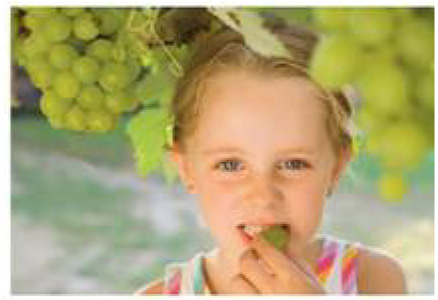
Canadian Food Inspection Agency
Agence canadienne d'inspection des aliments

# *Children's Food Project*

## 2013-2014 Report on Sampling



**RDIMS# 5750332**

Canada

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# Executive Summary

The main objectives of the 2013-2014 Children's Food Project (CFP) were to:

- assess the compliance status for pesticide residues in infant foods;
- assess the level of veterinary drug residues in infant foods containing meat; and
- collect data on chemical hazards in infant foods for use by Health Canada in health risk assessments of infant foods.

In the 2013-2014 CFP, a total of 204 pureed infant foods and juices (0-2 years) were purchased in the Ottawa, Ontario and Gatineau, Quebec areas. Samples were analyzed for pesticide residues, veterinary drug residues, and metals. In total, 643 analytical tests were performed leading to over 92 000 individual results.

Two hundred and four samples of infant foods such as pureed fruits, pureed vegetables, juices, pureed fruit and vegetable combinations, and pureed infant food containing meat were tested for pesticide residues. There were 117 samples (57.3%) with no detectable levels and 87 samples with one or more pesticide residues detected. All pesticide residues detected were well below maximum residue limits established by Health Canada. Veterinary drug residues were not detected in any of the 49 infant food samples containing meat that were tested. The overall compliance rate of the pureed infant food samples tested for pesticide and veterinary drug residues was 100%.

There are few Canadian maximum levels established for metals in food. Metals of high toxicological importance to human health, including arsenic, cadmium, lead and mercury are the focus of our analysis and discussion. The concentrations of these metals in the food samples were assessed by Health Canada and were not expected to pose a concern to infant health.

Data obtained from studies like the CFP are useful in the assessment of the dietary exposure of Canadian children to pesticide residues, veterinary drug residues, metals and other contaminants. The 2013-2014 CFP represents a snapshot of the nature of pesticide and veterinary drug residues and metals in the pureed infant foods available on the Canadian market.

# 1 The Children's Food Project

## 1.1 Purpose

The Children's Food Project (CFP) was initiated by the Canadian Food Inspection Agency (CFIA) with funding from the 'Building Public Confidence in Pesticide Regulation and Improving Access to Pest Management Products' initiative. In January 2003, the CFIA initiated the 'Young Children's Food Chemical Residues Project' (later renamed the 'Children's Food Project') to test children's foods for pesticide residues. In 2013-2014, children's food samples were also tested for veterinary drug residues. The overall objective of the CFP continues to be to ensure compliance of pesticide residues as well as to obtain veterinary drug residue and metals baseline data in children's foods. Specifically, the CFP aims to:

- gather data to determine the prevalence of pesticide and veterinary drug residues in imported and domestically produced children's foods;
- identify children's foods that may represent a potential health risk from illegal or inappropriate uses of pesticides and veterinary drugs; and
- determine compliance with pesticide, veterinary drug and metal established maximum levels.

## 1.2 Rationale

On an annual basis, the CFIA conducts a number of different monitoring programs and targeted surveys for chemical residues and contaminants in food. For example, the National Chemical Residue Monitoring Program (NCRMP) targets food commodities such as meat, eggs, honey, dairy products, maple products, processed products, and fresh fruits and vegetables. Alternatively, the CFP collects information on chemical residues in manufactured foods frequently consumed by and targeted to children (e.g., infant formula, cereal-based products, fruit juices and beverages). Manufactured and imported foods are also the focus of CFIA's targeted surveys, originally started under the Food Safety Action Plan (FSAP); they have been incorporated into the CFIA's regular surveillance activities as a valuable tool for compliance promotion. Targeted surveys do not focus on the level of chemical residues and contaminants in foods targeted to children. Instead, targeted surveys focus mainly on chemical residues, contaminants or food products not tested under the CFP and NCRMP. Together, the data from these programs help health authorities assess potential exposure to chemical residues, contaminants and metals in a number of foods consumed by Canadian children. The results from these ongoing activities can be found at the following CFIA web address: http://www.inspection.gc.ca/english/fssa/microchem/resid/reside.shtml

## 1.3 Acts and Regulations Relating to Chemical Residues and Contaminants

The *Canadian Food Inspection Agency Act* stipulates that the CFIA is responsible for enforcing restrictions on the production, sale, composition and content of foods and food products as outlined in the *Food and Drugs Act* (FDA) and the corresponding *Food and Drug Regulations* (FDR).

Health Canada establishes maximum residue limits (MRLs) for pesticide residues in food. The MRL is the maximum amount of residues that is expected to remain in or on food products when a pesticide is used according to label directions and is regulated under the *Pest Control Products Act* (PCPA). Pesticide MRLs apply to the identified raw agricultural commodity as well as to any processed food product that contains the commodity. However, when Health Canada determines that a processed product requires a higher MRL than that specified for its raw agricultural commodity, separate MRLs are specified. In the absence of an MRL, pesticide residues must comply with the General MRL (GMRL) of 0.1 ppm as stated in section B.15.002(1) of the FDR. The process for establishing an MRL is initiated through the publication of a Proposed Maximum Residue Limit (PMRL) on Health Canada's website. Established MRLs appear in Health Canada’s MRL Database. The CFIA recognizes that there is no difference between an MRL and a PMRL in terms of scientific validity, therefore both MRLs and PMRLs are considered in assessing compliance.

Health Canada also establishes MRLs for veterinary drugs for edible tissues of food producing animals as well as milk, eggs and honey, but not for any processed food that may contain these edible products (e.g., cheese, yogurt). Recent amendments to the FDA have allowed for MRLs for veterinary drug residues to be added or updated directly into the List of Maximum Residue Limits (MRLs) for Veterinary Drugs in Food published on Health Canada’s website. Upon the completion of a scientific assessment for a veterinary drug, the MRL promulgation process is initiated through the posting of proposed maximum residue limits on Health Canada’s website. The CFIA recognizes that there is no difference between an MRL and a proposed MRL in terms of scientific validity, therefore both MRLs and proposed MRLs are considered in assessing compliance. In the absence of an MRL or proposed MRL for a veterinary drug, the CFIA deems any food product containing a residue at or above the limit of quantitation (LOQ) to be adulterated (violation of 4(1)(d) of the FDA). These do not necessarily represent a risk to human health (violation of 4(1)(a) of the FDA).

Maximum levels for chemical contaminants in foods may be expressed as either regulatory tolerances or standards. Regulatory tolerances are listed in the FDR whereas standards can be viewed on Health Canada’s website. A limited number of tolerances and standards are established for metals in food. There are, at present, metal tolerances established in the FDR (Section B.15.001-Table I) for arsenic, lead and tin in specific commodities. It should be noted that Health Canada has been reviewing the regulatory tolerances for metals and has proposed updated tolerances for arsenic and lead in fruit juice, fruit nectar, beverages when ready-to-serve and water in sealed containers.[1]

All chemical residues or contaminants detected in food products are evaluated to determine if there has been a violation of applicable Canadian MRLs or maximum levels. In cases where there is not an established MRL or maximum level, foods presented for sale in Canada must be compliant with sections 4(1) (a) and (d) of the FDA. These sections state that no person shall sell an article of food that (a) has in or on it a poisonous or harmful substance or (d) is adulterated. Residues detected at or below established MRLs or maximum levels are in compliance and do not require enforcement or follow-up action. When a violation is identified, or if no MRL or maximum level has been established but an elevated result is observed, the result is assessed on a case-by-case basis to determine the appropriate follow-up action. Follow-up actions can include notification of the producer or importer, follow-up inspections, further directed sampling, or recall of products if Health Canada determines that the product could pose an unacceptable health risk to consumers or certain segments of the population. Follow-up actions vary according to the magnitude of the health risk, with the objective of preventing any repeat occurrence or further distribution of items still in the marketplace.

## 1.4 Limitations of the Children's Food Project

The CFP is designed to provide a snapshot of the concentrations of pesticide and veterinary drug residues, and metal levels in pureed infant foods as well as fruit juices. It is not designed to gather statistically valid information on the types and levels of chemical residues and metals in children's foods. This would require a significant increase in the number of samples.

The sampled foods are chosen based on the market availability of manufactured foods frequently consumed and marketed towards children and do not necessarily correspond to the relative importance of this type of food in their diets. No statistical methods are used to determine the types and numbers of samples selected.

# 2 Children's Food Project Design

## 2.1 Sample selection

The 2013-2014 CFP was designed to provide a snapshot of the levels of pesticide and veterinary drug residues and metals in fruit-, vegetable- and meat-based infant foods. In previous years, the CFP has focused solely on pesticide residues and metals in foods available and targeted to children (0 – 15 years of age). In 2012-2013, the analysis of veterinary drug residues was also included in an effort to expand the scope of the CFP.

The multitude of foods available that are targeted to children, as well as the different consumption patterns of children of different age groups, makes it impractical for the CFIA to test all of these on an annual basis. To address this challenge, different foods for different age groups are sampled each year. In 2011-2012, foods for children aged 2 to 15 years were targeted and in 2012-2013 only infant formulas were sampled. In the 2013-2014 CFP foods targeted to children aged 0 to 2 years were sampled as these had not been targeted since the 2010-2011 CFP. Please consult Appendix A for web links to previous CFP reports.

### *2.1.1 Sample breakdown*

In total, 204 pureed infant food and fruit juice samples were included in the 2013-2014 CFP. Samples were packaged in a variety of formats (e.g., glass and plastic bottles, cans, boxes, and cartons) and were purchased from several national grocery chains and drugstores in the Ottawa, Ontario and Gatineau, Quebec areas. The samples were further subdivided into categories based on ingredient similarities between products: juice, pureed fruits, pureed vegetables, pureed fruits and vegetables, and pureed infant foods containing meat (Table 1). Of the 204 samples, 109 were labelled as organic. Both imported and domestically produced infant foods were sampled with the majority produced in Canada (144 samples). The remaining products sampled were imported from France (3 samples) and the United States (57 samples).

**Table 1 Breakdown of products sampled in the 2013 – 2014 CFP**

| Infant Food | Number of Samples | Percent of Total |
|---|---|---|
| Juice (e.g., apple, pear) | 7 | 3% |
| Pureed Fruits (e.g., apple, banana, blueberry, mixed fruits) | 81 | 40% |
| Pureed Vegetables (e.g., carrots, broccoli, peas, mixed vegetables) | 34 | 17% |
| Pureed Fruit and Vegetable Combinations (e.g., apple and sweet potato; banana, apple and kale; garden vegetable and raisin) | 33 | 16% |

| Infant Food | Number of Samples | Percent of Total |
|---|---|---|
| Purees Containing Meat (e.g., beef, lamb, veal, meat with mixed vegetables) | 49 | 24% |
| **Total** | **204** | **100%** |

## 2.2 Analysis

Analytical testing for the various groups of analytes was performed using multi-residue methods. These cost-effective methods are capable of detecting large numbers of pesticide residues, veterinary drug residues or metals simultaneously. Samples in the CFP were analyzed by ISO 17025 accredited food testing laboratories under contract with the Government of Canada as well as CFIA laboratories.

### *2.2.1 Pesticide analysis*

Pesticides and other agricultural chemicals are commonly used in agricultural systems. These chemicals help to protect crops from damage by pests, increase yields and expand the geographical location in which crops can be grown. A consequence of using agricultural chemicals during food production is that foods can sometimes retain chemical residues, which may be of concern to Canadian consumers. Additionally, residues present in livestock feed and forage can be transferred to the edible tissues of food-producing animals. The children's food samples were tested using three multi-residue analytical methods. The analytical scopes for the multi-residue methods used are provided in Appendix B, Tables B-1 to B-3.

### *2.2.2 Veterinary drug analysis*

Food-producing animals may be treated with veterinary drugs. Some drugs are administered to individual animals to treat specific disease conditions, while other drugs are administered to groups of animals, usually through medicated feed or water, for the prevention or treatment of disease or for the purpose of growth promotion. The samples containing meat were analyzed for a variety of veterinary drug residues, including antibiotics. The analytical scope of the multi-residue method is provided in Appendix B, Table B-4.

### *2.2.3 Metal and element analysis*

Although many metals and elements occur in food as a result of their natural presence in the environment, they may also be present in food as a result of the use of pesticides or other agricultural chemicals, environmental contamination or processing. While some metals are essential nutrients such as iron and zinc, others can be harmful to human health at lower relative doses (e.g., arsenic, cadmium, mercury, lead).

Arsenic has been used in the past as a component of some types of pesticides directly applied to crops, but this use has been discontinued in many countries, including Canada.[2] Chromium, copper and arsenic are used together as a wood preservative but can leach out of treated wood products.[3] The CFIA has advised livestock producers not to use chemically treated wood near livestock feed or food-producing animals to avoid the transfer of potentially harmful levels of these metals and other chemicals from the wood into animal products such as meat, milk and eggs. Cadmium is a common contaminant of chemical fertilizers, and may accumulate in certain types of plants as a result of uptake from the soil.[4] If these plants are fed to animals, cadmium can accumulate in animal tissues. The processing of foods with lead-contaminated water or using lead-containing equipment can introduce lead into foods.[5]

The multi-element analytical method used in the CFP analyzes for 19 different metals and elements including: aluminum, antimony, arsenic, beryllium, boron, cadmium, chromium, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, tin, titanium and zinc.

# 3 Results and Discussion

## 3.1 Pesticides

A total of 390 tests for pesticide residues were carried out on 204 infant food and juice samples, 109 of which were labelled organic. None of the residues detected exceeded Canadian pesticide MRLs. No detectable levels of pesticide residues were found in 57.4% of the infant foods tested (117 samples). There were 87 samples that had a detectable level of one or more pesticide residue(s). In total, there were 267 pesticide residues detected in the 87 samples. Samples labelled organic were less likely to contain pesticide residues; 69.7% of samples labelled organic had no pesticide residues detected versus 43.2% of conventionally produced samples.

Of the infant food types tested, pureed vegetables had the lowest percentage of samples with detectable levels of pesticides at 17.6%, while 59.2% of pureed fruit samples had one or more detected pesticide residues (Figure 1). In the category of purees containing meat, pesticide residues were detected only in samples also containing vegetables.

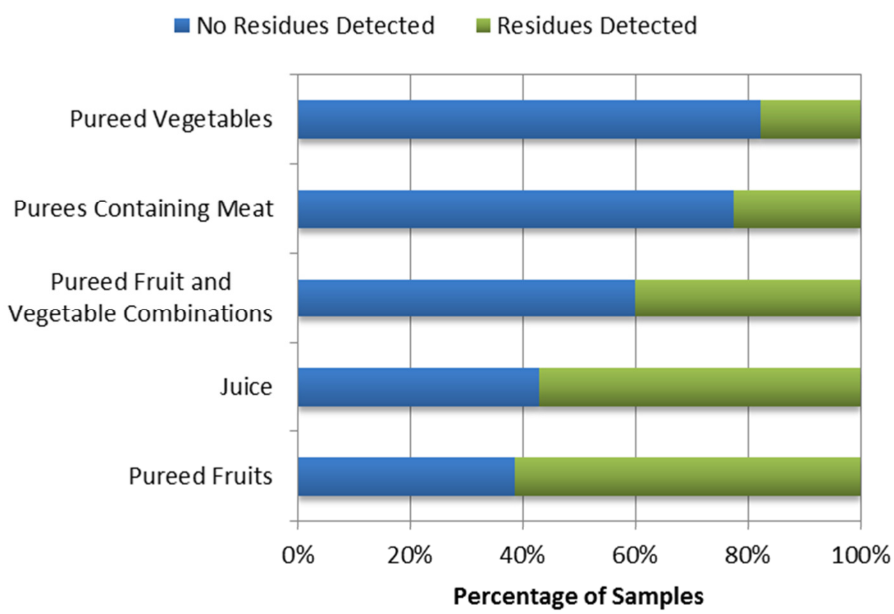


**Figure 1. Percentage of samples with detected pesticide residues**

## Pesticide Residue Prevalence

The prevalence of pesticide residues was examined in the infant foods tested. Pesticide residue prevalence was calculated as the number of samples in which a particular residue was detected as a percentage of the total number of samples tested for that residue. In Figure 2, the ten most prevalent pesticide residues detected as well as the distribution between conventional and samples labelled organic is illustrated. In total, there were 48 pesticide residues detected in conventional pureed infant foods tested; 17 of these were also detected in products labelled organic.

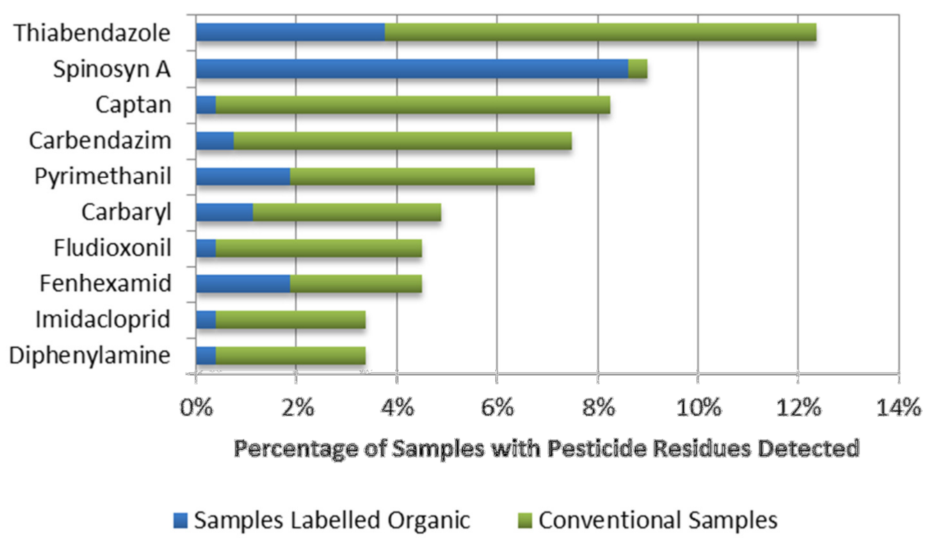


**Figure 2.** **Pesticide residue prevalence**

Thiabendazole was the most prevalent pesticide residue detected in 33 samples (12.3%), the majority of which were pureed fruits. Ten of the 33 samples were labelled as organic. Thiabendazole is a systemic fungicide used to control rot and mold on many crops such as citrus fruit, banana, apple, pear and potato.[6] The majority of samples with detected thiabendazole residues contained apple, banana or pear. Residue levels detected ranged from 0.001 ppm to 0.126 ppm, all below established MRLs.

The most prevalent pesticide residue detected in samples labelled organic was spinosyn A, a marker compound of the pesticide spinosad (21.1% of organic samples). Of the samples containing detectable levels of spinosyn A, 23 of 24 were labelled as organic. Spinosad is a naturally derived insecticide that is permitted for use in Canada for organic farming. Consistent with the approved uses for spinosad, spinosyn A was detected in samples containing apples, potatoes, berries, pears, peaches and cherries at levels (0.001 ppm to 0.043 ppm) below established MRLs.

Captan was the third most prevalent pesticide detected in 8.3% of samples (22 samples). Captan was detected in only one sample labelled organic. It is a widely used fungicide registered for use in Canada on small fruits, berries and vegetables. Residues ranged from 0.004 ppm to 0.337 ppm, all of which were below established MRLs.

The remaining pesticides most frequently detected in the CFP are approved for use in conventional farming on a wide variety of fruits and vegetables. Under the Canadian Organic Standards administered by certification bodies recognized by the CFIA, there are pesticides that are permitted for use in organic agriculture (listed in Canada's Permitted Substances Lists (CAN/CGSB-32.311-2006)). It is important to note that the substances listed and used as pesticides are still subject to compliance with the PCPA, including MRLs. The detection of pesticide residues not permitted for use in organic production may reflect intentional use of pesticides. Low level residues in organic products may also be due to uncontrollable factors, such as drift from nearby fields or post-harvest contamination during handling or storage.

### Multiple Residue Frequency

Figure 3 illustrates the distribution of the infant food product types sampled containing no detected residues, one residue or multiple pesticide residues. As indicated above, the majority of the pureed vegetables and purees containing meat had no detectable residues at 82.4% and 77.6%, respectively. In both product types the maximum number of residues per sample was two. Samples containing fruit were most likely to contain more than one pesticide residue. The percentage of pureed fruit samples with one residue was 22.2% and with multiple residues was 39.5%. Many of the pureed fruits with more than five residues detected were mixed fruit products. The number of samples decreased dramatically with increasing number of residues per sample. Depending on the types and severity of pests encountered, multiple pesticides may be applied to a crop in the same growing season.

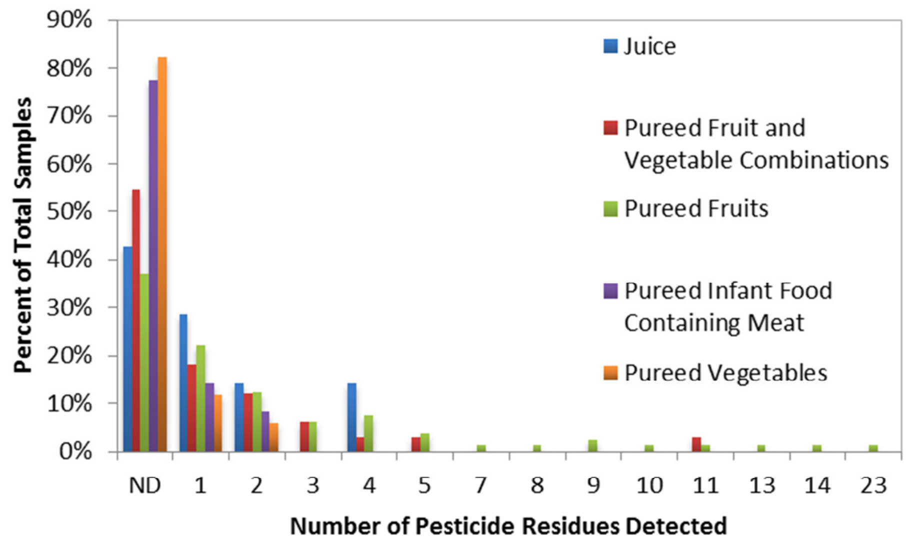


**Figure 3. Number of pesticide residues detected in the different types of infant food**

Both conventional samples and those labelled as organic contained multiple residues. Of the 33 samples labelled as organic with detectable levels of pesticide residues, 15 (45.4%) of these contained two to four residues per sample and one sample of spinach, apple and rutabaga puree contained 11 residues. In the 54 conventional samples with detectable residues, 35 samples (64.8%) contained multiple residues. There were four conventional samples containing more than ten pesticide residues per sample. These samples included apple, strawberry and raspberry puree (2 samples), an apple and raspberry puree (1 sample) and a strawberry, banana and black raspberry puree (1 sample). None of the pesticide residues detected were in violation of established Canadian MRLs.

## 3.2 Veterinary drugs

Testing for veterinary drug residues was carried out on 49 samples of infant foods containing meat. The multi-residue multi-class antibiotic analytical method used tested for 36 different veterinary drug residues. No veterinary drug residues were detected in any of the samples. The 2013-2014 CFP was the first year in which purees containing meat were tested for veterinary drugs.

## 3.3 Metals

Appendix C contains a detailed summary of the levels of metals observed in the pureed infant foods sampled. All samples had detected levels of metals. As mentioned in Section 2.2, metals are expected to be present at low levels in most food products. The results presented in

Appendix C include some summary statistics for the total concentration of each metal present in the different product types.

The following discussion focuses on the four detected metals of high toxicological importance to human health (e.g., arsenic, cadmium, mercury and lead).

## Arsenic

Arsenic is an element that naturally occurs in the earth's crust and can be found in two chemical forms: organic (e.g., contains carbon atoms) and inorganic. In general, inorganic arsenic is more toxic to humans than organic arsenic. Long-term exposure to high levels of inorganic arsenic is known to contribute to the risk of human cancer and can affect the gastrointestinal tract, kidneys, liver, lungs and skin.[7] For most Canadians, the primary source of exposure to arsenic is food, followed by drinking water, soil and air.[8]

Health Canada has recently proposed a change in the tolerance for total arsenic in apple juice to 0.01 ppm.[1] There are tolerances for arsenic specified in Division 15 Table 1 of the FDR that apply to other fruit juices, fruit nectars and beverages when ready-to-serve; however, these tolerances are currently in the process of being updated by Health Canada. There are no other established arsenic tolerances or maximum levels applicable to the samples tested in the 2013-2014 CFP.

It should be noted that the arsenic levels in Figure 4 are reported as total arsenic only. Total arsenic was detected in 20.6% of samples with a comparable distribution of arsenic levels among product types (>0.001 ppm). Detected concentrations ranged from 0.005 ppm in samples of juice and purees containing meat to a maximum of 0.023 ppm in a pureed vegetable sample. There were two samples of juice positive for arsenic, one pear juice (0.0067 ppm) and one apple juice (0.0054 ppm). Both samples were well below the proposed apple juice tolerance of 0.01 ppm and the established tolerance of 0.1 ppm for other fruit juices.

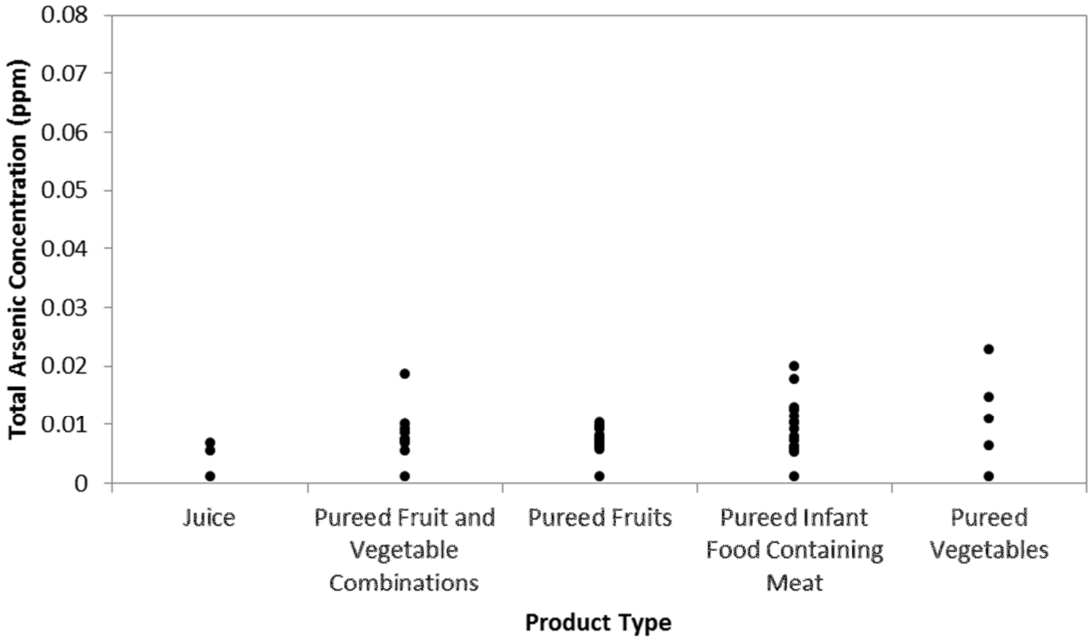


**Figure 4. Distribution of total arsenic levels detected by product type**

Detectable concentrations of total arsenic in samples tested in the 2008-2009 CFP ranged from 0.005 ppm to 0.117 ppm for fruit and vegetable purees and 0.005 ppm to 0.034 ppm for meat-based purees.[9] In the 2010-2011 CFP, total arsenic levels in similar pureed infant foods ranged from 0.003 ppm to 0.03 ppm in pureed fruits.[10] Total arsenic levels detected in the 2013-2014 CFP were all below or within the ranges observed in the 2008-2009 and 2010-2011 CFPs. Health Canada is of the opinion that the total arsenic levels detected in the current CFP do not represent a concern to infant health.

## Cadmium

There are no Canadian tolerances or standards established for cadmium levels in food. Cadmium can be present in water and soils. Soil may become contaminated with cadmium through the use of phosphate fertilizers or sewage sludge. Food grown in cadmium containing soils is the primary source of cadmium exposure in the general population.[11] The target organ for cadmium toxicity via the oral route is the kidney.[12] According to the International Agency for Research on Cancer (IARC) cadmium is carcinogenic to humans following inhalation exposure.[13]

Figure 5 illustrates the distribution of cadmium levels detected in the infant foods tested. Approximately 39.2% of the samples contained a detectable level of cadmium (>0.001 ppm). Detected concentrations of cadmium ranged from 0.002 ppm in pureed fruits and pureed vegetable samples to a maximum of 0.041 ppm in pureed fruit and vegetable combinations.

Cadmium at the level of 0.041 ppm was detected in one sample of a spinach, apple and rutabaga puree.

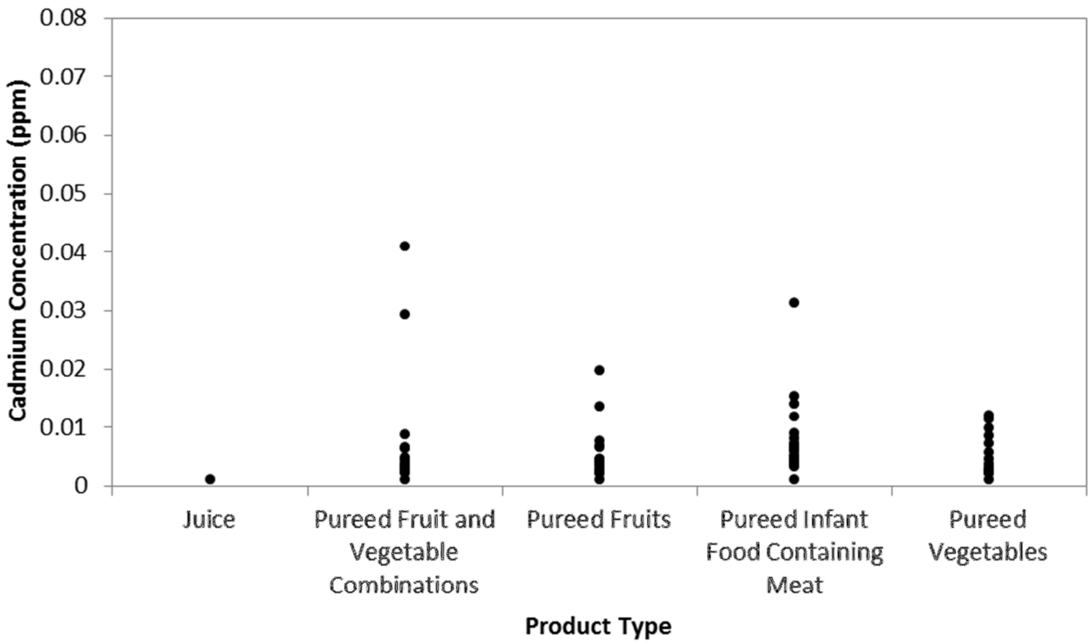


**Figure 5. Distribution of cadmium levels detected by product type**

In the 2008-2009 CFP, cadmium levels ranged from 0.002 to 0.038 ppm in fruit and vegetable purees and 0.002 to 0.027 ppm in meat-based purees.[9] In the 2010-2011 CFP, levels in pureed fruits and vegetables ranged from 0.001 to 0.025 ppm and meat-based purees ranged from 0.002 to 0.019 ppm.[10] Although a few of the cadmium levels observed in the 2013-2014 CFP were higher than those seen previously, the concentrations of cadmium in infant foods are low overall and Health Canada has indicated that levels observed in pureed infant foods and fruit juices were not considered to be a concern to infant health.

## Lead

Lead exposure may occur from a number of environmental and food sources. Chronic exposure to low levels of lead can be harmful to human health. Children are particularly susceptible to the adverse neurological effects of lead exposure. Lead occurs naturally in the environment and has many industrial uses, such as in mining, smelting and battery manufacturing.[5] As a result of implementation of measures to reduce exposure to lead through the inhalation route (e.g., use of unleaded gasoline), the greatest sources of a child's environmental exposure to lead are oral exposure from food and water along with ingestion of house dust and soil contaminated with lead.[5]

Health Canada has informed industry and the CFIA that, as part of Health Canada's risk management strategies for lead, the lead tolerances in Table I of Division 15 of the FDR are being updated.[14, 15] As a result, a new tolerance of 0.05 ppm has been proposed for lead in fruit juice, fruit nectar, and beverages when ready-to-serve.[1] There are no other established lead maximum levels (tolerances or standards) applicable to the samples tested in the 2013-2014 CFP.

Figure 6 illustrates the distribution of lead levels detected in the product types tested. Approximately 50% of the pureed infant foods tested for lead contained detectable levels (>0.001 ppm). The majority of the lead levels for the different products are comparable as much of their distribution falls at or below 0.02 ppm. A higher lead level (0.073 ppm) was found in one sample of strained beef puree when compared to the rest of the samples. None of the juice samples exceeded the proposed 0.05 ppm tolerance for lead in fruit juice and nectars.

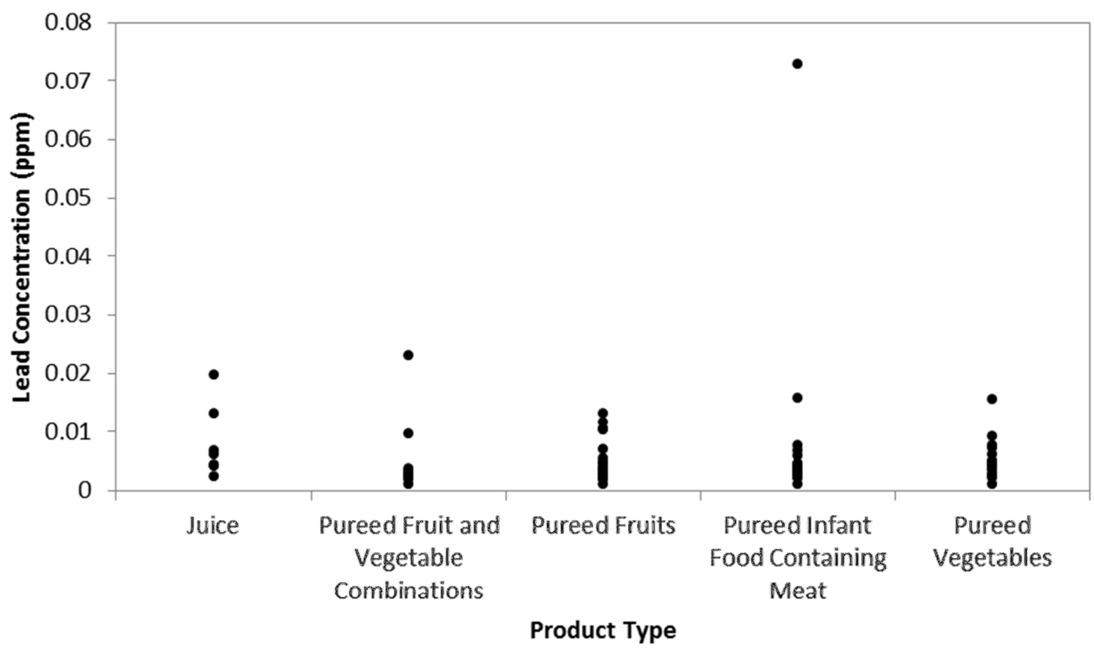


**Figure 6. Distribution of lead levels detected by product type**

In the 2008-2009 CFP, lead levels in pureed fruit and vegetable samples ranged from 0.002 to 0.036 ppm and from 0.002 to 0.018 ppm in meat-based puree samples.[9] In the 2010-2011 CFP, lead levels in pureed fruits and vegetables ranged from 0.001 to 0.025 ppm and from 0.001 to 0.030 ppm in meat-based purees.[10] The majority of lead levels observed in the pureed infant foods tested in the 2013-2014 CFP ranged from 0.002 ppm in pureed fruits to 0.023 ppm in pureed fruit and vegetable combinations. One sample of strained beef puree had a lead level of 0.073 ppm. Health Canada indicated that the reported lead levels would not result in an increase in dietary exposure to lead and that the samples included in this survey do not represent a concern to infant health.

### Mercury

Although mercury is released naturally from rocks, soils and volcanoes, industrial activities have increased the amount of mercury in the environment.[16] Mercury contamination is a concern because it is toxic, persists in the environment, and can bioaccumulate in the food chain. The health effects of mercury depend on its chemical form (elemental, inorganic, organic) and the route and level of exposure. Methyl mercury (organic form) is easily absorbed and can cross the blood-brain barrier. Children and the developing fetus are particularly susceptible to the harmful neurological effects of methyl mercury. A source of human exposure to methyl mercury is the consumption of certain types of predatory fish.

Health Canada has established maximum levels for mercury in different types of fish; however there are no mercury standards established for infant foods. All infant food samples were tested for mercury. Mercury was detected in 41.2% of samples (>0.0001 ppm). Concentrations of mercury ranged from 0.0001 ppm in all product types tested to 0.0005 ppm in pureed vegetable samples.

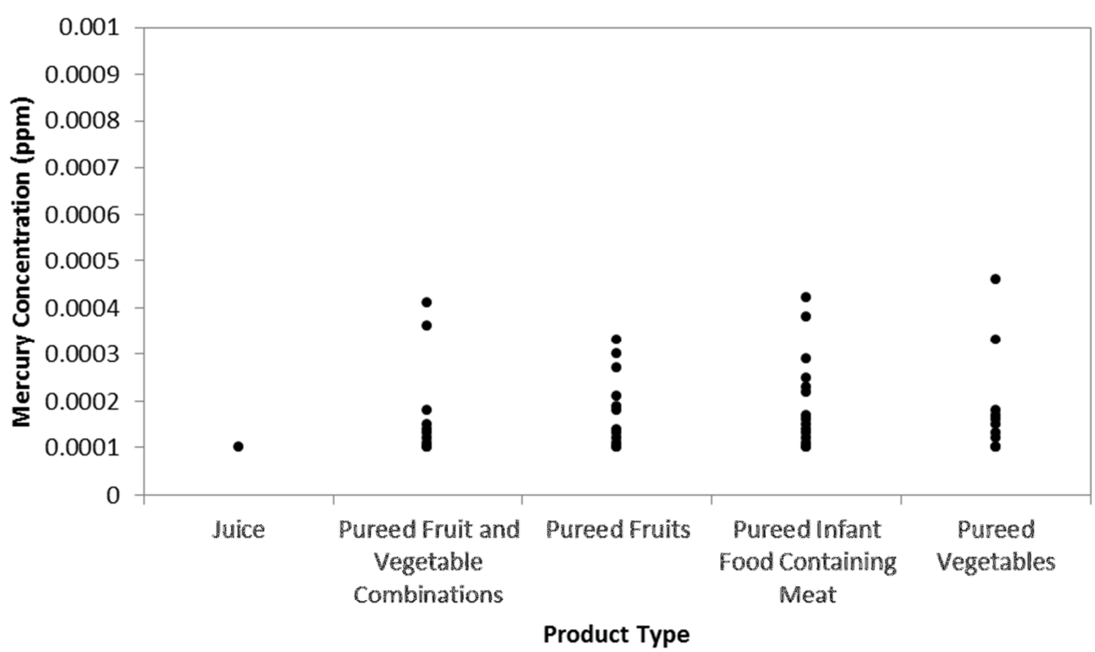


**Figure 7. Distribution of mercury levels detected by product type**

Testing for mercury was completed in similar types of infant foods in the 2008-2009 CFP; no detectable levels of mercury were found.[9] In the 2010-2011 CFP, mercury was detected in 6 out of 405 pureed infant food samples tested, at levels ranging from 0.0016 ppm to 0.0018 ppm.[10] The mercury levels observed in the 2013-2014 CFP are below the range of levels seen in the 2010-2011 CFP. Health Canada did not consider these mercury levels to represent a concern to infant health.

# 4 Conclusion

In total, 204 infant food samples were collected and analyzed for a variety of pesticide and veterinary drug residues and metals. The results of the 2013-2014 CFP indicate that veterinary drug residues were not detected in any of the 49 samples of pureed infant foods containing meat. There were 204 infant food samples tested for pesticide residues; 117 samples contained no detectable levels while 87 samples contained one or more pesticide residues. None of the pesticide levels detected exceeded established Canadian MRLs. The overall compliance rate of the pureed infant food samples tested for pesticide and veterinary drug residues was 100%. All levels of metals and other elements were assessed and were not considered to be of concern to infant health.

Due to the limited scope and number of samples collected in the 2013-2014 CFP, no clear relationships can be made between product type and country of origin. The data obtained from annual studies like the CFP are useful in the assessment of the dietary exposure of Canadian children to pesticide residues, veterinary drug residues, and metals in infant foods.

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# Appendix A

**Table A-1 Summary of results obtained in previous Children's Food Projects**

| Age Group Targeted | Remarks and pesticide residue results | Sampling Year | Sample Size |
|---|---|---|---|
| 0 – 18 months | • Overall compliance rate of 99.76% | *2002 - 2003* | 412 |
| 2 – 10 years | • Scope expansion to include some veterinary drug residues and metals<br>• Overall compliance rate of 100% | *2003 - 2004* | 594 |
| 0.5 – 15 years | • Overall compliance rate of 98.8% | *2004 - 2006* | 1523 |
| 0.5 – 15 years | • Overall compliance rate of 100% | *2006 - 2007* | 350 |
| 3 – 15 years | • Overall compliance rate of 98.6% | *2007 - 2008* | 836 |
| 0 – 24 months | • Pesticide residue scope expansion from 300 to 400 residues<br>• Overall compliance rate of 99.7% | *2008 – 2009* | 382 |
| 2 – 15 years | • Overall compliance rate of 98.6% | *2009 – 2010* | 821 |
| 0 – 24 months | • Overall compliance rate of 100% | *2010 – 2011* | 879 |
| 2 – 15 years | • Overall compliance rate of 99.7% | *2011-2012* | 710 |
| 0 – 24 months | • Overall compliance rate of 96.6%<br>• Scope expansion to include some veterinary drug residues, aflatoxin M1, and arsenic speciation | *2012-2013* | 204 |

# Appendix B

**Table B-1 Analytes (155) included in the multi-residue method (LC/ESI-MS/MS) for pesticide residues in fresh fruits and vegetables and processed products**

| | | | |
|---|---|---|---|
| 3-hydroxycarbofuran | diniconazole | isoxathion | pyridate |
| acetochlor | dioxacarb | linuron | pyrifenox |
| aclonifen | dipropetryn | mepanipyrim | pyrimethanil |
| aldicarb | diuron | mephosfolan | pyriproxyfen |
| aldicarb sulfone | dodemorph | methabenzthiazuron | quinoxyfen |
| aldicarb sulfoxide | emamectin | methidathion | quizalofop |
| azaconazole | epoxiconazole | methiocarb | quizalofop-ethyl |
| benomyl | ethiofencarb | methiocarb sulfone | schradan |
| benoxacor | ethiofencarb sulfone | methiocarb sulfoxide | spinosyn A |
| bitertanol | ethiofencarb sulfoxide | methomyl | spinosyn D |
| bromuconazole | ethirimol | methoxyfenozide | spirodiclofen |
| butafenacil | ethoprop | metolcarb | spiromesifen |
| butocarboxim sulfoxide | ethoprophos | metoxuron | spiroxamine |
| cadusafos | etofenprox | mexacarbate | sulfentrazone |
| carbaryl | etoxazole | molinate | tebufenozide |
| carbendazim | fenamidone | monocrotophos | tebufenpyrad |
| carbofuran | fenazaquin | napropamide | tebupirimfos |
| carbosulfan | fenhexamid | naptalam | tepraloxydim |
| carfentrazone-ethyl | fenoxanil | neburon | tetraconazole |
| chlorbromuron | fenpropidin | ofurace | thiabendazole |
| chloridazon | fenpropimorph | oxadixyl | thiacloprid |
| chlorimuron-ethyl | fenpyroximate | oxamyl | thiamethoxam |
| chloroxuron | fentrazamide | oxamyl oxime | thiazopyr |
| chlorthiamid | fluazifop-butyl | oxycarboxin | thiodicarb |
| chlortoluron | flucarbazone-sodium | paclobutrazol | thiofanox |
| clodinafop-propargyl | flutolanil | pencycuron | thiofanox sulfone |
| cloquintocet-mexyl | flutriafol | penoxsulam | thiofanox sulfoxide |
| clothianidin | forchlorfenuron | picolinafen | thiophanate methyl |
| cyanofenphos | formetanate | picoxystrobin | tolyfluanid |
| cycloxydim | fosthiazate | piperophos | tralkoxydim |
| cycluron | fuberidazole | pretilachlor | trichlorfon |
| demeton-s-methyl sulfone | furathiocarb | primisulfuron-methyl | tricyclazole |
| demeton-s-methyl sulfoxide | haloxyfop | prodiamine | trietazine |
| desmedipham | imazamethabenz-methyl | propoxur | trifloxysulfuron |
| diclocymet | imidacloprid | pymetrozine | triforine |
| diethofencarb | indoxacarb | pyraclostrobin | trimethacarb |
| difenoconazole | iprovalicarb | pyraflufen-ethyl | zinophos |
| dimethametryn | isocarbamide | pyridalyl | zoxamide |
| dimethomorph | isoprocarb | pyridaphenthion | |

**Table B-2 Analytes (335) included in multi-residue method (with solid phase extraction clean-up and GC/MSD and HPLC fluorescence detection) for pesticide residue analysis in processed products and honey**

| | | | |
|---|---|---|---|
| 3-hydroxycarbofuran | cycloate | flamprop-isopropyl | phorate sulfone |
| acephate | cyfluthrin | flamprop-methyl | phosalone |
| acetamiprid | cypermethrin | fluchloralin | phosmet |
| acetochlor | cyprazine | flucythrinate | phosphamidon |
| acibenzolar-s-methyl | cyproconazole | fludioxonil | piperonyl butoxide |
| alachlor | cyprodinil | flumetralin | pirimicarb |
| aldicarb | cyromazine | fluorochloridone | pirimiphos-ethyl |
| aldicarb sulfone | dacthal (chlorthal-dimethyl) | fluorodifen | pirimiphos-methyl |
| aldicarb sulfoxide | DDD-op | flusilazole | prochloraz |
| aldrin | DDD-pp | folpet | procymidone |
| allidochlor | DDE-op | fonofos | prodiamine |
| alpha-BHC | DDE-pp | heptachlor | profenophos |
| alpha-endosulfan | DDT-op | heptachlor epoxide - exo | profluralin |
| ametryn | DDT-pp | heptachlor epoxide - endo | promecarb |
| aminocarb | delta HCH | heptenophos | prometon |
| amitraz | deltamethrin | hexachlorobenzene | prometryne |
| aramite | delta-trans-allethrin | hexaconazole | pronamide |
| aspon | demeton-O | hexazinone | propachlor |
| atrazine | demeton-S | imazalil | propamocarb |
| azinphos-ethyl | demeton-S-methyl | indoxacarb | propanil |
| azinphos-methyl | des-ethyl atrazine | iodofenphos | propargite |
| azoxystrobin | desmetryn | iprobenfos | propazine |
| benalaxyl | di-allate | iprodione | propetamphos |
| bendiocarb | dialofos | isazophos | propham |
| benfluralin | diazinon | isofenphos | propiconazole |
| benodanil | diazinon o analogue | isoprocarb | propoxur |
| bensulide | dichlobenil | isopropalin | propyzamide |
| benzoylprop-ethyl | dichlofluanid | isoprothiolane | prothiophos |
| beta-BHC | dichloran | kresoxim-methyl | pymetrozine |
| beta-endosulfan | dichlormid | lambda-cyhalothrin | pyracarbolid |
| bifenox | dichlorvos | leptophos | pyraclostrobin |
| bifenthrin | diclobutrazole | lindane | pyrazophos |
| biphenyl | diclofenthion | linuron | pyrethrin |
| boscalid | diclofop-methyl | malaoxon | pyridaben |
| bromacil | dicofol | malathion | pyridalyl |
| bromophos | dicrotophos | mecarbam | pyriproxyfen |
| bromophos-ethyl | dieldrin | metalaxyl | quinalphos |
| bromopropylate | diethatyl-ethyl | metazachlor | quinomethionate |
| bufencarb | dimethachlor | methamidophos | quintozene |
| bupirimate | dimethoate | methidathion | schradan |
| buprofezin | dimethomorph | methiocarb | secbumeton |
| butachlor | dinitramine | methiocarb sulfoxide | simazine |
| butralin | dioxacarb | methomyl | simetryn |
| butylate | dioxathion | methoprotryne | sulfallate |

| | | | |
|---|---|---|---|
| capmet | diphenamid | methoxychlor | sulfotep |
| captafol | diphenylamine | methyl - trithion | sulprophos |
| captan | disulfoton | methyl pentachlorophenyl sulphide | tau-fluvalinate |
| carbaryl | disulfoton sulfone | metobromuron | TCMTB |
| carbetamide | DNOC | metolachlor | tebuconazole |
| carbofenthion | edifenphos | metribuzin | tecnazene |
| carbofuran | endosulfan sulphate | mexacarbate | terbacil |
| carboxin | endrin | mirex | terbufos |
| chlorbenside | EPN | molinate | terbumeton |
| chlorbromuron | EPTC | monocrotophos | terbutryne |
| chlorbufam | erbon | monolinuron | terbutylazine |
| chlordane | esfenvalerate | myclobutanil | tetrachlorvinphos |
| chlordimeform | etaconazole | naled | tetradifon |
| chlorfenapyr | ethalfluralin | nitralin | tetraiodoethylene |
| chlorfenson | ethion | nitrapyrin | tetramethrin |
| chlorfenvinphos | ethofumesate | nitrofen | tetrasul |
| chlorflurenol-methyl | ethoprophos | nitrothal-isopropyl | thiabendazole |
| chloridazon | ethylan | norflurazon | thiobencarb |
| chlormephos | etridiazole | nuarimol | thiodicarb |
| chlorobenzilate | etrimfos | octhilinone | t-mevinphos |
| chloroneb | fenamidone | omethoate | tolclofos-methyl |
| chloropropylate | fenamiphos | o-phenylphenol | tolyfluanid |
| chlorothalonil | fenamiphos sulfone | oxadiazon | total endosulfan |
| chlorpropham | fenamiphos sulfoxide | oxadixyl | toxaphene B |
| chlorpyrifos | fenarimol | oxamyl | tralomethrin |
| chlorpyrifos-methyl | fenbuconazole | oxycarboxin | trans chlordane |
| chlorthiamid | fenchlorphos | oxychlordane | trans-permethrin 2 |
| chlorthion | fenfuram | oxydemeton-methyl | triadimefon |
| chlorthiophos | fenhexamid | oxyfluorfen | triadimenol |
| chlozolinate | fenitrothion | paraoxon | tri-allate |
| cis chlordane | fenoxycarb | parathion | triazophos |
| cis-permethrin 1 | fenpropathrin | parathion-methyl | tribufos |
| clomazone | fenpropimorph | pebulate | tricyclazole |
| c-mevinphos | fenson | penconazole | trifloxystrobin |
| coumaphos | fensulfothion | pendimethalin | triflumizole |
| crotoxyphos | fenthion | pentachloroaniline | trifluralin |
| crufomate | fenthion oxon | pentachlorobenzene | vernolate |
| cyanazine | fenvalerate | permethrin | vinclozolin |
| cyanofenphos | fipronil | phenthoate | zinophos |
| cyanophos | fipronil desulfinyl | phorate | |

**Table B-3 Analytes (39) included in multi-residue method for pesticide residues in dairy products**

| | | |
|---|---|---|
| alachlor | DDD-op | heptachlor epoxide - exo |
| alachlor metabolite | DDD-pp | hexachlorobenzene |
| aldrin | DDE-op | lindane |
| alpha-BHC | DDE-pp | methoxychlor |
| alpha-endosulfan | DDT-op | mirex |
| beta-BHC | DDT-pp | myclobutanil |
| beta-endosulfan | dicofol | oxychlordane |
| chlordane | dieldrin | permethrin |
| chlorpyrifos | endosulfan sulphate | quizalofop-ethyl |
| cis chlordane | endrin | tefluthrin |
| cis-permethrin 1 | fenchlorphos | total endosulfan |
| cl-diethylacetanilide | heptachlor | trans chlordane |
| cyfluthrin | heptachlor epoxide - endo | trans-permethrin 2 |

**Table B-4 Analytes (62) included in veterinary drug multi-class antibiotic multi-residue method**

| | | |
|---|---|---|
| amoxicillin | enrofloxacin | sulfadiazine |
| ampicillin | erythromycin | sulfadimethoxine |
| cefazolin | florfenicol | sulfadoxine |
| cephalexin | nafcillin | sulfaethoxypyridazine |
| chloramphenicol | neospiramycin | sulfamethazine |
| chlortetracycline | oleandomycin | sulfamethoxypyridazine |
| ciprofloxacin | oxacillin | sulfaquinoxaline |
| cloxacillin | oxytetracycline | sulfathiazole |
| danofloxacin | penicillin G | tetracycline |
| desacetyl cephapirin | sarafloxacin | thiamphenicol |
| dicloxacillin | spiramycin | tilmicosin |
| doxycycline | sulfachloropyridazine | tylosin |

# Appendix C

**Table C-1 Levels of metals observed in the product types tested**

| Metal Analyte | Product Type | Total Number of Samples | Total Number Negative | Total Number Positive | Minimum (ppm) | Maximum (ppm) | Mean (ppm)[1] |
|---|---|---|---|---|---|---|---|
| **Aluminum** | Juice | 7 | | 7 | 0.311 | 1.465 | 0.708 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 0.354 | 3.640 | 1.021 |
| | Pureed Fruits | 81 | 1 | 80 | 0.195 | 10.720 | 0.963 |
| | Pureed Infant Food Containing Meat | 49 | 7 | 42 | 0.124 | 10.990 | 1.122 |
| | Pureed Vegetables | 34 | 1 | 33 | 0.132 | 1.491 | 0.537 |
| **Antimony** | Juice | 7 | 7 | - | - | - | - |
| | Pureed Fruit and Vegetable Combinations | 33 | 33 | - | - | - | - |
| | Pureed Fruits | 81 | 81 | - | - | - | - |
| | Pureed Infant Food Containing Meat | 49 | 49 | - | - | - | - |
| | Pureed Vegetables | 34 | 34 | - | - | - | - |
| **Arsenic** | Juice | 7 | 5 | 2 | 0.005 | 0.007 | 0.006 |
| | Pureed Fruit and Vegetable Combinations | 33 | 25 | 8 | 0.006 | 0.019 | 0.009 |
| | Pureed Fruits | 81 | 67 | 14 | 0.006 | 0.010 | 0.008 |
| | Pureed Infant Food Containing Meat | 49 | 35 | 14 | 0.005 | 0.020 | 0.010 |
| | Pureed Vegetables | 34 | 30 | 4 | 0.006 | 0.023 | 0.014 |
| **Beryllium** | Juice | 7 | 7 | - | - | - | - |
| | Pureed Fruit and Vegetable Combinations | 33 | 33 | - | - | - | - |
| | Pureed Fruits | 81 | 81 | - | - | - | - |
| | Pureed Infant Food Containing Meat | 49 | 49 | - | - | - | - |
| | Pureed Vegetables | 34 | 34 | - | - | - | - |
| **Boron** | Juice | 7 | | 7 | 1.611 | 4.505 | 2.879 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 1.405 | 6.425 | 3.297 |
| | Pureed Fruits | 81 | | 81 | 0.141 | 9.688 | 3.843 |
| | Pureed Infant Food Containing Meat | 49 | 3 | 46 | 0.055 | 2.617 | 0.820 |
| | Pureed Vegetables | 34 | | 34 | 0.307 | 3.657 | 1.188 |
| **Cadmium** | Juice | 7 | 7 | - | - | - | - |
| | Pureed Fruit and Vegetable Combinations | 33 | 15 | 18 | 0.002 | 0.041 | 0.007 |
| | Pureed Fruits | 81 | 62 | 19 | 0.002 | 0.020 | 0.005 |

| Metal Analyte | Product Type | Total Number of Samples | Total Number Negative | Total Number Positive | Minimum (ppm) | Maximum (ppm) | Mean (ppm)[1] |
|---|---|---|---|---|---|---|---|
| | Pureed Infant Food Containing Meat | 49 | 22 | 27 | 0.003 | 0.031 | 0.007 |
| | Pureed Vegetables | 34 | 18 | 16 | 0.002 | 0.012 | 0.005 |
| **Chromium** | Juice | 7 | 5 | 2 | 0.014 | 0.026 | 0.020 |
| | Pureed Fruit and Vegetable Combinations | 33 | 4 | 29 | 0.021 | 0.204 | 0.060 |
| | Pureed Fruits | 81 | 11 | 70 | 0.010 | 0.261 | 0.055 |
| | Pureed Infant Food Containing Meat | 49 | 13 | 36 | 0.011 | 0.175 | 0.051 |
| | Pureed Vegetables | 34 | 16 | 18 | 0.012 | 0.258 | 0.069 |
| **Copper** | Juice | 7 | 1 | 6 | 0.043 | 0.133 | 0.085 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 0.352 | 1.810 | 0.825 |
| | Pureed Fruits | 81 | | 81 | 0.050 | 2.039 | 0.691 |
| | Pureed Infant Food Containing Meat | 49 | | 49 | 0.333 | 4.356 | 1.071 |
| | Pureed Vegetables | 34 | | 34 | 0.198 | 1.678 | 0.695 |
| **Iron** | Juice | 7 | | 7 | 0.567 | 2.555 | 1.201 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 1.706 | 9.586 | 3.747 |
| | Pureed Fruits | 81 | 1 | 80 | 0.392 | 8.791 | 2.604 |
| | Pureed Infant Food Containing Meat | 49 | | 49 | 3.034 | 42.120 | 10.639 |
| | Pureed Vegetables | 34 | | 34 | 1.096 | 11.990 | 4.456 |
| **Lead** | Juice | 7 | | 7 | 0.002 | 0.020 | 0.008 |
| | Pureed Fruit and Vegetable Combinations | 33 | 20 | 13 | 0.002 | 0.023 | 0.005 |
| | Pureed Fruits | 81 | 48 | 33 | 0.002 | 0.013 | 0.004 |
| | Pureed Infant Food Containing Meat | 49 | 21 | 28 | 0.002 | 0.073 | 0.006 |
| | Pureed Vegetables | 34 | 13 | 21 | 0.002 | 0.016 | 0.005 |
| **Magnesium** | Juice | 7 | | 7 | 18.290 | 68.190 | 43.443 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 77.470 | 273.000 | 136.836 |
| | Pureed Fruits | 81 | | 81 | 13.880 | 301.100 | 114.352 |
| | Pureed Infant Food Containing Meat | 49 | | 49 | 87.740 | 257.700 | 155.574 |
| | Pureed Vegetables | 34 | | 34 | 51.640 | 207.700 | 113.770 |
| **Manganese** | Juice | 7 | | 7 | 0.259 | 0.577 | 0.373 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 0.453 | 3.758 | 1.275 |
| | Pureed Fruits | 81 | | 81 | 0.211 | 7.855 | 1.493 |
| | Pureed Infant Food Containing Meat | 49 | | 49 | 0.080 | 3.809 | 1.108 |

| Metal Analyte | Product Type | Total Number of Samples | Total Number Negative | Total Number Positive | Minimum (ppm) | Maximum (ppm) | Mean (ppm)[1] |
|---|---|---|---|---|---|---|---|
| | Pureed Vegetables | 34 | | 34 | 0.198 | 2.461 | 1.174 |
| **Mercury** | Juice | 7 | 7 | - | - | - | - |
| | Pureed Fruit and Vegetable Combinations | 33 | 18 | 15 | 0.0001 | 0.0004 | 0.0002 |
| | Pureed Fruits | 81 | 52 | 29 | 0.0001 | 0.0003 | 0.0002 |
| | Pureed Infant Food Containing Meat | 49 | 23 | 26 | 0.0001 | 0.0004 | 0.0002 |
| | Pureed Vegetables | 34 | 20 | 14 | 0.0001 | 0.0005 | 0.0002 |
| **Molybdenum** | Juice | 7 | 7 | - | - | - | - |
| | Pureed Fruit and Vegetable Combinations | 33 | 4 | 29 | 0.021 | 1.038 | 0.102 |
| | Pureed Fruits | 81 | 41 | 40 | 0.021 | 0.208 | 0.049 |
| | Pureed Infant Food Containing Meat | 49 | 9 | 40 | 0.020 | 0.548 | 0.138 |
| | Pureed Vegetables | 34 | 5 | 29 | 0.021 | 1.199 | 0.196 |
| **Nickel** | Juice | 7 | 1 | 6 | 0.013 | 0.041 | 0.025 |
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 0.028 | 0.700 | 0.127 |
| | Pureed Fruits | 81 | | 81 | 0.011 | 2.044 | 0.142 |
| | Pureed Infant Food Containing Meat | 49 | 3 | 46 | 0.016 | 0.555 | 0.119 |
| | Pureed Vegetables | 34 | 1 | 33 | 0.014 | 1.511 | 0.378 |
| **Selenium** | Juice | 7 | 3 | 4 | 0.021 | 0.044 | 0.031 |
| | Pureed Fruit and Vegetable Combinations | 33 | 24 | 9 | 0.021 | 0.081 | 0.035 |
| | Pureed Fruits | 81 | 34 | 47 | 0.023 | 0.285 | 0.100 |
| | Pureed Infant Food Containing Meat | 49 | 44 | 5 | 0.023 | 0.054 | 0.037 |
| | Pureed Vegetables | 34 | 34 | - | - | - | - |
| **Tin** | Juice | 7 | 4 | 3 | 0.045 | 0.067 | 0.056 |
| | Pureed Fruit and Vegetable Combinations | 33 | 14 | 19 | 0.020 | 0.191 | 0.054 |
| | Pureed Fruits | 81 | 33 | 48 | 0.020 | 0.237 | 0.076 |
| | Pureed Infant Food Containing Meat | 49 | 12 | 37 | 0.023 | 0.391 | 0.149 |
| | Pureed Vegetables | 34 | 6 | 28 | 0.021 | 0.306 | 0.142 |
| **Titanium** | Juice | 7 | 6 | 1 | 0.057 | 0.057 | 0.057 |
| | Pureed Fruit and Vegetable Combinations | 33 | 6 | 27 | 0.050 | 0.260 | 0.094 |
| | Pureed Fruits | 81 | 40 | 41 | 0.050 | 0.201 | 0.093 |
| | Pureed Infant Food Containing Meat | 49 | 3 | 46 | 0.054 | 0.201 | 0.105 |
| | Pureed Vegetables | 34 | 20 | 14 | 0.052 | 0.152 | 0.079 |
| **Zinc** | Juice | 7 | 2 | 5 | 0.133 | 0.599 | 0.311 |

| Metal Analyte | Product Type | Total Number of Samples | Total Number Negative | Total Number Positive | Minimum (ppm) | Maximum (ppm) | Mean (ppm)[1] |
|---|---|---|---|---|---|---|---|
| | Pureed Fruit and Vegetable Combinations | 33 | | 33 | 0.595 | 3.110 | 1.497 |
| | Pureed Fruits | 81 | | 81 | 0.115 | 2.648 | 0.873 |
| | Pureed Infant Food Containing Meat | 49 | | 49 | 2.236 | 40.140 | 11.595 |
| | Pureed Vegetables | 34 | | 34 | 0.681 | 7.025 | 2.375 |

[1] The mean is the average of the positive results.