



# Undeclared Allergens in Drink Mixes - April 1, 2017 to March 31, 2018

## Food allergen – Targeted surveys



# Summary

Targeted surveys provide information on potential food hazards and enhance the Canadian Food Inspection Agency's (CFIA's) routine monitoring programs. These surveys provide evidence regarding the safety of the food supply, identify potential emerging hazards, and contribute new information and data to food categories where it may be limited or non-existent. We use them to focus surveillance on potential areas of higher risk. Surveys can also help to identify trends and provide information about how industry complies with Canadian regulations.

Food allergies can affect people of all ages but are particularly common in children. Food allergens can represent a serious or life threatening health risk for allergic individuals. Additionally, although it is not considered an allergen, undeclared gluten may contribute to chronic health issues for those individuals with celiac disease or gluten sensitivity. Allergens and gluten can be found in food due to their presence in the raw ingredients or they can be accidentally introduced along the food production chain due to cross contamination. Regardless of the source of the allergens, industry must ensure that the food produced is safe for human consumption, either by complying with specific Canadian regulations where applicable or by keeping the levels as low as reasonably possible.

The main objective of this survey was to obtain baseline information regarding the presence and levels of undeclared allergens in hot and cold powdered drink mix products. Of 360 samples tested, 25 were found to contain undeclared allergens including the milk proteins beta-lactoglobulin (BLG) and casein, as well as gluten, egg, and soy. Most positive results indicated the presence of gluten in cold drink mix products.

7 positive results for gluten higher than 20 parts per million (ppm), 3 positive results for BLG, 3 positive results for casein, 1 positive result for egg as well as 7 positive result for soy were forwarded to the CFIA's Office of Food Safety and Recall (OFSR) to determine if the levels found would pose a health concern to allergic individuals. 6 products were deemed to represent a health risk and were recalled. 2 hot drink mix products and 1 cold drink mix product were recalled for undeclared gluten, 2 cold drink mix products were recalled for undeclared milk, and 1 hot drink mix product was recalled for undeclared soy.

# What are targeted surveys

Targeted surveys are used by the CFIA to focus its surveillance activities on areas of higher health risk. The information gained from these surveys provides support for the allocation and prioritization of the Agency's activities to areas of greater concern. Targeted surveys are a valuable tool for generating information on certain hazards in foods, identifying and characterizing new and emerging hazards, informing trend analysis, prompting and refining health risk assessments, highlighting potential contamination issues, as well as assessing and promoting compliance with Canadian regulations.

Food safety is a shared responsibility. The agency works with federal, provincial, territorial and municipal governments and provides regulatory oversight of the food industry to promote safe handling of foods throughout the food production chain. The food industry and retail sectors in Canada are responsible for the food they produce and sell, while individual consumers are responsible for the safe handling of the food they have in their possession.

## Why did we conduct this survey

Approximately 7% of Canadians have self-reported as having at least 1 food allergy, but the actual number of medically confirmed food allergies is expected to be slightly lower<sup>1</sup>. It is believed that the rate of food allergies is increasing, particularly among children. Food allergies are estimated to affect up to 5% of adults and up to 8% of children in developed countries<sup>2</sup>. Food allergens are food proteins that can cause a reaction of the body's immune system, and can represent a serious or life threatening health risk for allergic individuals, or contribute to chronic health issues for those with pre-existing health conditions like celiac disease. Celiac disease is a chronic reaction where the body reacts to a component of gluten which can damage or destroy certain intestinal cells. Approximately 1% of the total population are affected with celiac disease<sup>3</sup>.

The priority food allergens are the 10 most common food allergens that are associated with severe allergic or allergy-like reactions in Canada. These allergens consist of peanuts, tree nuts, sesame, seafood (fish, shellfish and crustaceans), eggs, milk, soy, mustard, sulphites, and wheat<sup>4</sup>. Gluten, while not a true allergen, is a family of proteins found in certain grains like wheat, rye, barley, kamut, and spelt and is included in this list<sup>5</sup>. Gluten can cause digestive problems and other issues for people with certain health conditions such as celiac disease and gluten sensitivity. This makes proper identification and labeling of allergens in food by the manufacturer essential.

Undeclared allergens can be found in foods due to their presence in the raw ingredients, or can be accidentally introduced along the food production chain through cross contamination. Regardless of the source of the allergens, industry must ensure that the food they produce is safe for human consumption. This can be achieved by complying with specific Canadian regulations where applicable, or by keeping the levels as low as reasonably possible.

This was the first survey conducted by the agency for undeclared allergens and gluten in hot and cold drink mixes. The main objective of this survey was to obtain baseline information regarding the presence and levels of undeclared allergens including milk (BLG and casein), egg, almond, hazelnut, peanut, sesame, soy, and gluten in powdered drink mix products.

All products were tested “as sold,” meaning that they were not prepared as per the manufacturer’s instructions or as they would typically be consumed.

## What did we sample

All products were sampled between May 2017 and March 2018. Samples were collected from local and regional grocery stores located in 6 major cities across Canada. These cities encompassed 4 geographical areas: Atlantic (Halifax), Quebec (Montreal), Ontario (Toronto, Ottawa) and the West (Vancouver, Calgary). The number of samples collected from these cities was in proportion to the relative population of the respective areas.

The following products were not included in the survey:

- Products with **all** of the following allergens in the list of ingredients – almond, hazelnut, milk/dairy, peanut, soy, egg, sesame, and wheat, barley, oats, rye, triticale, kamut, spelt or gluten
- Products with no list of ingredients
- Products with a precautionary statement for all priority allergens
- Products past the indicated “use by” or “best before date
- Products with multi flavours
- Non-prepackaged products

**Table 1. Distribution of samples based on product type and origin**

<b>Product type</b>	<b>Domestic</b>	<b>Imported</b>	<b>Total</b>
Cold drink mixes	92	90	182
Hot drink mixes	84	94	178
<b>Total</b>	176	184	360

## How were samples analyzed and assessed

Samples were analyzed by an ISO/IEC 17025 accredited food testing laboratory under contract with the Government of Canada. The samples were tested as sold, meaning that the product was tested as-is and not as prepared according to package instructions.

In Canada, food allergens and gluten must be declared in the list of ingredients if they are present in the prepackaged product in order to comply with the requirements of the [Food and Drug Regulations Section B.01.010.1](#). A prepackaged product will be deemed non-compliant if any level of undeclared allergens and gluten is detected.

Health Canada considers that gluten-free foods, prepared under good manufacturing practices, which contain levels of gluten not exceeding 20 ppm (due to cross contamination) meet the intent of the [Food and Drug Regulations Section B.24.018](#) for a gluten-free claim.

# What were the survey results

Over 93% of all drink mixes tested in this survey did not contain any detectable levels of undeclared allergens. The results for the 25 samples found positive are shown in table 2.

**Table 2: Levels of undeclared allergens and gluten in drink mixes in ppm**

Sample type	Sample description	BLG (ppm)	Casein (ppm)	Egg (ppm)	Gluten (ppm)	Soy (ppm)
Cold drink mixes	Choco kids chocolate powder				3300	
Cold drink mixes	Green gram drink				930	0.58
Cold drink mixes	2-in-1 Instant black coffee	0.3	310			
Cold drink mixes	Protein superfood original				150	
Cold drink mixes	Plant-based protein shake vanilla	38	31			
Cold drink mixes	Hemp protein smoothie powder drink mix chocolate plus greens				35	
Cold drink mixes	Hemp protein smoothie plus green vanilla chai flavour - 1				13	
Cold drink mixes	Hemp protein smoothie plus green vanilla chai flavour - 2				14	
Cold drink mixes	Hemp protein smoothie plus green vanilla chai flavour - 3				15	
Cold drink mixes	Hemp protein smoothie plus green vanilla chai flavour - 4				16	
Cold drink mixes	Hemp protein smoothie plus green vanilla chai flavour - 5				16	
Cold drink mixes	Hemp protein smoothie plus green vanilla chai flavour - 6				34	
Cold drink mixes	Hemp pro 70 plant based protein powder chocolate				14	
Cold drink mixes	Organic hemp powder beverage mix original				12	
Cold drink mixes	Hemp protein smoothie plus green mixed berry flavour - 1				10	
Cold drink mixes	Hemp protein smoothie plus green mixed berry flavour - 2				12	
Cold drink mixes	Recovery accelerator apple berry					1.88
Cold drink mixes	Protein smoothie plant based oh natural - 1					1.26
Cold drink mixes	Protein smoothie plant based oh natural - 2					1.12
Cold drink mixes	Green tea latte drink mix	0.5				
Hot drink mixes	Powdered almond & yam drink with walnut				14000	
Hot drink mixes	Peach blossom powder for beautifying face					4200
Hot drink mixes	Sweet red bean drink				610	5.6
Hot drink mixes	Instant sugar-free soybean drink		1.2			
Hot drink mixes	Madras coffee chicory latte mix			1.2		1.02

Note: All samples were tested for a variety of allergens dependant on the ingredients in the food. Only positive results for allergens were included in the table.

# What do the survey results mean

Of the 360 samples tested, over 93% did not contain any detectable levels of undeclared allergens and gluten, while 25 samples were found to contain varying levels of gluten, BLG, casein, egg or soy. Undeclared allergens and gluten were most frequently present in cold drink mixes that were domestic in origin.

The best currently available scientific evidence indicates that levels of gluten below 20 ppm in gluten-free foods would be protective of the health of the vast majority of people with celiac disease<sup>5</sup>. Therefore, only 7 positive results for gluten, 3 positive results for BLG, 3 positive results for casein, 1 positive result for egg as well as 7 positive result for soy were forwarded to the CFIA's OFSR for follow-up.

The extent of the follow-up actions taken by the CFIA is based on the level of contamination and the resulting health concern as determined by a health risk assessment. Appropriate follow-up actions include additional sample testing, facility inspection and product recall. The health risk assessment is based on exposure to the allergens and gluten through consumption. The exposure is calculated by using the typical serving sizes for each food. Assessment based on serving size means not all detectable levels of undeclared allergens and gluten in food will cause a reaction in an allergic individual.

### **Gluten**

Undeclared gluten was found in 16 samples tested at levels ranging from 10 to 14000 ppm. According to the food safety investigation conducted on the forwarded positive results, these levels may be present from sub-components or added ingredients. 3 gluten positive samples were assessed to represent a health risk and were recalled<sup>6,7,8</sup>.

### **Milk**

2 samples were tested positive for both undeclared BLG and casein, while 1 sample contained undeclared BLG alone and 1 sample contained undeclared casein alone. These milk proteins could have been present as a result of cross contamination in an ingredient or the final product. The 2 samples contained both undeclared BLG and casein were deemed to pose a health risk to consumers, and were recalled<sup>9,10</sup>.

### **Soy**

Undeclared soy was found in 7 of samples tested. The levels detected were likely due to cross contamination or cross contact in the manufacturing process. This could result in the presence of a small amount of allergen in the final product. A hot powdered drink mix product containing undeclared soy was determined to pose a health risk to consumers and was recalled<sup>11</sup>.

### **Egg**

A single product sampled in this survey tested positive for undeclared egg. This product was a hot powdered beverage mix. The level detected was low and was likely be introduced through cross contamination in an ingredient or the final product. This product was deemed not to present a risk to consumers.

### **Summary**

6 samples resulted in product recalls, while all other positive allergen findings were determined not to pose a risk to consumers.

This survey generated new information on the background level of undeclared allergens and gluten in hot and cold drink mix products collected from 6 cities across Canada. Information gathered in this survey, in conjunction with other data including the Canadian Total Diet Study, and Statistics Canada's Canadian Health Measures Survey food consumption data, are critical in assessing the health risk that our food supply poses to Canadian consumers. The results of

CFIA's surveillance activities are also used to inform the Canadian public and stakeholders by raising consumer awareness and help build public confidence in their food supply by removing non-compliant products.



# References

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