



Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

# Undeclared Milk in Milk Alternative Products – April 1, 2018 to March 31, 2019

## 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 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. Allergens 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 additional information regarding the presence and levels of undeclared milk in milk alternative products. Of the 252 samples tested, 6 were found to contain undeclared beta-lactoglobulin (BLG) and/or casein.

All positive results obtained during the course of these surveys 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. The extent of the follow-up actions taken by the agency is based on the level of the contamination and the resulting health concern as determined by a health risk assessment. A single sample of dairy-free chocolate and 2 dairy-free ice cream samples containing both BLG and casein were deemed to represent a health risk and were recalled.

# 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.

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>3</sup>. 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 second survey conducted by the agency for undeclared milk in milk alternative products. The original CFIA survey was conducted in 2011 to 2012 fiscal year. The main objective of this survey was to obtain additional information regarding the presence and levels of undeclared milk in milk alternative 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 April 2018 and March 2019. 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 milk in the list of ingredients
- products with a precautionary statement for milk
- non pre-packaged products
- products with no list of ingredients
- products past the best before date

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

Sample type	Domestic	Imported	Unspecified <sup>a</sup> origin	Total
Dairy-free butter	0	35	0	35
Dairy-free cake	12	8	9	29
Dairy-free cheese	1	33	0	34
Dairy-free chocolate	5	19	5	29
Dairy-free cream	0	16	14	30
Dairy-free ice cream	16	7	4	27
Dairy-free milk	34	1	0	35
Dairy-free yogurt	25	4	4	33
<b>Total</b>	<b>93</b>	<b>123</b>	<b>36</b>	<b>252</b>

<sup>a</sup> Unspecified refers to those samples for which a country of origin could not be determined from the product label or available sample information.

# 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.

# What were the survey results

Over 97% of all milk alternative products sampled in this survey did not contain any detectable levels of milk. 6 samples were positive for BLG and/or casein.

**Table 2: Levels of undeclared milk in milk alternative products in ppm**

Sample type	Sample Description	BLG (ppm)	Casein (ppm)
Dairy-free cake	Premium hopia mongo mung beans cake		1
Dairy-free chocolate	Dark cocoa bar 70% toasted coconut & chia sweetened with stevia	150	380
Dairy-free ice cream	Non-dairy frozen dessert strawberry made with coconut milk	0.4	
Dairy-free ice cream	Peanut butter & chocolate frozen dairy free dessert made with cashews	0.7	5.5
Dairy-free ice cream	Mint chip dairy-free frozen dessert made with cashews - 1	0.2	2.2
Dairy-free ice cream	Mint chip dairy-free frozen dessert made with cashews - 2	0.8	2

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 252 samples tested in this survey, over 97% did not contain any detectable levels of milk, while 6 samples were found to contain varying levels of BLG and/or casein.

Of the 6 samples with positive results, 4 samples contained both undeclared BLG and casein, 1 sample contained undeclared BLG alone and 1 sample contained undeclared casein alone. Both BLG (a whey protein) and casein are major milk proteins. Casein derivatives such as sodium caseinate are used as emulsifier and thickening agent in processed food including chocolate products<sup>4</sup>. Whey proteins also have excellent emulsifying and foaming properties, so they are widely used in producing desserts, yogurts, etc<sup>5</sup>. Additionally, further investigation performed by OFSR indicates that 3 dairy-free ice cream samples tested positive for both BLG and casein were produced in the same facility which also manufactures normal dairy ice cream, so low levels of BLG and casein found in these samples might have been introduced through cross contamination in an ingredient or the final product.

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.

All positive results were forwarded to the OFSR for follow-up. A single sample of dairy-free chocolate and 2 dairy-free ice cream samples containing both undeclared BLG and casein were deemed to represent a health risk and were recalled<sup>6,7,8</sup>.

The results from this survey are somewhat higher than those found in a similar survey which was conducted in 2011 by the agency to obtain baseline information regarding the presence and levels of milk in milk alternative products<sup>9</sup>. In that survey, 278 samples of dairy-free beverages, cheeses, desserts and yogurts were tested, over 99% did not contain any detectable levels of milk.

This survey generated additional information on the background level of undeclared milk in milk alternative 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 the 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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