salsa, green
	74403010	Tomato sauce
	74404010	Spaghetti sauce, meatless
	74404020	Spaghetti sauce with vegetables, homemade-style*
	74404030	Spaghetti sauce with meat, canned, no extra meat added*
	74404050	Spaghetti sauce, meatless, reduced sodium
	74404060	Spaghetti sauce, meatless, fat free
	74404090	Vodka flavored pasta sauce made with tomatoes and cream*
	74406010	Barbecue sauce
	74406500	Cocktail sauce
	74415110	Puerto Rican seasoning with ham and tomato sauce*
	74420110	Puerto Rican seasoning without ham and tomato sauce*
	75302010	Beans, string, green, with tomatoes, cooked, fat not added in cooking*
	75306010	Eggplant in tomato sauce, cooked, fat not added in cooking*
	75316010	Zucchini with tomato sauce, cooked, fat not added in cooking*
	75316050	Ratatouille*
	75340160	Vegetable and pasta combinations with cream or cheese sauce (broccoli, pasta, carrots, corn, zucchini, peppers, cauliflower, peas, etc.), cooked*

Proposed Food Category	Food Code	Description
	75401011	Asparagus, from fresh, creamed or with cheese sauce*
	75402012	Beans, lima, immature, from frozen, creamed or with cheese sauce*
	75403010	Beans, string, green, NS as to form, creamed or with cheese sauce*
	75403011	Beans, string, green, from fresh, creamed or with cheese sauce*
	75403012	Beans, string, green, from frozen, creamed or with cheese sauce*
	75403013	Beans, string, green, from canned, creamed or with cheese sauce*
	75403020	Beans, string, green, cooked, NS as to form, with mushroom sauce*
	75403023	Beans, string, green, cooked, from canned, with mushroom sauce*
	75405010	Beets with Harvard sauce*
	75407010	Cabbage, creamed*
	75409010	Cauliflower, NS as to form, creamed*
	75409011	Cauliflower, from fresh, creamed*
	75409012	Cauliflower, from frozen, creamed*
	75410500	Chiles rellenos, cheese-filled (stuffed chili peppers)*
	75410550	Jalapeno pepper, stuffed with cheese, breaded or battered, fried*
	75411030	Corn, cooked, NS as to form, with cream sauce, made with milk*
	75412030	Eggplant dip
	75412060	Eggplant parmesan casserole, regular*
	75412070	Eggplant with cheese and tomato sauce*
	75414010	Mushrooms, NS as to form, creamed*
	75414011	Mushrooms, from fresh, creamed*
	75415011	Onions, from fresh, creamed*
	75417010	Peas, NS as to form, creamed*
	75417011	Peas, from fresh, creamed*
	75417013	Peas, from canned, creamed*
	75417021	Peas, cooked, from fresh, with mushroom sauce*
	75417030	Peas, cooked, NS as to form, with tomato sauce*
	75418010	Squash, summer, yellow or green, breaded or battered, fried*
	75418020	Squash, summer, casserole with tomato and cheese*
	75418040	Squash, summer, casserole, with cheese sauce*
	75418101	Turnips, from fresh, creamed*
	75418220	Creamed christophine, Puerto Rican style (Chayote a la crema)*
	75439010	Vegetable stew without meat*
	75440300	Vegetable combinations (including carrots, broccoli, and/or dark-green leafy), cooked, with tomato sauce*

Proposed Food Category	Food Code	Description
	75440310	Vegetable combinations (excluding carrots, broccoli, and dark-green leafy), cooked, with tomato sauce*
	75440500	Vegetable combinations (including carrots, broccoli, and/or dark-green leafy), cooked, with cheese sauce*
	75440510	Vegetable combinations (excluding carrots, broccoli, and dark-green leafy), cooked, with cheese sauce*
	75440600	Vegetable curry*
	75450500	Vegetable combination (including carrots, broccoli, and/or dark-green leafy), cooked, with cream sauce*
	75450510	Vegetable combination (excluding carrots, broccoli, and dark-green leafy), cooked, with cream sauce*
	75450600	Vegetable combination (including carrots, broccoli, and/or dark-green leafy), cooked, with butter sauce*
	75506100	Mustard sauce
	77316510	Stuffed cabbage, with meat and rice, Syrian dish, Puerto Rican style (Repollo relleno con carne y con arroz; Arabe Mihsy Melful)*
	77316600	Eggplant and meat casserole*
	77563010	Puerto Rican stew (Salcocho / Sancocho)*
	81301000	Garlic sauce
	81301020	Lemon-butter sauce
	81302010	Hollandaise sauce
	81302050	Tartar sauce
	81302060	Horseradish sauce
	81302070	Pesto sauce
	83208500	Korean dressing or marinade
	91361010	Sweet and sour sauce
	91361050	Duck sauce
Condiments, major	24198840	Fried chicken chunks, Puerto Rican style (Chicharrones de pollo)*
	27111500	Beef sloppy joe (no bun)*
	27115000	Beef with soy-based sauce (mixture)*
	27115100	Steak teriyaki with sauce (mixture)*
	27116300	Beef with sweet and sour sauce (mixture)*
	27120060	Sweet and sour pork*
	27120150	Pork or ham with soy-based sauce (mixture)*
	27145000	Chicken or turkey teriyaki (chicken or turkey with soy-based sauce)*
	27146100	Sweet and sour chicken or turkey*
	27146110	Sweet and sour chicken or turkey, without vegetables*
	27146350	Orange chicken*
	27146360	Sesame chicken*
	27150160	Shrimp with lobster sauce (mixture)*
	27150170	Sweet and sour shrimp*
	27150190	Lobster sauce (broth-based)*

Proposed Food Category	Food Code	Description
	27150250	Fish moochim (Korean style), dried fish with soy sauce*
	27150410	Shrimp teriyaki (shrimp with soy-based sauce) (mixture)*
	27151030	Marinated fish (Ceviche)*
	27212500	Beef and noodles with soy-based sauce (mixture)*
	27213500	Beef and rice with soy-based sauce (mixture)*
	27242500	Chicken or turkey and noodles with soy-based sauce (mixture)*
	27243600	Chicken or turkey and rice with soy-based sauce (mixture)*
	27250128	Shrimp and noodles with soy-based sauce (mixture)*
	27311645	Beef, potatoes, and vegetables (including carrots, broccoli, and/or dark-green leafy), soy-based sauce (mixture)*
	27313150	Beef, noodles, and vegetables (including carrots, broccoli, and/or dark-green leafy), soy-based sauce (mixture)*
	27313160	Beef, noodles, and vegetables (excluding carrots, broccoli, and dark-green leafy), soy-based sauce (mixture)*
	27315250	Stuffed cabbage rolls with beef and rice*
	27315510	Beef, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), soy-based sauce (mixture)*
	27315520	Beef, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), soy-based sauce (mixture)*
	27320320	Pork, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), soy-based sauce (mixture)*
	27320330	Pork, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), soy-based sauce (mixture)*
	27345310	Chicken or turkey, rice, and vegetables (including carrots, broccoli, and/or dark-green leafy), soy-based sauce (mixture)*
	27345320	Chicken or turkey, rice, and vegetables (excluding carrots, broccoli, and dark-green leafy), soy-based sauce (mixture)*
	27410250	Beef shish kabob with vegetables, excluding potatoes*
	27415100	Beef and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27415110	Beef and broccoli*
	27415120	Beef, tofu, and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27415140	Hunan beef*
	27415200	Beef and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27415220	Beef, tofu, and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27416150	Pepper steak*
	27416400	Sukiyaki (stir fried beef and vegetables in soy sauce)*
	27420100	Pork, tofu, and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-base sauce (mixture)*
	27420110	Pork and vegetables, Hawaiian style (mixture)*
	27420160	Moo Shu (Mu Shi) Pork, without Chinese pancake*
	27420170	Pork and onions with soy-based sauce (mixture)*

Proposed Food Category	Food Code	Description
	27420200	Pork hash, Hawaiian style-ground pork, vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce*
	27420370	Pork, tofu, and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27420500	Pork and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27420510	Pork and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27420520	Pork shish kabob with vegetables, excluding potatoes*
	27430610	Lamb shish kabob with vegetables, excluding potatoes*
	27440130	Chicken or turkey shish kabob with vegetables, excluding potatoes*
	27445110	Chicken or turkey and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27445120	Chicken or turkey and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27445150	General Tso chicken*
	27445180	Moo Goo Gai Pan*
	27445220	Kung pao chicken*
	27445250	Almond chicken*
	27450410	Shrimp and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27450420	Shrimp and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27450430	Shrimp shish kabob with vegetables, excluding potatoes*
	27450600	Shellfish mixture and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce*
	27450610	Shellfish mixture and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce*
	27450740	Fish and vegetables (including carrots, broccoli, and/or dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27450750	Fish and vegetables (excluding carrots, broccoli, and dark-green leafy (no potatoes)), soy-based sauce (mixture)*
	27510230	Cheeseburger, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510310	Cheeseburger with tomato and/or catsup, on bun*
	27510320	Cheeseburger, 1/4 lb meat, with tomato and/or catsup, on bun*
	27510330	Double cheeseburger (2 patties), with tomato and/or catsup, on bun*
	27510340	Double cheeseburger (2 patties), with mayonnaise or salad dressing and tomatoes and/or catsup, on bun*
	27510350	Cheeseburger, 1/4 lb meat, with mayonnaise or salad dressing,

Proposed Food Category	Food Code	Description
		and tomato and/or catsup, on bun*
	27510355	Cheeseburger, 1/3 lb meat, with mayonnaise or salad dressing, tomato and/or catsup on bun*
	27510360	Bacon cheeseburger, with mayonnaise or salad dressing, tomato and/or catsup, on bun*
	27510375	Double cheeseburger (2 patties, 1/4 lb meat each), with tomato and/or catsup, on bun*
	27510380	Triple cheeseburger (3 patties, 1/4 lb meat each), with mayonnaise or salad dressing and tomatoes and/or catsup, on bun*
	27510385	Double bacon cheeseburger (2 patties), with tomato and/or catsup, on bun*
	27510400	Bacon cheeseburger, 1/4 lb meat, with tomato and/or catsup, on bun*
	27510430	Double bacon cheeseburger (2 patties, 1/4 lb meat each), with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510440	Bacon cheeseburger, 1/4 lb meat, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510445	Bacon cheeseburger, 1/3 lb meat, with tomato and/or catsup, on bun*
	27510510	Hamburger, with tomato and/or catsup, on bun*
	27510520	Hamburger, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510540	Double hamburger (2 patties), with tomato and/or catsup, on bun*
	27510560	Hamburger, 1/4 lb meat, with mayonnaise or salad dressing, and tomato and/or catsup, on bun*
	27510610	Hamburger, 1 oz meat, with tomato and/or catsup, on miniature bun*
	27510620	Hamburger, 1/4 lb meat, with tomato and/or catsup, on bun*
	27510680	Double hamburger (2 patties, 1/4 lb meat each), with tomato and/or catsup, on bun*
	27510690	Double hamburger (2 patties, 1/4 lb meat each), with mayonnaise or salad dressing and tomatoes and/or catsup, on double-decker bun*
	27517010	Wrap sandwich filled with beef patty, cheese, tomato and/or catsup, and spread and/or sauce*
	27560340	Frankfurter or hot dog, with catsup and/or mustard, on bun*
	28310330	Meat and rice noodle soup, Asian style (Vietnamese Pho Bo)*
	28320300	Pork with vegetable (excluding carrots, broccoli and/or dark-green leafy) soup, Asian Style*
	28340550	Sweet and sour soup*
	28340580	Chicken or turkey soup with vegetables (broccoli, carrots, celery, potatoes and onions), Asian style*

Proposed Food Category	Food Code	Description
	28520000	Gravy or sauce, Chinese (soy sauce, stock or bouillon, cornstarch)*
	28520100	Oyster-flavored sauce
	32105200	Egg foo yung (young), NFS*
	32105210	Chicken egg foo yung (young)*
	32105220	Pork egg foo yung (young)*
	32105230	Shrimp egg foo yung (young)*
	41205100	Black bean sauce*
	41207030	Beans, dry, cooked with ground beef*
	41208100	Beans, dry, cooked with pork*
	41420250	Hoisin sauce
	41420300	Soy sauce
	41420350	Soy sauce, reduced sodium
	41420400	Teriyaki sauce
	41420410	Teriyaki sauce, reduced sodium
	41812500	Tofu and vegetables (including carrots, broccoli, and/or dark-green leafy vegetables (no potatoes)), with soy-based sauce (mixture)*
	41812510	Tofu and vegetables (excluding carrots, broccoli, and dark-green leafy vegetables (no potatoes)), with soy-based sauce (mixture)*
	42204100	Brown nut gravy, meatless*
	43103100	Sesame sauce*
	58111200	Puffs, fried, crab meat and cream cheese filled*
	58116110	Meat turnover, Puerto Rican style (Pastelillo de carne; Empanadilla)*
	58123110	Sweet bread dough, filled with meat, steamed*
	58150520	Dukboki / Tteokbokki (Korean)*
	58155410	Soupy rice with chicken, Puerto Rican style (Asopao de pollo)*
	58164560	Rice, white, with soy-based sauce, NS as to fat added in cooking*
	58164570	Rice, white, with soy-based sauce, fat not added in cooking*
	58164580	Rice, white, with soy-based sauce, fat added in cooking*
	58164880	Rice, brown, with soy-based sauce, fat added in cooking*
	58165060	Rice, white, with vegetables, soy-based sauce, NS as to fat added in cooking*
	58165480	Rice, brown, with vegetables, soy-based sauce, fat added in cooking*
	58408500	Noodle soup with vegetables, Asian style*
	58409000	Noodle soup, with fish ball, shrimp, and dark green leafy vegetable*
	59003000	Meat substitute, cereal- and vegetable protein-based, fried*
	63409020	Chutney*
	71601015	Potato salad with egg, made with light mayonnaise*
	71601020	Potato salad with egg, made with mayonnaise-type salad

Proposed Food Category	Food Code	Description
		dressing*
	71601025	Potato salad with egg, made with light mayonnaise-type salad dressing*
	71601050	Potato salad with egg, made with any type of fat free dressing*
	71603010	Potato salad, made with mayonnaise*
	71603015	Potato salad, made with light mayonnaise*
	71603020	Potato salad, made with mayonnaise-type salad dressing*
	71603025	Potato salad, made with light mayonnaise-type salad dressing*
	71603050	Potato salad, made with any type of fat free dressing*
	72118305	Chamnamul (Korean leaf vegetable), cooked, fat not added in cooking*
	72306000	Watercress broth with shrimp*
	72308000	Dark-green leafy vegetable soup with meat, Asian style*
	72308500	Dark-green leafy vegetable soup, meatless, Asian style*
	74401010	Tomato catsup
	74406100	Steak sauce, tomato-base
	75232050	Seaweed, prepared with soy sauce*
	75403200	Beans, string, green, cooked, Szechuan-style, fat added in cooking*
	75439500	Chow mein or chop suey, meatless, no noodles*
	75440100	Vegetable combination (including carrots, broccoli, and/or dark-green leafy), cooked, with soy-based sauce*
	75440110	Vegetable combination (excluding carrots, broccoli, and dark-green leafy), cooked, with soy-based sauce*
	75502510	Cabbage, red, pickled*
	75502520	Cabbage, Kimchi (Kim Chee) style*
	75513010	Seaweed, pickled*
	75647000	Seaweed soup*
Condiments, minor	14620100	Dip, cream cheese base*
	14620120	Shrimp dip, cream cheese base*
	27111500	Beef sloppy joe (no bun)*
	27112010	Salisbury steak with gravy (mixture)*
	27116300	Beef with sweet and sour sauce (mixture)*
	27120060	Sweet and sour pork*
	27146050	Chicken wing with hot pepper sauce*
	27150170	Sweet and sour shrimp*
	27150210	Fish sauce (bagoong)
	27150330	Mussels with tomato-based sauce (mixture)*
	27213600	Beef and rice with cheese sauce (mixture)*
	27250400	Shrimp cake or patty*
	27416300	Beef taco filling: beef, cheese, tomato, taco sauce*
	27510355	Cheeseburger, 1/3 lb meat, with mayonnaise or salad dressing, tomato and/or catsup on bun*
	27510445	Bacon cheeseburger, 1/3 lb meat, with tomato and/or catsup, on bun*

Proposed Food Category	Food Code	Description
	27540250	Chicken fillet, broiled, sandwich with cheese, on whole wheat roll, with lettuce, tomato and non-mayonnaise type spread*
	27540270	Chicken fillet, broiled, sandwich, with lettuce, tomato, and non-mayonnaise type spread*
	27560340	Frankfurter or hot dog, with catsup and/or mustard, on bun*
	28310330	Meat and rice noodle soup, Asian style (Vietnamese Pho Bo)*
	28340800	Chicken or turkey soup with vegetables and fruit, Asian Style*
	32105150	Egg omelet or scrambled egg, with cheese, beans, tomatoes, and chili sauce*
	32105190	Egg casserole with bread, cheese, milk and meat*
	41207030	Beans, dry, cooked with ground beef*
	41208100	Beans, dry, cooked with pork*
	41304000	Wasabi peas*
	41420450	Worcestershire sauce
	58100350	Burrito with eggs and cheese, no beans*
	58100600	Enchilada with chicken, tomato-based sauce*
	58100710	Enchilada with beans, meatless*
	58101240	Flauta with chicken*
	58101910	Taco or tostada salad with beef and cheese, corn chips*
	58110200	Roll with meat and/or shrimp, vegetables and rice paper (not fried)*
	58111200	Puffs, fried, crab meat and cream cheese filled*
	58137220	Pad Thai, meatless*
	58137230	Pad Thai with chicken*
	58137240	Pad Thai with seafood*
	58137250	Pad Thai with meat*
	58150100	Bibimbap (Korean)*
	58150520	Dukboki / Tteokbokki (Korean)*
	58162110	Stuffed pepper, with rice and meat*
	71601015	Potato salad with egg, made with light mayonnaise*
	71601020	Potato salad with egg, made with mayonnaise-type salad dressing*
	71601025	Potato salad with egg, made with light mayonnaise-type salad dressing*
	71601050	Potato salad with egg, made with any type of fat free dressing*
	71603010	Potato salad, made with mayonnaise*
	71603015	Potato salad, made with light mayonnaise*
	71603020	Potato salad, made with mayonnaise-type salad dressing*
	71603025	Potato salad, made with light mayonnaise-type salad dressing*
	71603050	Potato salad, made with any type of fat free dressing*
	74402010	Tomato chili sauce (catsup-type)
	75503090	Horseradish
	75506010	Mustard
	75511010	Hot pepper sauce
	91361070	Plum sauce, Asian style

Proposed Food Category	Food Code	Description
Pastes (up to 75% water content)	41420110	Miso (fermented soybean paste)
	42200600	Almond paste (Marzipan paste)
	43103200	Sesame paste (sesame butter made from whole seeds)
	91407100	Guava paste
	91407150	Bean paste, sweetened
Fruit butters (orange)	91403000	Fruit butter, all flavors
Fruit leathers	91708030	Fruit leather and fruit snacks candy

* Only proportion of food with proposed orange pomace and enzyme treated orange pomace use included in analysis.

EXHIBIT III.

GRAS EXPERT PANEL REPORT

Expert Panel Report on the Generally Recognized As Safe (GRAS) Conclusion for Orange Pomace

June 21, 2017

Basis for GRAS Determination of the Proposed Uses of Orange Pomace

GRAS Substance Identity and Characterization

Orange pomace is a mass created when a mixture of deseeded orange juice, pulp, and membrane are pressed to remove the juice. Orange pomace is the edible part of oranges with the seeds and juices removed.

Orange pomace contains commonly consumed macronutrients such as water, carbohydrates, fiber, protein, and fat. The minor constituents of orange pomace include limonin and hesperidin, as well as related polyphenolic flavonoids such as narirutin, didymin, and poly-methoxylated flavones.

Orange Pomace Method of Manufacture

The term "Orange pomace" in this report refers to both orange pomace and enzyme-treated orange pomace. Orange pomace and enzyme-treated orange pomace are the same in terms of composition and safety.

Commonly consumed sweet oranges (*Citrus sinensis*), such as Hamlin and Valencia, are harvested, transported, inspected, cleaned, and graded using standard industry practices and FDA current good manufacturing practices (cGMP). The peel is separated from the juice, pulp, membrane, and seeds creating a free-flowing stream substantially devoid of any peel. Next, the seeds are removed creating a free-flowing mixture of juice, pulp, and membrane. This mixture is then pressed to obtain the juice, leaving a mass of "orange pomace." Orange pomace is pasteurized in an extruder or other heat-conveying device to provide stability, deactivate native enzymes, and kill microorganisms. Heat-stabilized pomace can be further diluted with orange juice and treated with food-grade pectinase enzymes. Polygalacturonase and pectin lyase from *Aspergillus niger* are used alone or in combination to reduce viscosity of the pomace and increase processing ability. Both enzymes comply with relevant FCC specifications and are GRAS for this use (GRN No. 89). After a suitable reaction period, enzyme-treated orange pomace is further processed to reduce the particle size and is pasteurized to deactivate the added pectinases. The absence of residual enzyme activity is confirmed through the analysis of viscosity and fiber content, which remains unchanged after at least one month.

Orange pomace and enzyme-treated orange pomace are stored using standard industry practices in various aseptic or frozen storage packages. Taste stability of orange pomace over shelf life is dependent upon storage conditions, and is comparable to that of orange juice. No degradation is expected under typical storage conditions.

Conformance to proposed specifications and consistency in the manufacturing process of orange pomace has been demonstrated by the analyses of multiple non-consecutive lots of commercially representative orange pomace, both with and without enzyme treatment.

Intended Use and Consumer Exposure

Orange pomace is proposed for use in orange juice, fruit juice blends, juice drinks, smoothies, spoonable sauce, grain-based bars, hot cereals, pastries (pies, cobblers, fruit crisps, turnovers, rolls, cakes, muffins, etc.), pie filling, salad dressings, sauces and dips, major and minor condiments, pastes (up to 75% water content), fruit butters (orange), and fruit leathers at levels ranging from 1-50%, depending on the product. The physical or technical effect of orange pomace is to add a source of nutrients (primarily fiber where no standard of identity exists) (21 CFR §170.3(o)(20)), as a stabilizer and thickener (21 CFR §170.3(o)(28)), and as a texturizing agent (21 CFR §170.3(o)(32)). Based on these use levels and daily estimates derived from the NHANES 2009-2010 and 2011-2012 database (NCHS, 2012, 2014), the conservative estimated daily intake (EDI) of orange pomace from all proposed uses (and assuming the maximum proposed use level for each food category) is less than or equal 1.1 g/kg bw/day at the mean and 2.5 g/kg bw/day at the 90th percentile of intake among users in the total U.S. population (equivalent to 62 g/day and 132 g/day, respectively). According to the USDA, oranges can range from 150-326 grams (USDA, 1996); therefore, even using conservative upper estimates of intake for orange pomace, the cumulative EDI for oranges and orange products is less than consuming a large orange.

Safety Evaluation

Regulatory Status of Similar Materials

Three substances similar to orange pomace have achieved GRAS status and FDA Letters of No Objection, e.g. Citri-Fi™ Citrus Fiber 100 (GRN No. 154), citrus flour (also known as "dried citrus pulp") (GRN No. 487), and citrus fiber obtained from the peels of sweet oranges (GRN No. 599). The data and information presented in these Notifications are considered to support the current GRAS conclusion for orange pomace, as the GRAS conclusions for those ingredients are similarly based on a history of safe consumption of oranges and confirmation that no untoward effects might occur from concentrating minor constituents at intended use levels.

Overview of Safety Database Supporting Safety Evaluation of Orange Pomace

The results of publicly available toxicological studies on the flavonoid constituents of orange pomace show little to no toxicity in animals. This is likely due to their low oral bioavailability and rapid systemic elimination. Hesperidin and its structurally related

compounds are non-mutagenic, non-carcinogenic, and do not produce adverse effects in animal studies. The pivotal safety study for orange pomace is a 2-year oral toxicity and carcinogenicity mouse study with methyl hesperidin (Kurata *et al.*, 1990).

Although high exposures to certain flavonoid constituents in Citrus fruit can potentially result in biological activity and drug interactions, it can be concluded from the review of the published studies that the risks for biological activity and drug interactions are low in orange pomace consumers because of low exposure levels, low oral bioavailability and rapid systemic elimination of Citrus flavonoids.

The clinical data that are available demonstrate that hesperidin and other minor constituents of orange pomace are well tolerated in humans. In addition to providing a source of dietary fiber and other nutrients, some minor constituents of orange pomace (i.e. polyphenolic flavonoids such as hesperidin and limonin) are reported to have potential therapeutical effects in various diseases, such as neurological disorders, psychiatric disorders, and cardiovascular diseases and others, due to their anti-inflammatory, antioxidant, lipid-lowering, and insulin-sensitizing properties (Gualdani *et al.*, 2016; Li and Schluesener, 2017).

Acceptable Daily Intake

Because the primary components of orange pomace are water and nutrients (fiber, protein, and carbohydrates) which are encouraged to be consumed, and there are no toxic effects associated with oranges or orange products, an Acceptable Daily Intake (ADI) of "not specified" is most appropriate. The Adequate Intake (AI) levels for fiber are 30-38 g/day and 21-26 g/day for males and females, respectively (NRC, 2005). The Recommended Daily Allowances (RDAs) are 130 g/day for carbohydrates and 34-56 g/day for protein (NRC, 2005). The Acceptable Macronutrient Distribution Range (AMDR) is 25-35 for total fat (NRC, 2005).

As a precaution, minor constituents of orange pomace were evaluated for safety and an ADI for hesperidin, the predominant flavonoid among the constituents in orange pomace was calculated using the oral toxicity data for the structurally-related flavanone methyl hesperidin. The pivotal safety study with methyl hesperidin is a 2-year mouse oral toxicity and carcinogenicity study (Kurata *et al.*, 1990). Using the no-observed-adverse-effect level (NOAEL) of 7,500 mg/kg bw/day derived from this study, and a default safety factor of 100 for inter- and intra-species variation, an ADI of 75 mg/kg bw/day is calculated for methyl hesperidin and referenced in the safety evaluation for orange pomace. Since the other minor flavonoid constituents of orange pomace were determined to have a similar safety profile to hesperidin, the safety/toxicity profile of hesperidin was judged to be the most relevant marker to assess the safety of orange pomace.

Comparison of the Estimated Daily Intake to the Acceptable Daily Intake

For macronutrients, there is no tolerable upper level of intake to compare to the EDI (NRC, 2005). Conservative estimates of potential high consumer intake of fiber from foods containing orange pomace at the maximum proposed use levels [approximately 17 g/day for the Total Population; all food categories combined] are similar to or below the current Dietary Reference Intake values for fiber [Adequate Intake levels are 30-38 g/day and 21-26 g/day for males and females, respectively (NRC, 2005)]. Similarly, conservative intake estimates for carbohydrates, protein, and fat [approximately 19, 3, and 1 g/day, respectively for the Total Population], are well below the acceptable/recommended dietary thresholds for adult males and females [Recommended Daily Allowances are 130 g/day for carbohydrates and 34-56 g/day for protein; Acceptable Macronutrient Distribution Range is 25-35 for total fat (NRC, 2005)]. Intake of these macronutrients from orange pomace consumption therefore represents an appropriate addition to the total daily diet.

The conservative upper estimate of intake for hesperidin from orange pomace for all food categories is 8 mg/kg bw/day for the total population. This EDI is 10-fold lower than the calculated ADI of 75 mg/kg bw/day. Adequate margins of exposure also exist for specific population subgroups (e.g. the EDI for hesperidin among children ages 1-6 is 21 mg/kg bw/day). Given that orange pomace is not the only dietary source of hesperidin, a cumulative EDI was also derived for this minor constituent. The primary dietary sources of hesperidin are from the consumption of oranges and orange juice (Somerset and Johannot, 2008). The average consumption of oranges in 2014 was approximately 43 g/day (USDA, 2014). Since oranges (fresh and processed) were the most consumed fruit in America, it is assumed that 70% of the U.S. population ingests oranges or orange juice on a daily basis. Using PepsiCo's internal data for hesperidin content in oranges (1,800 mg/L; unpublished data on-file), the EDI for hesperidin in fresh and processed oranges is 77 mg/day or 1 mg/kg bw/day for a 70 kg adult. When the conservative estimate of intake for hesperidin from orange pomace (8 mg/kg bw/day) is added, the cumulative EDI for hesperidin with the addition of orange pomace into the market is 9 mg/kg bw/day, which is well below the calculated ADI for hesperidin (75 mg/kg bw/day).

Because consumers are not likely to consume all orange pomace-containing products at the 90th percentile of intake, even larger margins of safety would be achieved based on more typical consumption patterns.

Conclusion

We, the independent qualified members of the Expert Panel, have individually and collectively critically evaluated the data and information summarized above, and other data and information that we deemed pertinent to the safety of the proposed uses of orange pomace as a source of nutrients (primarily fiber), a stabilizer and thickener, and a texturizing agent in a variety of foods. We unanimously conclude that the proposed uses of orange pomace, produced consistent with current good manufacturing practices (cGMPs) and meeting appropriate food grade specifications, are safe and suitable and Generally Recognized As Safe (GRAS) based on scientific procedures.

It is our opinion that other qualified experts would concur with these conclusions.

(b) (6)

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June 21, 2017
Date

(b) (6)

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