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Your health and  
safety... our priority.

Votre santé et votre  
sécurité... notre priorité.

# Bureau of Chemical Safety

## Food Directorate

# Bureau d'innocuité des produits chimiques

## Direction des aliments

### Sampling Plan for the First Phase of the Acrylamide Monitoring Program

A PAHO/WHO Collaborating Center for  
Food Contamination Monitoring



August 2009



### Notre Mission

Veiller à ce que les produits chimiques ne soient pas présents dans les aliments à des niveaux pouvant entraîner des effets néfastes sur la santé des canadiennes et des canadiens.

### Our Mission

To ensure chemicals are not present in foods at levels that may cause adverse health effects to Canadians.

Canada

# Sampling Plan for the First Phase of the Acrylamide Monitoring Program

## Background

As part of the Food Directorate's "Updated Risk Management Strategy for Acrylamide in Food", the Directorate has committed to implementing an Acrylamide Monitoring Program. The Directorate's Updated Risk Management Strategy was presented to food industry stakeholders at a March 5th, 2009 meeting held in Toronto during a presentation entitled "**Developing a Risk Management Strategy for Acrylamide in Food**". The current sampling plan, as part of Health Canada's Acrylamide Monitoring Program, was developed by the Chemical Health Hazard Assessment Division and Food Research Division of the Bureau of Chemical Safety (BCS) in consultation with the Biostatistics and Computer Applications Division of the Bureau of Food Policy and Science Integration in the Food Directorate. Industry was provided an opportunity to comment on the sampling plan and their feedback was considered. Past sampling and analysis has been conducted by BCS and this information also assisted in the development of the current sampling plan.

The current sampling plan and resulting survey will help to further develop the Canadian occurrence database for acrylamide in food, so that BCS can update its dietary exposure estimates and health risk assessment for acrylamide, as well as identify which food commodities contribute the most to acrylamide dietary exposure.

While the Directorate acknowledges changes that have already been implemented by food processors, which have resulted in the reduction of acrylamide levels in certain foods, an updated Canadian acrylamide occurrence database will also serve as a "new baseline" against which the impact of risk management measures, including reduction strategies for specific food commodities, could be assessed in the future through the next phases of the monitoring program. However, it is possible that further sampling and analyses may need to be completed in order to obtain a more complete baseline prior to assessing the impacts of reduction strategies for certain food commodities. Future follow-up sampling and surveys could then be directed at assessing industry compliance with the recommended reduction strategies, recognizing that best practices are commodity- and production-stage specific. Hence, this first sampling phase is important for identifying which commodities significantly contribute to acrylamide exposure so that the impact of any mitigation strategies identified and implemented by the industry can be measured. Health Canada's Acrylamide Monitoring Program was designed as a recurrent process and therefore future phases of the Program will be used to meet the entirety of the Program's objectives.

Where available, the sampling plan (attached below), will incorporate market share data and those brands holding a large share of the Canadian market, while encompassing, in most cases, at least three brands for each food commodity or type. Because acrylamide levels can vary significantly both within and between products, the allocation of samples was directed towards accounting for both the majority of food commodities known to contain acrylamide, and the variability within and between lots in major brands of

these commodities. Priority was assigned to capturing variability, where possible, for a given food commodity so that the extent of that variation could best inform the exposure assessment as well as the impact of identified risk reduction strategies.

**Notes:**

1. All food samples will be prepared and/or analysed as consumed.
2. While sampling considered Canadian market share data, product names, lots and availability will correspond to the time of sampling and may not represent all products currently available on the Canadian market.

**Annex 1: Phase 1 of Health Canada's Acrylamide Sampling Plan**

**Bread Untoasted (n=12)**

3 types (white, whole-wheat, multigrain) + 1 bagel (Plain)  
3 brands (including 1 Generic) for each type

**Bread Toasted (n=24)**

3 types (white, whole-wheat, multigrain) + 1 bagel (Plain)  
3 toast levels (shades) each  
2 toasting replicates each

**Pizza (Food Service) (n=8)**

2 major outlets available nation-wide  
Regular crust, pepperoni and cheese  
2 outlet locations  
2 sampling times (i.e. lots)

**Pizza (as per MFU instructions for oven) (n=6)\***

2 brands available for sale nationally  
1 Generic Brand  
Regular crust, pepperoni and cheese  
2 baking replicates each

**Breaded Chicken Nuggets (n=12)**

3 major outlets available nation-wide  
2 outlet locations  
2 sampling times (i.e. lots)

**Breaded Chicken (Nuggets) (n=12)\***

2 brands available for sale nationally  
1 Generic Brand  
2 lots each per brand  
2 baking replicates each

**Coffee (n=12)**

3 major outlets available nation-wide  
Medium Blend  
2 outlet locations  
2 sampling times (i.e. lots)

**French Fries (n=27)**

3 major outlets available nation-wide  
3 outlet locations  
3 sampling times (i.e. lots)

**French Fries (n=36)\***

3 brands available for sale nationally  
3 types (shoe-string, regular cut, battered)  
2 lots each per type/brand  
2 baking replicates each

**Ready to Eat Breakfast (RTE) Cereals - BFCs (n=26 plus 8 samples for within lot variability)**

Wheat-based  
Oat-based  
Corn-based  
Rice-based

~ 3 brands available for sale nationally each per cereal type  
2 lots each per type/brand  
For each type, sample one cereal within each lot (x2) = 8 additional samples.

**Potato Chips (n~ 90)**

3 types (baked, regular, kettle) available for sale nationally  
~ 3 brands available for sale nationally  
For each brand, sample between (x3) and within (x3) lots

**Cookies (n=54)**

For each brand (6 brands), sample between (x3) and within (x3) lots

**Crackers (n=54)**

For each brand (6 brands), sample between (x3) and within (x3) lots

**Graham Crackers (n=27)**

2 brands available for sale nationally  
1 Generic Brand  
For each brand, sample between (x3) and within (x3) lots

**Jarred Baby Food (n=36)**

Sweet potato (1 brand available for sale nationally + 1 generic)  
Strained Prunes (1 brand available for sale nationally + 1 generic)  
For each brand, sample between (x3) and within (x3) lots

**Arrowroot Biscuits (n=27)**

3 brands available for sale nationally  
For each brand, sample between (x3) and within (x3) lots

**Teething and Baby biscuits (n=36)**

4 brands available for sale nationally  
For each brand, sample between (x3) and within (x3) lots

**Snack Foods, Popcorn (n=8) RTE from bag**

2 brands available for sale nationally, unseasoned, popped  
For each brand, sample between (x2) and within (x2) lots

**Snack Foods, Tortillas/Corn Chips (n=27)**

2 brands available for sale nationally  
1 Generic Brand  
All plain, restaurant style  
For each brand, sample between (x3) and within (x3) lots

**Snack Foods, Pretzels (n=18)**

1 brand available for sale nationally  
1 Generic Brand  
For each brand, sample between (x3) and within (x3) lots

**Snack Foods, Roasted Nuts (n=27)**

3 different types  
For each, sample between (x3) and within (x3) lots

**Snack Foods, Chocolate Candy Bars (n=12)**

2 brands of milk chocolate available for sale nationally  
1 dark available for sale nationally  
For each brand, sample between (x2) and within (x2) lots

**Cocoa (n=18)**

2 brands available for sale nationally

For each brand, sample between (x3) and within (x3) lots

**Baking Chocolate (n=8)**

2 brands available for sale nationally

For each brand, sample between (x2) and within (x2) lots

**Cakes (must be fully cooked i.e. RTE) (n=12)**

3 brands available for sale nationally

For each brand, sample between (x2) and within (x2) lots

**Pies (must be fully cooked i.e. RTE) (n=12)**

3 brands available for sale nationally

For each brand, sample between (x2) and within (x2) lots

**Peanut Butter (n=12)**

2 brands available for sale nationally

1 Natural Bulk

For each brand, sample between (x2) and within (x2) lots

**Olives (n=27)**

3 types

For each, sample between (x3) and within (x3) lots

**Prune Juice (n=27)**

3 brands available for sale nationally

For each brand, sample between (x3) and within (x3) lots

**Confirm Existing databases**

Coffee Substitute

Infant Formula

Infant Cereals

Infant formula/cereal mix

Baby Foods

Sunflower Seeds

\* Retail (home-prepared) versus foodservice industry comparison