

FS102048 –Hallmark Final Report

Survey of metals in commercial infant foods, infant formula and non infant specific foods

1. Excel document containing all data & hyperlinks to photo reports.

File name: Survey data collection summary final (Appendix 1)

2. Copy of EFSA generic reporting format.

File name: FS102048-EFSA GenericReportingFormat (Appendix 2)

3. Summary of the sampling strategy, including how the sampling regions were selected and how individual products were selected within that.

Sampling plan

A total of 397 samples were required for this survey, consisting of 47 samples of infant formula (including follow-on formula), 200 samples of infant food and drink and 50 non infant specific foods¹ (made up of 10 subsamples per foodstuff). The sample numbers were established by the Food Standards Agency and the description below refers to the sampling strategy only.

Infant formula:

- The 47 infant formula products were requested directly by the Food Standards Agency. These products were randomly collected from the selected sampling locations (see below).

Commercial infant foods and drinks (200 products):

- Allocation of samples across brands: the pre-defined number of samples were allocated to specific brands in proportion to their market share (Mintel, 2013). Table 1 presents the list of brands, their market share by volume and the number of products to be sampled from each.

Table 1. Leading brand sales and shares in the UK baby food and snacks market by volume 2013

Brand	Market share	No of products (= No samples)
Cow and Gate	28%	56
Hipp Organic	26%	52
Heinz	22%	44
Ella's Kitchen	10%	20
Organix	5%	10
Plum Baby	3%	6
Farley's	2%	4
Annabel Karmel	1%	2
Other (Kiddylicious/Boots/ Nestlé CERELAC®/Aptamil, etc)	3%	6
Total	100	200

- Selection of products within brands: For each brand, a sample frame of infant products was obtained from information available on its website. The requirement specified that only 1 sample per product should be included, therefore the selection of specific products to be sampled was carried out by simple

¹ Foods that are or may be consumed by infants but are not specifically manufactured or intended for infants.

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random sampling of individual products within each brand without any adjustment for market share or other factors.

- Allocation of products to collection locations: selected products (n=200) were randomly allocated across 16 geographic collection locations (see 'selection of locations' below).
- Allocation of products to retailers: for each of the 16 locations, 3 of the 9 listed retailers (see below) were randomly selected as 1st choice, 2nd choice and 3rd choice. If possible, individuals in charge of the sampling were instructed to obtain all samples allocated to each location, initially from the 1st choice retailer, followed by the 2nd choice retailer when a product was not available from the 1st choice, or the 3rd choice retailer when a product was not available from the 1st and 2nd choice retailers. The selection of retailers as 1st, 2nd or 3rd choice was carried out randomly but sequentially (i.e. in a random sequence) to ensure similar representation of each retailer among 1st, 2nd and 3rd choice groups.
- Products not available: for those products not available at either 1st, 2nd or 3rd choice retailers samples were purchased online from either Amazon or Ocado.

Selection of locations

- 16 sampling locations were identified (along with online purchases for small/own brands) to give a total of 17 sites). In deciding this number consideration was given to the trade-off between broad coverage that would allow exposure of a high proportion of the population to be captured and a minimum number of samples per location that could be selected from the relevant strata. Given that the total number of samples to be collected (47 infant formula, 200 commercial infant foods and drinks and 50 non infant specific food items (10 subsamples per foodstuff)) was already specified in the request, 17 sample sites were selected so that no less than 10 products were collected in each single location (infant formula and commercial infant food); to allow a certain level of stratification within sampling locations (e.g. establishment of two to three strata (retailers) per location and five to ten samples per stratum). The live birth numbers from the Office for National Statistics were used as a proxy with regard to the level of exposure captured by sampling at 16 locations (and one online purchase location).
- According to the Office for National Statistics, there were approximately 25K, 60K, 680K and 36K new-borns in Northern Ireland, Scotland, England and Wales in 2010. The locations with high live births were: Cardiff (Wales), Glasgow (Scotland), Belfast (Northern Ireland), Bristol and Devon (South West), Milton Keynes (South East), Ealing (outer London), Newham (inner London), Luton (East), Birmingham (West Midlands), Leicester (East Midlands), Leeds and Sheffield (Yorkshire), Manchester and Liverpool (North West) and Newcastle (North East). These locations were chosen as the 16 sampling locations.
- Selection of outlets/retailers was primarily based on retailers listed on each infant food brand's website, while taking into account that certain retailers might have higher market share specifically for infant products. The retailers identified were Boots, ASDA, Tesco, Sainsbury's, Superdrug, Morrisons, Co-op, M&S and Waitrose. Within a retailer, the hypermarket or normal supermarket types were chosen instead of urban or mini types in order to reduce the chance of required products being unavailable in the outlets. For online purchase, products were obtained from Amazon or Ocado.

For the non-infant specific products (500 subsamples in total)

- The proposed sampling strategy for the non-infant specific products differed from the general sampling strategy that was used for infant products (where samples were taken across locations). All samples were collected from a single location and in several supermarkets (no geographical spread) by the sampling team. This exceptional case was due to the special nature of the composite samples and the requirements in terms of collection, handling and submission.

4. - Summary of deviations from the strategy.

a) Ensuring samples were made up from same batch number

Given the sample size (700g) there were occasions where samples with different batch codes had to be purchased to make up the sample size.

b) Re-sampling strategies where infant foods samples were not available

Where foods were not available from 1st, 2nd or 3rd choice retailer, the initial strategy was to purchase samples online, either from Amazon or Ocado.

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However, as the percentage of samples collected following completion of the initial round of sampling was 62% (a 76 product shortage) it was decided to review the re-sampling procedure and not replace these samples entirely with samples purchased online.

The shortage of available samples was mainly because not all of the randomly selected retailers had the products available (i.e. M&S do not sell infant food). Also the required sample quantity (700g) was found to be a major challenge.

To overcome this, a re-sampling strategy was agreed with the Food Standards Agency.

Reviewed re-sampling strategy: Once the initial round of sampling was completed, it was identified whether a certain product was on sale in the 1st, 2nd and 3rd choice retailers, and the overall shortfall was randomly re-allocated across collection points that had the product available. Following online market research for product availability, retailers were filtered so that only retailers in which products are available were included in the allocation.

Re-sampling procedure for infant products:

- All 76 products were collected from the same location that they were assigned originally.
- Hallmark provided a sequence of 5 retailers where products were found to be available for each of the locations.
- The collector was requested to visit the first retailer and collect all products required if possible, and that if they weren't available the remaining products would be collected from the second retailer, etc.
- Collectors were encouraged to call the retailers in advance of the visit to ensure that the products were ready for purchase before they travelled to the retailer (or to reserve the items online and collect in stores).

c) Replacement of products:

Hallmark verified that the products below were not available from any retailer before a decision was made to replace them.

Table 2. List of replacement products

Brand	Original selected product	Comments	New product from same brand randomly selected
Cow & Gate	Red pepper & carrot with turkey	Out of Stock	creamy cottage pie
Kiddylicious	Fruity Chicken Curry & Rice (200g)N/A	Out of Stock	Banana Bites
Annabel Karmel	Fuss Pots Spaghetti Bolognese with Hidden Veg	Discontinued	Disney Cheese & Onion Rice & Corn Snacks
Heinz (Heinz)	Heinz Taste of Home Spaghetti Bolognese with Basil	Discontinued	Mediterranean Veggies, Chicken and Sweet potato 7+ mo.
Heinz (Heinz)	Heinz Taste of Home Sweet Potato Cottage Pie	Discontinued	chocolate & banana pudding 4-6 months onwards
Heinz (Heinz)	Heinz Taste of Home Tomato, Mozzarella & Pasta Stars with Basil 7+ Months	Discontinued	Lamb with Winter Vegetables 7+ months

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Table 3. Target and achieved sample numbers within each category and number of samples by location

Required Sampling Collection Location	Targeted sample numbers				Achieved sample numbers						
	No samples of infant formula requested	No samples of commercial infant foods requested	No Sub-sample of non-infant specific foods (composite)	Total No Samples requested	Total No samples assayable of the infant formula	%	Total No samples assayable of the commercial infant foods	%	Total No samples assayable of the non-infant specific foods	Total No samples assayable of the No samples Collected	% samples assayable as a % of samples Collected
Leicester	3	11		14	2	67%	9	82%		11	79%
Luton	3	12		15	1	33%	9	75%		10	67%
Milton Keynes	3	11		14	3	100%	11	100%		14	100%
Bristol	3	12		15	3	100%	12	100%		15	100%
Devon	3	12		15	3	100%	12	100%		15	100%
Belfast	3	12		15	3	100%	12	100%		15	100%
Newham	3	11		14	3	100%	11	100%		14	100%
Birmingham	3	12		15	3	100%	11	92%		14	93%
Newcastle	3	12		15	2	67%	11	92%		13	87%
Ealing	2	12		14	2	100%	8	67%		10	71%
Sheffield	3	12		15	3	100%	10	83%		13	87%
Glasgow	3	12		15	3	100%	12	100%		15	100%
Liverpool	2	12		14	2	100%	11	92%		13	93%
Online	2	11		13	6	300%	29	264%		35	269%
Cardiff	3	12		15	3	100%	12	100%		15	100%
Leeds	2	12		14	2	100%	10	83%		12	86%
Manchester	3	12		15	3	100%	10	83%		13	87%
Other-Non Infant specific			500	500					499	499	100%
Total	47	200	500	747	47	100%	200	100%	499	746	100%

Table 4. infant food samples collected by retailer

Outlet	No Samples	Percentages	
Tesco	50	20%	
Asda	59	24%	86%
Sainsbury's	28	11%	
Morrisons	14	6%	
Co-op	2	1%	
Waitrose	12	5%	
Boots	41	17%	
M&S	0	0%	
Superdrug	6	2%	
Online Ocado	27	11%	14%
Online Amazon	6	2%	
Other online	2	1%	
Total	247	100%	