

Characterization of Acrylamide Intake from Certain Foods

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Preface

On January 1, 1990, acrylamide was listed as a chemical known to cause cancer under Proposition 65 (the Safe Drinking Water and Toxic Enforcement Act of 1986, Health and Safety Code Section 25249.5 *et seq.*) The No Significant Risk Level (NSRL) for acrylamide of 0.2 µg/day was also established in regulation in 1990 (Title 22, California Code of Regs. §12705(c))¹.

Acrylamide is a carcinogen, producing tumors at multiple sites in rats and mice. The general public is exposed primarily through cigarette smoke and certain foods that have been cooked at high-temperature. Occupational exposures occur mainly from its use as a polymerizing agent in grouts and cements, and to produce polyacrylamide. The ability of acrylamide to produce cancer in animals, and the applicability of animal findings to humans is well recognized by scientists in the United States and throughout the world. The World Health Organization recognizes “the presence of acrylamide in food as a major concern in humans based on the ability to induce cancer and heritable mutations in laboratory animals.” The International Agency for Research on Cancer and the U.S. Environmental Protection Agency consider acrylamide to be a probable human carcinogen. The National Toxicology Program considers acrylamide as “reasonably anticipated to be a human carcinogen.” The U.S. Food and Drug Administration (FDA) considers acrylamide to be a potential human carcinogen. The National Institute for Occupational Safety and Health considers acrylamide to be an occupational carcinogen.

Historically, toxicity concerns over acrylamide centered on worker health and safety, primarily for neurological, male reproductive and cancer effects. However, in 2002 it was discovered that acrylamide can form during the cooking of starchy foods at high temperatures. This unexpected discovery shifted the concern for health risks to the public from acrylamide in the diet. Since 2002, acrylamide has been discovered in many plant-based foods that have been baked or fried at high temperatures.

Cancer now occurs in nearly one out of every four individuals. While the underlying cause of many cancer cases is unclear, numerous epidemiological studies have shown that dietary factors affect an individual’s cancer risk. The World Health Organization has estimated that about 30 percent of cancer cases worldwide are associated with dietary factors. Characterization of carcinogens in the diet is complicated by the complex and varied nature of the food humans consume, and is far from complete. Some dietary factors that have been associated with increased cancer risk include high caloric intake and increased consumption of processed meats and red meat. Other dietary factors have been associated with decreased cancer risk; these include increased consumption of fruits and vegetables and increased consumption of dietary fiber. In addition, some specific carcinogenic compounds present in the diet have been identified, such as those formed during the high temperature cooking of meats (e.g., benzo[a]pyrene and PhIP). Acrylamide is yet another carcinogen recently recognized to be formed as a result of cooking at high temperatures, although in this case, formation occurs in certain plant-based foods. Given the typical daily intake of acrylamide from the diet, it is plausible that dietary acrylamide contributes to the rate of cancer observed in the population.

¹ Lifetime exposure at the no significant risk level is calculated to result in one excess cancer in an exposed population of 100,000 (Title 22, California Code of Regulations section 12703(b)).

OEHHA is proposing to amend Title 22, Cal. Code of Regs. §12705 to add a new subsection (subsection (e)), to establish an alternative no significant risk level for acrylamide in grain-based breads and cereals (that is, a specific regulatory level for acrylamide in these foods that is associated with a risk other than the standard risk of one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure at the level in question.) The analysis presented in this document characterizes the intake of acrylamide from various food types. The analysis combines data produced by the FDA on acrylamide levels in U.S. foods with survey data generated by the U.S. Department of Agriculture and other organizations on food consumption rates. These data are used to estimate the average daily intake of acrylamide among individuals who consume a given food type. The purpose of this analysis is to assist the public and the regulated community in estimating average daily intake of acrylamide from specific foods, and to inform the development and content of regulations proposed by OEHHA with regard to the presence in certain foods of acrylamide.

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Summary

The Office of Environmental Health Hazard Assessment (OEHHA) has conducted an analysis to characterize the daily intake of acrylamide from certain foods, based on currently available data. The purpose of the analysis is to provide information to guide efforts to interpret the applicability of Proposition 65² to acrylamide in foods (OEHHA, 2004a). Foods selected for analysis were those for which data on acrylamide levels in food had been published by the U.S. Food and Drug Administration (FDA). Acrylamide intakes were calculated from these FDA data on food concentrations and from data on food consumption generated by the U.S. Department of Agriculture (USDA). Foods were generally grouped by common food categories used by USDA (e.g., crackers). However, in some cases specific foods were examined when acrylamide levels are generally high in that specific food (e.g., prune juice) but are generally low in other foods within the food category (i.e., fruit juices). The analysis is limited by the number of samples examined for acrylamide content, which for most foods were few, by the lack of longitudinal data on food consumption, and by the degree to which food products containing high levels of acrylamide have been recognized and sampled by the FDA. Further, the analyses did not take into account potential increased sensitivity to acrylamide carcinogenesis by infants and children.

Calculation of exposure to carcinogens in foods under Proposition 65 is to be based on the average rate of intake among users of the consumer product (Title 22, California Code of Regulations, §12721(d)(4)³). In addition, the average rate of intake is to be based on data for use of a general category of food product (§12721(d)(4)). Data were not available to OEHHA on food consumption by individuals over long periods of time. Therefore acrylamide intakes were calculated that would bracket or bound the average intake for consumers of the foods. The lower consumer intake bound was based on the consumption rate for eaters⁴ of a given food, averaged across the entire population (i.e., per capita consumption); actual intake among average consumers of the food is expected to fall above the lower bound. The upper bound for a given food was derived by assuming individual consumers ate the food everyday. Actual intake among average consumers of a given food is expected to fall below the upper bound for foods that are eaten on a sporadic basis, and close to the upper bound for foods commonly eaten on nearly a daily basis. For frequently and widely consumed foods (e.g., coffee, bread, and ready-to-eat cereal), the upper bound estimates are typically within a factor of two to four of the lower bound estimates, giving confidence to the characterization of consumer intake.

The upper and lower bound estimates of daily acrylamide intake were compared to the proposed Proposition 65 No Significant Risk Level (NSRL) for acrylamide of 1.0 µg per day, the level associated with one excess case of cancer in an exposed population of 100,000 (i.e., a 1×10^{-5} cancer risk). This analysis indicates that the average daily intakes of acrylamide for eaters of the following commonly eaten foods exceed the proposed NSRL of 1.0 µg per day: all fried potatoes tested, likely all potato chips tested, most coffee samples tested, many cookies, many ready-to-eat cereals, many breads, and toast. The lower bounds on the intake for each of

² Safe Drinking Water and Toxic Enforcement Act of 1986, California Health and Safety Code 25249.5 et seq.

³ All further references to regulation are to the California Code of Regulations, Title 22, unless otherwise noted.

⁴ The word “eaters” in this document is used generally to include eaters of solid foods and drinkers of liquid foods.

these foods exceed the NSRL⁵. Also, consumers of the following specialty foods such as Wheatena® (a cooked toasted wheat cereal), roasted grain-based coffee substitutes and prune juice are exposed in excess of the NSRL. In addition, daily intakes of acrylamide for eaters of any of the following individual foods may exceed the proposed NSRL of 1.0 µg per day: some crackers, corn and tortilla chips, popcorn, and canned black olives. There is less confidence in either the food consumption data or the acrylamide concentration data, or both, for these foods.

Background

Acrylamide has been listed as causing cancer under Proposition 65 since 1990. An NSRL of 0.2 µg/d was adopted in 1990 (§12705(c)), based on a cancer potency estimate of 4.5 (mg/kg-d)⁻¹ derived by the U.S. Environmental Protection Agency (U.S. EPA). OEHHA is currently proposing an NSRL of 1.0 µg per day for adoption in §12705(b) of the regulations (OEHHA, 2005).

Acrylamide was discovered in April 2002 to be commonly produced in many plant-based human foods as a by-product of high-temperature cooking. This document uses FDA data on acrylamide levels in certain foods and USDA data on food consumption to characterize average daily intakes of acrylamide among eaters of those foods.

Data sources

Data on acrylamide levels in foods

Since 2002, the FDA has surveyed foods for acrylamide, and has recently released data on acrylamide levels in U.S. foods collected as of mid-2002 through Oct. 1, 2003 (FDA, 2004a). Several hundred individual food samples were collected from a wide variety of food categories, comprising hundreds of samples in total. The FDA has reported these data in a document entitled *Exploratory Data on Acrylamide in Foods*. This document includes data that were published in earlier releases (i.e., on December 4, 2002 and March 12, 2003).

In 2003, the FDA added acrylamide to its ongoing Total Diet Study, which analyzes chemical concentrations in 286 core foods in the U.S. food supply, collected annually in four areas of the country. In the Total Diet Study, analyses are performed on a composite of three samples of each food collected for each of the four geographic areas. Since the analyses are conducted on composite, or “pooled”, samples, this study provides data on mean concentrations of acrylamide in typical foods, but not on the distribution of acrylamide levels in these foods. The concentration data for acrylamide were reported in 2004 (FDA, 2004b).

Data on food consumption

Where possible, OEHHA relied on food consumption estimates for specific foods or food categories as previously reported by USDA or FDA. For foods where USDA or FDA did not

⁵ Unless otherwise specified, the term NSRL refers in this document to the proposed NSRL for acrylamide of 1.0 µg per day.

provide consumption rate estimates, OEHHA obtained estimates directly from the USDA food consumption survey data. Data on daily intake of each specific food or food category were obtained from surveys by the USDA and the Market Research Corporation of America (MRCA). Three different USDA food consumption survey datasets were used: 1) the 1994-1996 Continuing Survey of Food Intakes by Individuals (CSFII 1994-1996), 2) “CSFII 1994-1996 & 1998”, which augments the 1994-1996 survey with data collected in 1998 on infants and children, and 3) CSFII 1989-1992. The MRCA survey is an older set of industry market basket survey information, collected from 1982 to 1987 on the same individuals over a longer period of time than the CSFII surveys. Consistency of findings across multiple surveys provides for greater confidence in the intake assessment.

The CSFII 1994-1996 data set is based on dietary surveys of 14,262 individuals, 4,253 of whom were children, and was conducted between 1994 and 1996 in the U.S. Each individual was asked to list the types and quantities of foods they ate on two different days; each day was separated by three or more days. The data from this survey are presented in the report *Foods Commonly Eaten in the United States* (www.barc.usda.gov/bhnrc/foodsurvey/) (Smiciklas-Wright *et al.*, 2002). This USDA report includes information on the proportion of individuals consuming a given food during one or more days surveyed, and the mean and distributional percentile intake of a given food consumed during a day. This information is presented by age of individual surveyed (i.e., age 2 and older, 2-5, 6-11, 12-19, 20-39, 40-59, and 60 years and older) and for the general population and consumers, weighted by age and other characteristics. OEHHA relied on the USDA report by Smiciklas-Wright *et al.* (2002) as the source of information for the CSFII 1994-1996 data set. The values reported in Smiciklas-Wright *et al.* (2002) represent age-specific intake of the amount of foods consumed, but were not adjusted for differences in body weight by age or gender.

The CSFII 1994-1996, 1998 data set consists of the CSFII 1994-1996 data, augmented by survey data of food intake for two separate days collected in 1998 from an additional 5,559 children aged birth to nine years. This data set is thus very similar to the CSFII 1994-1996 data, but improved the accuracy on food intake for infants and children due to the larger sample size for these age groups. OEHHA obtained food consumption estimates for the CSFII 1994-1996, 1998 from three separate sources: 1) those reported by Robie and DiNovi (2003) of the FDA and in the related exposure model spreadsheets provided to OEHHA by FDA (DiNovi, 2004); 2) those OEHHA obtained through use of a computer overlay program called DEEM (Novigen Sciences, Inc.), and 3) those OEHHA obtained from the USDA raw data set by application of the SAS computer program, when estimates from the first two sources were not available. Intake estimates calculated from this survey were age- and body weight-adjusted.

The CSFII 1989-1992 dataset consists of data obtained through a three-day recall of foods eaten by 15,192 individuals. As the source of information for the CSFII 1989-1992 data set, OEHHA relied on consumption estimates reported by Robie and DiNovi (2003) and in the related exposure model spreadsheets provided to OEHHA by FDA (DiNovi, 2004). Intake estimates calculated from this survey were age- and body weight-adjusted.

The MRCA 1982-1987 dataset consists of 14-day food frequency records from about 26,000 participants, which have been converted by an FDA contractor to estimates of food consumption

by application of data from the same time period on amounts consumed in the population (DiNovi, personal communication). Although somewhat dated, these data may provide better estimates of the average intake for foods that are less frequently eaten than the two- and three-day surveys conducted by the USDA. OEHHA relied on consumption estimates reported by Robie and DiNovi (2003) as the source of information for the MRCA 1982-1987 data set.

Estimation of daily intake of acrylamide among eaters of specific foods

Under Proposition 65, the calculation of exposure to carcinogens in foods is to be based on the average rate of intake among users of the consumer product (§12721(d)(4)). In addition, the average rate of intake is to be based on data for use of a general category of food product (§12721(d)(4)).

Estimates of mean acrylamide concentrations in various foods or food categories were based on data from the FDA's *Exploratory Data on Acrylamide in Foods* dataset (FDA, 2004a) and the 2003 Total Diet Study (FDA, 2004b). Test data were grouped by food categories, as defined by the USDA (Smiciklas-Wright *et al.*, 2002), where possible. For some foods, such as potato chips, many measurements are available. For others, only a few measurements exist. Since the *Exploratory Data on Acrylamide in Foods* dataset consists of measurements of acrylamide in individual food samples and the 2003 Total Diet Study dataset consists of measurements of acrylamide in composites of three food samples (FDA, 2004b), a weighted mean level of acrylamide was computed for individual food groups, based on the number of samples each data point represents.

Estimates of mean acrylamide concentration levels in various foods or food categories are used in the calculation of daily intake of acrylamide among eaters of specific foods, along with the range of acrylamide levels reported for that food. Where samples have been composited, that is multiple samples from the same type of food are combined and then analyzed (as was done in the Total Diet Study), the range of acrylamide levels reported for the composites can be less than the true range of acrylamide levels present in those individual samples.

One way to calculate the daily intake of acrylamide among eaters of a specific food is to multiply the mean acrylamide concentration by the age-adjusted average amount of that food eaten on the day the food is eaten and by the frequency at which that food is consumed over a lifetime. The lifetime average exposure of acrylamide from consumption of a given food would be expressed as:

$$ADI_{\text{life}} = [AA]_{\text{food } i} \times \text{Consumption amount}_{\text{food } i} \times \text{Frequency of eating food}_i \times 0.001$$

where ADI_{life} is the lifetime average daily intake of acrylamide from food_{*i*} (for each individual food, "i") in units $\mu\text{g}/\text{day}$, and $[AA]_{\text{food } i}$ is the mean concentration of acrylamide in food_{*i*} in $\mu\text{g}/\text{kg}\text{-food}$. The amount of food consumed, in units of grams of food per day, is the average over all age groups. The Smiciklas-Wright *et al.* (2002) publication provides data in this form for the CSFII 1994-1996 data set. Eating frequency is the fraction of days in the total number of days in a lifetime for which the consumer ate the food in question. Unfortunately, data on the frequency that a food is consumed over a lifetime are not available. To overcome this data deficiency, OEHHA calculated upper and lower bounds on acrylamide intake, where the true

ADI_{life} likely lies within the range. These upper and lower bounds are described below. The factor of 0.001 in the equation is to correct for the units used for concentration and consumption amount.

In the above approach, food consumption in amount units is averaged across individuals without regard to bodyweight. In risk assessment, calculation of cancer risk typically assumes that the same human dose in terms of amount per bodyweight per day (mg/kg-bw per day) produces the same risk level. Averaging exposure in amount levels without adjustment for bodyweight introduces error in the assessment. Food intakes obtained from the DEEM computer program and from Robie and DiNovi (2003) were developed by dividing an individual's consumption of a particular food by that individual's bodyweight. In this sense food intake information from these sources is more reliable for risk assessment than that from the Smiciklas-Wright *et al.* (2002) report. To express the consumption in a form appropriate for the equation above, the following conversion was applied:

$$\text{Consumption amount}_{\text{food } i} \text{ (in grams)} = \text{Consumption intake}_{\text{food } i} \text{ (in grams/kg-bw)} \times 70 \text{ kg}$$

In calculating the NSRL, a 70 kg bodyweight was assumed. Thus the above equation is consistent with the approach taken to derive the proposed NSRL.

In this analysis, OEHHA calculated daily intake of acrylamide from different foods or food categories using two metrics: 1) the population mean daily consumption (average exposure over eaters and non-eaters of the food, or "per capita" consumption), and 2) everyday food consumption, or "everyday eaters." Here, "eaters" refers to individuals that consumed the food on at least one of the days surveyed.

The population mean daily intake, provides a "lower bound" on the intake for eaters, since it averages daily intake data obtained from the two-, three-, or 14-day consumption surveys among eaters and non-eaters. The second metric, everyday eaters, gives an estimate of daily intake of acrylamide for eaters of that food, assuming that one consumes that food every day of life. Thus, use of this metric bounds on the upper end the lifetime average daily intake (ADI_{life}), especially for foods eaten on a sporadic basis. For foods eaten on nearly a daily basis, this metric may provide a reasonable estimate of lifetime average daily intake.

Thus, use of the two intake estimates (population mean versus everyday eaters) provides a reasonable range with which to examine lifetime acrylamide intake from different foods. If acrylamide intake based on the population mean exceeds the proposed NSRL, then that food may require warning under Proposition 65. If the proposed NSRL falls between the range of possible acrylamide intake based on the two food intake measures, additional scrutiny of that food should be undertaken. Table 1 provides the lower and upper bounds on acrylamide intake by consumers of various acrylamide-contaminated foods.

Table 1. Range of acrylamide intake estimates for various foods

Foods*	Total no. samples represented** (No. Composites)	Source of food intake estimates***	Food consumption		Mean ppb acrylamide	Range**** ppb acrylamide	Acrylamide intake	
			g food/d population "lower bound"	g food/d everyday eaters "upper bound"			ug/d population "lower bound"	ug/d everyday eaters "upper bound"
Almonds (fried or roasted)	4 (0)	DEEM, CSFII 94-96, 98 Robie and DiNovi 2003, not stated	0.17	2.9	320	236-457	0.05	0.93
Bagels, untoasted	4 (0)	Robie and Howard, 2004, not stated Robie and DiNovi 2003, not stated		7	31	12-58	0.28	2.24
Biscuits	12 (4)	Smiciklas et al. 2002 CSFII 1994-96	4	64	37	21-35	0.15	2.37
Bread, Total Yeast	60 (16)	Smiciklas et al. 2002 CSFII 1994-96	6	79	31	ND-130	1.95	2.45
Whole Grain and "Wheat" White Bread	43 (12)	Smiciklas et al. 2002 CSFII 1994-96	11	61	39	ND-130	0.43	2.38
"Soft breads" (all types)	17 (4)	Smiciklas et al. 2002 CSFII 1994-96	26	70	11	ND-36	0.29	0.77
	60 (16)	Robie and DiNovi 2003, CSFII 89-92	34.3	50.4	31	ND-130	1.06	1.56
		Robie and DiNovi 2003, CSFII 94-96, 98	32.4	54.6	31	ND-130	1.00	1.69
		Robie and DiNovi 2003, MRCA 82-87	58.3	79.8	31	ND-130	1.81	2.47
Cake	18 (6)	Smiciklas et al. 2002 CSFII 1994-96	9	100	10	ND-29	0.09	1.00
Cereal, Ready-to-Eat (not including babyfood)	104 (28)	Smiciklas et al. 2002 CSFII 1994-96	16	56	86	11-266	1.38	4.82
		Robie and DiNovi 2003, CSFII 89-92	22.5	46.2	86	11-266	1.94	3.97
		Robie and DiNovi 2003, CSFII 94-96, 98	23.1	56.7	86	11-266	1.99	4.88
		Robie and DiNovi 2003, MRCA 82-87	45.5	58.8	86	11-266	3.91	5.06
Cereal, Wheatena (cooked)	3 (0)	One serving size (from label)		41	738	467-1057		30.26
Chicken nuggets/breaded	14 (4)	DiNovi and Howard, 2004			24	22-35	0.21	
Chile con Carne	12 (4)	DiNovi and Howard 2004, not stated			130	56-187	1.05	
Coffee (brewed)	20 (0)	Smiciklas et al. 2002 CSFII 1994-96	255	616	7	3-13	1.79	4.31
		Robie and DiNovi 2003, CSFII 89-92	241.5	511.7	7	3-13	1.69	3.58
		Robie and DiNovi 2003, CSFII 94-96, 98	243.8	533.4	7	3-13	1.71	3.73
		Robie and DiNovi 2003, MRCA 82-87	193.2	336	7	3-13	1.35	2.35
Cookies	82 (24)	Smiciklas et al. 2002 CSFII 1994-96	8	45	188	29-647	1.50	8.46
		Robie and DiNovi 2003, CSFII 89-92	9.6	33.6	188	29-647	1.80	6.32
		Robie and DiNovi 2003, CSFII 94-96, 98	12.6	41.3	188	29-647	2.37	7.76
		Robie and DiNovi 2003, MRCA 82-87	12.6	18.9	188	29-647	2.37	3.55
Corn Chips / Tortilla Chips	16 (4)	Smiciklas et al. 2002 CSFII 1994-96	4	46	199	111-240	0.80	9.15
Crackers	52 (16)	Smiciklas et al. 2002 CSFII 1994-96	9	28	167	13-620	0.50	4.68
		DiNovi 2004, CSFII 89-92		15	167	13-620		2.51
		DiNovi 2004, CSFII 94-96, 98	3.8	19	167	13-620	0.63	3.17
Doughnuts	15 (4)	DiNovi 2004, CSFII 89-92		42	18	ND-26		0.76
		DiNovi 2004, CSFII 94-96, 98	4	47	18	ND-26	0.07	0.85
French-Fried Potatoes (restaurant or home-baked)	52 (4)	Smiciklas et al. 2002 CSFII 1994-96	13	83	413	117-1325	5.37	34.28
		Robie and DiNovi 2003, CSFII 89-92	8.1	42	413	117-1325	3.35	17.35
		Robie and DiNovi 2003, CSFII 94-96, 98	12.1	63.7	413	117-1325	5.00	26.31
		Robie and DiNovi 2003, MRCA 82-87	12	24.5	413	117-1325	4.96	10.12
Olives, canned	19 (4)	DEEM, CSFII 94-96, 98	0.67	10	414	123-1925	0.28	4.74
		One serving size (from can of olives)		16	414	123-1925		6.62
Pancakes and Waffles	12 (4)	Smiciklas et al. 2002 CSFII 1994-96	5	86	15	13-17	0.08	1.29
Peanuts, roasted	15 (4)	DEEM, CSFII 94-96, 98	1.4	20.5	27	ND-36	0.04	0.55
Peanut butter, total	17 (4)	CSFII 1994-96, 98 DEEM	3.5	34.0	88	64-125	0.31	2.99
		Smiciklas et al. 2002 CSFII 1994-96	4	24	88	64-125	0.35	2.11
Pie	32 (8)	Smiciklas et al. 2002 CSFII 1994-96	7	162	22	ND-74	0.15	3.56
Pizza	12 (4)	Smiciklas et al. 2002 CSFII 1994-96	19	175	20	19-20	0.38	3.50
Popcorn	15 (4)	Smiciklas et al. 2002 CSFII 1994-96	2	43	180	97-352	0.36	7.74
		DiNovi 2004, CSFII 89-92		19	180	97-352		3.42
		DiNovi 2004, CSFII 94-96, 98	2.6	24	180	97-352	0.47	4.32
Potato Chips	54 (4)	Smiciklas et al. 2002 CSFII 1994-96	4	41	466	117-2510	1.86	19.11
		Robie and DiNovi 2003, CSFII 89-92	4.6	26.6	466	117-2510	2.24	12.40
		Robie and DiNovi 2003, CSFII 94-96, 98	5.3	30.8	466	117-2510	2.47	14.35
		Robie and DiNovi 2003, MRCA 82-87	4	11.9	466	117-2510	4.19	5.55
Postum (dry)	2 (0)	CSFII 1994-96, 98 SAS	0.0021	3.0	4573	3747-5399	0.01	13.72
Prune juice	13 (4)	CSFII 1994-96, 98 DEEM	0.58	102.9	159	53-267	0.09	16.36
		DiNovi and Howard 2004 portion size		140	159	53-267		22.26
Quickbreads and Muffins	24 (8)	Smiciklas et al. 2002 CSFII 1994-96	6	87	8	ND-37	0.05	0.70
Sunflower seeds	12 (0)	DEEM, CSFII 94-96, 98	0.22	29.0	39.5	31-57	0.01	1.15
Sweet potatoes, canned (adult food only)	12 (0)	DEEM, CSFII 94-96, 98	0.16	157	93	59-153	0.01	14.60
(adult and babyfood)	28 (8)	DEEM, CSFII 94-96, 98	0.67	309	84	37-153	0.06	25.96
Toast	3 (0)	Robie and DiNovi 2003, CSFII 89-92	11	31.5	213	59-364	2.34	6.71
		Robie and DiNovi 2003, CSFII 94-96, 98	7.7	34.3	213	59-364	1.64	7.31
		Robie and DiNovi 2003, MRCA 82-87	21.5	79.8	213	59-364	4.58	17.00
Tortillas (corn or flour)	16 (4)	Smiciklas et al. 2002 CSFII 1994-96	7	68	6	ND-15	0.04	0.41

ND, not detected
 * Food categories as described by USDA (Smiciklas-Wright et al., 2002), where possible. Some less commonly eaten foods or specific high-acrylamide-content foods are listed separately.
 ** The Total Diet Study (FDA, 2004b) tested composites of three samples per composite, whereas other FDA sampling efforts (FDA, 2004a) assayed individual samples. The total number of samples represented treats each composite as three individual samples and each individual sample as one. See the Appendix for individual data.
 *** Source of food consumption rates are as follows:
 (1) CSFII 1994-96: 2-day survey data as reported by USDA Foods Commonly Eaten in the United States (Smiciklas-Wright et al., 2002) - data not adjusted for intake per body weight
 (2) CSFII 1994-96, 98: 2-day survey data (a) as reported by Robie and DiNovi (2003) or DiNovi (2004), (b) as accessed by DEEM, or (c) as accessed by SAS programming of raw data disk
 (3) CSFII 1989-92: 3-day survey data as reported by Robie and DiNovi (2003) or DiNovi (2004)
 (4) MRCA: 14-day survey data as reported by Robie and DiNovi (2003)
 **** Ranges likely to be underestimates since some samples were composites of 3 samples

The analyses presented in Table 1 have been summarized in a simpler format in Table 2. Where data permit, acrylamide intake estimates are also presented in Table 2 for individual types of cookies and breakfast cereals. These additions illustrate that some cookies (such as sugar cookies) do not result in acrylamide intake rates as high as some others, while several types of breakfast cereals result in average daily intakes that exceed 1.0 ug/day, assuming one consumes that cereal type solely.

Table 2. Summary of acrylamide intake estimates

Food	Mean AA (ppb)	Intake Range¹ (µg/day)
Almonds (fried or roasted)	320	0.05 – 0.93
Bagels, untoasted	31	0.28 – 0.43
Biscuits	37	0.15 – 2.37
Bread (soft breads, all types)	31	1.00 – 1.69
white bread	11	0.29– 0.77
wheat bread and whole grain	39	0.43 – 2.38
Cake	10	0.09 – 1.00
Cereal, Ready-to-Eat (all types)	86	1.99 – 4.88
corn flakes²	61	1.41 – 3.46
crisped rice²	56	1.29 – 3.18
granola²	51	1.18 – 2.89
oat rings²	174	4.02 – 9.87
Cereal, cooked, oatmeal, grits, cream of wheat	0	0.00 – 0.00
Cereal, cooked, Wheatena	738	? ³ - 30.3
Chicken nuggets/breaded chicken	24	0.21 - ? ³
Chile con Carne	130	1.05 - ?³
Coffee (brewed)	7	1.71 – 3.73
Cookies (all types)	188	2.37 – 7.76
sugar cookies ⁴	41	0.52 – 1.69
graham cracker⁴	459	5.78 – 19.0
chocolate chip cookies⁴	130	1.64 – 5.40
Corn Chips / Tortilla Chips	199	0.80 – 9.15
Crackers	167	0.63 – 3.17
Doughnuts	18	0.07 - 0.85
French-fries	413	5.00 – 26.3
Olives, canned	414	0.28 – 4.14
Pancakes and Waffles	15	0.08 – 1.29
Peanuts, roasted	27	0.04 – 0.55
Peanut butter, total	88	0.31 – 2.99
Pie	22	0.15 – 3.56
Pizza	20	0.38 – 3.50
Popcorn	180	0.47 – 4.32
Potato Chips	466	2.47 – 14.4
Postum (dry)	4573	0.01 – 13.7
Prune juice	159	0.09 – 16.4
Quickbreads and muffins	8	0.05 – 0.70
Sunflower seeds	39.5	0.01 – 1.15
Sweet potatoes, canned	84	0.06 – 26.0
Toast	213	1.64 – 7.31
Tortillas (corn or flour)	6	0.04 – 0.41

Bolding indicates foods whose range of average daily intake exceeds 1.0 µg/day.

¹ Intake range is the mean *per capita* intake (lower bound) to the mean intake if one ate the food every day (upper bound). The source of the food consumption data was the CSFII 94-96, 98 survey where possible; otherwise, intake rates based on CSFII 94-96 (Smiciklas et al., 2002) were used. For Wheatena, one serving size as appears on the box label was used as the intake rate.

² Intake estimates for cereal subtypes assume a person eats that type of cereal solely.

³ Intake data are unavailable.

⁴ Intake estimates for cookie subtypes assume a person eats that type of cookie solely.

The acrylamide intake estimates are based on the results of the foods sampled by FDA (2004a, 2004b) and may not be fully representative of intake received by an average consumer of a given food. In the FDA Total Diet Study (FDA, 2004b), the sampling strategy was intended to provide an overview for general population intake from commonly eaten foods. However, given the diverse nature of foods within some food categories (e.g., cookies, crackers), and the variability of acrylamide concentrations within the same foods, the products sampled may not represent typical samples purchased by the average consumer. For these reasons, OEHHA also examined the possible range of acrylamide intake from an individual food, based on the range of acrylamide content in the food samples analyzed by the FDA. For example, average consumption of French fries at even the lowest concentrations of acrylamide reported in fries sampled by the FDA would result in an acrylamide intake that exceeds the NSRL. With other foods, such as cookies, average consumption of some cookies (assuming a person ate only one type of cookie over a lifetime) would not exceed the NSRL, while acrylamide intake from the average of all types of cookies sampled does exceed the NSRL.

As shown in Table 1 and Table 2, intake of acrylamide from several foods exceeds the proposed NSRL of 1.0 µg/d, regardless of whether the lower or upper bound estimate of intake is used. These foods include: French-fried potatoes, potato chips, ready-to-eat cereal, toast, cookies, and coffee. These findings indicate that the average daily intakes of acrylamide by consumers of these foods exceed the NSRL. However, as noted above and discussed in more detail below on page 16, the available FDA data on acrylamide content of cookies indicates that for certain types of cookies, acrylamide intake may be below the NSRL.

There are several foods for which the proposed NSRL falls between the upper and lower bound estimates of intake. In other words, the actual mean intake for consumers of that food likely falls between the population mean and everyday eaters intake values, and may exceed the proposed NSRL in some, but not necessarily all cases. These food categories include popcorn, corn and tortilla chips, crackers, bread, pie, pizza, peanut butter, roasted almonds, biscuits, pancakes and waffles, doughnuts, quickbreads and muffins.

Additionally, there are other foods that are of particular concern for which population mean intake estimates were not exceeded or were not readily available, but acrylamide intake estimates for everyday eaters were particularly high. These foods include: Postum® (a roasted grain-based coffee substitute), prune juice, canned black olives, canned sweet potatoes, and Wheatena® (a toasted wheat cereal).

As indicated in the Appendix, analysis for acrylamide content was conducted for many foods. Intake of acrylamide does not appear to exceed the NSRL for most fruits and vegetables, dairy products, meats and fish, baby food, infant formula, rice and pasta, oils and dressings, most hot cereals, hamburgers, gravies and seasonings, and sweets. For these foods the acrylamide intake estimate for everyday eaters below the NSRL. In some cases, such as chocolate products, the levels were highly variable, ranging from non-detectable to about 900 ppb. Products in food categories with highly variable acrylamide levels would require evaluation on a case-by-case basis.

Another consideration in judging whether the NSRL is exceeded is the frequency of consumption for a given food category necessary to exceed the proposed NSRL. Some judgment can be made as to whether it is likely or unlikely that a typical eater of that food would consume the food at that frequency. Table 3 presents a list of food categories and their associated frequency of consumption required to exceed the proposed NSRL. In constructing Table 3, the most recent USDA food consumption survey data (CSFII 1994-96, 98) were used as the source of information on the average amount of a particular food consumed in a day by an eater of that food, together with data on the mean level of acrylamide in that food, based on the data reported to date by the FDA.

Table 3. Frequency of consuming various foods required to exceed acrylamide intake of 1.0 µg/d (based on mean acrylamide levels and average amount consumed for a given food*).

Food	Acrylamide intake of 1 µg/d would be exceeded if one consumed the food on average once every . . .
Wheatena®	30 days
French-fried potatoes	26 days
Canned sweet potatoes	26 days
Prune juice	16 days
Postum®	14 days
Potato chips	14 days
Corn/tortilla chips	9 days
Cookies	7 days
Toast	7 days
Popcorn	4 days
Black olives, canned	4 days
Ready-to-eat cereal	4 days
Crackers	3 days
Pie	3 days
Pizza	3 days
Coffee	3 days
Peanut butter	2 days
Biscuits	2 days
Breads	1 to 2 days

* using the CSFII 1994-96, 98 data.

In the case of Postum®, a roasted grain-based coffee substitute, one would have to consume a typical intake only once every two weeks to reach a lifetime daily intake of 1.0 µg per day, thus exceeding the proposed NSRL.

Discussion of specific food categories

The findings of these analyses characterizing acrylamide intake are more fully discussed here for several specific food categories, in light of the proposed NSRL of 1.0 µg/d.

French-fried potatoes

As shown in Table 1, acrylamide intake from consumption of French-fried potatoes, which includes French fries purchased at a restaurant as well as those baked at home, was characterized using the three food consumption datasets based upon USDA surveys and the additional dataset based upon the MRCA food frequency survey. In all cases the lower bound on acrylamide intake (population-based intake) exceeded the proposed NSRL of 1.0 µg/d by at least three-fold. Many measurements of acrylamide in fried potatoes are available (n = 44 data points, representing 52 French-fry samples) as part of the FDA datasets (see Appendix). The range of acrylamide concentrations reported to date for the fried potatoes sampled by the FDA is 117 to 1325 ppb. There is a high degree of confidence that the average acrylamide intake of the average fried potato consumers exceeds the NSRL. These data indicate that fried potatoes are one of the biggest sources of exposure to acrylamide in the diet.

Potato chips

Acrylamide intake from consumption of potato chips was estimated using each of the three food consumption datasets based upon USDA surveys, and the additional dataset based upon the MRCA food frequency survey (Table 1). In all cases the lower bound on acrylamide intake (population-based intake) exceeded 1.0 µg/d. Many measurements of acrylamide in potato chips are available (46 data points, representing 54 samples) as part of the FDA datasets. The range of acrylamide concentrations reported to date for the potato chips sampled by the FDA is 117 to 2761 ppb. It is likely that many people eat potato chips but usually not daily. This assertion is consistent with the observation that the range of food consumption estimates based on the 14-day food frequency survey (MRCA) is fairly narrow (9 g per day for potato chip consumption averaged across the entire population, and 12 g per day for potato chip consumption averaged among potato chip eaters, i.e., those individuals that ate potato chips at least once during the survey period), while the range of consumption estimates from the two-day survey (CSFII 1994-96, 98) is much wider (5 to 31 g/day). The 14-day MRCA survey data are judged to provide a truer estimate of the percentage of the population that eats potato chips than the two-day CSFII 1994-96, 98 data. Also, according to the National Potato Promotion Board, potato chip consumption has grown substantially in the years since the MRCA data were collected. Based on the MRCA population-based consumption estimate, even potato chips with the lowest acrylamide concentration reported by the FDA exceed the NSRL. Thus, there is a high degree of confidence that the NSRL is exceeded for potato chips. These data, compared to intake data for other foods, indicate that potato chips are one of the biggest sources of exposure to acrylamide in the diet.

Prune juice

There are high levels of acrylamide in prune juice (see Tables 1-2). Acrylamide intake from consumption of prune juice was estimated from the CSFII 1994-1996, 1998 data set, with two sets of prune juice consumption estimates (i.e., estimates OEHHA obtained through the DEEM computer program and a portion size estimate presented by DiNovi and Howard (2004)). Prune

juice is not a commonly eaten food; less than two percent of individuals in the CSFII 1994-1996, 1998 two-day recall study reported consuming prune juice. However, estimates of the higher bound on acrylamide intake (everyday eaters) ranged from 16 µg/d (DEEM-based consumption estimates) to 22 µg/d (based on DiNovi and Howard (2004) consumption estimates). Thirteen samples of acrylamide in prune juice are represented as part of the FDA datasets (one individual sample and four composite samples). The range of acrylamide concentrations reported to date for the prune juice sampled by the FDA is 53 to 267 ppb. Many children consume prune juice regularly, as do many older persons. As shown in Table 3, one would only have to consume prune juice once every 16 days on average before exceeding an average daily intake of 1.0 µg/d. It is reasonable to assume that those who drink prune juice would consume it more frequently than once every 16 days on average. There is a moderate degree of confidence that intake of acrylamide by consumers of prune juice exceeds the NSRL. These data indicate that for frequent consumers, prune juice is a substantial source of exposure to acrylamide.

Postum®

The two measurements of acrylamide levels in Postum®, a roasted grain-based coffee substitute, were some of the highest measured for any food - 3747 and 5399 ppb in Postum® powder, average 4573 ppb (Table 1). Acrylamide intake from consumption of Postum® was estimated using the CSFII 1994-1996, 1998 data set, with consumption estimates obtained through application of a SAS program, since consumption estimates for Postum® were not provided in the summaries of food consumption (Smiciklas-Wright et al., 2002; Robie and DiNovi, 2003; DiNovi, 2004), and could not be obtained with the DEEM computer program. The higher bound on acrylamide intake (everyday eaters) exceeded 1.0 µg/d by about thirteen-fold. Consumption of Postum® does not have to occur frequently in order to exceed an average daily intake of 1.0 µg/d. As shown in Table 3, one would only have to consume Postum® once every two weeks before exceeding this level. There is limited confidence in the acrylamide intake estimate for Postum®, due to the limited number of samples of Postum® analyzed by the FDA. However, given the very high levels of acrylamide measured, and the magnitude of the acrylamide intake estimated for consumers of Postum®, these data indicate that for frequent consumers, Postum® is a substantial source of exposure to acrylamide in the diet. The finding that acrylamide is present at relatively high levels in the roasted grain-based coffee substitute Postum® is consistent with current understanding of the propensity for acrylamide to form in grain-based foods during roasting, toasting, baking or frying, and with current understanding that increased surface area enhances the formation of acrylamide during the cooking process. Indeed, formation of acrylamide occurs in numerous other roasted, toasted, baked or fried grain-based products (e.g., whole grain breads, toasted whole grain breads, pretzels, crackers). Other roasted grain-based beverages may also be a substantial source of exposure to acrylamide in the diets of individuals that consume these foods. Further sampling is needed to determine the extent of exposure from roasted grain-based beverages.

Coffee

As shown in Table 1, acrylamide intake from consumption of coffee was estimated using each of the three food consumption datasets based upon USDA surveys, and the additional dataset based upon the MRCA food frequency survey. In all cases the lower bound on acrylamide intake (population-based intake) exceeded 1.0 µg/day. Twenty measurements of acrylamide concentration in brewed coffee are available in the FDA datasets, using methods capable of

detecting below 10 ppb. They range from 3 to 13 ppb, with a mean of 7 ppb (0.53 standard error of the mean). Individuals typically consume coffee on a daily basis in adulthood, although coffee drinking during childhood is uncommon. Thus, the higher bound on acrylamide intake (everyday eaters) is considered to overestimate the true intake for many coffee drinkers by less than a factor of two. Based on the lower end of the range of consumption estimates derived from the CSFII 1994-96, 98 survey, average consumption of coffee with 4.1 ppb or more acrylamide concentration would exceed the NSRL. Since actual consumption by coffee drinkers is greater, a lower concentration would also exceed the proposed NSRL. The lower bound on what this value would be is 1.9 ppb. Of the individual brewed coffee samples tested by FDA (2004a), 19 of 20 had levels higher than 4.1 ppb. All were above 1.9 ppb. Thus, OEHHA is fairly confident that the NSRL is exceeded for coffee drinkers. These data indicate that coffee is a substantial source of exposure to acrylamide in the diets of individuals that consume it.

Ready-to-eat cereals

The category of ready-to-eat cereals includes a wide variety of grain-based products. The FDA has measured the acrylamide content in a wide range of cereals and has analyzed numerous samples (n=104) of ready-to-eat cereals. Acrylamide intake from consumption of ready-to-eat cereal was estimated using each of the three food consumption datasets based upon USDA surveys, and the additional dataset based upon the MRCA food frequency survey (Table 1). The lower bound on acrylamide intake (population-based intake) exceeded 1.0 µg/d. The FDA data indicate that the level of acrylamide varies substantially among the different types of ready-to-eat cereals, with levels ranging from 11 to 266 ppb; the standard deviation for the non-composite samples is 66 ppb. The weighted average acrylamide level in all ready-to-eat cereal, not including babyfoods, is 86 ppb, and including babyfood is 59 ppb (Appendix). The weighted average for oat ring cereal (based on data from four composites and two individual samples) is 174 ppb. The weighted average for corn flakes (based on data from four composites and two individual samples) is 60.6 ppb. The USDA (Smiciklas-Wright *et al.* 2002) includes dry babyfood cereals that are prepared by adding water in its category description of ready-to-eat cereal. However, in estimating lifetime acrylamide intake OEHHA chose to not include babyfood cereals in the estimate of acrylamide intake. Babyfood cereals, which are consumed for only a brief period of life, are not toasted, roasted, or fried, and as expected, do not contain detectable levels of acrylamide. In contrast, many non-babyfood ready-to-eat cereals are toasted, roasted or fried, and the majority of ready-to-eat cereals contain measurable levels of acrylamide. Roughly one-third of the ready-to-eat cereal samples tested by FDA were babyfood cereals. The over-representation of babyfood cereals relative to other ready-to-eat-cereals in the FDA data set inappropriately biases the acrylamide intake results for ready-to-eat cereals, if babyfood cereals are included. Nevertheless, estimates of lifetime acrylamide intake from ready-to-eat cereals (including babyfood) indicate that the NSRL is still likely exceeded. Since many cereal eaters exhibit individual preferences for certain types of cereals, it is possible that frequent eaters of some specific cereals have a much greater acrylamide intake, and others a much lower one than the value for everyday eaters. Nonetheless, OEHHA has a moderately high degree of confidence that the acrylamide intake of the average eaters of most ready-to-eat cereals exceeds the NSRL (See Tables 1-2). These data indicate that some ready-to-eat cereals can be a substantial source of exposure to acrylamide in the diet.

Ready-to-eat cereals are frequently and widely consumed, and as a consequence the upper and lower bound calculated intakes are similar. OEHHA calculates that ready-to-eat cereals with acrylamide content below 200 ppb correspond to acrylamide intakes associated with a cancer risk level of approximately one in 10,000 (i.e., a 1×10^{-4} cancer risk), and those with a concentration of 20 ppb correspond approximately to a 1×10^{-5} cancer risk.

Wheatena® cooked cereal

The category of “Cooked cereals” includes cream of wheat, oatmeal, Wheatena®, and similar products that require the addition of water and heat in preparation. Wheatena® is different from most foods in this category in that it is made of toasted wheat. Although only three samples of Wheatena® have been tested, all three had very high levels of acrylamide. The mean level of acrylamide in Wheatena® was 738 ppb and ranged from 467 to 1057 ppb. Based on a standard serving size, the higher bound on acrylamide intake (everyday eaters) would exceed 1.0 µg/d by 30-fold (Tables 1-2). Eating Wheatena® once a month on average is sufficient to exceed an intake of 1.0 µg/d (Table 3). There is limited confidence in the acrylamide intake estimate for Wheatena®, due to the limited number of samples of Wheatena® analyzed by the FDA. However, given the high levels of acrylamide measured, and the magnitude of the higher bound on acrylamide intake, these data indicate that for frequent consumers, Wheatena® may be a substantial source of exposure to acrylamide in the diet. The finding that acrylamide is present at relatively high levels in the toasted wheat-based cereal Wheatena® appears to be consistent with current understanding of the propensity for acrylamide to form in grain-based foods during roasting, toasting, baking or frying, and with current understanding that increased surface area enhances the formation of acrylamide during the cooking process. Indeed, formation of acrylamide occurs in numerous other roasted, toasted, baked or fried grain-based products.

Breads and toast

The USDA and the FDA have categorized breads in various ways, for purposes of estimating consumption. The USDA reported consumption of “total yeast bread,” and provided further divisions of this category, such as “whole grain and wheat bread” and “white bread,” for the CSFII 1994-1996 data set (Table 1). Using the USDA consumption data for “total yeast bread,” the higher bound on acrylamide intake (everyday eaters) exceeded 1.0 µg/d by more than two-fold, and the lower bound on intake exceeded 1.0 µg/d by nearly two-fold. For “whole grain and wheat bread,” the higher bound on acrylamide intake exceeded 1.0 µg/d by more than two-fold, but the lower bound on intake was below 1.0 µg/d. For “white bread,” the higher bound on acrylamide intake was below 1.0 µg/d.

The FDA (Robie and DiNovi, 2003) reported consumption of “soft bread (all types),” for the CSFII 1989-1992, CSFII 1994-1996, 1998, and MRCA 1982-1987 data sets (Table 1). Using each of these three sets of consumption data for “soft bread (all types),” the higher bound on acrylamide intake exceeded 1.0 µg/d. The lower bound on intake did not exceed 1.0 µg/d consistently for the various food consumption estimates.

The FDA has measured the acrylamide content in numerous bread samples, covering several bread types (see Appendix). Acrylamide was not detected in three of four white bread composites and was detected in three individual samples at levels of 13, 18 and 36 ppb. In contrast, for whole grain or wheat bread, acrylamide was detected in six of the seven individual

samples, and all of the 12 composite samples, at levels ranging from 17 to 130 ppb. The lower bound on acrylamide intake for “total yeast breads” is just above the proposed NSRL. The average acrylamide content in the whole grain and wheat breads (39 ppb⁶) is about four times as high as the white bread (11 ppb). There is a moderately high degree of confidence that the higher bound on acrylamide intake for non-artisan white breads does not exceed the proposed NSRL. For “whole grain and wheat bread” this is less clear. Frequent consumers of some whole grain breads could receive levels considerably above the NSRL.

Acrylamide levels in toast are higher than untoasted bread, since the process of toasting subjects the bread to temperatures high enough to form acrylamide. However, consumption of toast is smaller than consumption of untoasted bread. Only three samples of toast were tested by U.S. FDA, which exhibited an average acrylamide content of 213 ppb. At this concentration, two slices of wheat toast per day (50 g) would result in an acrylamide intake of 10.7 ug/d. Based on the acrylamide levels measured in this limited data set, the estimated average daily intake would exceed 1.0 µg/d, even using the lower bound on acrylamide intake (population-based intake) for toast consumption. There is limited confidence in the acrylamide intake estimate for toast, due to the limited number of samples of toast analyzed by the FDA, and uncertainty in the toast consumption rate.

Breads are frequently and widely consumed, and as a consequence the upper and lower bound calculated intakes are similar. OEHHA calculates that breads (including toast) with acrylamide content below 200 ppb correspond to acrylamide intakes associated with a cancer risk level of approximately one in 10,000 (i.e., a 1×10^{-4} cancer risk), and those with a concentration of 20 ppb correspond approximately to a 1×10^{-5} cancer risk.

Popcorn, corn chips and tortilla chips

A moderate number of measurements for acrylamide content have been made for popcorn, and corn or tortilla chips (See Table 1). Popcorn consumption estimates from the CSFII 1989-92 were obtained from the FDA exposure model spreadsheets provided by DiNovi (2004). Robie and DiNovi (2003) did not specifically report mean consumption data for popcorn for the CSFII 1994-96, 98 surveys but did provide a table of percentiles ranging from 1% to 99 % intake as part of the FDA exposure model (DiNovi, 2004). From the percentile data, OEHHA estimated mean intake using a statistical program Crystal Ball 2000 (Decision Engineering, Denver CO). Acrylamide levels were consistent across samples, ranging from about 100 to 300 ppb. The higher bound on acrylamide intake (everyday eaters) for popcorn and for corn or tortilla chips exceeds 1.0 µg/d by more than seven-fold. However, these foods are not likely to be consumed daily by the average eater. The lower bound on acrylamide intake (population-based intake) is lower than 1.0 µg/d for both popcorn and corn or tortilla chips. Frequency data on how often these foods are consumed are not readily available. If one consumes corn or tortilla chips once every nine days or popcorn once every four days or more, the proposed NSRL is exceeded.

⁶ Acrylamide in white bread was not detected in three of the four composite samples (FDA 2004b), and two of the five non-composite samples. In wheat bread it was detected in six of the seven non-composite samples, and all of the 12 composite samples. When acrylamide was non-detected, it was assumed to be present at 5 ppb, corresponding to one-half the detection limit.

Roasted almonds, sunflower seeds, peanuts, and peanut butter

Levels of acrylamide in roasted almonds are high (average 320 ppb, based on four individual samples); however, the low rate of consumption and infrequent consumption would suggest that the average daily intake of acrylamide by consumers of roasted (or fried) almonds would not exceed 1.0 µg/d. Using the DEEM program to extract consumption information from the CSFII 1994-1996, 1998 data set, the lower (population-based) and upper (everyday eaters) bounds on acrylamide intake from roasted almonds did not exceed 1.0 µg/d. Using consumption data for roasted almonds presented by Robie and DiNovi (2003), the higher bound on acrylamide intake exceeds 1.0 µg/d by two-fold. OEHHA cannot determine with confidence whether the NSRL is or is not exceeded for consumers of roasted almonds, based upon the uncertainty in the frequency of consumption by eaters of this food and the low number of samples tested.

The FDA tested four composite samples of sunflower seeds, finding an average of 39.5 ppb acrylamide. The lower (population-based) and upper (everyday eaters) bounds on acrylamide intake of sunflower seeds were 0.01 to 1.1 µg/d, respectively (based on the DEEM program), suggesting that one would have to consume sunflower seeds daily in order to exceed the NSRL, which is unlikely to be the case for the average consumer.

The FDA has tested 15 samples of roasted peanuts (four composite samples and three individual samples). Levels of acrylamide in roasted peanuts ranged from nondetectable to 36 ppb. Using the DEEM program to extract consumption information from the CSFII 1994-1996, 1998 data set, the lower (population-based) and upper (everyday eaters) bounds on acrylamide intake from roasted peanuts did not exceed 1.0 µg/d.

The FDA has reported acrylamide levels in a total of 17 creamy peanut butter samples (four composites and five individual samples). Using the DEEM program to extract consumption information from the CSFII 1994-1996, 1998 data set, the upper (everyday eaters) bound on acrylamide intake exceeds 1.0 µg/d by three-fold, while the lower (population-based) bound does not exceed 1.0 µg/d. In other words, an average person who consumes peanut butter would have to eat peanut butter once every three days to achieve an acrylamide intake of 1.0 µg/d. OEHHA cannot determine with confidence whether the NSRL is or is not exceeded for consumers of peanut butter, based upon the uncertainty in the frequency of consumption by eaters of this food.

Cookies

U.S. FDA has measured a total of 82 cookie samples, mostly comprising composites of three cookie samples per composite. The range of acrylamide in the cookie composites ranges from 36 to 647 ppb. The lower bound on acrylamide intake (population-based intake) ranged from 1.5 to 2.4 µg/d, depending on the food consumption survey data used. The 14-day market basket survey information (MRCA 1982-87) provides a narrower range of food consumption estimates for population-based intake versus everyday eaters intake. This is likely due to the fact a significant portion of the population eats cookies, but only frequently enough to be recorded in the two-week survey period. Based on the MRCA 14-day food consumption estimates, the lower and upper bounds on acrylamide intake from cookies were 2.4 and 3.6 µg per day, respectively. Cookies are not a homogeneous category. Cookies vary widely in their content of grains, spices, moisture, sugar and nuts. Some cookies are thin and crispy, which sometimes may be indicative of batter and cooking conditions favoring the formation of acrylamide at the higher end of the

range. Similarly, conditions that result in thick, soft cookies may favor the formation of acrylamide at the lower end of the range. Indeed, there was a 20-fold range in acrylamide levels between different types of cookies, even when comparing composite samples (See Table 2 and Appendix). Graham cracker cookies appeared to have the highest concentrations of acrylamide (199 to 647 ppb), while sugar cookies had some of the lowest concentrations (29 to 70 ppb). Also, in general, babyfood cookies (e.g., teething biscuits, Arrowroot cookies, animal crackers) were higher than most other cookies sampled. The FDA sampling did not attempt to be representative of cookies consumed in the U.S., but did include in its analysis a number of common cookie types. Based on the average concentration of acrylamide in cookies, the upper and lower bounds on acrylamide intake estimated from all the food consumption surveys exceed 1.0 µg per day. Based on the lower bound estimate of cookie consumption, cookies with acrylamide concentration above 79 ppb exceed the proposed NSRL. Given the relatively consistent findings of acrylamide at concentrations greater than this value in certain types of cookies, OEHHA is fairly confident that the NSRL is exceeded for certain types of cookies. Given the limited testing of the wide range of cookie types, OEHHA has a moderate degree of confidence that the acrylamide intake of the average eaters of some other cookies may fall below the proposed NSRL. Frequent consumption of certain types of cookies may result in intakes above the proposed NSRL.

Crackers

U.S. FDA has measured acrylamide levels in 16 individual cracker samples, and 12 composites with three cracker samples per composite. Some cracker samples contained high levels of acrylamide, most notably rye crackers which averaged 436 ppb. Other samples such as wheat thins (mean 176 ppb) and saltines (mean 70 ppb) had levels of acrylamide that were lower. The lower bound on acrylamide intake (population-based intake) for crackers, based on the CSFII 1994-96 survey, is about 0.9 µg/d, close to the proposed NSRL. However, the upper bound on acrylamide intake (everyday eaters) exceeds 1.0 µg/d by four-fold. Cracker consumption estimates from the CSFII 1989-92 survey were obtained from the FDA exposure model spreadsheets provided by DiNovi (2004). Robie and DiNovi (2003) did not specifically report mean consumption data for crackers for the CSFII 1994-96, 98 surveys but did provide a table of percentiles ranging from 1% to 99 % intake as part of the FDA exposure model (DiNovi, 2004). From the percentile data, OEHHA estimated mean intake using a statistical program Crystal Ball 2000 (Decision Engineering, Denver CO). Using this information, the upper bound on acrylamide intake (everyday eaters) exceeds 1.0 µg/d by three-fold (Tables 1-2). In other words, one would only need to eat crackers once every three days on average to exceed 1.0 µg/d (Table 3). OEHHA cannot determine with confidence whether the NSRL is or is not exceeded for consumers of crackers, based upon the uncertainty in the frequency of consumption by eaters of this food.

Canned black olives

Canned black olives contain relatively high amounts of acrylamide (see Table 1), averaging 731 ppb among the seven samples tested by FDA. Olives are not commonly eaten foods; that is, less than two percent of individuals reported consuming olives in the CSFII 1994-1996 two-day recall study. Thus, the lower bound on acrylamide intake (population-based intake) did not exceed 1.0 µg/d. However, as shown in Table 3, one would only have to consume olives once every four days before an average daily intake of 1.0 µg/d would be exceeded. OEHHA cannot

determine with confidence whether the NSRL is or is not exceeded for consumers of canned black olives, based upon the small number of samples tested by FDA and the uncertainty in the frequency of canned black olive consumption by olive eaters. Frequency data on how often this food is consumed are not readily available.

Canned sweet potatoes

Canned sweet potatoes are consumed as babyfood and as adult food. Babyfood sweet potatoes averaged 77 ppb (based on four composites and four individual samples), while regular canned sweet potatoes averaged 93 ppb (based on four composites) (Appendix). Using the DEEM program to abstract consumption information from the CSFII 1994-1996, 1998 data set, the lower (population-based) and upper (everyday eaters) bounds on acrylamide intake were 0.01 and 14.6 µg/d for regular canned sweet potatoes and 0.06 and 26.0 µg/d when babyfood was also included. These numbers suggest that on average children consume considerably more sweet potatoes on a body weight basis than older children and adults. This also suggests that one needs to consume canned sweet potatoes once every 26 days over a lifetime to exceed the proposed NSRL (Table 3). OEHHA cannot determine with confidence whether the NSRL is or is not exceeded for consumers of canned sweet potatoes, based upon the uncertainty in the frequency of consumption by eaters of this food.

Babyfood

The FDA (2004a, 2004b) tested a wide variety of babyfood samples, including cereals, dairy products, fruit and vegetable samples and mixtures. No acrylamide was detected in babyfood cereals. USDA (Smiciklas-Wright *et al.*, 2002) includes consumption of infant cereals in its category of ready-to-eat cereals. Fruit-based baby food samples were mostly nondetectable, with the exception of plum-based foods, which averaged 36 ppb, based on four composites. Vegetable babyfood samples usually contained measurable levels of acrylamide. Carrot babyfood samples contained a weighted average of 40 ppb (based on four composites and two individual samples), green beans averaged 23 ppb (based on four composites and one individual samples), squash averaged 19 ppb (based on four composites and two individual samples), and sweet potatoes averaged 77 ppb (based on four composites and four individual samples). Peach cobbler babyfood also had measurable acrylamide levels which averaged 40 ppb, based on four composite samples. Babyfood cookies contained high levels of acrylamide, averaging 188 ppb for cookies (eight composite and five individual samples), whereas babyfood crackers contained less, averaging 20 ppb (four composites and one individual sample). Since babyfood is consumed for a limited duration of life, and given the limited data on food consumption for most babyfoods, OEHHA has limited confidence in determining if acrylamide levels in babyfoods exceed the proposed NSRL, except in cases where these foods are also consumed in adulthood and adult foods also have relatively high levels. This analysis did not take into account potential increased sensitivity to acrylamide carcinogenesis by infants and children. Any increased early sensitivity to acrylamide that might exist would heighten the concern over the levels of acrylamide measured in baby crackers, cookies, green beans, sweet potatoes and other squash.

Additional concerns

The foods examined in this analysis are the foods for which we have acrylamide data from the FDA (2004a, 2004b). With each new round of foods tested, new surprises emerge where high acrylamide levels were observed in foods previously untested (e.g., Postum® and Wheatena®)

or where they were not expected (e.g., prune juice). It should be noted that for the analyses here, the focus was on the average consumer of a given food. However, there may be significant concerns with respect to foods that are eaten in large quantities with regularity by a smaller fraction of the population. For example, five percent of young adult males consumed about four times the average of popcorn, potato chips, and corn chips (Smiciklas-Wright *et al.*, 2002). Thus, some individuals consume high-acrylamide content food much more frequently than the average.

The risk projections for consumption of acrylamide from various foods do not include any consideration for early-life susceptibility to cancer induction. The U.S. EPA draft guidelines for carcinogen assessment propose weighting postnatal exposures to genotoxic carcinogens like acrylamide by a factor of ten and childhood and juvenile exposures by a factor of three relative to adults, when chemical-specific data are not available. Such age-specific weighting adjustments have not been performed in this initial analysis. In the future, it is likely that acrylamide-specific cancer data on early-life exposures will be available. The National Center for Toxicological Research is planning to conduct animal cancer studies of acrylamide, which employ early life exposure groups. These data likely will be used to evaluate whether infant and childhood exposures to acrylamide-containing foods present a greater cancer risk than equivalent exposures in adulthood.

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Appendix. FDA data on acrylamide concentration in foods

Data generated by FDA (2004a, 2004b) were compiled and sorted into different food categories as defined by USDA in its document *Foods Commonly Eaten in the United States*, where possible (Smiciklas-Wright *et al.*, 2002).

The data table presented in the Appendix includes five columns of information. The first column lists the name of the food as described by FDA (2004a, 2004b). FDA released the acrylamide data in four batches beginning in December 4, 2002 through March 2004. The second column lists the date that FDA released that data and is added for easy reference back to the original source. The third column gives the acrylamide concentration measured in the sample, in units of parts per billion (ppb). If no acrylamide was detected in a sample, the FDA reported the concentration as “ND”, or not detected. For purposes of this analysis, in cases where acrylamide has been reported for other samples of the same food type, the acrylamide concentration was set to one-half the limit of detection, or 5 ppb. In cases where acrylamide was not detected in any other samples of the same food type (e.g., babyfood cereals), the acrylamide concentration is reported as ND, and assumed to be 0 ppb. The fourth column lists the number of samples of a particular food included in each analysis of acrylamide content. Data reported by the FDA in its *Exploratory Data on Acrylamide in Foods* (FDA, 2004a) represent individual samples. Data reported by FDA in its Total Diet Study (FDA, 2004b) represent a composite of three individual food samples, which were pooled prior to acrylamide analysis. The fifth column provides comments and summary measures of the acrylamide levels in different food types and the number of samples represented. The summary measures included average and weighted average levels (ppb) of acrylamide. In many cases, in a given food type (for example cookies), the FDA produced data on individual samples and on composite samples. Weighted averages were calculated for these foods, based on the number of samples represented by each data point. For foods where only individual samples or only composite samples were measured, a simple average was calculated.

In the Appendix, babyfood is generally treated as a separate food category, except in cases where both adults and infants routinely eat these foods, such as cookies and crackers. In the case of ready-to-eat cereals, analyses were performed which either included dry babyfood cereals with other ready-to-eat cereals or analyzed babyfood cereals and other ready-to-eat cereals separately.

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Appendix. FDA Data on Acrylamide Concentration in Foods (U.S. FDA 2004a, 2004b)				
Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
GRAIN-BASED FOODS				
Bagels				
Schmidt Old Tyme Bagels Plain	Mar. 12, 2003	12	1	<u>Average, ppb</u>
Thomas' New York Style Bagels Plain	Mar. 12, 2003	27	1	Untoasted bagels
Sara Lee Honey Wheat Bagels (not toasted)	Dec. 4, 2002	27	1	31.00
Sara Lee Plain Mini Bagels (not toasted)	Dec. 4, 2002	58	1	Number of samples = 4
Bagels - toasted				
Sara Lee Honey Wheat Bagels (toasted)	Dec. 4, 2002	57	1	<u>Weighted average*, ppb</u>
Sara Lee Plain Mini Bagels (toasted)	Dec. 4, 2002	343	1	Toasted bagels
Bagel, Plain, Toasted	March 2004	27	3	55.36
Bagel, Plain, Toasted	March 2004	29	3	Number of samples = 14
Bagel, Plain, Toasted	March 2004	19	3	*In the Appendix, "weighted average"
Bagel, Plain, Toasted	March 2004	50	3	was computed based on the number of samples each data point represents
Biscuits				
Biscuits, Refrigerated-Type, Baked	March 2004	21	3	<u>Average, ppb</u>
Biscuits, Refrigerated-Type, Baked	March 2004	39	3	Biscuits
Biscuits, Refrigerated-Type, Baked	March 2004	32	3	36.75
Biscuits, Refrigerated-Type, Baked	March 2004	55	3	Number of samples = 12
Total Yeast Bread				
Breads-whole grain and wheat				
Arnold Bakery Light 100% Whole Wheat Bread	Mar. 12, 2003	102	1	Highlighted cell means value was
Home Pride Butter Top Wheat Bread	Mar. 12, 2003	52	1	not detected (ND) and the value was
Maier's Butter Top Wheat bread	Mar. 12, 2003	96	1	set to 1/2 limit of detection, 5 ppb
Pepperidge Farm Natural Whole Grain Whole Wheat (not toasted)	Dec. 4, 2002	5	1	
Schmidt Old Tyme Split-Top Wheat Bread	Mar. 12, 2003	130	1	
Bread, Cracked Wheat	March 2004	31	3	<u>Weighted average, ppb</u>
Bread, Cracked Wheat	March 2004	17	3	Whole grain and wheat breads
Bread, Cracked Wheat	March 2004	58	3	38.70
Bread, Cracked Wheat	March 2004	50	3	Number of samples =
Bread, Whole Wheat	March 2004	34	3	43
Bread, Whole Wheat	March 2004	24	3	
Bread, Whole Wheat	March 2004	39	3	
Bread, Whole Wheat	March 2004	59	3	
Arnold Real Jewish Rye Bread Caraway Seed	Mar. 12, 2003	42	1	<u>Weighted average, ppb</u>
Pepperidge Farm Dark Pump Pumpernickel (not toasted)	Dec. 4, 2002	34	1	All yeast breads
Bread, Rye	March 2004	30	3	30.80
Bread, Rye	March 2004	20	3	Number of samples, all yeast breads =
Bread, Rye	March 2004	22	3	60
Bread, Rye	March 2004	17	3	
Breads-white				
Maier's Butter Top White bread	Mar. 12, 2003	5	1	
Pepperidge Farm Original White Bread (not toasted)	Dec. 4, 2002	36	1	<u>Weighted average, ppb</u>
Sunbeam Enriched Bread, white	Mar. 12, 2003	18	1	White breads
Wonder Bread, white	Mar. 12, 2003	5	1	10.82
Bread, White, Enriched	March 2004	5	3	Number of samples, white =
Bread, White, Enriched	March 2004	5	3	17
Bread, White, Enriched	March 2004	5	3	
Bread, White, Enriched	March 2004	13	3	
Stroehmann Dutch Country Potato Bread	Mar. 12, 2003	36	1	
Toast				
Toasted whole grain and wheat bread				
Pepperidge Farm Dark Pump Pumpernickel (toasted)	Dec. 4, 2002	364	1	<u>Average, ppb</u>
Pepperidge Farm Natural Whole Grain Whole Wheat (toasted)	Dec. 4, 2002	59	1	Toast
Toasted white bread				
Pepperidge Farm Original White Bread (toasted)	Dec. 4, 2002	216	1	Number of samples = 3
Breadcrumbs				
Contadina Bread Crumbs Three Cheese	Dec. 4, 2002	39	1	
Super G Bread Crumbs Regular Style	Dec. 4, 2002	42	1	
Brownies				
Brownie	March 2004	24	3	<u>Average, ppb, brownies</u>
Brownie	March 2004	34	3	16.60
Brownie	March 2004	22	3	Number of samples =
Brownie	March 2004	27	3	12

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Cake				
Cake, Chocolate w/ Icing	March 2004	5	3	Weighted average, ppb
Cake, Chocolate w/ Icing	March 2004	12	3	Cake
Cake, Chocolate w/ Icing	March 2004	13	3	9.83
Cake, Chocolate w/ Icing	March 2004	29	3	Number of samples =
Cake, Yellow w/ Icing	March 2004	0	3	18
Cake, Yellow w/ Icing	March 2004	0	3	
Cereals, Ready-to-eat				
Toasted oat rings				
General Mills Honey Nut Cheerios	Dec. 4, 2002	146	1	Weighted average, ppb
General Mills Cheerios	Dec. 4, 2002	266	1	Oat ring cereal
Oat Ring Cereal	March 2004	166	3	174.07
Oat Ring Cereal	March 2004	214	3	Number of samples =
Oat Ring Cereal	March 2004	121	3	14
Oat Ring Cereal	March 2004	174	3	
Corn flakes				
Corn Flakes Cereal	March 2004	71	3	Weighted average, ppb
Corn Flakes Cereal	March 2004	59	3	Corn flakes
Corn Flakes Cereal	March 2004	54	3	60.64
Corn Flakes Cereal	March 2004	56	3	Number of samples =
Kellogg's Corn Flakes	Dec. 4, 2002	77	1	14
Kellogg's Frosted Flakes	Dec. 4, 2002	52	1	
Other breakfast cereals				
Familia Original Recipe Swiss Muesli	Mar. 12, 2003	11	1	
Breadshop's Sierra Crunch Muesli	Mar. 12, 2003	51	1	Weighted average, ppb
Kellogg's Mueslix Cereal with Raisins, Dates & Almonds	Mar. 12, 2003	30	1	Ready-to-eat cereals
Granola w/ Raisins	March 2004	62	3	86.11
Granola w/ Raisins	March 2004	27	3	number of samples =
Granola w/ Raisins	March 2004	32	3	104
Granola w/ Raisins	March 2004	78	3	(does not include baby food)
Health Valley Low-Fat Granola Tropical Fruit	Mar. 12, 2003	89	1	
Heartland Granola Cereal Original	Mar. 12, 2003	28	1	
Sunbelt Fruit & Nut Granola Cereal, Raisins, Dates & Almonds	Mar. 12, 2003	20	1	
Quaker 100% Natural Granola Oats, Honey & Raisins	Mar. 12, 2003	84	1	
Kellogg's Corn Pops	Dec. 4, 2002	71	1	
Crisped Rice Cereal	March 2004	37	3	
Crisped Rice Cereal	March 2004	53	3	Weighted average, ppb
Crisped Rice Cereal	March 2004	57	3	Ready-to-eat cereals
Crisped Rice Cereal	March 2004	81	3	58.91
Kellogg's Rice Krispies	Dec. 4, 2002	47	1	number of samples =
Fruit-Flavored Cereal, Presweetened	March 2004	40	3	152
Fruit-Flavored Cereal, Presweetened	March 2004	30	3	(including baby food)
Fruit-Flavored Cereal, Presweetened	March 2004	24	3	
Fruit-Flavored Cereal, Presweetened	March 2004	42	3	
General Mills Cinnamon Toast Crunch	Dec. 4, 2002	61	1	
General Mills Lucky Charms	Dec. 4, 2002	176	1	
Oat Bran Flakes Cereal, Whole Foods Market 365	Mar. 12, 2003	189	1	
Kellogg's Raisin Bran	Dec. 4, 2002	156	1	
Raisin Bran Cereal	March 2004	100	3	
Raisin Bran Cereal	March 2004	123	3	
Raisin Bran Cereal	March 2004	97	3	
Raisin Bran Cereal	March 2004	74	3	
Post Grape-nuts	Mar. 12, 2003	67	1	
Post Selects Great Grains, Raisins, Dates, Pecans	Mar. 12, 2003	44	1	
Kellogg's Frosted Mini-Wheats	Dec. 4, 2002	78	1	
Shredded Wheat Cereal	March 2004	130	3	
Shredded Wheat Cereal	March 2004	241	3	
Shredded Wheat Cereal	March 2004	102	3	
Shredded Wheat Cereal	March 2004	59	3	
Cereal - babyfood (USDA classifies as "ready-to-eat cereal")				
Beech Nut Stage 1 Oatmeal Cereal for Baby	Dec. 4, 2002	0	1	
Carnation Baby Cereal with Formula Oatmeal	Dec. 4, 2002	0	1	Cereal - babyfood
Gerber Single Grain Oatmeal Cereal for Baby	Dec. 4, 2002	0	1	Not Detected, 0 ppm assumed
Beech Nut Rice Cereal for Baby	Dec. 4, 2002	0	1	
Carnation Baby Cereal with Formula Rice	Dec. 4, 2002	0	1	
Gerber Mixed Cereal for Baby	Dec. 4, 2002	0	1	
Cereal, Barley, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Barley, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Mixed, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Mixed, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	0	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	0	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	0	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	0	3	
Cereal, Oatmeal, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Oatmeal, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Rice w/ Apples, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Rice w/ Apples, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Rice, Dry, Prepared w/ Water	March 2004	0	3	
Cereal, Rice, Dry, Prepared w/ Water	March 2004	0	3	
Cooked cereal				
Corn/Hominy Grits, Enriched, Cooked	March 2004	ND	3	
Corn/Hominy Grits, Enriched, Cooked	March 2004	ND	3	Non-Wheatena cooked cereal
Cream of Wheat (Farina), Enriched, Cooked	March 2004	ND	3	Not detected, ND
Cream of Wheat (Farina), Enriched, Cooked	March 2004	ND	3	
Oatmeal, Plain, Cooked	March 2004	ND	3	
Oatmeal, Plain, Cooked	March 2004	ND	3	
Wheatena Toasted Wheat Cereal	Mar. 12, 2003	1057	1	<u>Average, ppb</u>
Wheatena Toasted Wheat Cereal	March 1, 2004	689	1	Wheatena
Wheatena Toasted Wheat Cereal	March 1, 2004	467	1	737.67
Cookies				
Archway Oatmeal Cookies	Dec. 4, 2002	36	1	<u>Weighted average, ppb</u>
Stella D'Oro Anisette Toast Cookies	Dec. 4, 2002	107	1	Cookies
Nabisco Chips Ahoy! Chewy Chocolate Chip Cookies	Dec. 4, 2002	97	1	
Chocolate Chip Cookies	March 2004	131	3	188.16
Chocolate Chip Cookies	March 2004	152	3	Number of samples =
Chocolate Chip Cookies	March 2004	168	3	82
Chocolate Chip Cookies	March 2004	81	3	(includes baby food)
Sandwich Cookies w/ Crème Filling	March 2004	128	3	
Sandwich Cookies w/ Crème Filling	March 2004	113	3	
Sandwich Cookies w/ Crème Filling	March 2004	84	3	
Sandwich Cookies w/ Crème Filling	March 2004	86	3	
Sugar Cookies	March 2004	70	3	
Sugar Cookies	March 2004	31	3	
Sugar Cookies	March 2004	32	3	
Sugar Cookies	March 2004	29	3	
Nabisco Chocolate Teddy Grahams	Dec. 4, 2002	199	1	
Keebler Rumbly Grahams Cinnamon	Mar. 12, 2003	334	1	
Crackers, Graham	March 2004	552	3	
Crackers, Graham	March 2004	211	3	
Crackers, Graham	March 2004	647	3	
Crackers, Graham	March 2004	555	3	
Cookies - babyfood				
Arrowroot Cookies	March 2004	246	3	
Arrowroot Cookies	March 2004	161	3	
Arrowroot Cookies	March 2004	267	3	
Arrowroot Cookies	March 2004	105	3	
Keebler Sesame Street Animal Crackers	Mar. 12, 2003	346	1	
Stauffer's Animal Crackers	Mar. 12, 2003	432	1	
Teething Biscuits	March 2004	166	3	
Teething Biscuits	March 2004	147	3	
Teething Biscuits	March 2004	235	3	
Teething Biscuits	March 2004	128	3	
Nabisco Arrowroot Biscuit (baby food)	Dec. 4, 2002	113	1	
Gerber Graduates for Toddlers Animal Crackers	Dec. 4, 2002	60	1	
Gerber Finger Foods Biter Biscuits	Dec. 4, 2002	130	1	
Cookie-like foods				
Granola Bar, w/ Raisins	March 2004	22	3	<u>Weighted average, ppb</u>
Granola Bar, w/ Raisins	March 2004	39	3	Granola and energy bars
Granola Bar, w/ Raisins	March 2004	30	3	55.93
Granola Bar, w/ Raisins	March 2004	14	3	Number of samples =
Nature's Path Organic Optimum Power Breakfast, Flax, Soy, Blueberry	Mar. 12, 2003	398	1	14
Odwalla Bar! Chocolate Chip Peanut	Mar. 12, 2003	70	1	
Corn and tortilla chips				
Baked! Doritos Nacho Cheesier!	Mar. 12, 2003	193	1	
Herr's Bite Size Dippers Tortilla Chips	Dec. 4, 2002	117	1	<u>Weighted average, ppb</u>
Corn/Tortilla Chips	March 2004	164	3	Corn and tortilla chips
Corn/Tortilla Chips	March 2004	208	3	198.88
Corn/Tortilla Chips	March 2004	235	3	Number of samples =
Corn/Tortilla Chips	March 2004	240	3	16
Utz Baked Tortillas	Mar. 12, 2003	220	1	
Utz White Corn Tortillas	Dec. 4, 2002	111	1	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Crackers				
ak-mak Bakeries 100% Whole Wheat Stone Ground Sesame Cracker	Mar. 12, 2003	343	1	
Dare Vinta Crackers	Mar. 12, 2003	112	1	
Devonsheer Unsalted Plain Melba Toast	Mar. 12, 2003	69	1	
Fat Free Natural Ry-Krisp	Mar. 12, 2003	620	1	
Keebler Holiday Wheatables Original	Mar. 12, 2003	37	1	
Manischewitz Matzos unsalted	Mar. 12, 2003	208	1	<u>Weighted average, ppb</u>
Stella D'Oro Breadsticks Original	Mar. 12, 2003	100	1	Crackers
Wasa Crisp 'N Light Crackerbread Sourdough Rye	Mar. 12, 2003	184	1	166.5
Red Oval Farms Mini Stoned Wheat Thins	Dec. 4, 2002	26	1	Number of samples =
Dare Breton Thin Wheat Crackers	Dec. 4, 2002	300	1	52
Super G Unsalted Tops Crackers	Dec. 4, 2002	41	1	(includes babyfood)
Keebler Town House Crackers Reduced Fat	Dec. 4, 2002	130	1	
Pepperidge Farm Cheddar Goldfish	Dec. 4, 2002	57	1	
Streit's Lightly Salted Matzos	Dec. 4, 2002	182	1	
Wasa Original Crispbread Fiber Rye	Dec. 4, 2002	504	1	
Crackers, Butter-Type	March 2004	425	3	
Crackers, Butter-Type	March 2004	348	3	
Crackers, Butter-Type	March 2004	373	3	
Crackers, Butter-Type	March 2004	402	3	
Crackers, Saltine	March 2004	58	3	
Crackers, Saltine	March 2004	95	3	
Crackers, Saltine	March 2004	72	3	
Crackers, Saltine	March 2004	57	3	
Crackers-babyfood				
Zwieback Toast	March 2004	17	3	
Zwieback Toast	March 2004	31	3	
Zwieback Toast	March 2004	18	3	
Zwieback Toast	March 2004	13	3	
Nabisco Zwieback Toast (baby food)	Dec. 4, 2002	20	1	
Doughnuts and sweet rolls				
Shoppers Food Warehouse Cake Doughnut	Dec. 4, 2002	24	1	Highlighted value was ND
Shoppers Food Warehouse French Twirl Doughnut	Dec. 4, 2002	5	1	Assume 1/2 limit of dection = 5ppb
Shoppers Food Warehouse Plain Doughnut	Dec. 4, 2002	14	1	<u>Weighted average, ppb</u>
Doughnut, Cake-Type, Any Flavor	March 2004	26	3	Doughnuts
Doughnut, Cake-Type, Any Flavor	March 2004	19	3	18.47
Doughnut, Cake-Type, Any Flavor	March 2004	15	3	Number of samples =
Doughnut, Cake-Type, Any Flavor	March 2004	18	3	15
Pancakes and waffles				
Pancakes, Frozen, Heated	March 2004	15	3	<u>Average, ppb</u>
Pancakes, Frozen, Heated	March 2004	17	3	Pancakes
Pancakes, Frozen, Heated	March 2004	16	3	15.25
Pancakes, Frozen, Heated	March 2004	13	3	Number of samples = 12
Pie				
Cherry Lattice Pie (purchased from local grocer)	Mar. 12, 2003	11	1	
Mom's Southern Pecan Pie	Mar. 12, 2003	14	1	Highlighted value was ND
Whole Foods Market Blueberry Pie	Mar. 12, 2003	5	1	Assume 1/2 limit of dection = 5ppb
Whole Foods Market Mini Apple Pie Dairy Free	Mar. 12, 2003	34	1	<u>Weighted average, ppb</u>
Whole Foods Market Mini Cherry Pie Dairy Free	Mar. 12, 2003	29	1	Pie
Whole Foods Market Pear Frangipan mini	Mar. 12, 2003	74	1	21.81
Whole Foods Market Pecan Pie	Mar. 12, 2003	25	1	Number of samples =
Whole Foods Market Pumpkin Pie	Mar. 12, 2003	29	1	32
Apple Pie, Fresh/Frozen	March 2004	22	3	
Apple Pie, Fresh/Frozen	March 2004	5	3	
Apple Pie, Fresh/Frozen	March 2004	15	3	
Apple Pie, Fresh/Frozen	March 2004	15	3	
Pumpkin Pie, Fresh/Frozen	March 2004	25	3	
Pumpkin Pie, Fresh/Frozen	March 2004	33	3	
Pumpkin Pie, Fresh/Frozen	March 2004	18	3	
Pumpkin Pie, Fresh/Frozen	March 2004	26	3	
Popcorn				
Orville Redenbacher's Gourmet Popping Corn Movie Theater Butter	Dec. 4, 2002	157	1	
Super G Cheddar Cheese Corn Twists	Dec. 4, 2002	133	1	<u>Weighted average, ppb</u>
Super G Microwave Popping Corn (popped)	Dec. 4, 2002	181	1	Popcorn
Popcorn, Microwave, Butter-Flavored	March 2004	150	3	180.40
Popcorn, Microwave, Butter-Flavored	March 2004	352	3	Number of samples =
Popcorn, Microwave, Butter-Flavored	March 2004	97	3	15
Popcorn, Microwave, Butter-Flavored	March 2004	146	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Quickbreads and muffins				
Cornbread, Homemade	March 2004	5	3	Highlighted value was ND
Cornbread, Homemade	March 2004	5	3	Assume 1/2 limit of dection = 5ppb
Cornbread, Homemade	March 2004	5	3	<u>Average, ppb</u>
Cornbread, Homemade	March 2004	5	3	Cornbread, muffins
Muffin, Fruit or Plain	March 2004	5	3	8.13
Muffin, Fruit or Plain	March 2004	14	3	Number of samples =
Muffin, Fruit or Plain	March 2004	13	3	24
Muffin, Fruit or Plain	March 2004	13	3	
English Muffin, Plain, Toasted	March 2004	37	3	<u>Average, ppb</u>
English Muffin, Plain, Toasted	March 2004	35	3	Toasted English muffin
English Muffin, Plain, Toasted	March 2004	23	3	31.25
English Muffin, Plain, Toasted	March 2004	30	3	Number of samples = 12
Rice and pasta				
Macaroni Salad, from Grocery/Deli	March 2003	ND	3	
Macaroni Salad, from Grocery/Deli	March 2004	ND	3	Not detected, ND
Noodles, Egg, Enriched, Boiled	March 2004	ND	3	
Noodles, Egg, Enriched, Boiled	March 2004	ND	3	
Rice, White, Enriched, Cooked	March 2004	ND	3	
Rice, White, Enriched, Cooked	March 2004	ND	3	
Spaghetti, Enriched, Boiled	March 2004	ND	3	
Spaghetti, Enriched, Boiled	March 2004	ND	3	
Tortillas				
La Banderita Corn Tortillas (not fried)	Dec. 4, 2002	10	1	Highlighted value was ND
La Banderita Corn Tortillas (fried)	Dec. 4, 2002	13	1	Assume 1/2 limit of dection
La Banderita Flour Tortillas (not fried)	Dec. 4, 2002	5	1	<u>Weighted average, ppb</u>
La Banderita Flour Tortillas (fried)	Dec. 4, 2002	15	1	Tortillas
Tortilla, Flour	March 2004	5	3	6.44
Tortilla, Flour	March 2004	5	3	Number of samples =
Tortilla, Flour	March 2004	5	3	16
Tortilla, Flour	March 2004	5	3	
Wheat-based snacks				
Herr's Extra Thin Pretzels	Dec. 4, 2002	309	1	
Sun Chips Original Flavor	Mar. 12, 2003	199	1	<u>Weighted average, ppb</u>
Utz Unsalted Sourdough Specials	Dec. 4, 2002	70	1	Wheat-based snacks
Pretzels, Hard, Salted	March 2004	97	3	163.31
Pretzels, Hard, Salted	March 2004	342	3	Number of samples =
Pretzels, Hard, Salted	March 2004	143	3	16
Pretzels, Hard, Salted	March 2004	46	3	
Herr's Extra Thin Pretzels, no salt added	Mar-04	151	1	
VEGETABLE-BASED FOODS				
French-fried potatoes				
French Fries (restaurant)				
Arby's french fries	Dec. 4, 2002	252	1	
Burger King french fries, location 1	Dec. 4, 2002	197	1	<u>Weighted average, ppb</u>
Burger King french fries, location 2	Dec. 4, 2002	220	1	All French Fries
Burger King french fries, location 3	Dec. 4, 2002	369	1	413.46
Checkers french fries, location 1	Dec. 4, 2002	257	1	Number of samples =
Checkers french fries, location 2	Dec. 4, 2002	407	1	52
Chick-fil-A french fries	Dec. 4, 2002	389	1	
Fuddrucker's french fries, location 1	Dec. 4, 2002	452	1	
Fuddrucker's french fries, location 2	Dec. 4, 2002	346	1	
KFC french fries, location 1	Dec. 4, 2002	313	1	
KFC french fries, location 2	Dec. 4, 2002	270	1	
KFC french fries, location 3	Dec. 4, 2002	162	1	<u>Weighted average, ppb</u>
KFC french fries, location 4	Dec. 4, 2002	117	1	Restaurant French Fries
McDonald's french fries, location 1	Dec. 4, 2002	193	1	350.46
McDonald's french fries, location 2	Dec. 4, 2002	328	1	Number of samples =
McDonald's french fries, location 3	Dec. 4, 2002	155	1	41
McDonald's french fries, location 4	Dec. 4, 2002	326	1	
McDonald's french fries, location 5	Dec. 4, 2002	245	1	
McDonald's french fries, location 6	Dec. 4, 2002	270	1	
McDonald's french fries, location 7	Dec. 4, 2002	497	1	
Popeyes french fries, location 1	Dec. 4, 2002	301	1	
Popeyes french fries, location 2	Dec. 4, 2002	484	1	
Popeyes french fries, location 3	Dec. 4, 2002	1030	1	
Popeyes french fries, location 4	Dec. 4, 2002	610	1	
Wendy's french fries, location 1	Dec. 4, 2002	302	1	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Wendy's french fries, location 2	Dec. 4, 2002	157	1	
Wendy's french fries, location 3	Dec. 4, 2002	254	1	
Wendy's french fries, location 4	Dec. 4, 2002	260	1	
Wendy's french fries, location 5	Dec. 4, 2002	169	1	
Potato, French-Fried, Fast-Food	March 2004	381	3	
Potato, French-Fried, Fast-Food	March 2004	432	3	
Potato, French-Fried, Fast-Food	March 2004	416	3	
Potato, French-Fried, Fast-Food	March 2004	450	3	
French fries (home baked)				
Lamb Weston Inland Valley Fajita Fries (baked)	Dec. 4, 2002	1325	1	
Lamb Weston Inland Valley French Fries (baked)	Dec. 4, 2002	798	1	<u>Average, ppb</u>
Linden Farms French Fries Shoestring Style (baked)	Dec. 4, 2002	1036	1	Home-baked French Fries
McCain Crinkle Cut french fries (baked)	Dec. 4, 2002	356	1	648.27
Ore Ida Crispers! (baked)	Dec. 4, 2002	616	1	Number of samples =
Ore Ida Fast Food Fries (baked)	Dec. 4, 2002	332	1	11
Ore Ida Golden Crinkles (baked)	Dec. 4, 2002	441	1	
Ore Ida Golden Fries (baked)	Dec. 4, 2002	1098	1	
Ore Ida Golden Twirls (baked)	Dec. 4, 2002	119	1	
Ore Ida Zesties! (baked)	Dec. 4, 2002	572	1	
Richfood French Fried Potatoes (baked)	Dec. 4, 2002	438	1	
Home-fried and hashbrown potatoes				
Ore Ida Tater Tots (baked)	Dec. 4, 2002	255	1	
French fries (home baked) uncooked				
Lamb Weston Inland Valley Fajita Fries (not baked)	Dec. 4, 2002	200	1	
Lamb Weston Inland Valley French Fries (not baked)	Dec. 4, 2002	212	1	French fries not consumed raw
Linden Farms French Fries Shoestring Style (not baked)	Dec. 4, 2002	70	1	
McCain Crinkle Cut french fries (not baked)	Dec. 4, 2002	49	1	
Ore Ida Crispers! (not baked)	Dec. 4, 2002	218	1	
Ore Ida Fast Food Fries (not baked)	Dec. 4, 2002	79	1	
Ore Ida Golden Crinkles (not baked)	Dec. 4, 2002	74	1	
Ore Ida Golden Fries (not baked)	Dec. 4, 2002	107	1	
Ore Ida Golden Twirls (not baked)	Dec. 4, 2002	20	1	
Ore Ida Tater Tots (not baked)	Dec. 4, 2002	199	1	
Ore Ida Zesties! (not baked)	Dec. 4, 2002	67	1	
Richfood French Fried Potatoes (not baked)	Dec. 4, 2002	21	1	
Potato chips				
Pringles Original Potato Crisps	Mar. 12, 2003	693	1	
Pringles Ridges Original Potato Crisps	Mar. 12, 2003	1286	1	
Pringles Sweet Mesquite BBQ Flavored Potato Crisps	Mar. 12, 2003	2510	1	
Good Health Natural Foods Olive Oil Potato Chips Plain	Dec. 4, 2002	385	1	
Herr's Crisp 'N Tasty Potato Chips	Dec. 4, 2002	468	1	
Lay's Classic Potato Chips, code date Oct. 15	Dec. 4, 2002	249	1	<u>Weighted average, ppb</u>
Lay's Classic Potato Chips, code date Oct. 29	Dec. 4, 2002	318	1	Potato Chips
Lay's Classic Potato Chips, code date Nov. 5, bag 1	Dec. 4, 2002	319	1	466.09
Lay's Classic Potato Chips, code date Nov. 5, bag 2	Dec. 4, 2002	398	1	Number of samples =
Lay's Classic Potato Chips, code date Nov. 5, bag 3	Dec. 4, 2002	338	1	54
Lay's Classic Potato Chips, code date Nov. 5, bag 4	Dec. 4, 2002	337	1	
Lay's Classic Potato Chips, code date Nov. 12, bag 1	Dec. 4, 2002	432	1	
Lay's Classic Potato Chips, code date Nov. 12, bag 2	Dec. 4, 2002	462	1	
Lay's Classic Potato Chips, code date Nov. 12, bag 3	Dec. 4, 2002	462	1	
Lay's Classic Potato Chips, code date Nov. 19, bag 1	Dec. 4, 2002	280	1	
Lay's Classic Potato Chips, code date Nov. 19, bag 2	Dec. 4, 2002	301	1	
Lay's Classic Potato Chips, code date Nov. 19, bag 3	Dec. 4, 2002	283	1	
Lay's Classic Potato Chips, code date Nov. 19, bag 4	Dec. 4, 2002	258	1	
Lay's Classic Potato Chips, code date Nov. 26, bag 1	Dec. 4, 2002	257	1	
Lay's Classic Potato Chips, code date Nov. 26, bag 2	Dec. 4, 2002	262	1	
Lay's Classic Potato Chips, code date Nov. 26, bag 3	Dec. 4, 2002	275	1	
Lay's Classic Potato Chips, code date Nov. 26, bag 4	Dec. 4, 2002	303	1	
Lay's Classic Potato Chips, code date Dec. 3, bag 1	Dec. 4, 2002	343	1	
Lay's Classic Potato Chips, code date Dec. 3, bag 2	Dec. 4, 2002	333	1	
Lay's Classic Potato Chips, code date Dec. 3, bag 3	Dec. 4, 2002	291	1	
Lay's Classic Potato Chips, code date Dec. 3, bag 4	Dec. 4, 2002	336	1	
Lay's Classic Potato Chips, code date Dec. 10, bag 1	Dec. 4, 2002	425	1	
Lay's Classic Potato Chips, code date Dec. 10, bag 2	Dec. 4, 2002	463	1	
Lay's Classic Potato Chips, code date Dec. 10, bag 3	Dec. 4, 2002	490	1	
Lay's Classic Potato Chips, code date Dec. 10, bag 4	Dec. 4, 2002	549	1	
Utz Crisp All Natural Potato Chips, lot 1	Dec. 4, 2002	879	1	
Utz Crisp All Natural Potato Chips, lot 2	Dec. 4, 2002	433	1	
Grandma Utz's Handcooked Potato Chips	Dec. 4, 2002	146	1	
Kettle Chips Lightly Salted Natural Gourmet Potato Chips	Dec. 4, 2002	1265	1	
Lay's Kettle Cooked Mesquite BBQ Flavored Potato Chips	Dec. 4, 2002	198	1	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Utz's Home Style Kettle-Cooked Potato Chips	Dec. 4, 2002	117	1	
Lay's WOW! Original potato chips	Dec. 4, 2002	415	1	
Ruffles WOW! Original potato chips	Dec. 4, 2002	270	1	
Ruffles Original potato chips	Dec. 4, 2002	292	1	
Wavy Lay's Original Potato Chips	Dec. 4, 2002	198	1	
Baked! Lay's Original Naturally Baked Potato Crisps	Dec. 4, 2002	1096	1	
Potato Chips	March 2004	467	3	
Potato Chips	March 2004	264	3	
Potato Chips	March 2004	536	3	
Potato Chips	March 2004	292	3	
Terra Blues Potato Chips	Mar-04	1077	1	
Other potato- or sweet potato-based snacks				
Terra Sweet Potato Chips	Dec. 4, 2002	767	1	<u>Average, ppb</u> Other potato-
Route 11 Sweet Potato Chips	Dec. 4, 2001	2761	1	and sweet potato-based snacks
Snyder's of Hanover Veggie Crisps (potato, tomato, spinach)	Dec. 4, 2002	832	1	1337.50
Terra Stix (taro, sweet potato)	Dec. 4, 2002	990	1	Number of samples = 4
Vegetables, fresh				
Asparagus, Fresh/Frozen, Boiled	March 2004	ND	3	
Asparagus, Fresh/Frozen, Boiled	March 2004	ND	3	All samples were non-detect, ND,
Broccoli, Fresh/Frozen, Boiled	March 2004	ND	3	except for baked potato (with peel)
Broccoli, Fresh/Frozen, Boiled	March 2004	ND	3	
Brussels Sprouts, Fresh/Frozen, Boiled	March 2004	ND	3	
Brussels Sprouts, Fresh/Frozen, Boiled	March 2004	ND	3	
Cabbage, Fresh, Boiled	March 2004	ND	3	
Cabbage, Fresh, Boiled	March 2004	ND	3	
Carrot, Baby, Raw	March 2004	ND	3	
Carrot, Baby, Raw	March 2004	ND	3	
Carrot, Fresh, Peeled, Boiled	March 2004	ND	3	
Carrot, Fresh, Peeled, Boiled	March 2004	ND	3	
Cauliflower, Fresh/Frozen, Boiled	March 2004	ND	3	
Cauliflower, Fresh/Frozen, Boiled	March 2004	ND	3	
Celery, Raw	March 2004	ND	3	
Celery, Raw	March 2004	ND	3	
Coleslaw, Mayonnaise-Type, from Grocery/Deli	March 2004	ND	3	
Coleslaw, Mayonnaise-Type, from Grocery/Deli	March 2004	ND	3	
Collards, Fresh/Frozen, Boiled	March 2004	ND	3	
Collards, Fresh/Frozen, Boiled	March 2004	ND	3	
Corn, Fresh/Frozen, Boiled	March 2004	ND	3	
Corn, Fresh/Frozen, Boiled	March 2004	ND	3	
Cucumber, Peeled, Raw	March 2004	ND	3	
Cucumber, Peeled, Raw	March 2004	ND	3	
Dill Cucumber Pickles	March 2004	ND	3	
Dill Cucumber Pickles	March 2004	ND	3	
Eggplant, Fresh, Peeled, Boiled	March 2004	ND	3	
Eggplant, Fresh, Peeled, Boiled	March 2004	ND	3	
Green Beans, Fresh/Frozen, Boiled	March 2004	ND	3	
Green Beans, Fresh/Frozen, Boiled	March 2004	ND	3	
Lettuce, Iceberg, Raw	March 2004	ND	3	
Lettuce, Iceberg, Raw	March 2004	ND	3	
Lettuce, Leaf, Raw	March 2004	ND	3	
Lettuce, Leaf, Raw	March 2004	ND	3	
Lima Beans, Immature, Frozen, Boiled	March 2004	ND	3	
Lima Beans, Immature, Frozen, Boiled	March 2004	ND	3	
Mixed Vegetables, Frozen, Boiled	March 2004	ND	3	
Mixed Vegetables, Frozen, Boiled	March 2004	ND	3	
Mushrooms, Raw	March 2004	ND	3	
Mushrooms, Raw	March 2004	ND	3	
Okra, Fresh/Frozen, Boiled	March 2004	ND	3	
Okra, Fresh/Frozen, Boiled	March 2004	ND	3	
Okra, Fresh/Frozen, Boiled	March 2004	ND	3	
Okra, Fresh/Frozen, Boiled	March 2004	ND	3	
Onion, Mature, Raw	March 2004	ND	3	
Onion, Mature, Raw	March 2004	ND	3	
Peas, Green, Frozen, Boiled	March 2004	ND	3	
Peas, Green, Frozen, Boiled	March 2004	ND	3	
Pepper, Sweet, Green, Raw	March 2004	ND	3	
Pepper, Sweet, Green, Raw	March 2004	ND	3	
Potato Salad, Mayonnaise-Type, from Grocery/Deli	March 2004	ND	3	
Potato Salad, Mayonnaise-Type, from Grocery/Deli	March 2004	ND	3	
Potato, Baked (w/ peel)	March 2004	25	3	
Potato, Baked (w/ peel)	March 2004	25	3	
Potato, Boiled (w/out Peel)	March 2004	ND	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Potato, Boiled (w/out Peel)	March 2004	ND	3	
Potatoes, Mashed, Prepared from Fresh	March 2004	ND	3	
Potatoes, Mashed, Prepared from Fresh	March 2004	ND	3	
Idahoan Butter & Herb Mashed Potatoes	Dec. 4, 2002	ND	1	
Idaho Spuds Mashed Potatoes	Dec. 4, 2002	ND	1	
KFC Mashed Potatoes	Dec. 4, 2002	ND	1	
Spinach, Fresh/Frozen, Boiled	March 2004	ND	3	
Spinach, Fresh/Frozen, Boiled	March 2004	ND	3	
Squash, Winter (Hubbard/Acorn), Fresh/Frozen, Boiled	March 2004	ND	3	
Squash, Winter (Hubbard/Acorn), Fresh/Frozen, Boiled	March 2004	ND	3	
Summer Squash, Fresh/Frozen, Boiled	March 2004	ND	3	
Summer Squash, Fresh/Frozen, Boiled	March 2004	ND	3	
Kraft Quick Cooking Minute Tapioca	Dec. 4, 2002	ND	1	
Tomato, Raw	March 2004	ND	3	
Tomato, Raw	March 2004	ND	3	
Turnip, Fresh/Frozen, Boiled	March 2004	ND	3	
Turnip, Fresh/Frozen, Boiled	March 2004	ND	3	
Vegetables, canned or bottled				
Asparagus, Green Giant Extra-Long Tender Green Asparagus Spears	Mar. 12, 2003	ND	1	
Asparagus, Hanover Premium Petite Asparagus Spears	Dec. 4, 2002	ND	1	Most canned vegetables
Asparagus, Richfood Fancy Cuts & Tips Asparagus	Mar. 12, 2003	ND	1	were non-detect, ND
Beets, Canned	March 2004	ND	3	except for canned olives
Beets, Canned	March 2004	ND	3	and canned sweet potatoes
Beets, Del Monte Fresh Cut Sliced Beets	Mar. 12, 2003	ND	1	
Beets, Richfood Sliced Beets	Mar. 12, 2003	ND	1	
Carrots, Hanover Premium Petite Whole Carrots	Dec. 4, 2002	ND	1	
Corn, Canned	March 2004	ND	3	
Corn, Canned	March 2004	ND	3	
Green Beans, Canned	March 2004	ND	3	
Green Beans, Canned	March 2004	ND	3	
Green Beans, Canned	March 2004	ND	3	
Green Beans, Canned	March 2004	ND	3	
Green Beans, Del Monte Fresh Cut Specialties Blue Lake Whole	Mar. 12, 2003	ND	1	
Green Beans, Hanover Blue Lake French Style Green Beans	Dec. 4, 2002	ND	1	
Green Beans, Libby's Blue Lake Cut Green Beans	Mar. 12, 2003	ND	1	
Mushroom, Green Giant Sliced Mushrooms Broiled in Butter	Dec. 4, 2002	ND	1	
Mushroom, Super G Mushrooms Stems and Pieces	Dec. 4, 2002	ND	1	
Olives, Black	March 2004	424	3	
Olives, Black	March 2004	123	3	Weighted average, ppb
Olives, Black	March 2004	162	3	Black olives, canned
Olives, Black	March 2004	204	3	413.63
Olives, Giant Foods Chopped Ripe Olives	March 1, 2004	479	1	Number of samples =
Olives, Giant Foods Large Pitted Ripe Olives	March 1, 2004	375	1	19
Olives, Giant Foods Sliced Ripe Olives	March 1, 2004	252	1	
Olives, Safeway Chopped Ripe Olives	March 1, 2004	1363	1	
Olives, Safeway Sliced Ripe Olives	March 1, 2004	500	1	
Olives, Safeway Small Pitted Ripe Olives	March 1, 2004	226	1	
Olives, Super G Chopped Ripe Olives	March 1, 2004	1925	1	
Potatoes, Del Monte Fresh Cut Sliced New Potatoes	March 1, 2004	ND	1	
Potatoes, Del Monte Fresh Cut Sliced New Potatoes (accompanying	March 1, 2004	ND	1	
Potatoes, Super G Sliced White Irish Potatoes	March 1, 2004	ND	1	
Potatoes, Super G Sliced White Irish Potatoes (accompanying liquid)	March 1, 2004	ND	1	
Potatoes, Super G Whole New Irish Potatoes	March 1, 2004	ND	1	
Potatoes, Super G Whole New Irish Potatoes (accompanying liquid)	March 1, 2004	ND	1	
Pumpkin, Libby's Pumpkin	Dec. 4, 2002	25	1	
Spinach, Del Monte Fresh Cut Whole Leaf Spinach	Mar. 12, 2003	ND	1	
Spinach, Richfood Leaf Spinach	Mar. 12, 2003	ND	1	
Squash, Super G Cooked Squash	Dec. 4, 2002	ND	1	
Sweet Potatoes, Canned	March 2004	153	3	Average, ppb
Sweet Potatoes, Canned	March 2004	95	3	sweet potatoes, canned
Sweet Potatoes, Canned	March 2004	66	3	93.25
Sweet Potatoes, Canned	March 2004	59	3	Number of samples = 12
Tomato Catsup	March 2004	ND	3	
Tomato Catsup	March 2004	ND	3	
Tomato Juice, Bottled	March 2004	ND	3	
Tomato Juice, Bottled	March 2004	ND	3	
Tomato Salsa, Bottled	March 2004	ND	3	
Tomato Salsa, Bottled	March 2004	ND	3	
Tomato Sauce, Plain, Bottled	March 2004	ND	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Tomato Sauce, Plain, Bottled	March 2004	ND	3	
LEGUMES, NUTS AND NUT BUTTERS				
Blue Diamond Roasted Salted Almonds	Dec. 4, 2002	236	1	<u>Average, ppb</u>
Blue Diamond Smokehouse Almonds	Dec. 4, 2002	457	1	Roasted almonds
Planters Salted Almonds	Dec. 4, 2002	249	1	320.25
Planters Smoked Almonds	Dec. 4, 2002	339	1	Number of samples = 4
Planters Halves and Pieces Lightly Salted Cashews	Dec. 4, 2002	ND	1	
Arrowhead Mills Crunchy Peanut Butter	Dec. 4, 2002	114	1	
Jif Creamy Peanut Butter	Dec. 4, 2002	64	1	<u>Weighted average, ppb</u>
Peter Pan Plus Creamy Peanut Butter	Dec. 4, 2002	89	1	Peanut butter
Richfood Creamy Peanut Butter	Dec. 4, 2002	79	1	88.06
Smucker's Natural Creamy Peanut Butter	Dec. 4, 2002	125	1	Number of samples =
Peanut Butter, Creamy	March 2004	92	3	17
Peanut Butter, Creamy	March 2004	93	3	
Peanut Butter, Creamy	March 2004	67	3	
Peanut Butter, Creamy	March 2004	90	3	
Super G Dry Roasted Peanuts Unsalted	Dec. 4, 2002	28	1	Highlighted values were ND
Super G Honey Roasted Peanuts	Dec. 4, 2002	5	1	Assume 1/2 limit of dection
Super G Party Peanuts	Dec. 4, 2002	5	1	<u>Weighted average, ppb</u>
Peanuts, Dry Roasted, Salted	March 2004	27	3	Roasted peanuts
Peanuts, Dry Roasted, Salted	March 2004	28	3	27.13
Peanuts, Dry Roasted, Salted	March 2004	32	3	Number of samples =
Peanuts, Dry Roasted, Salted	March 2004	36	3	15
Pinto Beans, Dry, Boiled	March 2004	ND	3	
Pinto Beans, Dry, Boiled	March 2004	ND	3	
Pork and Beans, Canned	March 2004	ND	3	
Pork and Beans, Canned	March 2004	20	3	Low levels, beans
Pork and Beans, Canned	March 2004	15	3	
Pork and Beans, Canned	March 2004	14	3	
Refried Beans, Canned	March 2004	ND	3	
Refried Beans, Canned	March 2004	ND	3	
Refried Beans, Canned	March 2004	ND	3	
Refried Beans, Canned	March 2004	ND	3	
Beans, Old El Paso Refried Beans Traditional	Mar. 12, 2003	11	1	
Beans, B&M Original Brick Oven Baked Beans	Dec. 4, 2002	83	1	<u>Baked beans, Average, ppb</u>
Beans, B&M Vegetarian 99% Fat Free Brick Oven Baked Beans	Dec. 4, 2002	70	1	76.50
Cedar Chick Peas	Dec. 4, 2002	ND	1	
Sunflower Seeds (Shelled), Roasted, Salted	March 2004	31	3	<u>Average</u>
Sunflower Seeds (Shelled), Roasted, Salted	March 2004	35	3	sunflower seeds
Sunflower Seeds (Shelled), Roasted, Salted	March 2004	35	3	39.50
Sunflower Seeds (Shelled), Roasted, Salted	March 2004	57	3	Number of samples = 12
White Beans, Dry, Boiled	March 2004	ND	3	
White Beans, Dry, Boiled	March 2004	ND	3	
White Beans, Dry, Boiled	March 2004	ND	3	
White Beans, Dry, Boiled	March 2004	ND	3	
Soy-based snacks				
Gen Soy Zesty Barbeque Soy Crisps	Dec. 4, 2002	17	1	
Soy-based protein products				
Boca Burgers Grilled Vegetable burgers (not baked)	Dec. 4, 2002	58	1	
Boca Burgers Grilled Vegetable burgers (baked)	Dec. 4, 2002	116	1	Most levels were ND, but
Boca Nuggets Original Chik'n (not baked)	Dec. 4, 2002	ND	1	levels in baked vegetable
Boca Nuggets Original Chik'n (baked)	Dec. 4, 2002	ND	1	burger were high
Morningstar Farms Breakfast Patties (not baked)	Dec. 4, 2002	ND	1	
Morningstar Farms Better 'n Burgers (not baked)	Dec. 4, 2002	ND	1	
Morningstar Farms Better 'n Burgers (baked)	Dec. 4, 2002	ND	1	
Worthington Veja-Links (uncooked)	Dec. 4, 2002	ND	1	
Worthington Veja-Links (microwaved)	Dec. 4, 2002	ND	1	
Worthington Veja-Links (toasted)	Dec. 4, 2002	ND	1	
BEVERAGES				
Coffee - regular roasts (grounds)				
Chock full o' Nuts All-Method Grind, Lot 1 (ground, not brewed)	Mar. 12, 2003	205	1	
Chock full o' Nuts All-Method Grind, Lot 2 (ground, not brewed)	Mar. 12, 2003	186	1	Brewed coffee used

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Chock full o' Nuts 100% Colombian Coffee (ground, not brewed)	Mar. 12, 2003	245	1	in acrylamide intake estimates
Folgers Classic Roast (medium roast), Lot 1 (ground, not brewed)	Mar. 12, 2003	374	1	(see below)
Folgers Classic Roast (medium roast), Lot 2 (ground, not brewed)	Mar. 12, 2003	353	1	
Folgers Classic Roast (medium roast), Lot 3 (ground, not brewed)	Mar. 12, 2003	350	1	
Folgers Classic Decaf (medium roast), Lot 1 (ground, not brewed)	Mar. 12, 2003	312	1	<u>Average</u>
Folgers Classic Decaf (medium roast), Lot 2 (ground, not brewed)	Mar. 12, 2003	361	1	regular roast coffee grounds
Folgers Classic Decaf (medium roast), Lot 3 (ground, not brewed)	Mar. 12, 2003	326	1	222.50
Hills Bros Coffee, Lot 1 (ground, not brewed)	Mar. 12, 2003	191	1	Number of samples =
Hills Bros Coffee, Lot 2 (ground, not brewed)	Mar. 12, 2003	149	1	26
Hills Bros 100% Colombian Coffee (ground, not brewed)	Mar. 12, 2003	64	1	
Maxwell House Master Blend (ground, not brewed)	Mar. 12, 2003	215	1	
Maxwell House Original Signature Blend, Lot 1 (ground, not brewed)	Mar. 12, 2003	250	1	
Maxwell House Original Signature Blend, Lot 2 (ground, not brewed)	Mar. 12, 2003	170	1	
brewed)	Mar. 12, 2003	222	1	
brewed)	Mar. 12, 2003	258	1	
Melitta Traditional Premium Roast coffee (ground, not brewed)	Mar. 12, 2003	332	1	
Sanka Decaffeinated Coffee, Lot 1 (ground, not brewed)	Mar. 12, 2003	351	1	
Sanka Decaffeinated Coffee, Lot 2 (ground, not brewed)	Mar. 12, 2003	244	1	
Starbucks Coffee Breakfast Blend (ground, not brewed)	Mar. 12, 2003	161	1	
Starbucks Coffee Colombia (ground, not brewed)	Mar. 12, 2003	163	1	
Starbucks Coffee House Blend (ground, not brewed)	Mar. 12, 2003	151	1	
Yuban 100% Colombian Coffee, Lot 1 (ground, not brewed)	Mar. 12, 2003	45	1	
Yuban 100% Colombian Coffee, Lot 2 (ground, not brewed)	Mar. 12, 2003	37	1	
Yuban 100% Colombian Coffee, Lot 3 (ground, not brewed)	Mar. 12, 2003	70	1	
Coffee - dark roasts (grounds)				
Café Bustelo Dark Roast, Lot 1 (ground, not brewed)	Mar. 12, 2003	142	1	
Café Bustelo Dark Roast, Lot 2 (ground, not brewed)	Mar. 12, 2003	138	1	
Café Bustelo Dark Roast, Lot 3 (ground, not brewed)	Mar. 12, 2003	134	1	<u>Average</u>
Chock full o' Nuts Rich French Roast, Lot 1 (ground, not brewed)	Mar. 12, 2003	257	1	Dark roast coffee grounds
Chock full o' Nuts Rich French Roast, Lot 2 (ground, not brewed)	Mar. 12, 2003	154	1	189.92
Chock full o' Nuts Rich French Roast, Lot 3 (ground, not brewed)	Mar. 12, 2003	163	1	Number of samples =
brewed)	Mar. 12, 2003	319	1	24
brewed)	Mar. 12, 2003	231	1	
brewed)	Mar. 12, 2003	162	1	
Maxwell House French Roast, Lot 1 (ground, not brewed)	Mar. 12, 2003	235	1	
Maxwell House French Roast, Lot 2 (ground, not brewed)	Mar. 12, 2003	185	1	
Maxwell House French Roast, Lot 3 (ground, not brewed)	Mar. 12, 2003	184	1	
Medaglia D'oro Caffè Espresso, Lot 1 (ground, not brewed)	Mar. 12, 2003	194	1	
Medaglia D'oro Caffè Espresso, Lot 2 (ground, not brewed)	Mar. 12, 2003	155	1	
Medaglia D'oro Caffè Espresso, Lot 3 (ground, not brewed)	Mar. 12, 2003	144	1	
Starbucks Coffee French Roast, Lot 1 (ground, not brewed)	Mar. 12, 2003	150	1	
Starbucks Coffee French Roast, Lot 2 (ground, not brewed)	Mar. 12, 2003	149	1	
Starbucks Coffee French Roast, Lot 3 (ground, not brewed)	Mar. 12, 2003	97	1	
Maxwell House Slow Roast (ground, not brewed)	Dec. 4, 2002	209	1	
Starbucks Coffee Columbia Ground (ground, not brewed)	Dec. 4, 2002	175	1	
Super G Instant Coffee (powdered, not brewed)	Dec. 4, 2002	188	1	
Folgers Classic Decaf Coffee Crystals (crystals, not brewed)	Dec. 4, 2002	351	1	
Maxwell House Instant Coffee (powder, not brewed)	Dec. 4, 2002	263	1	
Medaglia D'Oro Caffè Espresso Coffee (ground, not brewed)	Dec. 4, 2002	179	1	
Instant coffee				
Folgers Classic Roast Instant Coffee (powdered, not brewed)	Mar-04	458	1	
Maxwell House Instant Coffee, Naturally Decaffeinated (powdered,	Mar-04	172	1	<u>Average</u>
Nescafé Classic Instant Coffee (powdered, not brewed)	Mar-04	471	1	Dry instant coffee
Safeway Instant Coffee (powdered, not brewed)	Mar-04	377	1	360.33
Taster's Choice Chocolate Roast Instant Coffee (powdered, not	Mar-04	266	1	Number of samples =
Taster's Choice Gourmet Roast Instant Coffee (powdered, not	Mar-04	411	1	9
Taster's Choice Hazelnut Roast Instant Coffee (powdered, not	Mar-04	263	1	
Taster's Choice Naturally Decaffeinated Instant Coffee (powdered,	Mar-04	539	1	
Taster's Choice Vanilla Roast Instant Coffee (powdered, not brewed)	Mar-04	286	1	
Brewed coffee				
7-Eleven Regular Coffee (brewed)	Mar. 12, 2003	5	1	
7-Eleven French Roast Coffee (brewed)	Mar. 12, 2003	6	1	<u>Average, ppb</u>
Dunkin' Donuts Coffee Regular (brewed)	Mar. 12, 2003	10	1	Coffee, brewed
McDonald's Regular Coffee (brewed)	Mar. 12, 2003	8	1	7.35
Starbucks Coffee Colombia (brewed)	Mar. 12, 2003	7	1	Number of samples =
Starbucks Coffee Lite Note (brewed)	Mar. 12, 2003	11	1	20
Café Bustelo Dark Roast (brewed)	March 1, 2004	6	1	
Dunkin' Donuts (brewed)	March 1, 2004	8	1	
Folgers Classic Roast (medium roast) (brewed)	March 1, 2004	13	1	
Folgers Classic Decaf (medium roast) (brewed)	March 1, 2004	11	1	
Maxwell House Master Blend (brewed)	March 1, 2004	8	1	
Medaglia D'oro Caffè Espresso (brewed)	March 1, 2004	6	1	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Starbucks (brewed)	March 1, 2004	8	1	
7-Eleven (brewed)	March 1, 2004	6	1	
Folgers Classic Roast Instant Coffee (brewed)	March 1, 2004	6	1	
Maxwell House Instant Coffee, Naturally Decaffeinated (brewed)	March 1, 2004	3	1	
Nescafé Classic Instant Coffee (brewed)	March 1, 2004	6	1	
Safeway Instant Coffee (brewed)	March 1, 2004	6	1	
Taster's Choice Gourmet Roast Instant Coffee (brewed)	March 1, 2004	6	1	
Taster's Choice Naturally Decaffeinated Instant Coffee (brewed)	March 1, 2004	7	1	
<i>Coffee samples from March 2004 Total diet study not included due to high limit of detection for reporting.</i>				
Other beverages				
Beer	March 2004	ND	3	
Beer	March 2004	ND	3	Not Detected, ND
Bottled Drinking Water (Mineral/Spring), not Carbonated or Flavored	March 2004	ND	3	in most beverages except
Bottled Drinking Water (Mineral/Spring), not Carbonated or Flavored	March 2004	ND	3	for Postum
Carbonated Beverage, Cola, Low-Calorie	March 2004	ND	3	
Carbonated Beverage, Cola, Low-Calorie	March 2004	ND	3	
Carbonated Beverage, Cola, Regular	March 2004	ND	3	
Carbonated Beverage, Cola, Regular	March 2004	ND	3	
Carbonated Beverage, Fruit-Flavored, Regular	March 2004	ND	3	
Carbonated Beverage, Fruit-Flavored, Regular	March 2004	ND	3	
Decaffeinated Coffee, from Ground	March 2004	ND	3	
Decaffeinated Coffee, from Ground	March 2004	ND	3	
Decaffeinated Tea, from Tea Bag	March 2004	ND	3	
Decaffeinated Tea, from Tea Bag	March 2004	ND	3	
Fruit Drink (10% Juice), Canned or Bottled	March 2004	ND	3	
Fruit Drink (10% Juice), Canned or Bottled	March 2004	ND	3	
Fruit Drink, from Powder	March 2004	ND	3	
Fruit Drink, from Powder	March 2004	ND	3	
Lemonade, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Lemonade, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Popsicle, Fruit-Flavored	March 2004	ND	3	
Popsicle, Fruit-Flavored	March 2004	ND	3	
Tea, from Tea Bag	March 2004	ND	3	
Tea, from Tea Bag	March 2004	ND	3	
Wine, Dry Table, Red/White	March 2004	ND	3	
Wine, Dry Table, Red/White	March 2004	ND	3	
Grain-based coffee substitutes				
Postum Original Caffeine Free Instant Hot Beverage (powdered)	March 1, 2004	3747	1	Average, ppb dry Postum
Postum Original Caffeine Free Instant Hot Beverage (powdered)	March 1, 2004	5399	1	4573
Postum Original Caffeine Free Instant Hot Beverage (brewed)	March 1, 2004	93	1	Number of samples = 2
FRUITS AND FRUIT JUICES				
Fruits and fruit juices				
Apple (red), Raw (w/ Peel)	March 2004	ND	3	Fruits and juices
Apple (red), Raw (w/ Peel)	March 2004	ND	3	Most were not detected, ND
Apple Juice, Bottled	March 2004	ND	3	except for prune juice
Apple Juice, Bottled	March 2004	ND	3	
Apple, Mott's Apple Sauce	Dec. 4, 2002	ND	1	
Apple, Richfood Apple Sauce Cinnamon	Dec. 4, 2002	ND	1	
Applesauce, Bottled	March 2004	ND	3	
Applesauce, Bottled	March 2004	ND	3	
Apricots, Canned in Heavy/Light Syrup	March 2004	ND	3	
Apricots, Canned in Heavy/Light Syrup	March 2004	ND	3	
Avocado, Raw	March 2004	ND	3	
Avocado, Raw	March 2004	ND	3	
Banana, Raw	March 2004	ND	3	
Banana, Raw	March 2004	ND	3	
Cantaloupe, Raw/Frozen	March 2004	ND	3	
Cantaloupe, Raw/Frozen	March 2004	ND	3	
Cranberry Juice Cocktail, Canned/Bottled	March 2004	ND	3	
Cranberry Juice Cocktail, Canned/Bottled	March 2004	ND	3	
Fruit Cocktail, Canned in Light Syrup	March 2004	ND	3	
Fruit Cocktail, Canned in Light Syrup	March 2004	ND	3	
Fruit Juice Blend (100% Juice), Canned/Bottled	March 2004	ND	3	
Fruit Juice Blend (100% Juice), Canned/Bottled	March 2004	ND	3	
Grape Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Grape Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Grapefruit Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Grapefruit Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Grapefruit, Raw	March 2004	ND	3	
Grapefruit, Raw	March 2004	ND	3	
Grapes (Red/Green), Raw	March 2004	ND	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Grapes (Red/Green), Raw	March 2004	ND	3	
Orange (Navel/Valencia), Raw	March 2004	ND	3	
Orange (Navel/Valencia), Raw	March 2004	ND	3	
Orange Juice, Bottled/Carlton	March 2004	ND	3	
Orange Juice, Bottled/Carlton	March 2004	ND	3	
Orange Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Orange Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Peach, Canned in Light/Medium Syrup	March 2004	ND	3	
Peach, Canned in Light/Medium Syrup	March 2004	ND	3	
Peach, Raw/Frozen	March 2004	ND	3	
Peach, Raw/Frozen	March 2004	ND	3	
Pear, Canned in Light Syrup	March 2004	ND	3	
Pear, Canned in Light Syrup	March 2004	ND	3	
Pear, Raw (w/ Peel)	March 2004	ND	3	
Pear, Raw (w/ Peel)	March 2004	ND	3	
Pineapple Juice, 3 Diamonds Sliced Pineapple in Unsweetened	Mar. 12, 2003	ND	1	
Pineapple Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Pineapple Juice, Frozen Concentrate, Reconstituted	March 2004	ND	3	
Pineapple, Canned in Juice	March 2004	ND	3	
Pineapple, Canned in Juice	March 2004	ND	3	
Pineapple, Dole Pineapple Chunks in its Own Juice	Mar. 12, 2003	10	1	
Pineapple, Dole Pineapple Slices in Heavy Syrup	Mar. 12, 2003	ND	1	
Prune Juice, Bottled	March 2004	160	3	<u>Weighted average, ppb</u>
Prune Juice, Bottled	March 2004	185	3	Prune juice
Prune Juice, Bottled	March 2004	202	3	159.00
Prune Juice, Bottled	March 2004	53	3	number of samples =
Prune Juice, Giant Orchard Harvest	March 1, 2004	267	1	13
Raisins	March 2004	ND	3	
Raisins	March 2004	ND	3	
Strawberries, Raw/Frozen	March 2004	ND	3	
Strawberries, Raw/Frozen	March 2004	ND	3	
Watermelon, Raw/Frozen	March 2004	ND	3	
Watermelon, Raw/Frozen	March 2004	ND	3	
MEATS, POULTRY, AND FISH				
Beef Roast, Chuck, Oven-Roasted	March 2004	ND	3	
Beef Roast, Chuck, Oven-Roasted	March 2004	ND	3	Levels low
Beef Steak, Loin/Sirloin, Broiled	March 2004	ND	3	most not detected, ND
Beef Steak, Loin/Sirloin, Broiled	March 2004	ND	3	
Beef, Ground, Regular, Pan-Cooked	March 2004	ND	3	
Beef, Ground, Regular, Pan-Cooked	March 2004	ND	3	
Bologna (Beef/Pork)	March 2004	ND	3	
Bologna (Beef/Pork)	March 2004	ND	3	
Catfish, Pan-Cooked w/ Oil	March 2004	ND	3	
Catfish, Pan-Cooked w/ Oil	March 2004	ND	3	
Chicken Breast, Fried, Fast-Food w/ Skin	March 2004	12	3	
Chicken Breast, Fried, Fast-Food w/ Skin	March 2004	ND	3	
Chicken Breast, Fried, Fast-Food w/ Skin	March 2004	ND	3	
Chicken Breast, Fried, Fast-Food w/ Skin	March 2004	11	3	
Chicken Breast, Oven-Roasted (Skin removed)	March 2004	ND	3	
Chicken Breast, Oven-Roasted (Skin removed)	March 2004	ND	3	
Chicken Leg, Fried, Fast-Food (w/ Skin)	March 2004	ND	3	
Chicken Leg, Fried, Fast-Food (w/ Skin)	March 2004	ND	3	
Chicken Nuggets, Fast-Food	March 2004	26	3	
Chicken Nuggets, Fast-Food	March 2004	23	3	<u>Average, ppb</u>
Chicken Nuggets, Fast-Food	March 2004	22	3	Chicken nuggets or strips
Chicken Nuggets, Fast-Food	March 2004	22	3	24.00
Checkers Chicken Pieces	Dec. 4, 2002	22	1	Number of samples =
Tyson Crispy Chicken Strips (baked)	Dec. 4, 2002	35	1	14
Tyson Crispy Chicken Strips (not baked)	Dec. 4, 2002	32	1	
Chicken Thigh, Oven-Roasted (Skin Removed)	March 2004	ND	3	
Chicken Thigh, Oven-Roasted (Skin Removed)	March 2004	ND	3	
Fish Sticks or Patty, Frozen, Oven-Cooked	March 2004	5	3	Highlighted, ND, assumed 5 ppb
Fish Sticks or Patty, Frozen, Oven-Cooked	March 2004	12	3	<u>Weighted average, ppb</u>
Fish Sticks or Patty, Frozen, Oven-Cooked	March 2004	5	3	Breaded, fried fish
Fish Sticks or Patty, Frozen, Oven-Cooked	March 2004	5	3	8.53
Gorton's Tenders Extra Crunchy fish fillets (baked)	Dec. 4, 2002	30	1	Number of samples =

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Mrs. Paul's Crispy Fish Fillets (baked)	Dec. 4, 2002	12	1	15
Van de Kamp's Crunchy Fish Sticks (baked)	Dec. 4, 2002	5	1	
Gorton's Tenders Extra Crunchy fish fillets (not baked)	Dec. 4, 2002	25	1	
Mrs. Paul's Crispy Fish Fillets (not baked)	Dec. 4, 2002	13	1	
Van de Kamp's Crunchy Fish Sticks (not baked)	Dec. 4, 2002	ND	1	
Frankfurter (Beef/Pork), Boiled	March 2004	ND	3	
Frankfurter (Beef/Pork), Boiled	March 2004	ND	3	
Ham, Cured (Not Canned), Baked	March 2004	ND	3	
Ham, Cured (Not Canned), Baked	March 2004	ND	3	
Lamb Chop, Pan-Cooked w/ Oil	March 2004	ND	3	
Lamb Chop, Pan-Cooked w/ Oil	March 2004	ND	3	
Liver (Beef/Calf), Pan-Cooked w/ Oil	March 2004	ND	3	
Liver (Beef/Calf), Pan-Cooked w/ Oil	March 2004	ND	3	
Luncheon Meat (Chicken/Turkey)	March 2004	ND	3	
Luncheon Meat (Chicken/Turkey)	March 2004	ND	3	
Luncheon Meat (Ham)	March 2004	ND	3	
Luncheon Meat (Ham)	March 2004	ND	3	
Pork Bacon, Oven-Cooked	March 2004	ND	3	
Pork Bacon, Oven-Cooked	March 2004	ND	3	
Pork Chop, Pan-Cooked w/ Oil	March 2004	ND	3	
Pork Chop, Pan-Cooked w/ Oil	March 2004	ND	3	
Pork Roast, Loin, Oven-Roasted	March 2004	ND	3	
Pork Roast, Loin, Oven-Roasted	March 2004	ND	3	
Pork Sausage (Link/Patty), Oven-Cooked	March 2004	ND	3	
Pork Sausage (Link/Patty), Oven-Cooked	March 2004	11	3	
Pork Sausage (Link/Patty), Oven-Cooked	March 2004	ND	3	
Pork Sausage (Link/Patty), Oven-Cooked	March 2004	ND	3	
Chifles Fried Pork Rinds Smokehouse Flavored	Dec. 4, 2002	12	1	
Salami, Luncheon-Meat Type (Not Hard)	March 2004	ND	3	
Salami, Luncheon-Meat Type (Not Hard)	March 2004	ND	3	
Salmon, Steaks/Fillets, Baked	March 2004	ND	3	
Salmon, Steaks/Fillets, Baked	March 2004	ND	3	
Shrimp, Boiled	March 2004	ND	3	
Shrimp, Boiled	March 2004	ND	3	
Tuna, Canned in Water, Drained	March 2004	ND	3	
Tuna, Canned in Water, Drained	March 2004	ND	3	
Turkey Breast, Oven-Roasted	March 2004	ND	3	
Turkey Breast, Oven-Roasted	March 2004	ND	3	
Pastene Fancy Light Tuna in Olive Oil	Dec. 4, 2002	ND	1	
Progresso Light Tuna in Olive Oil	Dec. 4, 2002	ND	1	
DAIRY FOODS				
Grace Sweetened Condensed Milk	Dec. 4, 2002	ND	1	
Carnation Malted Milk Original	Dec. 4, 2002	43	1	
Carnation Insant Nonfat Dry Milk	Dec. 4, 2002	11	1	Dairy
Saco Cultured Buttermilk Blend	Dec. 4, 2002	ND	1	Levels were low
Butter, Regular (Salted)	March 2004	ND	3	
Butter, Regular (Salted)	March 2004	ND	3	
Cheese, American, Processed	March 2004	ND	3	
Cheese, American, Processed	March 2004	ND	3	
Cheese, Cheddar, Natural (Sharp/Mild)	March 2004	ND	3	
Cheese, Cheddar, Natural (Sharp/Mild)	March 2004	ND	3	
Cheese, Swiss, Natural	March 2004	ND	3	
Cheese, Swiss, Natural	March 2004	ND	3	
Cottage Cheese, Creamed, Lowfat (2% Milk Fat)	March 2004	ND	3	
Cottage Cheese, Creamed, Lowfat (2% Milk Fat)	March 2004	ND	3	
Cream Cheese	March 2004	ND	3	
Cream Cheese	March 2004	ND	3	
Giant Foods Low Fat Milk,1% Milkfat	March 1, 2004	ND	3	
Half & Half Cream	March 2004	ND	3	
Half & Half Cream	March 2004	ND	3	
Ice Cream, Light, Vanilla	March 2004	ND	3	
Ice Cream, Light, Vanilla	March 2004	ND	3	
Ice Cream, Light, Vanilla	March 2004	ND	3	
Ice Cream, Light, Vanilla	March 2004	ND	3	
Ice Cream, Regular, Vanilla	March 2004	ND	3	
Ice Cream, Regular, Vanilla	March 2004	ND	3	
Lucerne Fat Free Milk	March 1, 2004	ND	1	
Lucerne Reduced Fat Milk,2% Milkfat	March 1, 2004	ND	1	
Lucerne Whole Milk	March 1, 2004	ND	1	
Meal Replacement, Liquid RTD, Any Flavor	March 2004	ND	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Meal Replacement, Liquid RTD, Any Flavor	March 2004	ND	3	
Milk Shake, Chocolate, Fast-Food	March 2004	ND	3	
Milk Shake, Chocolate, Fast-Food	March 2004	15	3	
Milk Shake, Chocolate, Fast-Food	March 2004	16	3	
Milk Shake, Chocolate, Fast-Food	March 2004	14	3	
Milk, Chocolate, Lowfat, Fluid	March 2004	ND	3	
Milk, Chocolate, Lowfat, Fluid	March 2004	ND	3	
Milk, Lowfat (2%), Fluid	March 2004	ND	3	
Milk, Lowfat (2%), Fluid	March 2004	ND	3	
Milk, Skim, Fluid	March 2004	ND	3	
Milk, Skim, Fluid	March 2004	ND	3	
Milk, Whole, Fluid	March 2004	ND	3	
Milk, Whole, Fluid	March 2004	ND	3	
Pudding, Ready-to-Eat, Flavor Other Than Chocolate	March 2004	ND	3	
Pudding, Ready-to-Eat, Flavor Other Than Chocolate	March 2004	ND	3	
Sherbet, Fruit-Flavored	March 2004	ND	3	
Sherbet, Fruit-Flavored	March 2004	ND	3	
Sour Cream	March 2004	ND	3	
Sour Cream	March 2004	ND	3	
Sour Cream Dip, Any Flavor	March 2004	ND	3	
Sour Cream Dip, Any Flavor	March 2004	ND	3	
Yogurt, Lowfat, Fruit-Flavored	March 2004	ND	3	
Yogurt, Lowfat, Fruit-Flavored	March 2004	ND	3	
Eggs				
Eggs, Boiled	March 2004	ND	3	
Eggs, Boiled	March 2004	ND	3	
Eggs, Scrambled w/ Oil	March 2004	ND	3	
Eggs, Scrambled w/ Oil	March 2004	ND	3	
GRAVIES AND SEASONINGS				
Heinz Home Style Savory Beef Gravy (canned)	Dec. 4, 2002	ND	1	
Heinz Home Style Classic Chicken Gravy (canned)	Dec. 4, 2002	ND	1	Levels highly variable
Butterball Brown Gravy Mix	Dec. 4, 2002	ND	1	Most were low
McCormick Mushroom Gravy Mix	Dec. 4, 2002	ND	1	
McCormick Turkey Gravy Mix	Dec. 4, 2002	ND	1	
Kame Dark Soy Sauce	Dec. 4, 2002	ND	1	
Kikkoman Soy Sauce	Dec. 4, 2002	ND	1	
Colgin Natural Hickory Liquid Smoke	Dec. 4, 2002	54	1	
Colgin Natural Pecan Liquid Smoke	Dec. 4, 2002	151	1	
Stubb's Mesquite Liquid Smoke	Dec. 4, 2002	38	1	
Accent Flavor Enhancer	Dec. 4, 2002	ND	1	
Char Crust Roto Roast Dry-Rub Seasoning	Dec. 4, 2002	ND	1	
Wyler's Shakers Beef & French Onion Flavor Instant Bouillon	Dec. 4, 2002	ND	1	
Knorr Taste Breaks Soup Chicken Noodle Flavor	Dec. 4, 2002	22	1	
Maruchan Instant Lunch Ramen Noodles with Vegetables Chicken	Dec. 4, 2002	52	1	
Nissin Cup Noodles Chicken Flavor	Dec. 4, 2002	136	1	
Lipton Recipe Secrets Onion Soup & Dip Mix	Dec. 4, 2002	1184	1	
Super G Onion Recipe Soup Mix	Dec. 4, 2002	90	1	
Mustard, Yellow	March 2004	ND	3	
Mustard, Yellow	March 2004	ND	3	
CANDY, SWEETS, SUGAR, SYRUPS, COCOA				
Droste Cocoa	Dec. 4, 2002	ND	1	
Ghirardelli Unsweetened Cocoa	Dec. 4, 2002	316	1	
Hershey's Cocoa	Dec. 4, 2002	909	1	Levels highly variable
Hershey's European Style Dutch Processed Cocoa	Dec. 4, 2002	58	1	Most were low
Baker's Bittersweet Baking Chocolate Squares	Dec. 4, 2002	104	1	
Ghirardelli Bittersweet Chocolate Baking Bar	Dec. 4, 2002	93	1	
Hershey's Milk Chocolate Bar	Dec. 4, 2002	ND	1	
Hershey's Chocolate Milk Mix	Dec. 4, 2002	ND	1	
Nestle Nesquik Chocolate Flavor	Dec. 4, 2002	45	1	
Land O Lakes Cocoa Classics Chocolate Supreme Artificially	Dec. 4, 2002	ND	1	
Super G Hot Cocoa Mix Milk Chocolate Flavor	Dec. 4, 2002	24	1	
Swiss Miss Milk Chocolate Flavor Hot Cocoa Mix	Dec. 4, 2002	ND	1	
Jell-O Chocolate Flavor Instant Pudding & Pie Filling	Dec. 4, 2002	15	1	
Super G Chocolate Flavor Instant Pudding & Pie Filling	Dec. 4, 2002	17	1	
Candy Bar, Chocolate, Nougat, and Nuts	March 2004	22	3	
Candy Bar, Chocolate, Nougat, and Nuts	March 2004	11	3	
Candy Bar, Chocolate, Nougat, and Nuts	March 2004	21	3	
Candy Bar, Chocolate, Nougat, and Nuts	March 2004	20	3	
Candy Bar, Milk Chocolate, Plain	March 2004	21	3	

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Candy Bar, Milk Chocolate, Plain	March 2004	19	3	
Candy Bar, Milk Chocolate, Plain	March 2004	17	3	
Candy Bar, Milk Chocolate, Plain	March 2004	22	3	
Candy, Hard, Any Flavor	March 2004	ND	3	
Candy, Hard, Any Flavor	March 2004	ND	3	
Gelatin Dessert, Any Flavor	March 2004	ND	3	
Gelatin Dessert, Any Flavor	March 2004	ND	3	
Honey	March 2004	ND	3	
Honey	March 2004	ND	3	
Jelly, Any Flavor	March 2004	ND	3	
Jelly, Any Flavor	March 2004	ND	3	
Sugar, White, Granulated	March 2004	ND	3	
Sugar, White, Granulated	March 2004	ND	3	
Sweet & Sour Sauce	March 2004	ND	3	
Sweet & Sour Sauce	March 2004	ND	3	
Syrup, Chocolate	March 2004	27	3	
Syrup, Chocolate	March 2004	20	3	
Syrup, Chocolate	March 2004	29	3	
Syrup, Chocolate	March 2004	26	3	
Syrup, Pancake	March 2004	ND	3	
Syrup, Pancake	March 2004	ND	3	
Super G Non-Dairy Coffee Creamer	Dec. 4, 2002	ND	1	
Polaner All Fruit Spreadable Fruit, Pineapple	Mar. 12, 2003	ND	1	
Smucker's Apple Jelly	Mar. 12, 2003	ND	1	
Smucker's Seedless Strawberry Jam	Mar. 12, 2003	ND	1	
Cream Substitute, Non-Dairy, Liquid/Frozen	March 2004	ND	3	
Cream Substitute, Non-Dairy, Liquid/Frozen	March 2004	ND	3	
Jell-O Gelatin Dessert Raspberry Artificial Flavor	Dec. 4, 2002	ND	1	
Super G Raspberry Artificial Flavor Gelatin Dessert	Dec. 4, 2002	ND	1	
General Mills Lucky Charms marshmallows	Dec. 4, 2002	ND	1	
Mrs. Richardson's Butterscotch Caramel Topping	Dec. 4, 2002	ND	1	
MIXTURES				
(e.g., casseroles, sandwiches, soups, pizza)				
Beef and Vegetable Stew, Canned	March 2004	ND	3	
Beef and Vegetable Stew, Canned	March 2004	14	3	Levels usually low
Beef and Vegetable Stew, Canned	March 2004	27	3	except for chili con carne
Beef and Vegetable Stew, Canned	March 2004	39	3	
Beef Stroganoff w/ Noodles, Homemade	March 2004	ND	3	
Beef Stroganoff w/ Noodles, Homemade	March 2004	ND	3	
Beef Stroganoff w/ Noodles, Homemade	March 2004	ND	3	
Beef Stroganoff w/ Noodles, Homemade	March 2004	ND	3	
Beef w/ Vegetables in Sauce, from Chinese Carry-out	March 2004	ND	3	
Beef w/ Vegetables in Sauce, from Chinese Carry-out	March 2004	ND	3	
Burrito w/ Beef, Beans and Cheese, from Mexican Carry-Out	March 2004	ND	3	
Burrito w/ Beef, Beans and Cheese, from Mexican Carry-Out	March 2004	17	3	
Burrito w/ Beef, Beans and Cheese, from Mexican Carry-Out	March 2004	17	3	
Burrito w/ Beef, Beans and Cheese, from Mexican Carry-Out	March 2004	15	3	
Chicken Filet (Broiled) Sandwich on Bun, Fast-Food	March 2004	ND	3	
Chicken Filet (Broiled) Sandwich on Bun, Fast-Food	March 2004	18	3	
Chicken Filet (Broiled) Sandwich on Bun, Fast-Food	March 2004	ND	3	
Chicken Filet (Broiled) Sandwich on Bun, Fast-Food	March 2004	13	3	
Chicken Potpie, Frozen, Heated	March 2004	ND	3	
Chicken Potpie, Frozen, Heated	March 2004	12	3	
Chicken Potpie, Frozen, Heated	March 2004	16	3	
Chicken Potpie, Frozen, Heated	March 2004	10	3	
Chicken w/ Vegetables in Sauce, from Chinese Carryout	March 2004	ND	3	
Chicken w/ Vegetables in Sauce, from Chinese Carryout	March 2004	ND	3	
Chili Con Carne w/ Beans, Canned	March 2004	152	3	Average, ppb
Chili Con Carne w/ Beans, Canned	March 2004	126	3	Chili con Carne
Chili Con Carne w/ Beans, Canned	March 2004	187	3	130.25
Chili Con Carne w/ Beans, Canned	March 2004	56	3	Number of samples = 12
Clam Chowder, New England, Canned, Condensed, Prepared w/	March 2004	ND	3	
Clam Chowder, New England, Canned, Condensed, Prepared w/	March 2004	13	3	
Clam Chowder, New England, Canned, Condensed, Prepared w/	March 2004	ND	3	
Clam Chowder, New England, Canned, Condensed, Prepared w/	March 2004	10	3	
Egg, Cheese, and Ham on English Muffin, Fast-Food	March 2004	ND	3	
Egg, Cheese, and Ham on English Muffin, Fast-Food	March 2004	16	3	
Egg, Cheese, and Ham on English Muffin, Fast-Food	March 2004	15	3	
Egg, Cheese, and Ham on English Muffin, Fast-Food	March 2004	15	3	
Fish Sandwich on Bun, Fast-Food	March 2004	ND	3	
Fish Sandwich on Bun, Fast-Food	March 2004	16	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Fish Sandwich on Bun, Fast-Food	March 2004	ND	3	
Fish Sandwich on Bun, Fast-Food	March 2004	11	3	
Fried Rice, Meatless, from Chinese Carry-Out	March 2004	14	3	
Fried Rice, Meatless, from Chinese Carry-Out	March 2004	23	3	
Fried Rice, Meatless, from Chinese Carry-Out	March 2004	17	3	
Fried Rice, Meatless, from Chinese Carry-Out	March 2004	34	3	
Lasagna w/ Meat, Frozen, Heated	March 2004	ND	3	
Lasagna w/ Meat, Frozen, Heated	March 2004	ND	3	
Macaroni and Cheese, Prepared from Box Mix	March 2004	ND	3	
Macaroni and Cheese, Prepared from Box Mix	March 2004	ND	3	
Meatloaf, Beef, Homemade	March 2004	ND	3	
Meatloaf, Beef, Homemade	March 2004	ND	3	
Pizza, Cheese and Pepperoni, Regular Crust, from Pizza Carry-Out	March 2004	19	3	<u>Average, Pizza</u>
Pizza, Cheese and Pepperoni, Regular Crust, from Pizza Carry-Out	March 2004	20	3	19.50
Pizza, Cheese and Pepperoni, Regular Crust, from Pizza Carry-Out	March 2004	20	3	Number of samples = 12
Pizza, Cheese and Pepperoni, Regular Crust, from Pizza Carry-Out	March 2004	19	3	
Quarter-Pound Cheeseburger on Bun, Fast-Food	March 2004	ND	3	
Quarter-Pound Cheeseburger on Bun, Fast-Food	March 2004	ND	3	
Quarter-Pound Hamburger on Bun, Fast-Food	March 2004	ND	3	
Quarter-Pound Hamburger on Bun, Fast-Food	March 2004	ND	3	
Soup, Bean w/ Bacon/Pork, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Bean w/ Bacon/Pork, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Bean w/ Bacon/Pork, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Bean w/ Bacon/Pork, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Chicken Noodle, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Chicken Noodle, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Chicken Noodle, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Chicken Noodle, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Oriental Noodles (Ramen Noodles), Prepared w/ Water	March 2004	ND	3	
Soup, Oriental Noodles (Ramen Noodles), Prepared w/ Water	March 2004	ND	3	
Soup, Oriental Noodles (Ramen Noodles), Prepared w/ Water	March 2004	ND	3	
Soup, Oriental Noodles (Ramen Noodles), Prepared w/ Water	March 2004	ND	3	
Soup, Tomato, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Tomato, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Vegetable Beef, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Vegetable Beef, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Vegetable Beef, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Soup, Vegetable Beef, Canned, Condensed, Prepared w/ Water	March 2004	ND	3	
Spaghetti w/Meat Sauce, Homemade	March 2004	ND	3	
Spaghetti w/Meat Sauce, Homemade	March 2004	ND	3	
Spaghetti w/Meat Sauce, Homemade	March 2004	ND	3	
Spaghetti w/Meat Sauce, Homemade	March 2004	ND	3	
Taco/Tostada w/ Beef and Cheese, from Mexican Carry-Out	March 2004	18	3	<u>Average, Taco/Tostada</u>
Taco/Tostada w/ Beef and Cheese, from Mexican Carry-Out	March 2004	13	3	26.75
Taco/Tostada w/ Beef and Cheese, from Mexican Carry-Out	March 2004	34	3	Number of samples = 12
Taco/Tostada w/ Beef and Cheese, from Mexican Carry-Out	March 2004	42	3	
Tuna Noodle Casserole, Homemade	March 2004	ND	3	
Tuna Noodle Casserole, Homemade	March 2004	ND	3	
Tuna Noodle Casserole, Homemade	March 2004	ND	3	
Tuna Noodle Casserole, Homemade	March 2004	ND	3	
Lipton Noodles & Sauce Creamy Chicken	Dec. 4, 2002	17	1	
Lipton Asian Side Dishes Teriyaki Noodles	Dec. 4, 2002	34	1	
Kraft Macaroni & Cheese Dinner	Dec. 4, 2002	11	1	
Super G Macaroni & Cheese Dinner	Dec. 4, 2002	12	1	
Lipton Rice & Sauce Herb & Butter	Dec. 4, 2002	ND	1	
Fuddrucker's Onion Rings	Dec. 4, 2002	13	1	
OILS, GRAVIES AND DRESSINGS				
Brown Gravy, Canned or Bottled	March 2004	ND	3	
Brown Gravy, Canned or Bottled	March 2004	ND	3	Not detected, ND
Margarine, Regular (Salted)	March 2004	ND	3	
Margarine, Regular (Salted)	March 2004	ND	3	
Mayonnaise, Regular, Bottled	March 2004	ND	3	
Mayonnaise, Regular, Bottled	March 2004	ND	3	
Olive Oil	March 2004	ND	3	
Olive Oil	March 2004	ND	3	
Salad Dressing, Creamy/Buttermilk Type, Low-Calorie	March 2004	ND	3	
Salad Dressing, Creamy/Buttermilk Type, Low-Calorie	March 2004	ND	3	
Salad Dressing, Creamy/Buttermilk Type, Regular	March 2004	ND	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Salad Dressing, Creamy/Buttermilk Type, Regular	March 2004	ND	3	
Salad Dressing, Italian, Regular	March 2004	ND	3	
Salad Dressing, Italian, Regular	March 2004	ND	3	
Vegetable Oil	March 2004	ND	3	
Vegetable Oil	March 2004	ND	3	
INFANT FORMULA				
Carnation Good Start Milk-Based Infant Formula (liquid)	Dec. 4, 2002	ND	1	
Carnation Good Start Milk-Based Infant Formula (powdered)	Dec. 4, 2002	ND	1	
Enfamil Milk-Based Infant Formula with Iron (liquid)	Dec. 4, 2002	ND	1	Not detected, ND
Enfamil Milk-Based Infant Formula with Iron (powdered)	Dec. 4, 2002	ND	1	
Similac Infant Formula with Iron (liquid)	Dec. 4, 2002	ND	1	
Similac Infant Formula with Iron (powdered)	Dec. 4, 2002	ND	1	
Carnation Alsoy Soy Infant Formula (liquid)	Dec. 4, 2002	ND	1	
Carnation Alsoy Soy Infant Formula (powdered)	Dec. 4, 2002	ND	1	
Enfamil ProSobee Soy Formula (liquid)	Dec. 4, 2002	ND	1	
Enfamil ProSobee Soy Formula (powdered)	Dec. 4, 2002	ND	1	
Isomil Infant & Toddler Soy Formula with Iron (powdered)	Dec. 4, 2002	ND	1	
Isomil Soy Formula with Iron (liquid)	Dec. 4, 2002	ND	1	
Infant Formula, Milk-Based, High Iron, RTF	March 2004	ND	3	
Infant Formula, Milk-Based, High Iron, RTF	March 2004	ND	3	
Infant Formula, Milk-Based, Low Iron, RTF	March 2004	ND	3	
Infant Formula, Milk-Based, Low Iron, RTF	March 2004	ND	3	
Infant Formula, Soy-Based, RTF	March 2004	ND	3	
Infant Formula, Soy-Based, RTF	March 2004	ND	3	
BABY FOOD (data on cereal, cookies and crackers also appear as subcategories above)				
Cereal - babyfood				
Beech Nut Stage 1 Oatmeal Cereal for Baby	Dec. 4, 2002	ND	1	
Carnation Baby Cereal with Formula Oatmeal	Dec. 4, 2002	ND	1	Not detected, ND
Gerber Single Grain Oatmeal Cereal for Baby	Dec. 4, 2002	ND	1	
Beech Nut Rice Cereal for Baby	Dec. 4, 2002	ND	1	
Carnation Baby Cereal with Formula Rice	Dec. 4, 2002	ND	1	
Gerber Mixed Cereal for Baby	Dec. 4, 2002	ND	1	
Cereal, Barley, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Barley, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Mixed, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Mixed, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	ND	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	ND	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	ND	3	
Cereal, Oatmeal w/ Fruit, Prepared w/ Water	March 2004	ND	3	
Cereal, Oatmeal, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Oatmeal, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Rice w/ Apples, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Rice w/ Apples, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Rice, Dry, Prepared w/ Water	March 2004	ND	3	
Cereal, Rice, Dry, Prepared w/ Water	March 2004	ND	3	
Dairy - babyfood				
Fruit Dessert/Pudding	March 2004	ND	3	
Fruit Dessert/Pudding	March 2004	ND	3	Not detected, ND
Fruit Yogurt Dessert	March 2004	ND	3	
Fruit Yogurt Dessert	March 2004	ND	3	
Vanilla Custard/Pudding	March 2004	ND	3	
Vanilla Custard/Pudding	March 2004	ND	3	
Fruit - babyfood				
Beech Nut Stage 2 Apples & Cherries	Dec. 4, 2002	ND	1	
Gerber 2nd Foods Apples & Cherries	Dec. 4, 2002	ND	1	Most samples were not detected, ND
Apples with Berries	March 2004	ND	3	
Apples with Berries	March 2004	ND	3	
Applesauce	March 2004	ND	3	
Applesauce	March 2004	ND	3	
Apricots w/ Mixed Fruit	March 2004	ND	3	
Apricots w/ Mixed Fruit	March 2004	ND	3	
Banana Dessert	March 2004	ND	3	
Banana Dessert	March 2004	ND	3	
Bananas	March 2004	ND	3	
Bananas	March 2004	ND	3	
Bananas and Pineapple	March 2004	ND	3	
Bananas and Pineapple	March 2004	ND	3	
Juice, Apple	March 2004	ND	3	
Juice, Apple	March 2004	ND	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Juice, Apple-Banana	March 2004	ND	3	
Juice, Apple-Banana	March 2004	ND	3	
Juice, Apple-Cherry	March 2004	ND	3	
Juice, Apple-Cherry	March 2004	ND	3	
Juice, Apple-Grape	March 2004	ND	3	
Juice, Apple-Grape	March 2004	ND	3	
Juice, Grape	March 2004	ND	3	
Juice, Grape	March 2004	ND	3	
Juice, Mixed Fruit	March 2004	ND	3	
Juice, Mixed Fruit	March 2004	ND	3	
Juice, Orange	March 2004	ND	3	
Juice, Orange	March 2004	ND	3	
Juice, Pear	March 2004	ND	3	
Juice, Pear	March 2004	ND	3	
Peaches	March 2004	ND	3	
Peaches	March 2004	ND	3	
Pears	March 2004	ND	3	
Pears	March 2004	ND	3	
Pears and Pineapple	March 2004	ND	3	
Pears and Pineapple	March 2004	ND	3	
				Highlighted, ND, assumed 5 ppb
Plums w/ Apples and/or Pears	March 2004	5	3	<u>Average</u>
Plums w/ Apples and/or Pears	March 2004	118	3	Plum-containing cooked babyfood
Plums w/ Apples and/or Pears	March 2004	14	3	35.50
Plums w/ Apples and/or Pears	March 2004	5	3	Number of samples = 12
Mixture - babyfood				
Beech Nut Stage 2 Vegetables & Chicken	Dec. 4, 2002	75	1	
Gerber 2nd Foods Vegetable Chicken Dinner	Dec. 4, 2002	30	1	
Beef and Broth/Gravy	March 2004	ND	3	Levels moderately high in
Beef and Broth/Gravy	March 2004	ND	3	some foods such as
Beef and Noodles/Beef Stroganoff	March 2004	ND	3	sweet potatoes, peach cobbles
Beef and Noodles/Beef Stroganoff	March 2004	11	3	squash, carrots and green beans
Beef and Noodles/Beef Stroganoff	March 2004	16	3	
Beef and Noodles/Beef Stroganoff	March 2004	20	3	Most had low levels
Chicken and Broth/Gravy	March 2004	ND	3	
Chicken and Broth/Gravy	March 2004	ND	3	
Chicken Noodle Dinner	March 2004	11	3	
Chicken Noodle Dinner	March 2004	ND	3	
Chicken Noodle Dinner	March 2004	10	3	
Chicken Noodle Dinner	March 2004	ND	3	
Chicken w/ Rice	March 2004	15	3	
Chicken w/ Rice	March 2004	15	3	
Lamb and Broth/Gravy	March 2004	ND	3	
Lamb and Broth/Gravy	March 2004	ND	3	
Macaroni and Cheese	March 2004	ND	3	
Macaroni and Cheese	March 2004	ND	3	
Macaroni, Tomato and Beef	March 2004	53	3	
Macaroni, Tomato and Beef	March 2004	30	3	
Macaroni, Tomato and Beef	March 2004	24	3	
Macaroni, Tomato and Beef	March 2004	17	3	
Turkey and Broth/Gravy	March 2004	ND	3	
Turkey and Broth/Gravy	March 2004	ND	3	
Turkey and Rice	March 2004	10	3	
Turkey and Rice	March 2004	28	3	
Turkey and Rice	March 2004	14	3	
Turkey and Rice	March 2004	47	3	
Veal and Broth/Gravy	March 2004	ND	3	
Veal and Broth/Gravy	March 2004	ND	3	
Vegetables and Beef	March 2004	ND	3	
Vegetables and Beef	March 2004	18	3	
Vegetables and Beef	March 2004	17	3	
Vegetables and Beef	March 2004	21	3	
Vegetables and Chicken	March 2004	17	3	
Vegetables and Chicken	March 2004	15	3	
Vegetables and Chicken	March 2004	22	3	
Vegetables and Chicken	March 2004	26	3	
Vegetables and Ham	March 2004	31	3	
Vegetables and Ham	March 2004	26	3	
Vegetables and Ham	March 2004	19	3	
Vegetables and Ham	March 2004	22	3	
Vegetables and Turkey	March 2004	15	3	
Vegetables and Turkey	March 2004	12	3	
Vegetables and Turkey	March 2004	15	3	

Food product	Date of data release	Acrylamide ppb	# samples in composite	Summary statistics or remarks
Vegetables and Turkey	March 2004	10	3	
Pie, cobbler - babyfood				
Dutch Apple/Apple Cobbler	March 2004	ND	3	
Dutch Apple/Apple Cobbler	March 2004	ND	3	
Dutch Apple/Apple Cobbler	March 2004	ND	3	
Dutch Apple/Apple Cobbler	March 2004	ND	3	
Peach Cobbler/Dessert	March 2004	67	3	<u>Average, ppb</u>
Peach Cobbler/Dessert	March 2004	44	3	Peach cobbler - babyfood
Peach Cobbler/Dessert	March 2004	27	3	40.25
Peach Cobbler/Dessert	March 2004	23	3	Number of samples = 12
Vegetables - babyfood				
Beech Nut Stage 2 Carrots & Peas	Dec. 4, 2002	17	1	<u>Weighted average, ppb</u>
Gerber 2nd Foods Carrots & Sweet Peas	Dec. 4, 2002	39	1	Baby food with carrots
Carrots	March 2004	89	3	54.14
Carrots	March 2004	47	3	Number of samples =
Carrots	March 2004	21	3	14
Carrots	March 2004	77	3	
Gerber 2nd Foods Green Beans	Dec. 4, 2002	26	1	<u>Weighted average, ppb</u>
Green Beans	March 2004	34	3	Baby food -- green beans
Green Beans	March 2004	16	3	23.23
Green Beans	March 2004	20	3	Number of samples =
Green Beans	March 2004	22	3	13
Mixed Vegetables	March 2004	ND	3	
Mixed Vegetables	March 2004	ND	3	
Peas	March 2004	ND	3	
Peas	March 2004	ND	3	
Squash	March 2004	29	3	<u>Weighted average, ppb</u>
Squash	March 2004	19	3	Baby food -- squash
Squash	March 2004	18	3	19.29
Squash	March 2004	15	3	Number of samples =
Beech Nut Stage 2 Butternut Squash	Dec. 4, 2002	22	1	14
Gerber 2nd Foods Squash	Dec. 4, 2002	5	1	Highlighted, ND, assumed 5 ppb
Sweet Potatoes	March 2004	117	3	
Sweet Potatoes	March 2004	100	3	<u>Weighted average, ppb</u>
Sweet Potatoes	March 2004	30	3	Baby food -- sweet potatoes
Sweet Potatoes	March 2004	70	3	77.44
Beech Nut Stage 2 Tender Golden Sweet Potatoes	Dec. 4, 2002	37	1	Number of samples =
Gerber Tender Harvest Organic Sweet Potatoes (lot 1)	Dec. 4, 2002	62	1	16
Gerber Tender Harvest Organic Sweet Potatoes (lot 2)	Dec. 4, 2002	121	1	
Gerber 2nd Foods Sweet Potatoes	Dec. 4, 2002	68	1	