



Survey of Acrylamide and Furan in UK Retail Products: Summary Report for Samples Purchased Between November 2011 and Dec 2013

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1. SUMMARY

This report contains a summary of acrylamide and furan concentrations measured in UK retail food samples purchased between the period November 2011 – December 2013.

- Samples were supplied to Premier Analytical Services² by an independent contractor in accordance with a sampling and analysis plan agreed with the UK Food Standards Agency. Where necessary, foods were cooked according to the manufacturers' guidelines prior to analysis.
- The total number of retail products sampled during the survey was 556 and represented the 10 food groups as specified in Commission Recommendation (EU) No. 2010/307 on the monitoring of acrylamide in food.
- All analyses were carried out using accredited methods: 544 measurements were made for acrylamide and 266 for furan.
- For this 2011- 2013 period, the number of products found to contain acrylamide levels that exceeded the 'Indicative Values' (IV) for their food category as specified in the most recent Commission Recommendation (2013/647/EU) was 37.
- Where possible, a comparison of annual survey means was made with previous survey data (since 2007).
 - Crisps, soft bread and biscuits and crackers showed a tentative decreases in annual mean acrylamide concentration (R^2 ranged from 0.32-0.76);
 - Infant cereals (excluding biscuits and rusks) showed a tentative increase in mean concentrations ($R^2=0.72$)
 - No discernible trends or no change in annual means could be determined for French fries sold as ready to eat, potato products for home cooking, breakfast cereals, roast coffee and baby foods in jars / pouches

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2. CONTENTS

1. SUMMARY	3
2. CONTENTS	4
3. BACKGROUND	6
4. METHODS	7
4.1 SAMPLES	7
4.2 ANALYSIS	7
5. RESULTS AND DISCUSSION	8
5.1 ACRYLAMIDE	8
5.1.1 Products prepared from fresh potato (Categories 1, 2, and 3).	12
5.1.2 Soft bread (Category 4 – 20 samples).	14
5.1.3 Breakfast Cereals (Category 5 – 20 samples).	15
5.1.4 Biscuits and crackers (Category 6 – 20 samples).	16
5.1.5 Coffee (Category 7 – 20 samples).	17
5.1.6 Baby foods other than processed cereal based foods (Category 8 – 20 samples)	18
5.1.7 Processed cereal based foods for infants & young children (Category 9 – 20 samples)..	19
5.1.8 Other products (Category 10 – 50 samples).	20
5.2 FURAN	20
6. CONCLUSIONS	23
7. APPENDICES	25
7.1 SAMPLING PLAN	26
7.2 SAMPLE PREPARATION DETAILS AND ANALYTICAL METHODS	28
7.2.1 Sample preparation	28
7.2.2 Acrylamide analysis by GC/MS/MS	37
7.2.3 Analysis of furan	37
7.3 ANALYTICAL QUALITY ASSURANCE	37
7.4 ACRYLAMIDE INDICATIVE LEVELS (2013/647/EU)	39
7.5 ACRYLAMIDE RESULTS	40

FIGURES

Figure 1. Acrylamide in product categories / sub categories (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the period 2011-2013. 11	
Figure 2. Comparison of seasonal means for acrylamide in category 1 thin and thick cut French fries with data from previous surveys (Mar 2007 – Mar 2011). Vertical bars are ± 1 standard error; no sampling was undertaken in Mar 2010.	12
Figure 3. Comparison of seasonal means for acrylamide in category 2 crisps with data from previous surveys (Mar 2008 – Mar 2011). Vertical bars are ± 1 standard error; no sampling was undertaken in Mar 2010.	13
Figure 4 Comparison of seasonal means (log scale) for acrylamide in category 3 potato products prepared from fresh potato (62/72 samples) with data from previous surveys (Mar 2008 – Mar 2011). Vertical bars are ± 1 standard error; no sampling was undertaken in Mar 2010.	14
Figure 5. Comparison of annual mean acrylamide concentrations in retail soft bread with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011.....	15
Figure 6. Comparison of annual mean acrylamide concentrations in retail breakfast cereals with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011	16

Figure 7. Comparison of annual mean acrylamide concentrations in retail biscuits and crackers with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2010	17
Figure 8. Comparison of annual mean acrylamide concentrations in retail roast, instant and coffee substitutes with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011	18
Figure 9. Comparison of annual mean acrylamide concentrations in baby foods with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011	19
Figure 10. Comparison of annual mean acrylamide concentrations in processed cereal based foods and biscuits and rusks for infants and young children with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011	20
Figure 11. Furan in product categories / sub categories as consumed (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the survey (2012-2013).....	22
Figure 12. Losses of furan in roast, instant and coffee substitutes during preparation for consumption: Furan concentrations in all samples were normalised to a dry weight basis to remove dilution effects; vertical bars are ± 1 standard error.	23

TABLES

Table 1. Summary of samples received (Nov 2011- Dec 2013) and tests undertaken	8
Table 2. Summary of acrylamide concentrations ^a in each product category / sub-category	9
Table 3. Furan concentrations ^a (mean and range) as received / consumed by product category	21
Table 4. Sampling plan 2011 - 2013.....	26
Table 5. Details of the domestic cooking conditions	29
Table 6. Details of the domestic preparation of coffee and coffee substitutes prior to the analysis of furan “as consumed”.	35
Table 7. Summary of data obtained from the analysis of IHRMs and spiked samples during this survey	38
Table 8. FAPAS z-scores (2011-2013).....	38
Table 9. Percentage of samples reanalysed for acrylamide.....	38

3. BACKGROUND

Acrylamide is an industrial chemical widely used to make polymers for applications in paper making, soil conditioning, water treatment and sealants. Since the discovery of acrylamide in cooked foods extensive efforts have been made by researchers in the food industry and academia to understand and control its formation. It is now believed that acrylamide is formed as part of the Maillard reaction, a series of reactions that take place when amino acids react with reducing sugars to give much of the colour and flavour characteristics of heated foods. Acrylamide is formed from the reaction of the amino acid asparagine with reducing sugars and other reactive chemicals generated during the course of the Maillard reaction. Asparagine is an essential amino acid and occurs naturally in all plant materials together with naturally occurring reducing sugars. The amounts of acrylamide formed in foods are subject to the laws governing all chemical reactions and depend on e.g. the relative amounts of each reactant, the applied temperature and duration of cooking. Foods naturally high in these precursors can therefore form acrylamide as a result of cooking and processing, e.g. during drying, frying, baking, grilling, roasting, and toasting. Hence significant amounts of acrylamide have been measured in both home cooked and processed foods such as potato crisps, French fries, crispbreads and coffee. Acrylamide has been classified by the International Agency for Research on Cancer as 'probably carcinogenic in humans' and the Joint FAO/WHO Expert Committee on Food Additives (JECFA) concluded that levels of dietary exposure to acrylamide indicate a human health concern. Because of this, experts have advised that dietary exposure to acrylamide should be as low as reasonably practicable.

Commission Recommendation (EC) No. 2007/331 of 3 May 2007, on the monitoring of acrylamide levels in food, set out a three-year monitoring programme (2007 – 2009) for acrylamide in certain foodstuffs. This was followed by Commission Recommendation (EU) No. 2010/307 on the monitoring of acrylamide in food which placed a requirement on the Agency to obtain further monitoring data on acrylamide in UK retail samples. So far, the results for years 2007, 2008 and 2009 have been compiled and reported by the European Food Safety Authority (EFSA).

FoodDrinkEurope³ maintains and publishes the Toolbox, which provides guidance to industry on intervention steps that may be helpful in reducing acrylamide formation in French fries, crisps, bread, bakery wares, breakfast cereals, and coffee. While efforts by the food industry and member states to reduce acrylamide levels in foodstuffs are ongoing, it has been deemed appropriate to continue the collection of monitoring data to ascertain the efficacy or effects of these measures.

Like acrylamide, furan is also widely used in the chemical industry for the preparation of e.g. resins, lacquers and agricultural and pharmaceutical chemicals. While furan has been known as a flavour volatile for many years, e.g. in coffee, only limited data exist for concentrations in other foods. Various precursors such as reducing sugars, vitamin c, organic acids, carotenes and polyunsaturated fatty acids may lead to furan formation during heating but the underlying mechanism are not fully understood. Furan has been classified by the IARC as a possible human carcinogen. Evidence indicates that the latter may occur via a genotoxic mechanism. In 2007, the European Commission recommended that member states should carry out monitoring for the presence of furan in heated foods⁴.

The results from this three year survey support the Agency's current Strategic Plan (to 2015) in ensuring that foods produced or sold in the UK are safe to eat. It also meets the requirements of the Commission Recommendations for member states to monitor amounts of acrylamide and furan in retail foods and further supports Agency work to identify and reduce the impact of potential new and

³ Formerly known as CIAA (Confederation of Food and Drink Industries of the EU)

⁴ Commission recommendation of 28 march 2007 on the monitoring of the presence of furan in foodstuffs. Oj L 88/56 29.3.2007

re-emerging risks. Full details and final results for the previous 2010-2011 acrylamide / furan survey and links to earlier (2007, 2008, 2009) surveys and can be accessed via the Agency website⁵.

4. METHODS

4.1 SAMPLES

Samples representing the ten food groups specified in Commission Recommendation 2010/307/EU were collected by Ventress Technical Limited and delivered to Premier Analytical Services for analysis. Details of the sampling plan are given in Table 4 of the appendices (see section 7.1).

All samples received at the laboratory were prepared and stored according to the Food Standards Agency “Guidelines for undertaking surveys”⁶. Potato products from Food Category 3 were cooked according to manufacturers’ guidelines prior to the determination of acrylamide; because of the volatile nature of furan, coffee and coffee substitutes were tested for furan before and after preparation for consumption. Further details of the sample preparation procedures used are given in section 7.2 and Table 5 and Table 6.

4.2 ANALYSIS

Analysis of samples for the Nov 2011-2013 survey was carried out using UKAS accredited methods: the measurements of acrylamide and furan were based on the guidelines laid down in Commission Recommendations 2007/331/EC and 2007/196/EC. All test results were obtained from methods that used labelled isotope internal standards for recovery correction in line with Food Standards Agency Guidelines¹⁸ and EC recommendations^{7,8}. Further details of the methods together with the analytical quality assurance procedures and measurement uncertainty can be found in the appendices (see sections 7.2 and 7.3).

⁵ Available at: <http://www.food.gov.uk/science/research/surveillance/fsisbranch2012/acrylamide-furan-food-survey#.UzqZM6LYP8k>

⁶ Guidelines for undertaking surveys. Available at: <http://www.food.gov.uk/science/surveillance/guidefsatechsurv> [accessed March 2010]

5. RESULTS AND DISCUSSION

A total of 556 samples were received over the period November 2011 - November 2013 for the analysis of acrylamide and furan in accordance with the test requirements given in Table 1. Potato products for home cooking and microwaveable popcorn were cooked according to manufacturers guidelines prior to analysis. Coffee and coffee substitutes requiring furan analysis were tested as received and as consumed to assess potential losses of volatile furan during preparation (see appendix 7.2 for cooking / preparation conditions).

Table 1. Summary of samples received (Nov 2011- Dec 2013) and tests undertaken

Food category	Description	Number of samples received	Analyses			
			acrylamide		furan	
			As received	As consumed	As received	As consumed
1	French fries, sold as ready-to-eat	100	100	-	-	-
2	Potato crisps	50	50	-	-	-
3	Pre-cooked French fries/potato products for home cooking	72	-	72	-	-
4	Bread	40	40	-	-	-
5	Breakfast cereals	44	40	-	44	-
6	Biscuits / crackers	40	40	-	40	-
7	Coffee and coffee substitutes	40	40	-	40	40
8	Baby foods	40	40	-	40	-
9	Processed cereal based foods for infants & young children	40	40	-	-	-
10	<i>vegetable crisps</i>	8	8	-	8	-
	<i>popcorn</i>	4		4	-	4
	<i>Tortilla/corn snacks</i>	4	4	-	4	-
	<i>Cake</i>	8	8	-	-	-
	<i>pastry</i>	4	4	-	-	-
	<i>cereal bars / granola</i>	8	8	-	8	-
	<i>prefab snacks</i>	8	8	-	8	-
	<i>Novelty gingerbread</i>	8	8	-	8	-
	<i>cocoa/choc powder</i>	6	6	-	6	-
	<i>prunes (canned)</i>	4	4	-	4	-
	<i>olives (canned)</i>	4	4	-	4	-
	<i>dates/ prunes</i>	4	4	-	-	-
	<i>jams / preserves</i>	8		-	8	-
	<i>Liquorice</i>	4	4	-	-	-
	<i>chocolate (dark)</i>	2	2	-	-	-
	<i>popped chips</i>	4	4	-	-	-
	<i>baked potato</i>	2	2	-	-	-
	Totals	556	468	76	222	44

5.1 ACRYLAMIDE

A summary of acrylamide concentrations (mean, range and number of samples) measured in each of the main categories and sub-categories according to Commission Recommendation 2010/307/EU is given in Table 2.

Table 2. Summary of acrylamide concentrations^a in each product category / sub-category

Food category	Sampling Date	Description	n	mean (µg/kg)	min (µg/kg)	max (µg/kg)
1	Nov-2011	French fries sold as ready to eat	20	174	44	418
	Mar-2012	French fries sold as ready to eat	20	236	41	888
	Nov-2012	French fries sold as ready to eat	20	193	55	775
	Mar-2013	French fries sold as ready to eat	20	247	40	1091
	Nov-2013	French fries sold as ready to eat	20	212	38	759
2	Nov-2011	Potato Crisps	10	555	150	1444
	Mar-2012	Potato Crisps	10	860	165	2142
	Nov-2012	Potato Crisps	10	852	172	2231
	Mar-2013	Potato Crisps	10	854	385	2062
	Nov-2013	Potato Crisps	10	464	162	1348
3	Nov-2011	Pre-cooked French fries for home cooking	14	273	17	1750
	Mar-2012	Pre-cooked French fries for home cooking	14	819	17	3067
	Nov-2012	Pre-cooked French fries for home cooking	15	186	13	1037
	Mar-2013	Pre-cooked French fries for home cooking	14	77	9	212
	Nov-2013	Pre-cooked French fries for home cooking	15	326	14	2634
4	2012	Soft bread (all)	20	19	6	45
		<i>white</i>	9	13	7	42
		<i>wholemeal</i>	4	33	23	45
		<i>other</i>	7	18	6	37
	2013	Soft bread (all)	20	21	9	42
		<i>white</i>	9	19	10	35
		<i>wholemeal</i>	4	33	25	42
		<i>other</i>	7	17	9	32
5	2012	Breakfast Cereals	20	239	47	479
	2013	Breakfast Cereals	20	273	20	894
6	2012	Biscuits & crackers (all)	20	289	30	1044
		<i>crackers</i>	6	252	68	470
		<i>crispbread</i>	3	190	88	350
		<i>wafers</i>	1	291		
		<i>other</i>	10	342	30	1044
	2013	Biscuits & crackers (all)	20	286	27	1328
		<i>crackers</i>	6	223	75	572
		<i>crispbread</i>	3	256	34	384
		<i>wafers</i>	1	125		
		<i>other</i>	10	349	27	1328
7	2012	Coffee and coffee substitutes (all)	20	489	28	1056
		<i>Roast</i>	8	239	147	374
		<i>instant</i>	6	771	656	878
		<i>Other</i>	6	542	28	1056
	2013	Coffee and coffee substitutes (all)	20	371	11	1055
		<i>Roast</i>	8	165	136	232
		<i>instant</i>	6	649	462	765
		<i>Other</i>	6	368	11	1055

Table 2. continued...

Food category	Sampling Date	Description	n	mean (µg/kg)	min (µg/kg)	max (µg/kg)
8	2012	Baby Food other than processed cereal based	20	18	7	43
	2013	Baby Food other than processed cereal based	20	15	6	36
9	2012	Processed Cereal Baby Food (all)	20	51	11	200
		<i>Biscuits and rusks for infants and young children</i>	9	78	11	200
		<i>Other processed cereal based foods for infants and young children</i>	11	29	11	90
	2013	Processed Cereal Baby Food (all)	20	65	3	278
		<i>Biscuits and rusks for infants and young children</i>	9	79	3	205
		<i>Other processed cereal based foods for infants and young children</i>	11	53	4	278
10	2012	Vegetable crisps	4	1979	962	2795
	2013	Vegetable crisps	4	957	491	1411
	2012	Popcorn	2	368	295	440
	2013	Popcorn	2	201	196	206
	2012	Tortilla / corn snacks	2	51	44	59
	2013	Tortilla / corn snacks	2	70	55	85
	2012	Cake	4	179	93	272
	2013	Cake	4	143	56	268
	2012	Pastry	2	113	39	187
	2013	Pastry	2	24	2	45
	2012	Cereal bars / granola	4	119	57	156
	2013	Cereal bars / granola	4	140	63	236
	2012	Prefabricated snacks	4	578	190	1480
	2013	Prefabricated snacks	4	487	127	1216
	2012	Novelty gingerbread	4	92	70	126
	2013	Novelty gingerbread	4	95	37	210
	2012	Cocoa/chocolate powder	3	215	71	497
	2013	Cocoa/chocolate powder	3	237	60	536
	2012	Prunes (canned)	2	253	195	310
	2013	Prunes (canned)	2	161	72	249
	2012	Olives (canned)	2	239	164	313
	2013	Olives (canned)	2	471	283	659
	2012	Dates / prunes	2	48	47	48
	2013	Dates / prunes	2	22	11	33
	2012	Liquorice	2	168	164	172
	2013	Liquorice	2	195	114	275
	2012	Chocolate (dark)	1	161		
	2013	Chocolate (dark)	1	108		
	2012	Popped chips	2	2324	2194	2454
	2013	Popped chips	2	1871	1616	2127
	2012	Baked potato	1	882		
	2013	Baked potato	1	377		

^a LOD = 0.5 µg/kg; relative uncertainty of measurement 14% (expanded uncertainty for a single determination at 49 µg/kg, coverage factor = 2)

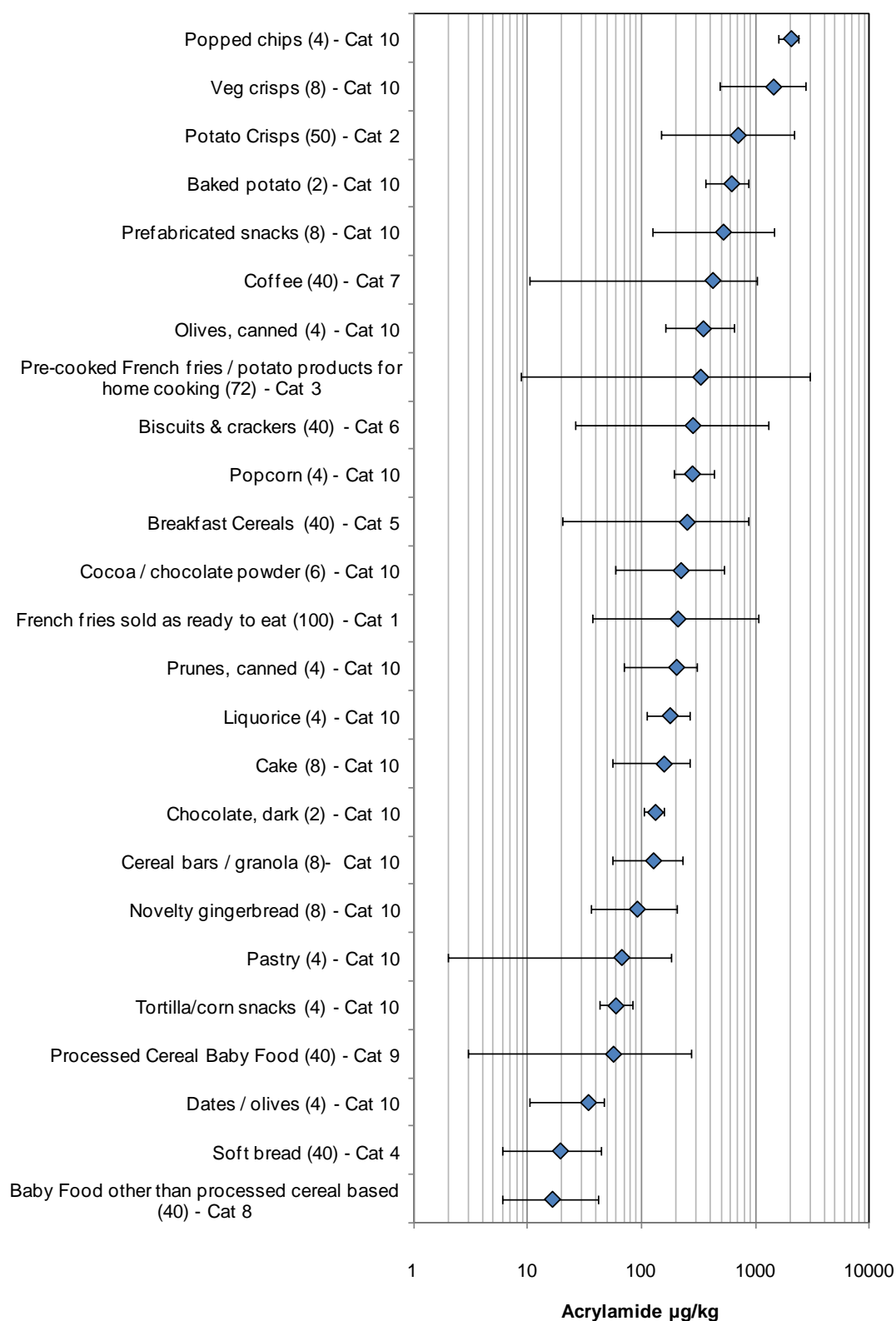


Figure 1. Acrylamide in product categories / sub categories (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the period 2011-2013.

Figure 1, which has been ordered by increasing mean concentrations (average of all data 2011-2013), shows that categories / sub-categories with the lowest mean amounts of acrylamide (<100 µg/kg) were: novelty gingerbread (Cat 10); pastries (Cat 10); tortillas / corn snacks (Cat 10); processed cereal baby foods (Cat 9); dates and olives (Cat 10); soft bread (Cat 4); and baby foods other than processed cereal based foods (Cat 8). Product Categories with the highest mean concentrations of acrylamide for the period 2011-2013 (>500 µg/kg) included: the popped potato chips (Cat 10); Vegetable crisps (Cat 10); Potato crisps (Cat 2); Baked potato from fast food outlets (Cat 10); and prefabricated snacks (Cat 10).

5.1.1 Products prepared from fresh potato (Categories 1, 2, and 3).

Products prepared from fresh potato were sampled biannually over the period Nov 2011-Nov 2013 to assess the effects of seasonal variation on acrylamide generated during cooking (see Table 4). The approximate cook times and pre-processing conditions for French fries sold as ready to eat (Category 1) were supplied by each outlet. French fries for home cooking (chilled and frozen) were cooked using domestic appliances according to manufacturers guidelines.

Category 1. Acrylamide amounts in 100 samples of French fries sold as ready to eat over the period Nov 2011-Nov 2013 ranged 38-1091 µg/kg (mean 212 µg/kg), consistent with the wide range of pre-processing techniques (e.g. chipping/soaking/blanching), cooking conditions (time/temperature) and seasonal factors. The total number of samples exceeding the Indicative Value⁷ of 600 µg/kg for this Category was three.

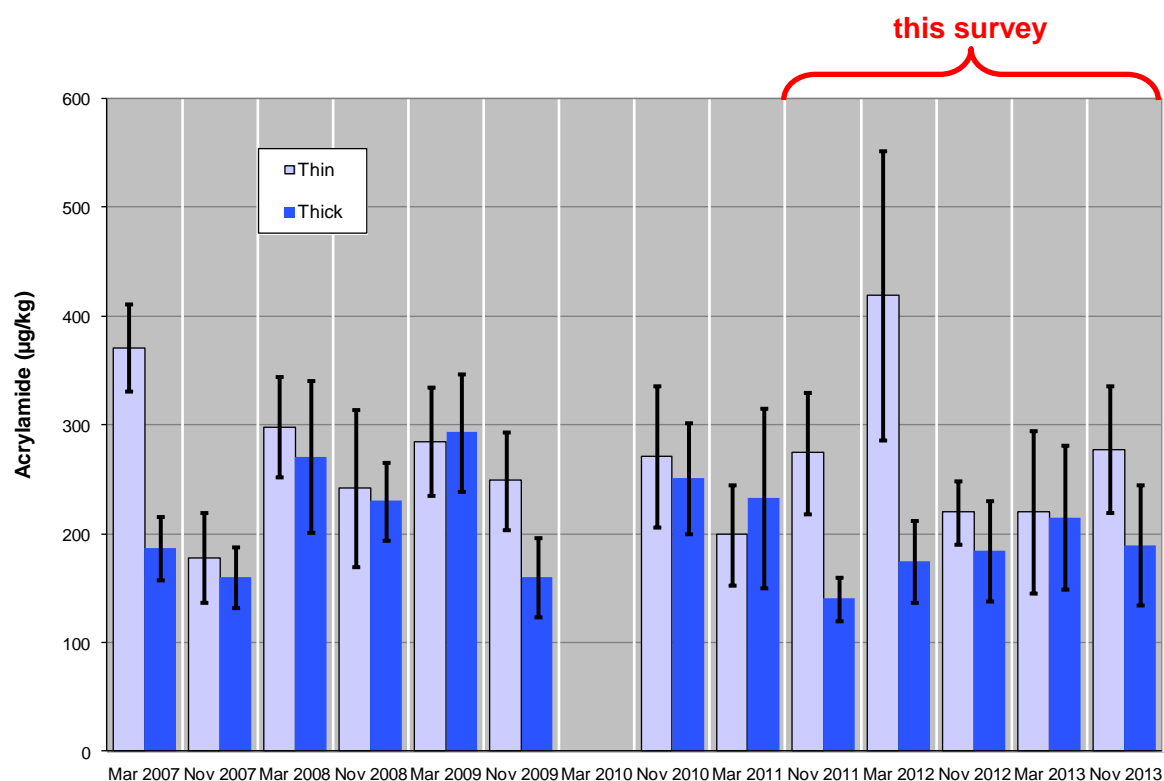


Figure 2. Comparison of seasonal means for acrylamide in category 1 thin and thick cut French fries with data from previous surveys (Mar 2007 – Mar 2011). Vertical bars are ± 1 standard error; no sampling was undertaken in Mar 2010.

⁷ Commission Recommendation (2013/647/EU) of 8 November 2013 on investigations into the levels of acrylamide in food. OJ 2013, L 301/15

The seasonal trends for both thin and thick cut French fries over the period Nov 2011-Nov 2013, together with those from the previous Agency surveys (Mar 2007-Mar 2011), are given in Figure 2. The ratio of thin to thick cut chips was 1:3.

Category 2. Acrylamide measured in 50 samples potato crisps over the period Nov 2011-Nov 2013 ranged from 150-2231 µg/kg (mean 717 µg/kg). The total number of samples exceeding the Indicative Value of 1000 µg/kg for this Category was 13.

Figure 3 shows the season trends for Nov 2011-Nov 2013 together with those from previous Agency surveys (Mar 2008-Mar 2011): Over the period 2008-2013, there was a slight trend towards decreasing seasonal means ($R^2=0.32$).

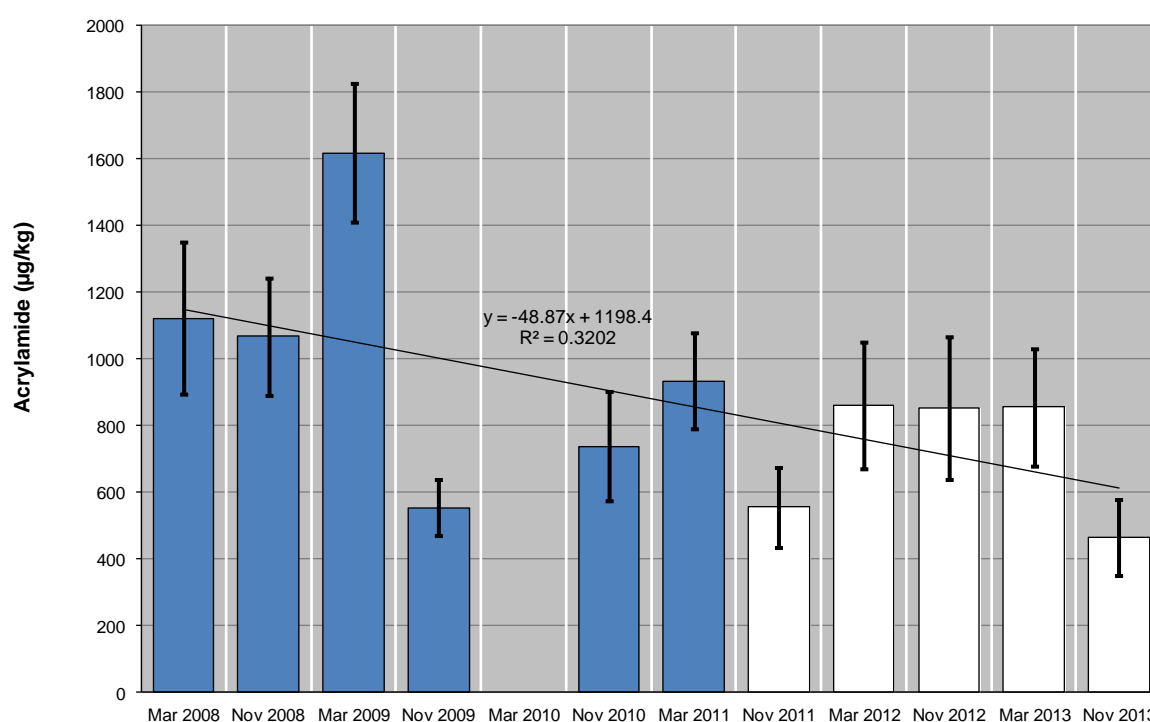


Figure 3. Comparison of seasonal means for acrylamide in category 2 crisps with data from previous surveys (Mar 2008 – Mar 2011). Vertical bars are ± 1 standard error; no sampling was undertaken in Mar 2010.

Category 3. A total of 72 potato products (62 prepared from fresh potato and 10 prefabricated products) for home cooking were prepared according to manufacturers on-pack guides using e.g. domestic oven, grill, deep fat fryer or microwave.

Amounts of acrylamide for the whole category (mean 336 µg/kg) ranged from 9-3067 µg/kg. Figure 4 shows the season trends for the Nov 2011-Nov 2013 products prepared from fresh potato together with those from previous Agency surveys (Mar 2008-Mar 2011, excluding prefabricated products): there were no discernible seasonal or long term trends.

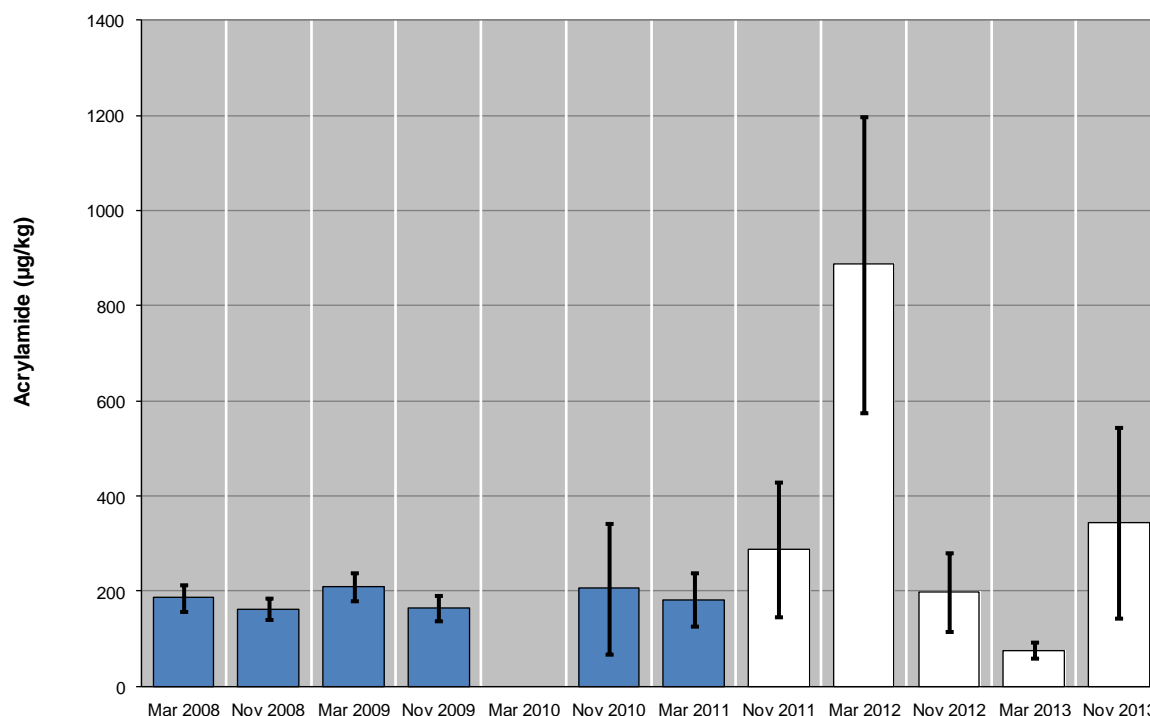


Figure 4 Comparison of seasonal means (log scale) for acrylamide in category 3 potato products prepared from fresh potato (62/72 samples) with data from previous surveys (Mar 2008 – Mar 2011). Vertical bars are ± 1 standard error; no sampling was undertaken in Mar 2010.

5.1.2 Soft bread (Category 4 – 20 samples).

Samples (e.g. plant produced white and wholemeal loaves, rolls and baguettes and speciality products such as soya and linseed, sunflower and barley, olive ciabatta) were taken in 2012 and again in 2013.

Amounts of acrylamide (see Table 2) for the period ranged from 6-45 $\mu\text{g/kg}$ (mean 20 $\mu\text{g/kg}$). As expected, white bread had a lower mean acrylamide content (16 $\mu\text{g/kg}$) compared to wholemeal bread (33 $\mu\text{g/kg}$) (see Table 2), presumably due to the lower asparagine content of white flour. None of the samples were found to exceed the Indicative Values set for this category given in Appendix 7.4.

The annual trends for the 2012-2013 products together with those from previous Agency surveys (2007-2010) are given in Figure 5.

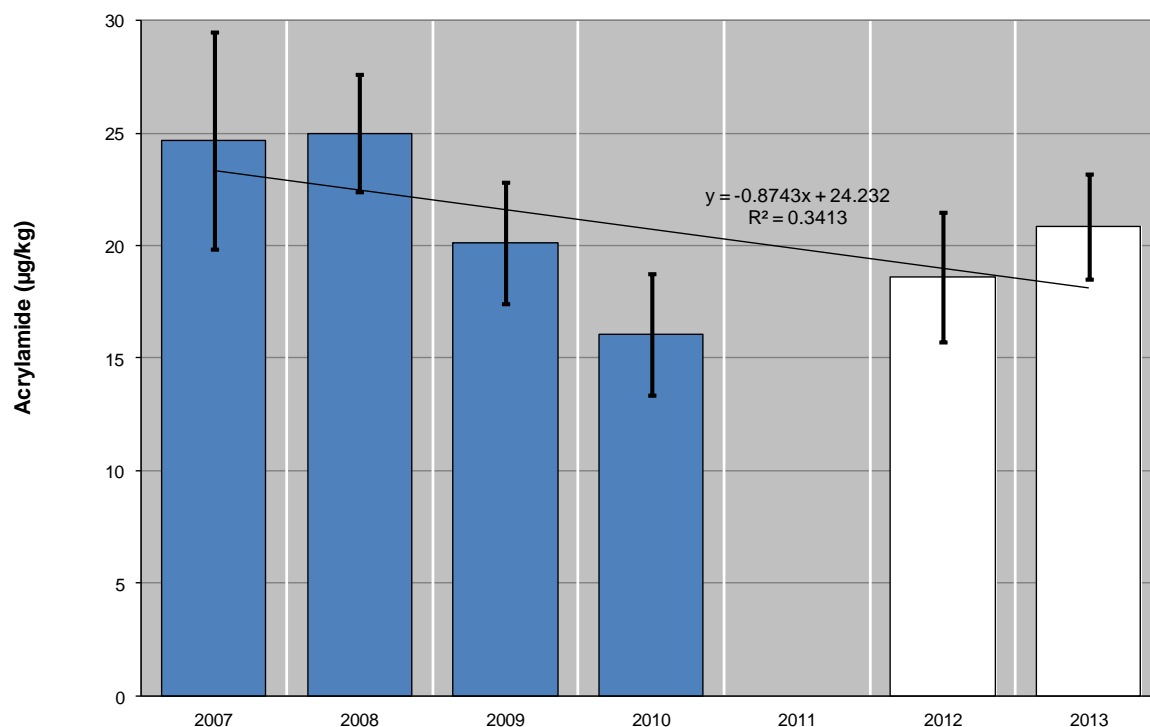


Figure 5. Comparison of annual mean acrylamide concentrations in retail soft bread with data from previous surveys (2007-2010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011

5.1.3 Breakfast Cereals (Category 5 – 20 samples).

A total of 20 samples of breakfast cereal were purchased in each of the survey years 2012 and 2013. The total number of samples exceeding the Indicative Values for this Category (see Appendix 7.4) was 11 (nine from “bran products and whole grain cereals, gun puffed grain”; and two from “wheat and rye based products”).

The annual trends for the 2012-2013 sample means together with those from previous Agency surveys (2007-2010) are given in Figure 6.

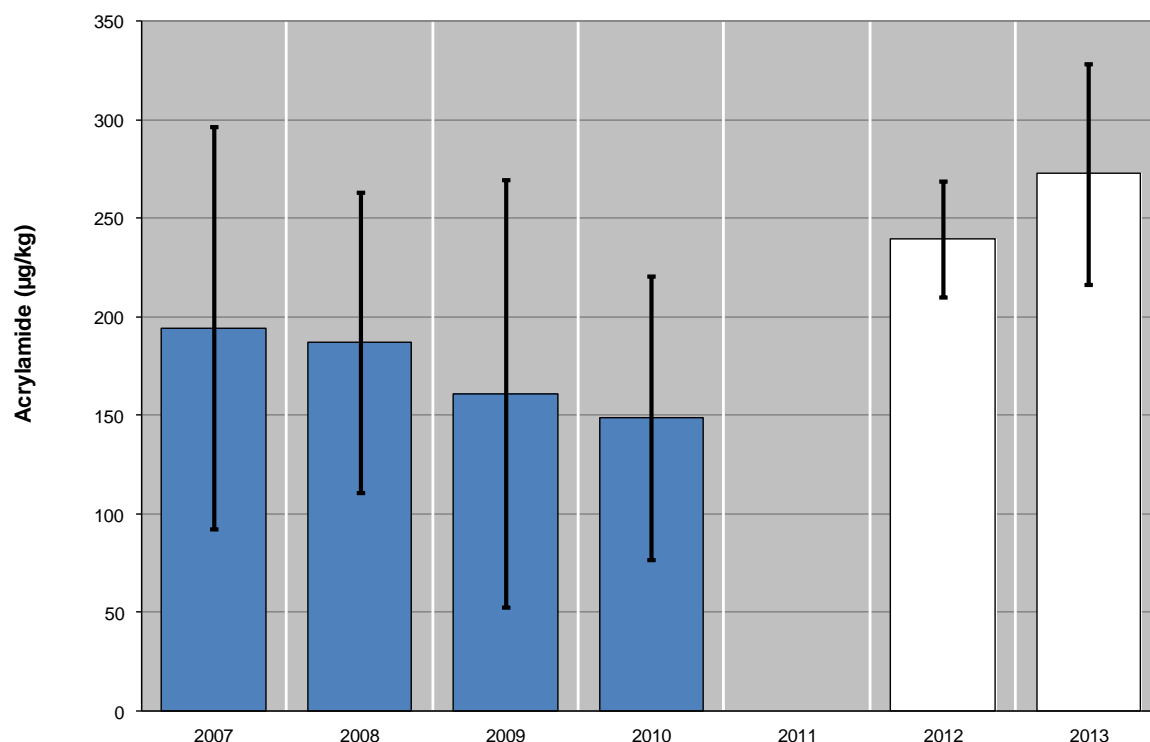


Figure 6. Comparison of annual mean acrylamide concentrations in retail breakfast cereals with data from previous surveys (2007-2010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011

5.1.4 Biscuits and crackers (Category 6 – 20 samples).

This Group comprised four of the five sub-categories according to the Commission Recommendation (2010/307/EU), i.e. crackers, crispbreads, wafers and other biscuits (the Gingerbread category was placed in Group 10 as the UK product / recipe was different to that consumed in Europe). Within this category, the “Other” biscuits sub-category had the highest mean acrylamide concentration (survey mean 345 $\mu\text{g/kg}$, range 27-1328 $\mu\text{g/kg}$ – see Table 2) with the ginger biscuits accounting for the highest individual amounts.

The total number of samples exceeding Indicative Values for this Category (see Appendix 7.4) was five (two from “Biscuits and wafers”; three from “Crackers with the exception of potato based crackers”).

Figure 7 shows the results for the samples taken in 2012 and 2013 together with those from previous Agency surveys (2007-Mar 2011): Over the period 2007-2013 this category showed an apparent trend towards decreasing annual means ($R^2=0.76$).

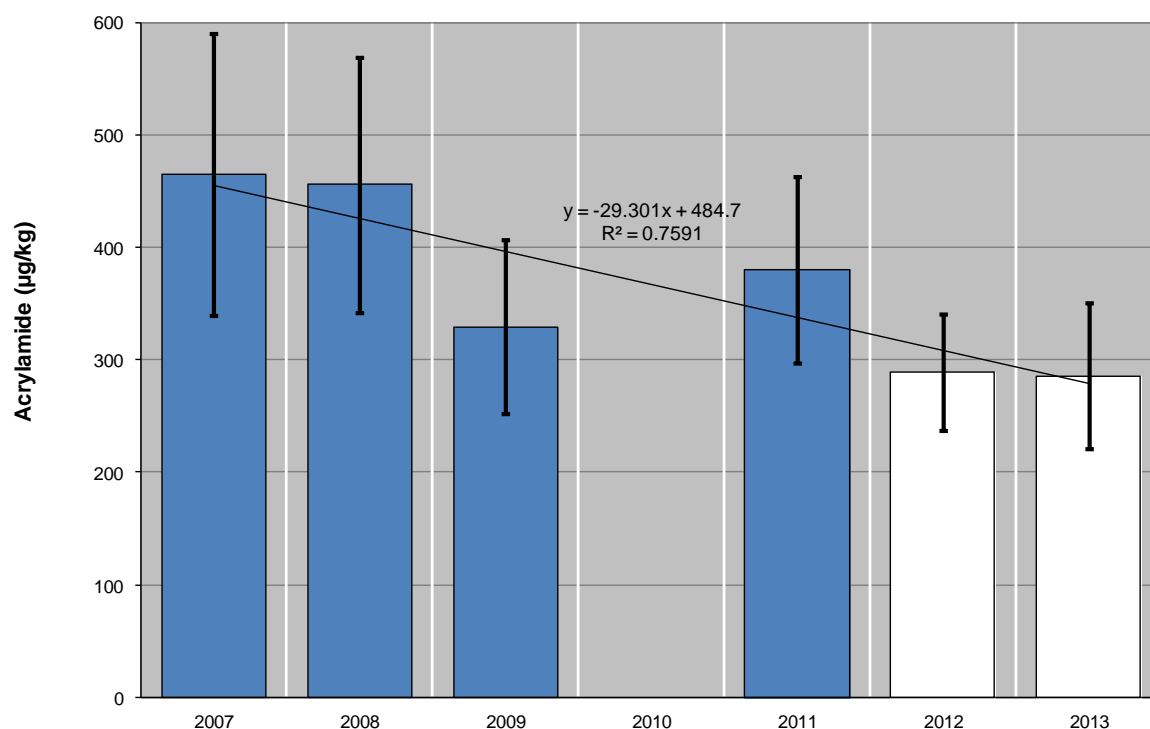


Figure 7. Comparison of annual mean acrylamide concentrations in retail biscuits and crackers with data from previous surveys (2007-2010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2010

5.1.5 Coffee (Category 7 – 20 samples).

This Group comprised the three sub-categories according to the Commission Recommendation (2010/307/EU), i.e. roast coffee, instant (soluble) coffee and coffee substitutes. Measurement of acrylamide was carried out on the coffee as received in order to assess mitigation measures on an annual basis. Hence the amounts of acrylamide did not represent values as consumed in the brew, which would be much reduced by dilution with water.

Table 2 shows that instant coffees and coffee substitutes had the highest mean acrylamide contents. None of the samples were found to exceed the Indicative Values set for this category given in Appendix 7.4.

A comparison of annual means with data from previous surveys is given in

Figure 8: note that instant coffees and coffee substitutes were not included in the earlier (2007-2009) Agency surveys.

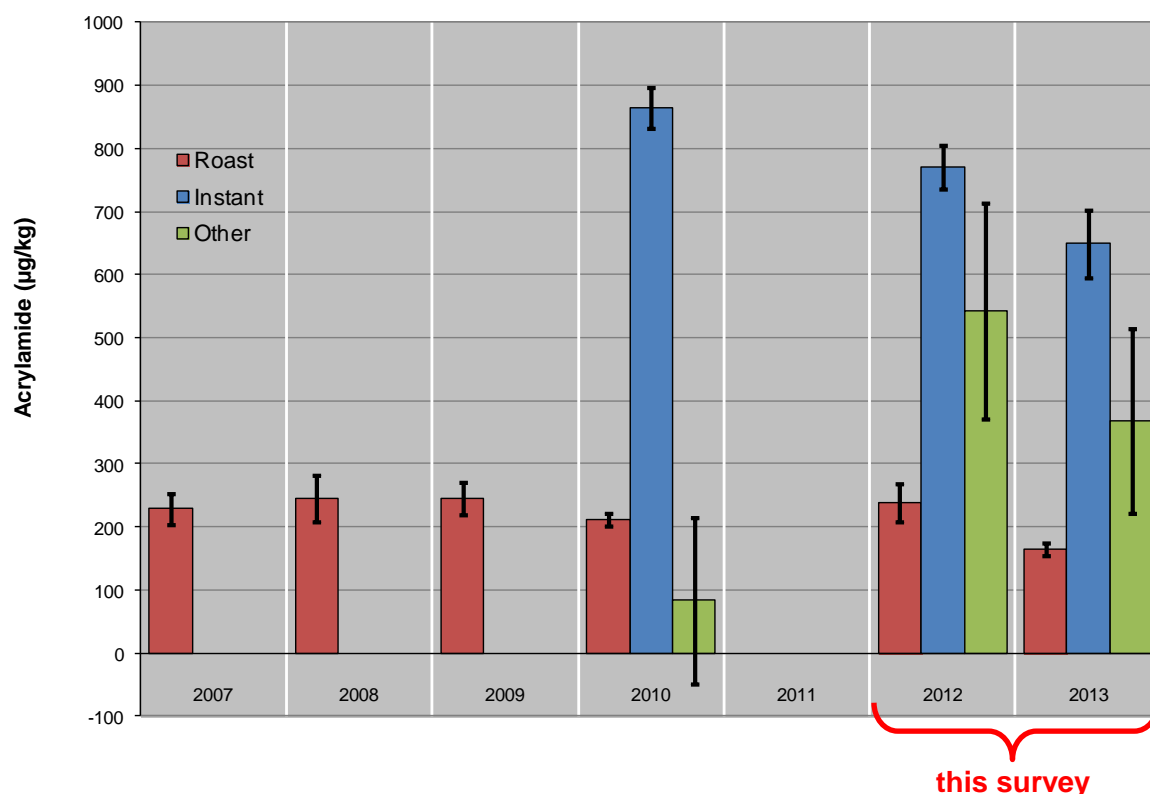


Figure 8. Comparison of annual mean acrylamide concentrations in retail roast, instant and coffee substitutes with data from previous surveys (2007-1010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011

5.1.6 Baby foods other than processed cereal based foods (Category 8 – 20 samples)

This category accounted for the lowest mean acrylamide concentrations in the survey (see Figure 1) and included infant foods packaged in jars and pouches. The annual mean results were within the range of means measured in previous UK surveys (see Figure 9). None of the samples were found to exceed the Indicative Values set for this category given in Appendix 7.4.

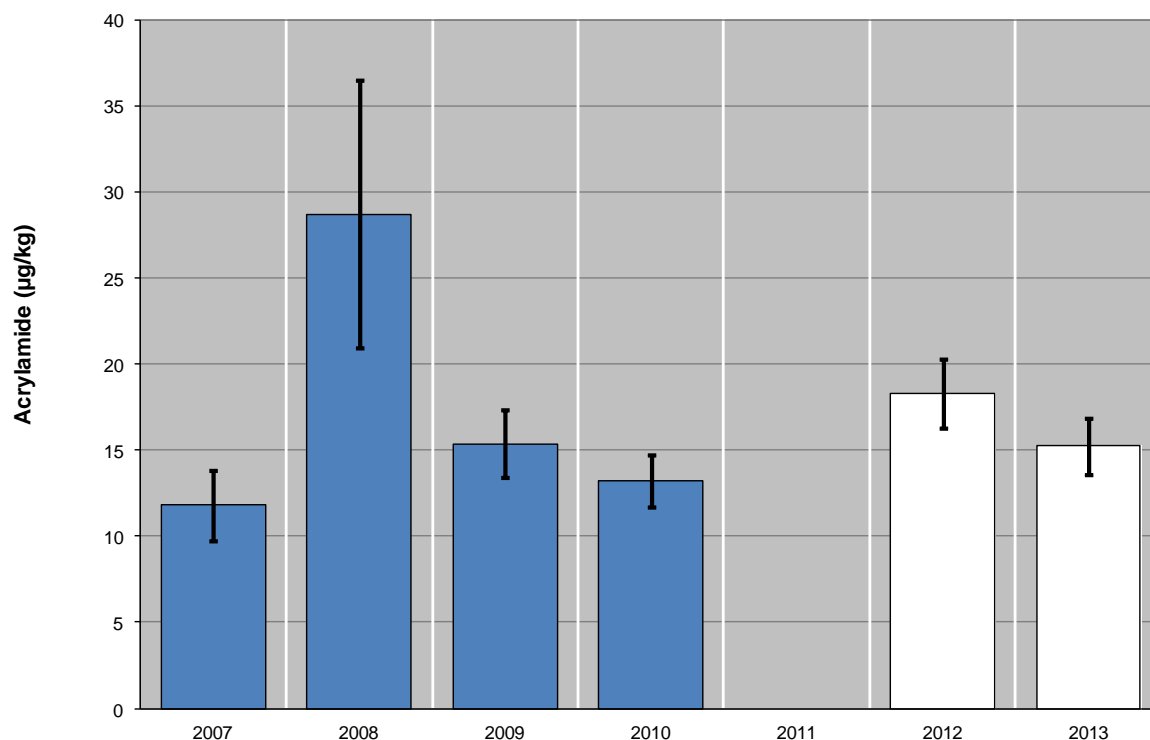


Figure 9. Comparison of annual mean acrylamide concentrations in baby foods with data from previous surveys (2007-2010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011

5.1.7 Processed cereal based foods for infants & young children (Category 9 – 20 samples)

Samples comprising the two categories specified in the Commission Recommendation, i.e. infant biscuits & rusks and infant cereals (e.g. baby rice and porridge) were purchased in 2012 and 2013.

The mean acrylamide concentration in the 2012 infant cereals (i.e. baby rice / porridge) of 29 $\mu\text{g/kg}$ (range 11-90, $n=11$) was within the range of means obtained in previous UK surveys (2007-2010) although amounts were significantly higher in 2013 (mean 53 $\mu\text{g/kg}$, range 4-278 $\mu\text{g/kg}$, $n=11$). Acrylamide levels were significantly higher in the infant biscuits and rusks. A total of five samples were found to exceed the Indicative Values set for this category given in Appendix 7.4.

A comparison of annual means with data from previous surveys is given in Figure 10: note that the infant biscuits and rusks were not included in the earlier (2007-2009) Agency surveys. Over the period 2007-2013, there was a trend towards increasing mean annual acrylamide concentrations in the infant cereals ($R^2=0.72$).

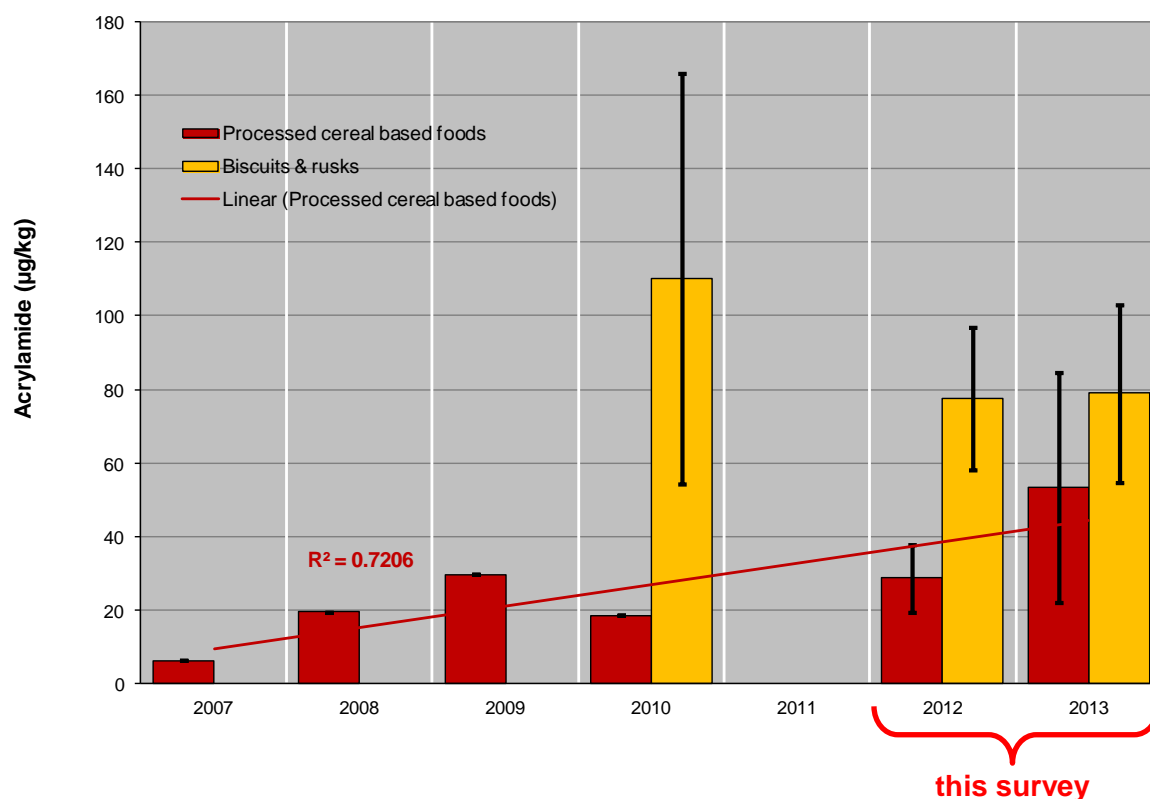


Figure 10. Comparison of annual mean acrylamide concentrations in processed cereal based foods and biscuits and rusks for infants and young children with data from previous surveys (2007-2010). Vertical bars are ± 1 standard error; no sampling was undertaken in 2011

5.1.8 Other products (Category 10 – 50 samples).

This Group included a range of foodstuffs not defined by Categories 1-9 and for which little or no data was available from previous surveys of acrylamide in UK retail products. All samples were analysed for their acrylamide content and the results are summarised in Table 2.

Products with the lowest survey mean acrylamide levels (<100 µg/kg) were: Novelty gingerbread; pastry; tortilla/corn snacks; dates / olives. Products with the highest survey mean acrylamide concentrations (i.e. >500 µg/kg) included: The popped chips; vegetable crisps; baked potato; and prefabricated snacks. Indicative Values (see Appendix 7.4) had not been established for products in this category.

5.2 FURAN

Furan was measured in retail samples of breakfast cereals, biscuits and crackers, coffee and coffee substitutes, baby foods (Category 8) and selected products from category 10 (see Table 3).

Figure 11, which has been ordered by increasing mean concentrations for the survey, shows that categories / sub-categories with the lowest mean amounts of furan as consumed (<10 µg/kg) were: Olives (canned); cereal bars / granola; novelty gingerbread; and jams / preserves. The only category with a significant amount of furan as consumed (>50 µg/kg) was popcorn.

Table 3. Furan concentrations^a (mean and range) as received / consumed by product category

Food category	Sampling Date	Description	n	mean (µg/kg)	min (µg/kg)	max (µg/kg)
5	2012	Breakfast Cereals	22	51	6	347
	2013	Breakfast Cereals	22	41	3	291
6	2012	Biscuits & crackers	20	45	4	165
	2013	Biscuits & crackers	20	39	4	108
7	2012	Coffee / coffee substitutes (all)	20	1533	3	3973
		Coffee / coffee substitutes (all), as consumed	20	47	0.07	174
		<i>Roast</i>	8	3412	2344	3974
		<i>Roast, as consumed</i>	8	116	6	188
		<i>Instant</i>	6	457	135	814
		<i>Instant, as consumed</i>	6	2	0.07	6
		<i>Other</i>	6	103	2	354
		<i>Other, as consumed</i>	6	0.07	0.07	0.07
		Coffee / coffee substitutes (all)	20	1554	0.07	5029
		Coffee / coffee substitutes (all), as consumed	20	43	0.07	207
	2013	<i>Roast</i>	8	3368	2230	5136
		<i>Roast, as consumed</i>	8	104	11	212
		<i>Instant</i>	6	589	183	1153
		<i>Instant, as consumed</i>	6	4	1	8
		<i>Other</i>	6	100	0.07	314
		<i>Other, as consumed</i>	6	1	0.07	3
8	2012	Baby Food, excluding processed cereal	20	48	14	125
	2013	Baby Food, excluding processed cereal	20	39	12	77
10	2012	Vegetable crisps	4	17	14	24
	2013	Vegetable crisps	4	15	12	20
	2012	Popcorn	2	78	65	95
	2013	Popcorn	2	91	26	234
	2012	Tortilla/corn snacks	2	15	12	19
	2013	Tortilla/corn snacks	2	17	13	21
	2012	Cereal bars / granola	4	7	5	11
	2013	Cereal bars / granola	4	4	0.07	7
	2012	Prefabricated snacks	4	24	15	37
	2013	Prefabricated snacks	4	23	8	30
	2012	Novelty gingerbread	4	0.07	0.07	0.07
	2013	Novelty gingerbread	4	5	1	9
	2012	Cocoa/chocolate powder	3	20	0.07	39
	2013	Cocoa/chocolate powder	3	12	4	26
	2012	Prunes (canned)	2	39	32	44
	2013	Prunes (canned)	2	30	15	47
	2012	Olives (canned)	2	8	7	9
	2013	Olives (canned)	2	8	7	8
	2012	Jams / preserves	4	2	0.07	3
	2013	Jams / preserves	4	3	1	4

^a Upper bound values: LOD = 0.07 µg/kg ; relative measurement uncertainty = 20% in concentration range 20-100 µg/kg (expanded uncertainty for a single determination, coverage factor = 2)

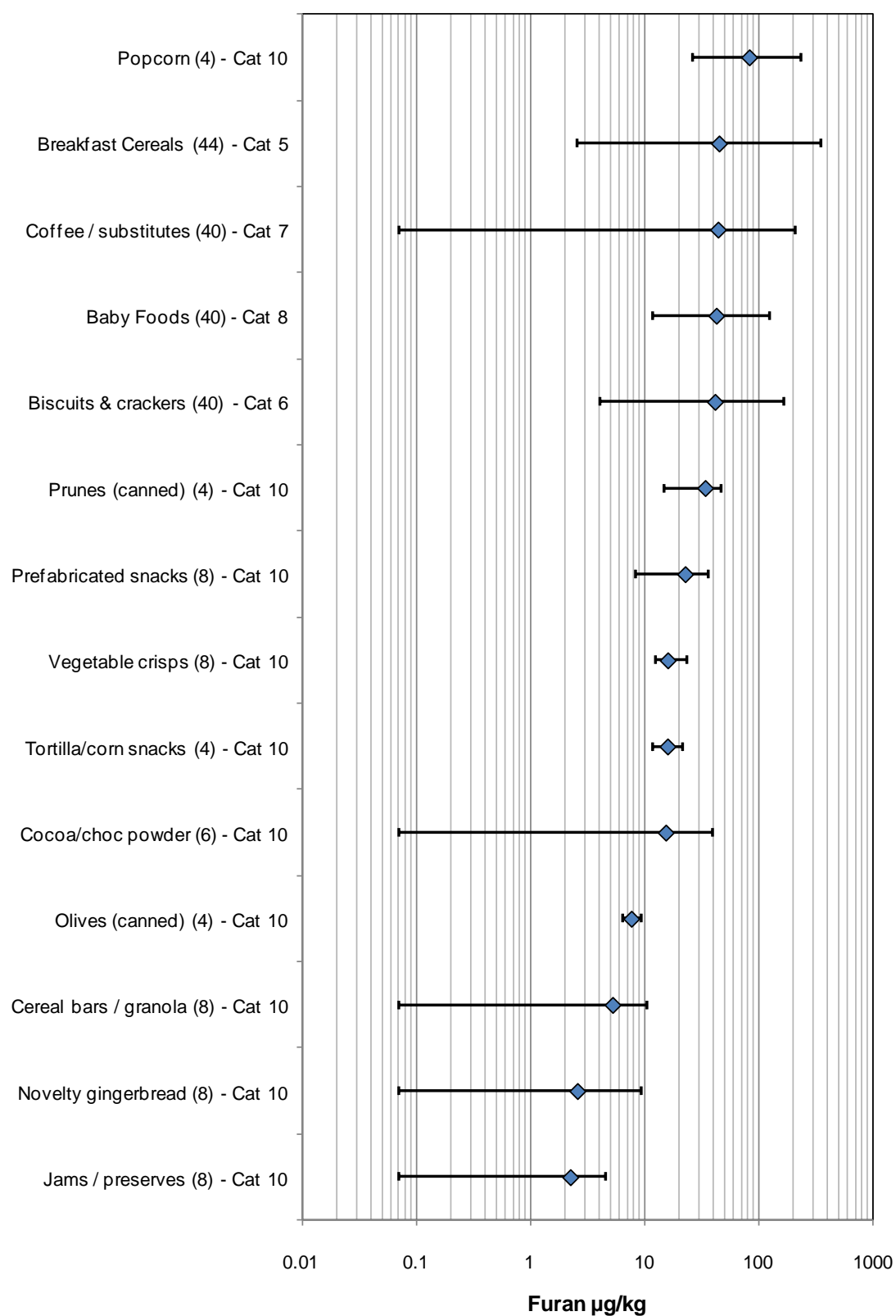


Figure 11. Furan in product categories / sub categories as consumed (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the survey (2012-2013).

All samples from Category 7 were analysed as received and as consumed to determine potential furan losses during domestic preparation. The results from all analyses, i.e. as received and as consumed, were therefore expressed on a dry weight basis so that the effects of diluting samples during preparation could be removed (normalised) and losses due to preparation compared directly.

Figure 12 shows the amounts of furan in coffee before and after domestic preparation expressed on a dry weight basis. As expected, losses of furan occurred during the preparation of all samples: approximately 50% of the furan present in roast coffee was lost during domestic preparation; losses were more variable for the instant coffees and coffee substitutes.

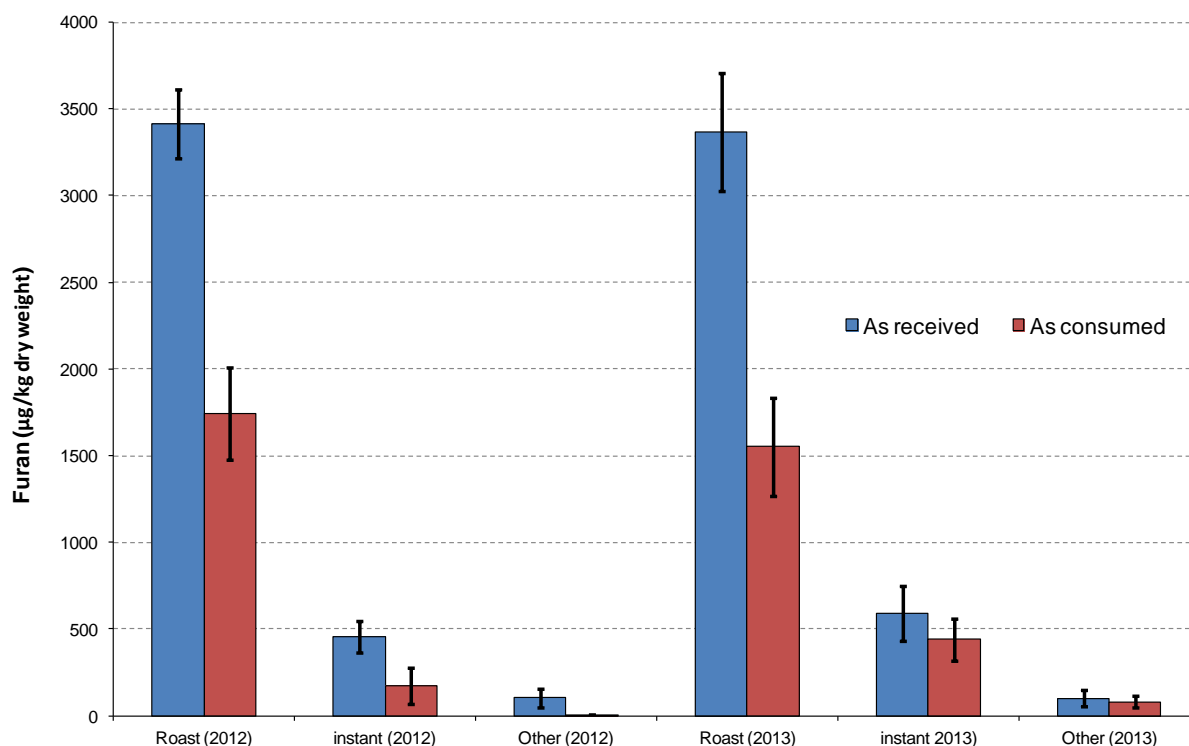


Figure 12. Losses of furan in roast, instant and coffee substitutes during preparation for consumption: Furan concentrations in all samples were normalised to a dry weight basis to remove dilution effects; vertical bars are ± 1 standard error.

6. CONCLUSIONS

- Acrylamide
 - Categories / sub-categories with the lowest mean amounts of acrylamide, i.e. <100 $\mu\text{g/kg}$, included:
 - Novelty gingerbread
 - Pastry
 - Tortilla/corn snacks
 - Processed Cereal Baby Food
 - Dates / olives
 - Soft bread
 - Baby Food other than processed cereal based
 - The highest mean concentrations of acrylamide, i.e. >500 $\mu\text{g/kg}$ were found in:
 - Popped chips

- Veg crisps
 - Potato Crisps
 - Baked potato
 - Prefabricated snacks
- Comparison of acrylamide data with that from previous surveys (since 2007) showed no significant (i.e. $R^2 > 0.9$) annual trends. However the following tentative trends were determined:
 - Categories showing an overall potential decrease in annual means included:
 - Crisps ($R^2=0.32$)
 - Soft bread ($R^2=0.34$)
 - Biscuits and crackers ($R^2=0.76$)
 - Categories showing an overall potential increase in annual means
 - Infant cereals (excluding biscuits and rusks) ($R^2=0.72$)
 - Categories showing no significant change or no discernible trends in annual means included:
 - French fries sold as ready to eat
 - Potato products for home cooking
 - Breakfast cereals
 - Roast coffee
 - Baby foods in jars / pouches
- Furan
 - Mean survey amounts of furan in all product categories as consumed were relatively low ($< 100 \mu\text{g/kg}$).
 - Categories with the lowest mean furan concentration ($< 10 \mu\text{g/kg}$) as consumed were:
 - Olives (canned)
 - Cereal bars / granola
 - Novelty gingerbread
 - Jams / preserves
 - The highest amounts of furan ($> 50 \mu\text{g/kg}$ as consumed) were found in sweet popcorn
 - When Category 7 coffee samples were prepared for consumption losses of furan were observed from all products.
 - losses were most variable from instant coffee

7. APPENDICES

7.1 SAMPLING PLAN

Table 4. Sampling plan 2011 - 2013

Sample numbers per product category																	
Month	French fries sold as ready to eat (1)			Potato crisps (2)	Pre-cooked French fries for home cooking (3)		Bread (4)	Breakfast cereals (5)	Biscuits, crackers, crispbread (6)	Coffee and coffee substitutes (7)			Baby foods (8) ^a	Processed cereal based foods for infants & young children (9)		Other products (10) ^b	Total
	From fresh potato			From fresh potato	From fresh potato					Roast	Instant		Substitutes		Biscuits / rusks	Other	
	restaurants	fast food	chip shops		fresh	frozen					normal	decaf					
Oct-11																	
Nov	8	4	8	10	2	8										4	44
Dec																	
Jan-12							20										20
Feb								20									20
Mar	8	4	8	10	2	8										4	44
Apr																	
May									20								20
Jun										8	3	3	6				20
Jul														20			20
Aug															10	10	20
Sep																22	22
Oct																22	22
Nov	8	4	8	10	2	8										4	44
Dec																	

Table 4. continued...

	Sample numbers per product category																																		
Month	French fries sold as ready to eat (1)			Potato crisps (2)	Pre-cooked French fries for home cooking (3)		Bread (4)	Breakfast cereals (5)	Biscuits, crackers, crispbread (6)	Coffee and coffee substitutes (7)			Baby foods (8) ^a	Processed cereal based foods for infants & young children (9)		Other products (10) ^b	Total																		
	From fresh potato			From fresh potato	From fresh potato					Roast	Instant		Substitutes		Biscuits / rusks	Other																			
	restaurants	fast food	chip shops		fresh	frozen					normal	decaf																							
Jan-13	8	4	8	10	2	8	20											20																	
Feb																																		20	
Mar																																			44
Apr																																			
May									20									20																	
Jun										8	3	3	6					20																	
Jul														20				20																	
Aug															10	10		20																	
Sep																	22	22																	
Oct																	22	22																	
Nov	8	4	8	10	2	8											4	44																	
Dec																																			
TOTALS 2011-13	40	20	40	50	10	40	40	40	40	16	6	6	12	40	20	20	108	548																	

7.2 SAMPLE PREPARATION DETAILS AND ANALYTICAL METHODS

7.2.1 Sample preparation

All samples were prepared according to the Food Standards Agency “Guidelines for undertaking surveys”⁴. Where practical, digital images (samples and packaging) were recorded and all packaging retained.

Potato products for home cooking from Category 3 and popcorn (Category 10) were cooked according to the manufacturers’ guidelines using domestic appliances e.g. oven, grill, microwave, deep fat fryer (see **Error! Reference source not found.**). The grill and oven were preheated for 5-10 minutes and a single layer of the product was applied to a baking tray (placed in middle of oven) or mesh grill pan respectively; samples were typically turned at half of the recommended cooking time. Pure sunflower oil was used for frying.

Coffee and coffee substitute samples were prepared according to the manufacturers guidelines given on the packaging; retail domestic coffee preparation equipment was used as required, e.g. a cafetiere or espresso coffee maker (see Table 6**Error! Reference source not found.**).

7.2.1.1 Homogenisation

Samples requiring furan analysis, e.g. jars and packets were separated and retained for individual processing; coffee and coffee substitutes prepared for consumption were analysed immediately after the preparation cycle. These samples were not subjected to bulk homogenisation as this would have resulted in significant losses of volatile furan.

Where practical, entire samples (approximately 1kg) were homogenised for analysis:

- Category 2, 5, 6, 8 and 10 samples (excluding Category 10 Jacket potatoes – see below) were homogenized directly using a food processor.
 - A laboratory mill was used for the additional processing of samples containing seeds.
 - A domestic cheese grater was used for the chocolate.
 - Stones were removed from canned prunes prior to homogenization.
- Category 4 samples were air-dried (weight loss recorded) prior to homogenising.
- Potato products from Categories 1, 3 and 10 were homogenized with water (1:2 sample/water w/w) using a high speed blender or food processor.
- Category 7 and 9 samples (ground/milled products) were mixed thoroughly prior to analysis
 - A coffee grinder was used for the whole coffee beans.

An aliquot of the homogenised sample was taken for analysis while the remainder was divided into four pots and stored at -18°C.

7.2.1.2 Homogeneity testing

Representative samples from Categories 1-10 were selected at random and the homogeneity determined by replicate (6) sodium analyses. This was based on the assumption that both sodium and the analytes of interest had an equivalent distribution in these samples. Samples were confirmed as homogeneous by comparing the relative standard deviation (RSD) of the replicate measurements with that obtained from method control samples using a statistical F-test.

Samples (2-3 g) were treated with hot concentrated nitric acid prior to determination by atomic absorption spectroscopy on a PE 2100 (Perkin Elmer, USA) according to the procedure of Gorsuch⁸. Each batch was analysed with a blank and an in-house reference material.

⁸ Gorsuch, T., T., 1970. The Destruction of Organic Matter. Pergamon Press. p21

Table 5. Details of the domestic cooking conditions

Category 3 – November 2011 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
11C-14824	3.1	Oven chips	Heinz Weight Watchers	APR/2013	15/12/2011	Oven210°C~20min
11C-14825	3.2	Thin & crispy oven chips	Tesco	10/2012	22/12/2011	Fryer175°C~5.5min
11C-14826	3.1	Crispy French fries	McCain	03 2013	16/12/2011	Oven220°C~16min
11C-14827	3.2	Straight cut frying chips	Waitrose Essential	02 08 2013	22/12/2011	Fryer175°C~10min
11C-14828	3.1	Chunky chips	Tesco Finest Side Dish	None declared	15/12/2011	Oven200°C~35min
11C-14829	3.3	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	15/12/2011	Oven200°C~50min
11C-14830	3.1	Organic straight cut oven chips	Waitrose Organic	DEC 2012	15/12/2011	Oven210°C~20min
11C-14831	3.1	Homestyle chips	Aunt Bessie's	APR/2013	16/12/2011	Oven210°C~20min
11C-14832	3.1	Chunky oven chips	Asda Extra Special	14 OCT 2012	15/12/2011	Oven210°C~22.5min
11C-14833	3.3	Crispy potatoes	Sainsbury's	APR/2013	16/12/2011	Oven230°C~30min
11C-14834	3.3	Potato waffles - 12	Birds Eye	04 2013	21/12/2011	Grill_High~8.5min
11C-14835	3.3	Oven cook roast potatoes	Asda	05 OCT 2012	15/12/2011	Oven200°C~30min
11C-14836	3.3	Smiles	McCain	12/2012	21/12/2011	Oven200°C~15min
11C-14837	3.3	Micro chips	McCain	AUG 2012	16/12/2011	Microwave750W~4.25min

Table 5. Continued...

Category 3 – March 2012 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
12C-00417	3.1	Oven chips	Heinz Weight Watchers	APR/2013	19/04/2012	Oven210°C~20min
12C-00418	3.2	Thin & crispy oven chips	Tesco	03/2012	20/04/2012	Fryer175°C~5.5min
12C-00419	3.1	Crispy French fries	McCain	08 2013	19/04/2012	Oven220°C~16min
12C-00420	3.2	Straight cut frying chips	Waitrose Essential	02 2014	20/04/2012	Fryer175°C~10min
12C-00421	3.1	Chunky chips	Tesco Finest Side Dish	None declared	19/04/2012	Oven200°C~35min
12C-00422	3.1	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	18/04/2012	Oven200°C~50min
12C-00423	3.1	Organic straight cut oven chips	Waitrose Organic	DEC 2012	20/04/2012	Oven210°C~20min
12C-00424	3.1	Homestyle chips	Aunt Bessie's	AUG 2013	19/04/2012	Oven210°C~20min
12C-00425	3.1	Chunky oven chips	Asda Extra Special	22 DEC 2012	19/04/2012	Oven210°C~22.5min
12C-00426	3.3	Crispy potatoes	Sainsbury's	FEB 2014	18/04/2012	Oven200°C~30min
12C-00427	3.3	Potato waffles - 4	Birds Eye	07 2013	18/04/2012	Grill_High~8.5min
12C-00428	3.3	Oven cook roast potatoes	Asda	17 FEB 2013	18/04/2012	Oven200°C~30min
12C-00429	3.3	Smiles	McCain	08 2013	18/04/2012	Oven200°C~15min
12C-00430	3.3	Micro chips	McCain	11 2012	18/04/2012	Microwave750W~4.25min

Table 5. Continued...

Category 3 – November 2012 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
12C-00585	3.1	Oven chips	Heinz Weight Watchers	MAY/2013	12/12/2012	Oven210°C~20min
12C-00586	3.2	Thin & crispy oven chips	Tesco	09/2013	18/12/2012	Fryer175°C~5.5min
12C-00587	3.1	Crispy French fries	McCain	04 2014	12/12/2012	Oven220°C~16min
12C-00588	3.2	Straight cut frying chips	Waitrose Essential	05 2014	18/12/2012	Fryer175°C~10min
12C-00589	3.1	Chunky chips	Tesco Finest Side Dish	None declared	15/11/2012	Oven200°C~25min
12C-00590	3.1	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	12/12/2012	Oven200°C~40min
12C-00591	3.1	Organic straight cut oven chips	Waitrose Organic	MAR 2013	18/12/2012	Oven210°C~25min
12C-00592	3.1	Homestyle chips	Aunt Bessie's	APR 2014	12/12/2012	Oven210°C~20min
12C-00593	3.1	Chunky oven chips	Asda Extra Special	28 OCT 2013	12/12/2012	Oven220°C~25min
12C-00594	3.3	Crispy potatoes	Sainsbury's	SEP 2014	18/12/2012	Oven200°C~25min
12C-00595	3.3	Potato waffles - 12	Birds Eye	03 2014	18/12/2012	Grill_High~8min
12C-00596	3.3	Oven cook roast potatoes	Asda	28 OCT 2013	18/12/2012	Oven200°C~30min
12C-00597	3.3	Smiles	McCain	03 2014	12/12/2012	Oven200°C~15min
12C-00598	3.3	Micro chips	McCain	JUL 2013	12/12/2012	Microwave750W~4.25min
12C-13423	3.3	Ready baked jackets (4)	McCain	05/2013	18/12/2012	Microwave750W~16min

Table 5. Continued...

Category 3 – March 2013 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
EX13C-00079	3.1	Oven chips	Sainsbury's Be Good to Yourself	FEB 2015	24/04/2013	Oven200°C~25min
EX13C-00080	3.2	Thin & crispy oven chips	Tesco	12/2013	24/04/2013	Oven200°C~12min
EX13C-00081	3.1	Crispy French fries	McCain	08 2014	21/04/2014	Oven220°C~16min
EX13C-00082	3.2	Straight cut frying chips	Waitrose Essential	MAY 2014	24/04/2013	Fryer175°C~4min
EX13C-00083	3.1	Chunky chips	Tesco Finest Side Dish	None declared	24/04/2013	Oven200°C~25min
EX13C-00084	3.3	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	24/04/2013	Oven200°C~40min
EX13C-00085	3.1	Organic straight cut oven chips	Waitrose Organic	JUN 2014	24/04/2013	Oven210°C~25min
EX13C-00086	3.1	Homestyle chips	Aunt Bessie's	JUL 2014	21/04/2014	Oven210°C~20min
EX13C-00087	3.1	Straight cut oven chips	Asda	21/01/2014	24/04/2013	Fryer175°C~4min
EX13C-00088	3.3	Crispy potatoes	Sainsbury's	JAN 2015	24/04/2013	Oven200°C~30min
EX13C-00089	3.3	Potato waffles - 12	Birds Eye	07 2014	21/04/2014	Grill_High~8min
EX13C-00090	3.3	Oven cook roast potatoes	Asda	25 JAN 2014	24/04/2013	Oven200°C~35min
EX13C-00091	3.3	Smiles	McCain	08 2014	21/04/2014	Oven200°C~15min
EX13C-00092	3.3	Micro chips	McCain	NOV 2013	24/04/2013	Microwave850W~3.75min

Table 5. Continued...

Category 3 – November 2013 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
EX13C-00243	3.1	Straight cut oven chips	Sainsbury's Be Good to Yourself	SEP 2015	26/02/2014	Oven200°C~25min
EX13C-00244	3.2	Thin & crispy oven chips	Tesco	09/2014	03/03/2014	Fryer175°C~5.5min
EX13C-00245	3.1	French fries	McCain	03 2015	26/02/2014	Oven220°C~16min
EX13C-00246	3.2	Straight cut frying chips	Waitrose Essential	FEB2015	03/03/2014	Fryer175°C~10min
EX13C-00247	3.1	Chunky chips	Tesco Finest	None declared	26/02/2014	Oven170°C~45min
EX13C-00248	3.1	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	26/02/2014	Oven200°C~50min
EX13C-00249	3.1	Organic straight cut oven chips	Waitrose Organic	APR 2015	11/02/2014	Oven210°C~25min
EX13C-00250	3.1	Homestyle chips	Aunt Bessie's	MAR 2015	11/02/2014	Oven210°C~20min
EX13C-00251	3.1	Straight cut oven chips	Asda	01/09/2014	11/02/2014	Oven220°C~22min
EX13C-00252	3.3	Crispy potatoes	Sainsbury's	SEP 2015	26/02/2014	Oven200°C~25min
EX13C-00253	3.3	Potato waffles - 10	Birds Eye	04 2015	04/03/2014	Grill_High~8min
EX13C-00254	3.3	Oven cook roast potatoes	Asda	21 SEP 2014	11/02/2014	Oven200°C~30min
EX13C-00255	3.3	Smiles	McCain	04 2015	26/02/2014	Oven200°C~15min
EX13C-00256	3.3	Micro chips	McCain	JUL 2014	04/03/2014	Microwave750W~4.25min
EX13C-00259	3.3	Ready baked jackets (2)	McCain	10 2014	04/03/2014	Microwave750W~7.5min

Table 5. Continued...

Category 10 - 2012 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
12C-00515	10.4	Sweet microwave popcorn	Butterkist	03 2013	12/11/2012	Microwave750W~2.5min
12C-00516	10.4	Sweet microwave popcorn	Popz	07.06.2014	12/11/2012	Microwave750W~2.5min

Category 10 - 2013 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
EX13C-00177	10.4	Sweet microwave popcorn	Butterkist	06 2014	15/11/2013	Microwave1000W~2.00min
EX13C-00178	10.4	Sweet microwave popcorn	Popz	04.2015	15/11/2013	Microwave1000W~2.00min

Table 6. Details of the domestic preparation of coffee and coffee substitutes prior to the analysis of furan “as consumed”.

Category 7 - 2012 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of preparation	Preparation conditions
12C-00451	7.1	Coffee one-cup bags	Lyons	DEC 13	30/07/2012	Hot water
12C-00452	7.1	Espresso roasted & ground coffee	Waitrose	APR 13	30/07/2012	Espresso coffee maker
12C-00453	7.1	Fairtrade Guatemala Arabica ground coffee	Percol	SEP 2013	30/07/2012	Cafetiere
12C-00454	7.1	Hacienda la Esperanza Panama	Union Hand Roasted	None declared	30/07/2012	Cafetiere
12C-00455	7.1	Java Sumatra roast & ground coffee	Tesco Finest	APR/13	30/07/2012	Cafetiere
12C-00456	7.1	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	MAY 2013	30/07/2012	Cafetiere
12C-00457	7.1	Colombian Fairtrade ground coffee	Marks & Spencer	01 2013	30/07/2012	Cafetiere
12C-00458	7.1	Monsoon Malabar coffee beans	Whittard of Chelsea	None declared	30/07/2012	Cafetiere
12C-00459	7.2	Freeze dried soluble coffee	Nescafé Gold Blend	05 2014	30/07/2012	Hot water
12C-00460	7.2	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	04 2014	30/07/2012	Hot water
12C-00461	7.2	Freeze dried instant coffee	Kenco	APR 14	09/08/2012	Hot water
12C-00462	7.2	Freeze dried decaffeinated instant coffee	Kenco Decaff	APR 14	09/08/2012	Hot water
12C-00463	7.2	Freeze dried instant coffee	Carte Noire	04/14	09/08/2012	Hot water
12C-00464	7.2	Freeze dried decaffeinated instant coffee	Carte Noire Decaff	03/14	09/08/2012	Hot water
12C-00465	7.3	Chicory & coffee essence	Camp	16 04 14	09/08/2012	Hot water
12C-00466	7.3	Instant dandelion coffee compound	Symingtons	AUG 2013	09/08/2012	Hot water
12C-00467	7.3	Yannoh instant organic grain coffee substitute	Lima	05.04.2013	09/08/2012	Hot water
12C-00468	7.3	Guarana-based coffee alternative	Whole Earth Wake Up	SEPTEMBER 2013	09/08/2012	Hot water
12C-00469	7.3	Instant cereal drink	Barley Cup Original	20.12.2013	09/08/2012	Hot water
12C-00470	7.3	Biomalt - instant grain beverage	Biona Organic	02-15	09/08/2012	Hot water

Table 6. Continued...

Category 7 - 2013 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of preparation	Preparation conditions
EX13C-00113	7.1	Coffee one-cup bags	Lyons	NOV 14	07/10/2013	Hot water
EX13C-00114	7.1	Espresso roasted & ground coffee	Waitrose	MAY 14	07/10/2013	Espresso coffee maker
EX13C-00115	7.1	Fairtrade Guatemala Arabica ground coffee	Percol	JUL 2014	07/10/2013	Cafetiere
EX13C-00116	7.1	Gajah mountain, Aceh Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	07/10/2013	Cafetiere
EX13C-00117	7.1	Java Sumatra roast & ground coffee	Tesco Finest	APR 2014	07/10/2013	Cafetiere
EX13C-00118	7.1	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	APR 2014	07/10/2013	Cafetiere
EX13C-00119	7.1	Colombian Fairtrade ground coffee	Marks & Spencer	04 2014	07/10/2013	Cafetiere
EX13C-00120	7.1	Monsoon Malabar coffee beans	Whittard of Chelsea	None declared	07/10/2013	Cafetiere
EX13C-00121	7.2	Freeze dried soluble coffee	Nescafé Gold Blend	04 2015	07/10/2013	Hot water
EX13C-00122	7.2	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	05 2015	07/10/2013	Hot water
EX13C-00123	7.2	Freeze dried instant coffee	Kenco	MAY 15	07/10/2013	Hot water
EX13C-00124	7.2	Freeze dried decaffeinated instant coffee	Kenco Decaff	JAN 15	07/10/2013	Hot water
EX13C-00125	7.2	Freeze dried instant coffee	Carte Noire	05/15	07/10/2013	Hot water
EX13C-00126	7.2	Freeze dried decaffeinated instant coffee	Carte Noire Decaff	05/15	07/10/2013	Hot water
EX13C-00127	7.3	Chicory & coffee essence	Camp	11 03 15	07/10/2013	Hot water
EX13C-00128	7.3	Instant dandelion coffee compound	Symingtons	DEC 2014	07/10/2013	Hot water
EX13C-00129	7.3	Organic grain coffee substitute	Lima Yannoh Instant	10.12.2014	07/10/2013	Hot water
EX13C-00130	7.3	Guarana-based coffee alternative	Whole Earth Wake Up	OCTOBER 2014	07/10/2013	Hot water
EX13C-00131	7.3	Instant cereal drink	Barley Cup Original	06.03.2015	07/10/2013	Hot water
EX13C-00132	7.3	Instant grain beverage	Biona Organic Biomalt	02-16	07/10/2013	Hot water

7.2.2 Acrylamide analysis by GC/MS/MS

Acrylamide was determined as the brominated derivative, 2-bromopropenamide, according to the method of Hamlet and Sadd⁹.

Method performance (typical): limits of detection and quantification were 0.5 and 3.0 µg/kg respectively; the estimated value for the method uncertainty (single determination) was: ±14% at 49 µg/kg (expanded relative uncertainty with a coverage factor of 2). A summary of the method performance data from this survey can be found in Table 7.

7.2.3 Analysis of furan

Furan was measured in samples using a headspace method adapted from the procedure of Becalski *et al*¹⁰. Pre-chilled samples were homogenised at 3°C with deionised water and an aliquot was contained in a headspace. Deuterium labelled furan (internal standard) was added and the samples incubated at 35°C prior to sampling the headspace for GC/MS analysis. Because of the volatile nature of furan all samples were analysed in duplicate: either single analyses of duplicate packs (were available) or duplicate analyses of single packs.

Method performance (typical): The limits of detection and quantification were 0.07 µg/kg and 0.2 µg/kg respectively; the estimated uncertainty for a single determination over the concentration range 20-100 µg/kg furan was ±20% (expanded relative uncertainty with a coverage factor of 2). A summary of the method performance data from this survey can be found in Table 7.

7.3 ANALYTICAL QUALITY ASSURANCE

All analyses were performed by trained staff in a UKAS accredited laboratory operating an internal audit and review process. All the test methods were all validated in-house and accredited by UKAS (ISO 17025).

Each batch of samples (1-10 samples) included a procedural blank and an In-House Reference Material (IHRM) and / or spiked sample. Method performance was monitored by assessing the data from IHRMs and / or spiked reference materials in accordance with the rules governing Shewhart control charts¹¹ (this data is summarised in Table 7). The laboratory also participated in the FAPAS proficiency testing schemes available for acrylamide and furan (see Table 8). In addition, 10% of all samples were subjected to a repeat analysis: acceptance criteria for reporting of all results was for the duplicate measurement to be within ±10% of the first measurement (see Table 9).

⁹ Hamlet, C. G., & Sadd, P. A. (2004) Rapid, sensitive and selective analysis of acrylamide in cereal products using bromination and GC/MS/MS. *Czech Journal of Food Sciences*. 22, 290-293.

¹⁰ Becalski, A., Forsyth, D., Casey, V., Lau, B.P.-Y., Pepper, K., Seaman, S. (2005), Development and validation of a headspace method for determination of furan in food. *Food Additives and Contaminants*, 22 (6), 535-540.

¹¹ BS 7785:1994, ISO 8258:1991, Shewhart control charts, British Standards Institution. Available at: <http://www.bsonline.bsi-global.com/server/index.jsp>

Table 7. Summary of data obtained from the analysis of IHRMs and spiked samples during this survey
(A) Acrylamide IHRM data

	Accepted value (µg/kg)				Measured values (µg/kg)			
	n	mean	range ^a	SE	n	mean	range	SE
IHRM Nov 11 ^b	12	61.0	54.2-67.7	0.7	23	61.6	56.9-66.0	0.4
IHRM Sep 12 ^b	12	23.2	15.7-30.6	0.7	22	21.4	18.5-26.1	0.5
IHRM Jul 13 ^b	12	73.0	68.5-77.5	0.4	13	72.2	69.2-74.2	0.4

^a upper and lower action limits; ^b dried cereal based materials

(B) Spiked recovery data

	nominal spike level (µg/kg)	Recovery (%) ^a			
		n	mean	range	SE
Acrylamide	500	41	100.9	90-114	0.8
Furan	15-30	23	98.2	89.0-115.5	1.4
	200	25	98.0	90.1-104.4	0.7

^a the acceptable recovery range was 80-120%

Table 8. FAPAS z-scores (2011-2013)

Contaminant	Series	z-score		
		n	mean	range
Acrylamide	30	5	0.0	-0.4 to 0.4
Furan	30	1	0.4	-

Table 9. Percentage of samples reanalysed for acrylamide.

Year	No. of samples for testing	No. of samples reanalysed	%
2011	44	5	11
2012	248	32	13
2013	250	32	13

7.4 ACRYLAMIDE INDICATIVE LEVELS (2013/647/EU)

ANNEX

Indicative acrylamide values based on the EFSA monitoring data from 2007-12

Foodstuff	Indicative value [µg/kg]	Comment
French fries ready-to-eat	600	Product sold as ready-to-eat, as defined in Part C.1 of the Annex to Recommendation 2010/307/EU
Potato crisps from fresh potatoes and from potato dough	1 000	Product as sold, as defined in Parts C.2 and C.10 of the Annex to Recommendation 2010/307/EU
Potato-based crackers		
Soft bread		Product as sold, as defined in Part C.4 of the Annex to Recommendation 2010/307/EU
(a) Wheat based bread	80	
(b) Soft bread other than wheat based bread	150	
Breakfast cereals (excl. porridge)		Product as sold, as defined in Part C.5 of the Annex to Recommendation 2010/307/EU
— bran products and whole grain cereals, gun puffed grain (gun puffed only relevant if labelled)	400	
— wheat and rye based products (*)	300	
— maize, oat, spelt, barley and rice based products (*)	200	
Biscuits and wafers	500	Product as sold, as defined in Part C.6 of the Annex to Recommendation 2010/307/EU
Crackers with the exception of potato based crackers	500	
Crispbread	450	
Ginger bread	1 000	
Products similar to the other products in this category	500	
Roast coffee	450	Product as sold, as defined in Part C.7.1 of the Annex to Recommendation 2010/307/EU
Instant (soluble) coffee	900	Product as sold, as defined in Part C.7.2 of the Annex to Recommendation 2010/307/EU
Coffee substitutes		Product as sold, as defined in Part C.7.3 of the Annex to Recommendation 2010/307/EU
(a) coffee substitutes mainly based on cereals	2 000	
(b) other coffee substitutes	4 000	
Baby foods, other than processed cereal based foods (**)		Product as sold, as defined in Part C.8 of the Annex to Recommendation 2010/307/EU
(a) not containing prunes	50	
(b) containing prunes	80	
Biscuits and rusks for infants and young children	200	Product as sold, as defined in Part C.9.1 of the Annex to Recommendation 2010/307/EU
Processed cereal based foods for infants and young children (***), excl. biscuits and rusks	50	Product as sold, as defined in Part C.9.2 of the Annex to Recommendation 2010/307/EU

(*) Non-whole grain and/or non-bran based cereals. The cereal present in the largest quantity determines the category.

(**) As defined in Article 1(2)(b) of Commission Directive 2006/125/EC of 5 December 2006 on processed cereal-based foods and baby foods for infants and young children (OJ L 339, 6.12.2006, p. 16).

(***) As defined in Article 1(2)(a) of Directive 2006/125/EC.

7.5 ACRYLAMIDE RESULTS

Category 1 – November 2011 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
11C-14794	Regular fries	Burger King	Not applicable	Not applicable	Not applicable	Newmarket	365
11C-14795	Chips	Café Fresco	Not applicable	Not applicable	Not applicable	Cardiff	203
11C-14796	Chips	Stavros Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	111
11C-14797	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	147
11C-14798	Chips	City Restaurant	Not applicable	Not applicable	Not applicable	Edinburgh	76
11C-14799	Chips	The Abbey	Not applicable	Not applicable	Not applicable	Edinburgh	87
11C-14800	Chips	Marco's Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	75
11C-14801	Chips	Newton Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	68
11C-14802	Chips	Moto The Kitchen	Not applicable	Not applicable	Not applicable	Wolverhampton	181
11C-14803	Regular fries	KFC	Not applicable	Not applicable	Not applicable	Congleton	418
11C-14804	Chips	Hightown Fish & Chip Shop	Not applicable	Not applicable	Not applicable	Congleton	297
11C-14805	Side chips	The Railway Inn	Not applicable	Not applicable	Not applicable	Congleton	238
11C-14806	Side chips	The Trinity	Not applicable	Not applicable	Not applicable	London	199
11C-14807	Large fries	McDonalds	Not applicable	Not applicable	Not applicable	Cardiff	279
11C-14808	Fries	Perfect Fried Chicken	Not applicable	Not applicable	Not applicable	London	107
11C-14809	Chips	Silver Lounge Café	Not applicable	Not applicable	Not applicable	Larne	248
11C-14810	Chips	The Upper Crust	Not applicable	Not applicable	Not applicable	Larne	86
11C-14811	Chips	Arcade Chip Shop	Not applicable	Not applicable	Not applicable	Antrim	73
11C-14812	Chips	Sainsbury's Café	Not applicable	Not applicable	Not applicable	Cambridge	173
11C-14813	Chips	Khangs Fish & Chips	Not applicable	Not applicable	Not applicable	Cambridge	44

Category 1 – March 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00387	Regular fries	Burger King	Not applicable	Not applicable	Not applicable	Wolverhampton	307
12C-00388	Chips	Café Fresco	Not applicable	Not applicable	Not applicable	Cardiff	111
12C-00389	Chips	Stavros Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	41
12C-00390	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	109
12C-00391	Chips	City Restaurant	Not applicable	Not applicable	Not applicable	Edinburgh	91
12C-00392	Chips	The Abbey	Not applicable	Not applicable	Not applicable	Edinburgh	258
12C-00393	Chips	Marco's Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	41
12C-00394	Chips	Newton Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	98
12C-00395	Chips	Moto The Kitchen	Not applicable	Not applicable	Not applicable	Wolverhampton	421
12C-00396	Regular fries	KFC	Not applicable	Not applicable	Not applicable	Congleton	888
12C-00397	Chips	Hightown Fish & Chip Shop	Not applicable	Not applicable	Not applicable	Congleton	398
12C-00398	Side chips	The Railway Inn	Not applicable	Not applicable	Not applicable	Congleton	126
12C-00399	Side chips	The Roebuck	Not applicable	Not applicable	Not applicable	London	490
12C-00400	Large fries	McDonalds	Not applicable	Not applicable	Not applicable	Cardiff	507
12C-00401	Fries	Perfect Fried Chicken	Not applicable	Not applicable	Not applicable	London	284
12C-00402	Chips	Silver Lounge Café	Not applicable	Not applicable	Not applicable	Larne	84
12C-00403	Chips	The Upper Crust	Not applicable	Not applicable	Not applicable	Larne	100
12C-00404	Chips	Arcade Chip Shop	Not applicable	Not applicable	Not applicable	Antrim	161
12C-00405	Chips	Sainsbury's Café	Not applicable	Not applicable	Not applicable	Cambridge	142
12C-00406	Chips	Khangs Fish & Chips	Not applicable	Not applicable	Not applicable	Cambridge	65

Category 1 – November 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00555	Regular fries	Burger King	Not applicable	Not applicable	Not applicable	Newmarket	270
12C-00556	Chips	Café Fresco	Not applicable	Not applicable	Not applicable	Cardiff	124
12C-00557	Chips	Stavros Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	324
12C-00558	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	210
12C-00559	Chips	City Restaurant	Not applicable	Not applicable	Not applicable	Edinburgh	55
12C-00560	Chips	The Abbey	Not applicable	Not applicable	Not applicable	Edinburgh	147
12C-00561	Chips	Marco's Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	89
12C-00562	Chips	Newton Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	67
12C-00563	Chips	Moto The Kitchen	Not applicable	Not applicable	Not applicable	Wolverhampton	96
12C-00564	Regular fries	KFC	Not applicable	Not applicable	Not applicable	Congleton	288
12C-00565	Chips	Hightown Fish & Chip Shop	Not applicable	Not applicable	Not applicable	Congleton	775
12C-00566	Side chips	The Railway Inn	Not applicable	Not applicable	Not applicable	Congleton	178
12C-00567	Side chips	The Trinity	Not applicable	Not applicable	Not applicable	London	194
12C-00568	Large fries	McDonalds	Not applicable	Not applicable	Not applicable	Cardiff	203
12C-00569	Fries	Perfect Fried Chicken	Not applicable	Not applicable	Not applicable	London	214
12C-00570	Chips	Silver Lounge Café	Not applicable	Not applicable	Not applicable	Larne	189
12C-00571	Chips	The Upper Crust	Not applicable	Not applicable	Not applicable	Larne	58
12C-00572	Chips	Arcade Chip Shop	Not applicable	Not applicable	Not applicable	Antrim	95
12C-00573	Chips	Sainsbury's Café	Not applicable	Not applicable	Not applicable	Cambridge	141
12C-00574	Chips	Khangs Fish & Chips	Not applicable	Not applicable	Not applicable	Cambridge	145

Category 1 – March 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00049	Regular fries	Burger King	Not applicable	Not applicable	Not applicable	Newmarket	346
EX13C-00050	Chips	Café Fresco	Not applicable	Not applicable	Not applicable	Cardiff	475
EX13C-00051	Chips	Canton Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	133
EX13C-00052	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	168
EX13C-00053	Chips	City Restaurant	Not applicable	Not applicable	Not applicable	Edinburgh	40
EX13C-00054	Chips	The Abbey	Not applicable	Not applicable	Not applicable	Edinburgh	210
EX13C-00055	Chips	Marco's Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	102
EX13C-00056	Chips	Newton Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	47
EX13C-00057	Chips	Moto The Kitchen	Not applicable	Not applicable	Not applicable	Wolverhampton	68
EX13C-00058	Regular fries	KFC	Not applicable	Not applicable	Not applicable	Edinburgh	280
EX13C-00059	Chips	Hightown Fish & Chip Shop	Not applicable	Not applicable	Not applicable	Congleton	316
EX13C-00060	Side chips	The Railway Inn	Not applicable	Not applicable	Not applicable	Congleton	350
EX13C-00061	Side chips	The Trinity	Not applicable	Not applicable	Not applicable	London	1091
EX13C-00062	Large fries	McDonalds	Not applicable	Not applicable	Not applicable	Cardiff	518
EX13C-00063	Chips	Perfect Fried Chicken	Not applicable	Not applicable	Not applicable	London	100
EX13C-00064	Chips	Silver Lounge Café	Not applicable	Not applicable	Not applicable	Larne	104
EX13C-00065	Chips	The Upper Crust	Not applicable	Not applicable	Not applicable	Larne	101
EX13C-00066	Chips	Arcade Chip Shop	Not applicable	Not applicable	Not applicable	Antrim	154
EX13C-00067	Chips	Sainsbury's Café	Not applicable	Not applicable	Not applicable	Cambridge	209
EX13C-00068	Chips	Khangs Fish & Chips	Not applicable	Not applicable	Not applicable	Cambridge	136

Category 1 – November 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00213	Regular fries	Burger King	Not applicable	Not applicable	Not applicable	Newmarket	403
EX13C-00214	Chips	Café Fresco	Not applicable	Not applicable	Not applicable	Cardiff	104
EX13C-00215	Chips	Canton Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	186
EX13C-00216	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	Not applicable	Cardiff	199
EX13C-00217	Chips	City Restaurant	Not applicable	Not applicable	Not applicable	Edinburgh	57
EX13C-00218	Chips	The Abbey	Not applicable	Not applicable	Not applicable	Edinburgh	60
EX13C-00219	Chips	Marco's Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	43
EX13C-00220	Chips	Newton Fish Bar	Not applicable	Not applicable	Not applicable	Birmingham	38
EX13C-00221	Chips	Moto The Kitchen	Not applicable	Not applicable	Not applicable	Wolverhampton	206
EX13C-00222	Regular fries	KFC	Not applicable	Not applicable	Not applicable	Edinburgh	410
EX13C-00223	Chips	Hightown Fish & Chip Shop	Not applicable	Not applicable	Not applicable	Congleton	527
EX13C-00224	Side chips	The Railway Inn	Not applicable	Not applicable	Not applicable	Congleton	759
EX13C-00225	Side chips	The Trinity	Not applicable	Not applicable	Not applicable	London	410
EX13C-00226	Large fries	McDonalds	Not applicable	Not applicable	Not applicable	Cardiff	265
EX13C-00227	Chips	Perfect Fried Chicken	Not applicable	Not applicable	Not applicable	London	207
EX13C-00228	Chips	Silver Lounge Café	Not applicable	Not applicable	Not applicable	Larne	75
EX13C-00229	Chips	The Upper Crust	Not applicable	Not applicable	Not applicable	Larne	43
EX13C-00230	Chips	Arcade Chip Shop	Not applicable	Not applicable	Not applicable	Antrim	70
EX13C-00231	Chips	Sainsbury's Café	Not applicable	Not applicable	Not applicable	Cambridge	123
EX13C-00232	Chips	Khangs Fish & Chips	Not applicable	Not applicable	Not applicable	Cambridge	52

Category 2 – November 2011 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
11C-14814	Sea salt & Balsamic vinegar hand cooked crisps	Marks & Spencer	21 02 12	C 1297 Variety Markies	UK	Newmarket	318
11C-14815	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	23 01 12	11 276 3B	British potatoes Herefordshire, England	Birmingham	150
11C-14816	Ready salted crisps - 6 pack	Tesco	11 FEB 12	Display until 04 FEB M8 S 1318	UK	London	1444
11C-14817	Anglesey sea salt crisps	Pipers Crisps	05 01 12	L3 L1248	Lincolnshire, England	Cambridge	423
11C-14818	Cheddar & onion flavour ridge cut potato crisps	McCoy's	07 JAN 12	1 269 4C T	UK	Birmingham	415
11C-14819	Lightly salted chips	Kettle Chips	25 FEB 12	M B 1276	UK	Birmingham	465
11C-14820	Sea salted potato crisps - 6 pack	Seabrook	28 JAN 12	1277 R 1	Yorkshire, England	Congleton	900
11C-14821	Simply salted potato crisps - 6 bags	Walkers Lights	21-01-12	GBL 186309 5199	None declared	Congleton	218
11C-14822	Salt & black pepper hand fried potato chips	Burts	06 02 2012	Prod: 19 09 2011 Field Tapp Fried by Richard	Devon, England	Newmarket	643
11C-14823	Cheese & onion flavour crisps - 12 pack	Tayto	08 JAN 12	A 11277	None declared	Larne	572

Category 2 – March 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00407	Sea salt & Balsamic vinegar hand cooked crisps	Marks & Spencer	19.06.12	I 2053 Variety Markies	UK	Wolverhampton	378
12C-00408	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	19 06 12	12 059 1B	British potatoes Herefordshire, England	Melbourn	1244
12C-00409	Ready salted crisps - 6 pack	Tesco	09 JUN 12	Display until 02 JUN M6 S 2072	UK	Congleton	165
12C-00410	Anglesey sea salt crisps	Pipers Crisps	24/05/12	L3 12024	None declared	Kendal	2142
12C-00411	Cheddar & onion flavour ridge cut potato crisps	McCoy's	09 06 12	T 236610C	UK	Cambridge	503
12C-00412	Lightly salted chips	Kettle Chips	05 MAY 12	M Q 1349	UK	Edinburgh	527
12C-00413	Sea salted potato crisps - 6 pack	Seabrook	26 MAY 12	2032 R2	Yorkshire, England	Kendal	1421
12C-00414	Simply salted potato crisps - 6 bags	Walkers Lights	26-05-12	GBL 187069 2828	None declared	Cambridge	536
12C-00415	Salt & black pepper hand fried potato chips	Burts	12 06 2012	Prod: 24 01 2012 Field Kirby Fried by Louiza 1	Devon, England	Newmarket	627
12C-00416	Cheese & onion flavour crisps	Tayto	24 JUN 12	B2 12080	None declared		1062

Category 2 – November 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00575	Sea salt & Balsamic vinegar hand cooked crisps	Marks & Spencer	12/02/2013	T 2289 Variety Lady Rosetta	UK	South Woodford	385
12C-00576	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	20 01 13	12 274 3	British potatoes Herefordshire, England	Larne	222
12C-00577	Ready salted crisps - 6 pack	Tesco	02 FEB 13	Display until 26 JAN M8 S 2310	UK	Congleton	1138
12C-00578	Sea salt & cyder vinegar crisps	JackPots	12 FEB 2013	LOT 1028	UK	Newmarket	172
12C-00579	Cheddar & onion flavour ridge cut potato crisps	McCoy's	09 02 13	2302 10B T	UK	Cambridge	969
12C-00580	Lightly salted chips	Kettle Chips	26 JAN 13	D D 2 250	UK	Ilford	280
12C-00581	Sea salted potato crisps - 6 pack	Seabrook	02 FEB 13	A 2286	Yorkshire, England	Cambridge	1436
12C-00582	Simply salted potato crisps - 6 bags	Walkers Lights	29-12-12	GBL 186282 0771	None declared	Ilford	432
12C-00583	Sea salted potato chips	Burts	13 02 2013	Prod: 26 09 2012 Field Stacey Fried by Roddy	Devon, England	Newmarket	2231
12C-00584	Cheese & onion flavour crisps - 6 pack	Tayto	09 FEB 13	FW2 12304	None declared	Larne	1252

Category 2 – March 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00069	Sea salt & Balsamic vinegar hand cooked crisps	Marks & Spencer	11/06/2013	T3044 Variety Lady Claire	UK	Cambridge	459
EX13C-00070	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	20 06 13	13 045 2	British potatoes Herefordshire, England	Cambridge	539
EX13C-00071	Ready salted crisps - 6 pack	Tesco	11 MAY 13	Display until 04 MAY M14 S 3042	UK	Cambridge	2062
EX13C-00072	Sea salt & cyder vinegar crisps	JackPots	22 06 2013	LOT 1046	East Anglia	London	385
EX13C-00073	Cheddar & onion flavour ridge cut potato crisps	McCoy's	11 05 2013	T 3028 2F	UK	London	603
EX13C-00074	Lightly salted chips	Kettle Chips	03 AUG 13	M B 3 074	UK	London	386
EX13C-00075	Sea salted potato crisps - 6 pack	Seabrook	22 JUN 13	3057 R2	Yorkshire, England	London	894
EX13C-00076	Simply salted potato crisps - 6 bags	Walkers Lights	27-04-13	GBL 188038 7231	None declared	Cambridge	525
EX13C-00077	Sea salted hand fried potato chips	Burts	06 05 2013	Prod: 17 12 2012 Field AJ2 Fried by Roddy	Devon, England	Congleton	1404
EX13C-00078	Cheese & onion flavour crisps	Tayto	15 JUN 13	B7 13067	None declared		1287

Category 2 – November 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00233	Sea salt & Balsamic vinegar potato crisps	Marks & Spencer	11/02/2014	S3287 Variety Hermes	UK	Cambridge	420
EX13C-00234	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	21 02 14	13291 T4 Lady Rosetta	EU potatoes Made in Herefordshire, England	Larne	238
EX13C-00235	Ready salted crisps - 16 pack	Tesco	04 JAN 14	Display until 28 DEC M10B S 3281	UK	Antrim	688
EX13C-00236	Sea salt & cyder vinegar crisps	JackPots	28122013	LOT 1073	East Anglia	Cambridge	177
EX13C-00237	Cheddar & onion flavour ridge cut potato crisps	McCoy's	22 02 14	T 3314 F/W F	UK	Congleton	550
EX13C-00238	Lightly salted chips	Kettle Chips	08 FEB 14	D A 3 261	UK	Antrim	329
EX13C-00239	Sea salted potato crisps - 6 pack	Seabrook	08 FEB 14	3287 R2	Yorkshire, England	Cambridge	1348
EX13C-00240	Simply salted potato crisps - 6 bags	Walkers Lights	21-12-13	GBL 187275 5246	None declared	Antrim	162
EX13C-00241	Sea salted hand cooked potato chips	Burts	05 02 2014	Prod: 18 09 13 Field: Lopens Cooked by: Richard	Devon, England	Newmarket	225
EX13C-00242	Cheese & onion flavour crisps - 6 pack	Tayto	08 FEB 14	FW2 13302 15 11	None declared	Larne	502

Category 3 – November 2011 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
11C-14824	Oven chips	Heinz Weight Watchers	APR/2013	B 21 280	Holland	Congleton	114
11C-14825	Thin & crispy oven chips	Tesco	10/2012	DUE: 07/2012 L C 7 1276	Netherlands	Newmarket	22
11C-14826	Crispy French fries	McCain	03 2013	P 24092011 02	None declared	Slough	17
11C-14827	Straight cut frying chips	Waitrose Essential	02 08 2013	1 214 500 5	UK	Newmarket	64
11C-14828	Chunky chips	Tesco Finest Side Dish	None declared	55E 0338	UK	Antrim	1750
11C-14829	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	BU4 L4	UK	Cambridge	582
11C-14830	Organic straight cut oven chips	Waitrose Organic	DEC 2012	C1262 9	UK	Cambridge	131
11C-14831	Homestyle chips	Aunt Bessie's	APR/2013	L1294 62 12	EU	Newmarket	113
11C-14832	Chunky oven chips	Asda Extra Special	14 OCT 2012	1287 500 7	UK	Cambridge	53
11C-14833	Crispy potatoes	Sainsbury's	APR/2013	B11282	Netherlands	Slough	324
11C-14834	Potato waffles - 12	Birds Eye	04 2013	L1301 WL124	Not declared	Newmarket	281
11C-14835	Oven cook roast potatoes	Asda	05 OCT 2012	EPM	UK	Cambridge	21
11C-14836	Smiles	McCain	12/2012	W 08 06 2011 1A	Not declared	Newmarket	80
11C-14837	Micro chips	McCain	AUG 2012	S 02 11 11 2	British potatoes	Congleton	276

Category 3 – March 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00417	Oven chips	Heinz Weight Watchers	APR/2013	B 41 283	Holland	Newmarket	379
12C-00418	Thin & crispy oven chips	Tesco	03/2012	DUE: 12/2012 L C 7 2072	Netherlands	Congleton	17
12C-00419	Crispy French fries	McCain	08 2013	S 09022012 07	None declared	Kendal	430
12C-00420	Straight cut frying chips	Waitrose Essential	02 2014	2051 500 3	UK	Newmarket	26
12C-00421	Chunky chips	Tesco Finest Side Dish	None declared	55C 2028	UK	Congleton	2908
12C-00422	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	BU4 L2	UK	Cambridge	3067
12C-00423	Organic straight cut oven chips	Waitrose Organic	DEC 2012	C1262 6	UK	Newmarket	649
12C-00424	Homestyle chips	Aunt Bessie's	AUG 2013	NB 2 043 9	UK	Kendal	422
12C-00425	Chunky oven chips	Asda Extra Special	22 DEC 2012	1356 500 6	UK	Cambridge	191
12C-00426	Crispy potatoes	Sainsbury's	FEB 2014	B1 2053	Netherlands	Cambridge	1719
12C-00427	Potato waffles - 4	Birds Eye	07 2013	L2030 X L124	Not declared	Melbourn	784
12C-00428	Oven cook roast potatoes	Asda	17 FEB 2013	EPM C2048 2	UK	Kendal	480
12C-00429	Smiles	McCain	08 2013	W 24022012 01	Not declared	Cambridge	49
12C-00430	Micro chips	McCain	11 2012	P03022012	British potatoes	Melbourn	351

Category 3 – November 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00585	Oven chips	Heinz Weight Watchers	MAY/2013	B 21 314	Holland	Ilford	70
12C-00586	Thin & crispy oven chips	Tesco	09/2013	DUE: 06/2013 L C 3 2249	Netherlands	Congleton	53
12C-00587	Crispy French fries	McCain	04 2014	S 10102012 07	None declared	Cambridge	23
12C-00588	Straight cut frying chips	Waitrose Essential	05 2014	2 132 500 6	UK	Newmarket	59
12C-00589	Chunky chips	Tesco Finest Side Dish	None declared	55E 1606	UK	Newmarket	622
12C-00590	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	None declared	UK	Cambridge	1037
12C-00591	Organic straight cut oven chips	Waitrose Organic	MAR 2013	C1262 7	UK	Newmarket	132
12C-00592	Homestyle chips	Aunt Bessie's	APR 2014	NB 2 304 8	UK	Congleton	136
12C-00593	Chunky oven chips	Asda Extra Special	28 OCT 2013	2 301 500 5	UK	Cambridge	13
12C-00594	Crispy potatoes	Sainsbury's	SEP 2014	B3 2253	Netherlands	Ilford	81
12C-00595	Potato waffles - 12	Birds Eye	03 2014	L2261 EL124	Not declared	Ilford	50
12C-00596	Oven cook roast potatoes	Asda	28 OCT 2013	C2301 2 EPM	UK	Cambridge	122
12C-00597	Smiles	McCain	03 2014	W 28092012 02	Not declared	Ilford	186
12C-00598	Micro chips	McCain	JUL 2013	S 17 10 12 O	British potatoes	Letchworth	17
12C-13423	Ready baked jackets (4)	McCain	05/2013	W09052012	British potatoes	Ilford	185

Category 3 – March 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00079	Oven chips	Sainsbury's Be Good to Yourself	FEB 2015	B33049	Netherlands	Cambridge	88
EX13C-00080	Thin & crispy oven chips	Tesco	12/2013	DUE: 09/2013 L C 22355	Netherlands	Congleton	84
EX13C-00081	Crispy French fries	McCain	08 2014	S 20022013 09	British potatoes	Great Barr	72
EX13C-00082	Straight cut frying chips	Waitrose Essential	MAY 2014	L2317 04 10	Belgium	Cambridge	13
EX13C-00083	Chunky chips	Tesco Finest Side Dish	None declared	54X 1915	UK	Cambridge	86
EX13C-00084	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	BU4L5	UK	Cambridge	163
EX13C-00085	Organic straight cut oven chips	Waitrose Organic	JUN 2014	None declared	UK	Cambridge	20
EX13C-00086	Homestyle chips	Aunt Bessie's	JUL 2014	NB 3 019 4	UK	Cambridge	101
EX13C-00087	Straight cut oven chips	Asda	21/01/2014	C43 022	Netherlands	Harlow	9
EX13C-00088	Crispy potatoes	Sainsbury's	JAN 2015	B3 3010	Netherlands	Cambridge	48
EX13C-00089	Potato waffles - 12	Birds Eye	07 2014	L3005QL124	Not declared	Great Barr	55
EX13C-00090	Oven cook roast potatoes	Asda	25 JAN 2014	EPM C3025 2	UK	London	22
EX13C-00091	Smiles	McCain	08 2014	W 14022013 03	Not declared	Congleton	99
EX13C-00092	Micro chips	McCain	NOV 2013	S 04 02 13 0	Not declared	Cambridge	212

Category 3 – November 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00243	Straight cut oven chips	Sainsbury's Be Good to Yourself	SEP 2015	B33272	Netherlands	Cambridge	363
EX13C-00244	Thin & crispy oven chips	Tesco	09/2014	DUE: 06/2014 L C3 3248	Netherlands	Antrim	19
EX13C-00245	French fries	McCain	03 2015	S 27092013 06	Not declared	Antrim	14
EX13C-00246	Straight cut frying chips	Waitrose Essential	FEB2015	L3231 04 05	Belgium	Newmarket	20
EX13C-00247	Chunky chips	Tesco Finest	None declared	8E E	UK	Congleton	2634
EX13C-00248	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	None declared	BU4L4	UK	Cambridge	929
EX13C-00249	Organic straight cut oven chips	Waitrose Organic	APR 2015	C3276 3	UK	Newmarket	127
EX13C-00250	Homestyle chips	Aunt Bessie's	MAR 2015	NB 3 269 4	UK	Congleton	119
EX13C-00251	Straight cut oven chips	Asda	01/09/2014	C33245	Netherlands	Cambridge	136
EX13C-00252	Crispy potatoes	Sainsbury's	SEP 2015	B23273	Netherlands	Cambridge	119
EX13C-00253	Potato waffles - 10	Birds Eye	04 2015	L3293AL124	Not declared	Congleton	40
EX13C-00254	Oven cook roast potatoes	Asda	21 SEP 2014	EPM C3264 5	UK	Cambridge	50
EX13C-00255	Smiles	McCain	04 2015	W31102013 01	Not declared	Congleton	22
EX13C-00256	Micro chips	McCain	JUL 2014	S 31 10 13 0	Not declared	Congleton	147
EX13C-00259	Ready baked jackets (2)	McCain	10 2014	S26102013	Not declared	Newmarket	159

Category 4 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00347	Toastie thick sliced white bread	Warburtons	20 JAN	K R YQ W EL A X 14	None declared	London	7
12C-00348	Demi baguettes	Co-op	24/01/2012	None declared	None declared	Cambridgeshire	6
12C-00349	White sliced bloomer	Greggs	None declared	None declared	None declared	Newmarket	8
12C-00350	Tiger loaf	Tesco Bakery	17 Jan	None declared	None declared	Sandhurst	10
12C-00351	White finger rolls - 6 pack	Tesco Bakery	18 Jan	None declared	None declared	Sandhurst	6
12C-00352	Wholemeal thick sliced bread	Brace's	26 JAN	D11 S B	None declared	Ebbw Vale	23
12C-00353	Toasty pan white sliced bread - thick	Irwin's	03 FEB	CN2	None declared	Ballymena	13
12C-00354	Plain sliced white bread	Sunblest	04 FEB	B E 6 2 029 1347	Northern Ireland	Ballymena	42
12C-00355	Harvest Pride white premium sliced bread	Linwoods	04 FEB	A4	None declared	Antrim	7
12C-00356	Nimble wholemeal sliced bread	Hovis	21 JAN	X86E A X	British wheat	Camberley	27
12C-00357	Soya & linseed bread	Burgen	21 JAN	ST4 2 015 1031	UK	Camberley	14
12C-00358	4 green olive ciabatta rolls	Marks & Spencer	05 FEB	None declared	UK	Cambridge	37
12C-00359	Stoneground wholemeal medium sliced bread	Waitrose	26 JAN	FLBT13	UK	Newmarket	36
12C-00360	Sunflower & barley bread	Vogel's	27 JAN	G	None declared	Newmarket	29
12C-00361	Thick sliced soft white bread	Hovis	22 JAN	B E (X44) 3	100% British wheat	Sandhurst	8
12C-00362	Wholemeal batch bread	Allinson	25 JAN	GD6 2 019	UK	Abergavenny	45
12C-00363	Stonebaked walnut cob	Sainsbury's Taste the Difference	None declared	None declared	French white flour Produced in the UK	Cambridge	16
12C-00364	Thick sliced soft white bread	Roberts Bakery	02 FEB	FRS14 14M 026 4612R	Not declared	Walsall	17
12C-00365	Burger buns	Asda	26-01-2012	None declared	None declared	Cambridge	15
12C-00366	Soft white loaf - medium	Kingsmill	21 JAN	HU8 2 015 1000	UK	London	7

Category 4 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00005	Toastie thick sliced white bread	Warburtons	01 FEB	DIXOW EGAY 3	None declared	Wrexham	18
EX13C-00006	Demi baguettes	Co-op	None declared	None declared	None declared	Cambridgeshire	10
EX13C-00007	White bloomer	Greggs	None declared	None declared	None declared	Wrexham	33
EX13C-00008	Tiger bloomer	Tesco Bakery	28 Jan	None declared	None declared	Welshpool	10
EX13C-00009	White finger rolls - 6 pack	Tesco Bakery	30 Jan	None declared	None declared	Wrexham	10
EX13C-00010	Wholemeal thick sliced bread	Brace's	31 JAN	D37 S4	None declared	Newtown	25
EX13C-00011	Toasty pan white sliced bread - thick	Irwin's	19 JAN	CN2	None declared	Antrim	12
EX13C-00012	Plain sliced white bread	Sunblest	19 JAN	None declared	Northern Ireland	Antrim	35
EX13C-00013	Harvest Pride white premium sliced bread	Linwoods	20 JAN	A 418	None declared	Antrim	11
EX13C-00014	Nimble wholemeal sliced bread	Hovis	19 JAN	(X42) 6 EY	British wheat	Antrim	42
EX13C-00015	Soya & linseed bread	Burgen	17 JAN	ST3 3 011 0530	UK	Cambridge	16
EX13C-00016	4 green olive ciabatta rolls	Marks & Spencer	02/02/2013	None declared	UK	Cambridge	32
EX13C-00017	Stoneground wholemeal medium sliced bread	Waitrose	01 FEB	FLBM08	UK	Newmarket	29
EX13C-00018	Sunflower & barley bread	Vogel's	02 FEB	A	None declared	Newmarket	24
EX13C-00019	Thick sliced soft white bread	Hovis	18 JAN	X86D F U	100% British wheat	Cambridge	12
EX13C-00020	Wholemeal batch baked loaf	Allinson	17 JAN	ST7 3 011 0623	UK	Cambridge	38
EX13C-00021	Walnut cob	Sainsbury's Taste the Difference	30 Jan	Display until 29 Jan	UK	Cambridge	16
EX13C-00022	Thick sliced soft white bread	Roberts Bakery	31 JAN	FRS11 11V 024 4613R	Not declared	Wrexham	20
EX13C-00023	Burger buns	Asda	13-01-2013	P/01	None declared	Cambridge	9
EX13C-00024	Soft white loaf - medium	Kingsmill	17 JAN	ST08 011 1410	UK	Cambridge	15

Category 5 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00367	Organic spelt honey puffs	Sharpham Park	07/2013	060112 BIG	British spelt	Somerset	207	110	115
12C-00368	Organic whole wheat cereal biscuits	Weetabix Organic	13/01/2013	12013 2	England	Newmarket	121	6	6
12C-00369	Force - toasted wholewheat flakes	Nestlé	31/10/2012	13330953	None declared	Newmarket	217	16	16
12C-00370	Puffed wheat	The Good Grain Co.	30 NOV 12	318 A 5	None declared	Newmarket	479	335	359
12C-00371	Bran flakes	Tesco	07/10/2012	P3 B1 20070953	UK	Cambridge	415	32	32
12C-00372	Wheat pillows	Tesco	07 Oct 2012	12011 WW	Germany	Royston	362	25	24
12C-00373	Wholegrain bran flakes	Sainsbury's	06/01/2013	20060953 P3 B3	UK	Cambridge	413	34	33
12C-00374	Cornflakes - toasted flakes of golden corn	Kellogg's	16 01 13	04 MC	None declared	Cambridge	47	37	35
12C-00375	Shreddies - whole wheat malted cereal	Nestlé	31.08.2012	13150952 L3	None declared	Cambridge	112	22	24
12C-00376	Puffed wheat	Sugar Puffs	31 DEC 12	356 B 9	None declared	Cambridge	209	165	166
12C-00377	Whole wheat cereal biscuits	Morrisons	31/01/2013	2031	UK	Cambridge	119	12	13
12C-00378	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	13 01 13	32 MC	None declared	Cambridge	185	10	10
12C-00379	Shredded wheat - wholegrain wheat cereal biscuits	Nestlé	31.10.2012	20240952 G	British wheat	Cambridge	255	17	17
12C-00380	Whole wheat cereal	Sunny-Bisk	26/01/2013	UK2	None declared	Cambridge	104	6	6
12C-00381	Golden puffs	The Big Cereal Company	JAN 2013	12 L 023 M 1	Switzerland	Cambridge	341	73	74
12C-00382	Malted wheaties	Asda	29/01/2013	2029 A	UK	Cambridge	211	19	19
12C-00383	Crunchy bran - high fibre cereal	Weetabix	30/01/2013	2030 9	England	Cambridge	183	61	65

Category 5 – 2012 samples, continued...

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00384	Organic bran flakes	Tree of Life	SEP 12	Org 76143	Produce of various countries Packed in the UK	Cambridge	71	14	13
12C-00385	Wheat & wheat bran flakes	Co-op	07/10/2012	20070953 P3 B1	UK using British wheat & wheat bran	Melbourn	458	29	32
12C-00386	Wholewheat biscuits	Waitrose Essential	20/01/2013	2020 2	UK	Newmarket	278	20	18
12C-00552	Rice krispies	Kellogg's	23 09 13	45 MC	None declared	Witham	N/A	32	31
12C-00553	Rice snaps	Tesco	15 JUN 2013	22590953	UK	Cambridge	N/A	24	24

Category 5 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00025	Multigrain flakes of wholegrain barley, corn & spelt	Rude Health	20 12 13	L 355 M	Barley from France, Corn from Italy, Spelt from Germany Flaked in Switzerland	Cambridge	213	19	23
EX13C-00026	Organic whole wheat cereal biscuits	Weetabix Organic	05/12/2013	12340 2	England	Cambridge	71	4	3
EX13C-00027	Grape-nuts - wheat & barley cereal	Post	05SEP13	M31	USA	Newmarket	95	50	54
EX13C-00028	Puffed wheat	The Good Grain Co.	31 DEC 13	348 A 5	None declared	Newmarket	560	288	295
EX13C-00029	Bran flakes	Tesco	20 OCT 2013	P3 B2 30200953	UK	London	894	37	37
EX13C-00030	Apricot wheats	Tesco	23 OCT 2013	L1 3023 0952	UK	Cambridge	20	3	2
EX13C-00031	Wholegrain bran flakes	Sainsbury's	19 JAN 2014	30190953 P3 B3	UK	London	728	37	37
EX13C-00032	Cornflakes	Kellogg's	20 01 14	04 MC	None declared	London	63	43	42
EX13C-00033	Shreddies - whole wheat malted cereal	Nestlé	31.10.2013	30210952 L3	None declared	Cambridge	382	23	20
EX13C-00034	Puffed wheat	Sugar Puffs	31 JAN 14	017 C 8	None declared	Cambridge	329	134	128
EX13C-00035	Whole wheat cereal biscuits	Morrisons	09/01/2014	3009 2	UK	Cambridge	157	10	10
EX13C-00036	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	04 01 14	32 MC	None declared	Newmarket	288	14	13
EX13C-00037	Shredded wheat - wholegrain wheat cereal biscuits	Nestlé	31.10.2013	30050952 G	None declared	Cambridge	199	15	16
EX13C-00038	Toasted breakfast biscuits	Sunny-Bisk	29.08.13	PD: 29.08.12 L5A	South Africa	Cambridge	34	5	6
EX13C-00039	Golden puffs	Harvest Morn	21.01.2014	L13-00422	None declared	Cambridge	528	90	89

Category 5 – 2013 samples, continued...

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00040	Malted wheaties	Asda	21/01/2014	3021 A	UK	London	82	14	12
EX13C-00041	Crunchy bran - high fibre cereal	Weetabix	09/01/2014	3009 9	England	London	123	47	50
EX13C-00042	Organic bran flakes	Tree of Life	SEP 13	Org 12649	Produce of various countries Packed in the UK	Cambridge	43	9	8
EX13C-00043	Wheat & wheat bran flakes	Co-op	24 OCT 2013	30240953 P3 B1	UK using British wheat & wheat bran	Cambridge	494	29	24
EX13C-00044	Wholewheat biscuits	Waitrose Essential	12/12/2013	2346 2	UK	Newmarket	150	10	10
EX13C-00047	Rice krispies	Kellogg's	06 12 13	44 MC	None declared	London	N/A	8	9
EX13C-00048	Rice snaps	Tesco	24 OCT 2013	30240953	UK	London	N/A	19	20

Category 6 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00431	Cream crackers	Waitrose Essential	09 FEB 13	2 128 BC	UK	Cambridge	82	28	29
12C-00432	Organic wholewheat digestives	Doves Farm Organic	25.NOV.12	2 110	English wheat	Cambridge	230	7	7
12C-00433	Dark rye crispbread	Ryvita	01.2013	2101 1C	None declared	London	350	93	91
12C-00434	Ginger biscuits	Fox's Crinkles	12 01 13	B S	None declared	London	1044	4	4
12C-00435	Rich tea biscuits	Asda Smart Price	10 NOV 12	T2 2120	UK	London	342	11	10
12C-00436	Crunchy ginger biscuits	McVitie's Ginger Nuts	27 10 12	2110 1 C UBA1JG8Y945F UBK716TM4JN5 UBW9NTY4J52E	UK	London	147	29	28
12C-00437	Salted savoury snack biscuits	TUC Original	01/12/12	2 122 1A	UK	London	554	44	54
12C-00438	Ginger nut biscuits	Tesco	NOV 12	2122 1	UK	London	171	44	48
12C-00439	Cream crackers	Tesco	12 JAN 13	2 121 BA	UK	London	68	35	35
12C-00440	Extra wheatgerm crackers	Hovis	24 11 12	2 072 B	None declared	London	470	21	22
12C-00441	High bake water biscuits	Sainsbury's	10 11 12	2122 2 C	UK	London	302	63	60
12C-00442	Crispy wheat & rye crackers	McVitie's Krackawheat	03 NOV 12	T2 D	UK	London	463	88	84
12C-00443	Malted milk biscuits	Marks & Spencer	22 12 12	2107 E	UK	Cambridge	361	8	8
12C-00444	Original thin sourdough rye crispbread	Finn Crisp	29032013	Production date: 29032012/	Finland	London	131	137	134
12C-00445	Flatbreads - mixed seeds	Jacob's	10 11 12	2121 7 C	UK	London	343	157	174
12C-00446	Scottish shortbread fingers	Paterson's	MAY 2013	L12122	Scotland	London	30	4	5
12C-00447	Scandinavian bran crispbread	Slimming World	21112014	21112011	Norway	Cambridge	88	15	15
12C-00448	Cream crackers	Jacob's	13.10.12	2 081 BB	None declared	Cambridge	126	66	66
12C-00449	Fan wafer biscuits	Askey's	APR 13	2109G11X	UK	London	291	9	9
12C-00450	Rough oatmeal oatcakes	Nairn's Oatcakes	18 OCT 2012	1552 C1	Scotland	London	195	30	31

Category 6 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00093	Cream crackers	Waitrose Essential	11 JAN 14	3 100 BB	UK	Newmarket	110	79	80
EX13C-00094	Organic wholewheat digestives	Doves Farm Organic	03.NOV.13	3 086	English wheat	Newmarket	133	10	10
EX13C-00095	Dark rye crispbread	Ryvita	01.2014	3101 1B	Dorset	Cambridge	349	109	106
EX13C-00096	Ginger biscuits	Fox's Crinkles	01 02 14	B S	None declared	Cambridge	1328	4	4
EX13C-00097	Rich tea biscuits	Asda Smart Price	09 NOV 13	T2 3 120	UK	Cambridge	296	15	16
EX13C-00098	Crunchy ginger biscuits	McVitie's Ginger Nuts	24 08 13	3046 2 C	UK	Newmarket	161	35	35
EX13C-00099	Salted savoury snack biscuits	TUC Original	23/11/13	3 113 1A	UK	Cambridge	610	54	55
EX13C-00100	Ginger nut biscuits	Tesco	09 11 13	3120 1	UK	Cambridge	156	37	38
EX13C-00101	Cream crackers	Tesco	04 JAN 14	3 117 BA	UK	Cambridge	75	45	43
EX13C-00102	Extra wheatgerm crackers	Hovis	09 11 13	3060 B	UK	Cambridge	572	17	19
EX13C-00103	High bake water biscuits	Sainsbury's	02 11 13	3115 3 C	UK	Cambridge	238	89	86
EX13C-00104	Crispy wheat & rye crackers	McVitie's Krackawheat	26 OCT 13	T2 C	UK	Cambridge	189	21	21
EX13C-00105	Malted milk biscuits	Marks & Spencer	30/11/2013	3083 G8	UK	Cambridge	346	8	9
EX13C-00106	Original thin sourdough rye crispbread	Finn Crisp	20032014	Production date: 20032013/	Finland	Newmarket	34	52	52
EX13C-00107	Flatbreads - mixed seeds	Jacob's	26 10 13	3108 7 C	UK	Newmarket	243	62	66
EX13C-00108	Scottish shortbread fingers	Paterson's	APR 2014	L13101	Scotland	Cambridge	27	5	5
EX13C-00109	Scandinavian bran crispbread	Slimming World	28012016	None declared	Norway	Newmarket	384	47	47
EX13C-00110	Cream crackers	Jacob's	02.11.13	3 097	UK	Cambridge	152	57	54
EX13C-00111	Fan wafer biscuits	Askey's	APR 14	3108G11X	UK	Cambridge	125	6	6
EX13C-00112	Rough oatmeal oatcakes	Nairn's Oatcakes	23 OCT 2013	1643 C2	Scotland	Cambridge	187	38	38

Category 7 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg) ^a	
								Pack (a)	Pack (b)
12C-00451	Coffee one-cup bags	Lyons	DEC 13	2159	None declared	Cambridge	361	35	71
12C-00452	Espresso roasted & ground coffee	Waitrose	APR 13	12111	Italy	Newmarket	177	19	6
12C-00453	Fairtrade Guatemala Arabica ground coffee	Percol	SEP 2013	L36 2079	Guatemala	Newmarket	247	89	103
12C-00454	Hacienda la Esperanza Panama	Union Hand Roasted	None declared	Roasted & packed by hand 11 JUN 2012	Boquete, Panama	London	147	151	144
12C-00455	Java Sumatra roast & ground coffee	Tesco Finest	APR/13	G2 102 R5	Indonesia Packed in the UK	Newmarket	374	139	133
12C-00456	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	MAY 2013	2 138 B1	Columbia Packed in the UK	Cambridge	221	188	161
12C-00457	Colombian Fairtrade ground coffee	Marks & Spencer	01 2013	2006 31	Colombia Packed in the UK	Cambridge	201	139	138
12C-00458	Monsoon Malabar coffee beans	Whittard of Chelsea	None declared	14107	India	Cambridge	181	186	153
12C-00459	Freeze dried soluble coffee	Nescafé Gold Blend	05 2014	21441080BB	None declared	Cambridge	698	6	5
12C-00460	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	04 2014	21021080BE	None declared	Cambridge	816	3	3
12C-00461	Freeze dried instant coffee	Kenco	APR 14	L2104	None declared	Cambridge	656	0.1	0.1
12C-00462	Freeze dried decaffeinated instant coffee	Kenco Decaff	APR 14	L2117	None declared	Cambridge	816	0.1	0.1
12C-00463	Freeze dried instant coffee	Carte Noire	04/14	L2119	None declared	Cambridge	761	0.2	0.2
12C-00464	Freeze dried decaffeinated instant coffee	Carte Noire Decaff	03/14	L2086	None declared	Cambridge	878	0.2	0.2
12C-00465	Chicory & coffee essence	Camp	16 04 14	L2117	EU	Cambridge	399	0.1	0.1
12C-00466	Instant dandelion coffee compound	Symingtons	AUG 2013	BN 95749	None declared	Cambridge	28	0.1	0.1
12C-00467	Yannoh instant organic grain coffee substitute	Lima	05.04.2013	L011024	Switzerland	Cambridge	1053	0.1	0.1
12C-00468	Guarana-based coffee alternative	Whole Earth Wake Up	SEPTEMBER 2013	L1250	Italy	Cambridge	377	0.2	0.2
12C-00469	Instant cereal drink	Barley Cup Original	20.12.2013	1512A	Poland	Cambridge	1056	0.1	0.1
12C-00470	Biomalt - instant grain beverage	Biona Organic	02-15	L2053	None declared	Cambridge	338	0.1	0.1

^a as consumed basis

Category 7 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg) ^a	
								Pack (a)	Pack (b)
EX13C-00113	Coffee one-cup bags	Lyons	NOV 14	3123	None declared	Cambridge	232	71	68
EX13C-00114	Espresso roasted & ground coffee	Waitrose	MAY 14	13128	Italy	Cambridge	149	13	11
EX13C-00115	Fairtrade Guatemala Arabica ground coffee	Percol	JUL 2014	L36 3007	Guatemala	Cambridge	136	95	102
EX13C-00116	Gajah mountain, Aceh Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Roasted & packed by hand 10 JUN 2013	Aceh moutains, Sumatra	London	169	203	212
EX13C-00117	Java Sumatra roast & ground coffee	Tesco Finest	APR 2014	A2 3128	Indonesia Packed in the UK	Cambridge	174	147	131
EX13C-00118	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	APR 2014	3 114 B1	Columbia Packed in the UK	Cambridge	152	119	117
EX13C-00119	Colombian Fairtrade ground coffee	Marks & Spencer	04 2014	3100 60	Colombia Packed in the UK	Newmarket	156	122	96
EX13C-00120	Monsoon Malabar coffee beans	Whittard of Chelsea	None declared	None declared	India	Cambridge	149	73	83
EX13C-00121	Freeze dried soluble coffee	Nescafé Gold Blend	04 2015	31151080BD	None declared	Cambridge	462	7.9	7.4
EX13C-00122	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	05 2015	31281080BE	None declared	Cambridge	758	7.0	6.9
EX13C-00123	Freeze dried instant coffee	Kenco	MAY 15	L3143	None declared	Cambridge	513	1.4	2.0
EX13C-00124	Freeze dried decaffeinated instant coffee	Kenco Decaff	JAN 15	L3004	None declared	Cambridge	765	2.1	2.1
EX13C-00125	Freeze dried instant coffee	Carte Noire	05/15	L3148	None declared	Cambridge	674	3.4	3.4
EX13C-00126	Freeze dried decaffeinated instant coffee	Carte Noire Decaff	05/15	L3127	None declared	Cambridge	723	2.4	2.2
EX13C-00127	Chicory & coffee essence	Camp	11 03 15	L3080	EU	Cambridge	170	0.2	0.3
EX13C-00128	Instant dandelion coffee compound	Symingtons	DEC 2014	BN 101334	None declared	Newmarket	11	0.07	0.07
EX13C-00129	Organic grain coffee substitute	Lima Yannah Instant	10.12.2014	L012075	Switzerland	Cambridge	317	1.8	1.5
EX13C-00130	Guarana-based coffee alternative	Whole Earth Wake Up	OCTOBER 2014	L2276	Italy	Cambridge	375	3.4	3.4
EX13C-00131	Instant cereal drink	Barley Cup Original	06.03.2015	3103B	Poland	Newmarket	1055	0.7	0.7
EX13C-00132	Instant grain beverage	Biona Organic Biomalt	02-16	L3046	None declared	Edinburgh	282	0.5	0.4

^a as consumed basis

Category 8 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00471	Organic tender carrots & potatoes	Hipp Organic	11/13	L110467 DE P10/11 164864 340814 340839 340841 340853	Germany or Austria	Newmarket	14	27	27
12C-00472	Creamy parsnip and potato	Cow & Gate Baby Balance	28.03.2014	120301 1106,00 A	EU	Cambourne	12	41	46
12C-00473	Organic squash & sweet potato puree	Plum	28/02/13	2072 A2	UK	Newmarket	13	86	88
12C-00474	Organic parsnip, carrot & Cheddar mash meal	Plum	24/10/2012	V	EU		7	39	47
12C-00475	Organic tomatoes, noodles & pork	Boots Baby Organic	10/2012	L89875 024460 024463 024469	Germany	Newmarket	12	30	32
12C-00476	Organic root vegetables with green lentils	Plum	30/11/12	1441 A3	UK		13	81	90
12C-00477	Cheesy pasta with ham	Heinz Mum's Own Recipe	02/2013	1321 8408 C	Italy	Cambridge	16	24	26
12C-00478	Vegetable and chicken casserole	Heinz Mum's Own Recipe	09/2013	2065 8356 A	Italy	Newmarket	13	51	50
12C-00479	Organic mixed vegetable medley	Hipp Organic	08/13	L117680 DE P02/12 285248 285253 285260 285273 285292 285323	Germany or Austria	Newmarket	17	33	31
12C-00480	Spaghetti bolognese	Heinz Mum's Own Recipe Little Bites	05.2013	None declared	EU	Newmarket	24	40	54
12C-00481	Spaghetti bolognese	Cow & Gate Little Steamed Meals	06/06/2013	AT	EU	Newmarket	35	42	46
12C-00482	Organic lasagne	Hipp Organic	29.12.12	L118514	Austria	Newmarket	15	14	14

Category 8 – 2012 samples, continued...

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00483	Organic wholegrain pasta and pea pesto	Organix	10.03.2013	L2721 YUJ:005-1	Spain	Newmarket	16	30	31
12C-00484	Organic vegetable bake with lentils	Ella's Kitchen	JUN 2013	L2136 LB	EU	Cambridge	43	125	125
12C-00485	Organic carrot, sweet potato & swede	Asda Little Angels	30 05 2013	-2	UK	Cambridge	12	39	30
12C-00486	Organic pasta pomodoro	Baby Zilli	14 01 2013	-1	UK		13	52	68
12C-00487	Organic root vegetable and beef casserole meal	Plum	09/02/2013	None declared	EU		19	71	79
12C-00488	Organic carrot, parsnip and beef hash	Organix	18.11.2013	L3093YTS:002-1	Spain		31	28	29
12C-00489	Succulent pork casserole	Cow & Gate	20.06.2014	122241 A/5110,01	EU	Cambridge	24	40	45
12C-00490	Chicken and parsnip bake	Heinz Mum's Own Recipe	08/2013	2152 8373 A	Italy	Cambridge	17	38	35

Category 8 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00133	Organic tender carrots & potatoes	Hipp Organic	11/14	L128965 DE P10/12 512539 512545 512558 512573 512606 512611	Germany	London	17	37	38
EX13C-00134	Creamy parsnip and potato	Cow & Gate Baby Balance	21.03.2015	120301 A/1106.00	EU	London	15	56	54
EX13C-00135	Organic squash & sweet potato puree	Plum	30/04/14	1153 C6	UK	Taplow	17	67	72
EX13C-00136	Organic parsnip, carrot & Cheddar mash meal	Plum	29/10/2013	None declared	EU	Taplow	8	47	49
EX13C-00137	Sweet vegetables and pasta stars	Heinz Mum's Own Recipe	07/2014	3103 8411 C	Italy	Cambridge	13	33	32
EX13C-00138	Organic root vegetables & lentil casserole meal	Plum	03 04 2014	1	UK	London	10	41	37
EX13C-00139	Cheesy pasta with ham	Heinz Mum's Own Recipe	08/2014	3130 8408C	Italy	London	21	34	35
EX13C-00140	Vegetable and chicken casserole	Heinz Mum's Own Recipe	09/2014	3071 8356 C	Italy	London	11	34	40
EX13C-00141	Organic mixed vegetable medley	Hipp Organic	08/14	L136431 DE P02/13 044870 044827 044833 044861 062763 062767	Germany	London	11	26	27
EX13C-00142	Spaghetti bolognese	Heinz Mum's Own Recipe Little Bites	07.2014	None declared	EU	London	16	56	49
EX13C-00143	Spaghetti bolognese	Cow & Gate Little Steamed Meals	18/07/2014	AT	EU	London	36	32	33
EX13C-00144	Organic lasagne	Hipp Organic	02.02.14	L137513	Austria	London	6	11	12

Category 8 – 2013 samples, continued

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00145	Organic tomato & leek pasta	Hipp Organic	29/03/2014	C	France	Cambridge	7	21	23
EX13C-00146	Organic vegetable bake with lentils	Ella's Kitchen	APR 2014	L3080	EU	Chesterfield	12	77	77
EX13C-00147	Creamed carrot & potato	Cow & Gate	03.06.2015	120298 A/08989.02/	EU	Cambridge	16	47	63
EX13C-00148	Organic Italian ragu with tomato, beef and ditalini pasta	Plum Tots Little Foodies	26/04/2014	None declared	France	Cambridge	18	23	30
EX13C-00149	Organic beef stew with spuds	Ella's Kitchen	FEB 2014	L3135 B1 LB	EU	Cambridge	11	28	30
EX13C-00150	Organic root veg & beans	Organix Mighty Soups	04/03/2014	C	France	Chesterfield	25	37	44
EX13C-00151	Succulent pork casserole	Cow & Gate	09.05.2015	122241 A/08990.03	EU	London	26	25	26
EX13C-00152	Chicken and parsnip bake	Heinz Mum's Own Recipe	08/2014	3149 8373 B	Italy	Cambridge	11	27	28

Category 9 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
12C-00491	Baby rice	Heinz First Food	1ST OCT 2013	L12115KR001	England	Cambridge	14
12C-00492	Creamy oat porridge	Heinz Breakfast	1ST NOV 2013	L12144KR001	England	Cambridge	14
12C-00493	Pure baby rice	Cow & Gate	23/04/2014	000004709 000004718 000004727 000004736 000004747	EU	Cambridge	13
12C-00494	Multigrain banana porridge	Cow & Gate Sunny Start	04/06/2014	000008222 000008269 000008339	EU	Newmarket	26
12C-00495	Farley's rusks original	Heinz	01 12 2013	2172	England	Cambridge	55
12C-00496	Organic fruit & porridge	Boots Baby Organic	21.05.13	L212	Switzerland	Newmarket	17
12C-00497	Organic creamy porridge	Hipp Organic	30.06.2013	117048 093B	Croatia	Cambridge	12
12C-00498	Organic baby rice	Hipp Organic	30.09.2013	118619 123B	Croatia	Thatcham	20
12C-00499	Organic four grain porridge	Plum	04.12.12	L-22281	EU	Cambridge	11
12C-00500	Organic apple and ginger cookies	Ella's Kitchen	04 01 2013	215101 5	EU	Newmarket	54
12C-00501	Chocolate biscotti	Heinz Biscotti	31/08/13	2146 1C	Italy	Cambridge	41
12C-00502	Organic carrot & pumpkin rice cakes	Hipp Organic Little Nibbles	14 10 12	11 348 C4	Belgium	Thatcham	77
12C-00503	Vanilla cookies	Heinz First Steps	31/01/13	L1290 2	EU	Cambourne	34
12C-00504	Organic baby biscuits	Organix Finger Foods	12.01.2013	F12103C	Germany	Cambourne	133
12C-00505	Organic gingerbread men	Organix Goodies	14.05.2013	L135 B	Germany	Cambridge	200
12C-00506	Multigrain breakfast	Aptamil	06.04.2013	96134	EU	Cambridge	14
12C-00507	Breakfast wheaty biscuits	Cow & Gate Sunny Start	29/06/2013	UK4	UK	Cambridge	90
12C-00508	Organic spelt & apple fingers	Plum	05/03/2013	A	EU	Cambridge	92
12C-00509	Organic four grain cereal	Organix	AUGUST 13	20229-A	Spain	Cambridge	81
12C-00510	Organic apple and orange soft oaty bars	Organix Goodies	JAN 13	2/066	UK	Cambridge	11

Category 9 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
EX13C-00153	Baby rice	Heinz First Food	1ST NOV 2014	L13122KR001	England	Cambridge	7
EX13C-00154	Creamy oat porridge breakfast	Heinz Breakfast	1ST DEC 2014	L13154KR001	England	Cambridge	22
EX13C-00155	Pure baby rice	Cow & Gate	15/04/2015	000003689 000003721 000021986 000021993 000037520 000037534	EU	Cambridge	5
EX13C-00156	Multigrain banana porridge	Cow & Gate Sunny Start	27/04/2015	000009743 000010509 000010516	EU	Cambridge	15
EX13C-00157	Farley's rusks original	Heinz	01 12 2014	3157	England	Cambridge	62
EX13C-00158	Organic fruit & porridge	Boots Baby Organic	13.05.14	L203	Switzerland	Newmarket	8
EX13C-00159	Organic creamy porridge	Hipp Organic	31.07.2014	139004 152 B	Croatia	Cambridge	4
EX13C-00160	Organic baby rice	Hipp Organic	30.09.2014	138963 133 A	Croatia	Newmarket	5
EX13C-00161	Organic four grain porridge	Plum	10.06.14	L-31985	EU	Newmarket	7
EX13C-00162	Organic strawberries & apples nibbly fingers	Ella's Kitchen	05 02 2014	311901 8	EU	Cambridge	7
EX13C-00163	Chocolate biscotti	Heinz Biscotti	31/06/14	3082 1C	Italy	Cambridge	38
EX13C-00164	Organic apple rice cakes	Organix	20/07/14	H 13200 B	Belgium	Cambridge	205
EX13C-00165	Organic animal biscuits	Organix Goodies	03.05.2014	L215 A	Germany	Cambridge	120
EX13C-00166	Organic baby biscuits	Organix Finger Foods	22.01.2014	F13112C	Germany	Cambridge	144
EX13C-00167	Organic gingerbread men	Organix Goodies	01.08.2014	L213 A	Germany	Cambridge	125
EX13C-00168	Multigrain breakfast	Aptamil	09.03.2014	10006828	EU	Cambridge	7
EX13C-00169	Baby wheat flakes	Cow & Gate Sunny Start	02/05/2014	000009743 000009757 000020023	EU	Cambridge	278
EX13C-00170	Organic banana & sultana cereal bars	Boots Baby Organic	JAN 2014	3/190	UK	Cambridge	7
EX13C-00171	Banana multigrain	Heinz Breakfast	12/2014	L 13156C1 - 4	EU	Newmarket	228
EX13C-00172	Organic apple and orange soft oaty bars	Organix Goodies	APR 14	3/182	UK	Cambridge	3

Category 10 – 2012 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00511	Veg crisps	Tyrrell's	24 12 12	12233 2	England	London	962	17	16
12C-00512	Mixed vegetable crisps with sea salt	Asda Extra Special	24-NOV-12	12213B1	UK	London	2795	24	22
12C-00513	Vegetable crisps	Waitrose	07DEC12	2244 Line 3	UK	Bury St Edmunds	2652	16	17
12C-00514	Golden parsnip, sweet potato & beetroot chips	Kettle Vegetable Chips	17-NOV-12	2227 2	UK	Bury St Edmunds	1508	14	15
12C-00515	Sweet microwave popcorn	Butterkist	03 2013	LW2065 1543	None declared	London	440	95 ^a	65 ^a
12C-00516	Sweet microwave popcorn	Popz	07.06.2014	Produced 07.06.2012	EU	London	295	84 ^a	68 ^a
12C-00517	Cool original flavour corn chips	Doritos	24 11 12	GBC 114237 D 2244	None declared	London	44	18	19
12C-00518	Lightly salted tortilla chips	Tesco Everyday Value	08/02/2013	32221 0431	Belgium	London	59	12	12
12C-00519	Jamaica ginger cake	McVitie's	19 NOV 12	F2X	UK	London	93	N/A	N/A
12C-00520	Ginger loaf cake	Butterfield Cakes	20 OCT 2012	2254 12I42	UK	Newmarket	176	N/A	N/A
12C-00521	Parkin - ginger cake with treacle and oats	Asda	17 OCT 2012	2249 12I 16	UK	Cambridge	174	N/A	N/A
12C-00522	Ginger loaf cake	Marks & Spencer	16/10/2012	B	UK	Cambridge	272	N/A	N/A
12C-00523	All-butter pastry cases	Asda Extra Special	25.07.2013	207	France	Bury St Edmunds	39	N/A	N/A
12C-00524	Savoury puff pastry cases	Marks & Spencer	02/01/2013	H12124046	France	Cambridge	187	N/A	N/A
12C-00525	Fig & cranberry granola	The Food Doctor	20 05 13	2232	UK	London	57	5	7
12C-00526	Crunchy granola bars - oats & honey	Nature Valley	11/04/2013	LA 2501924135	Spain	London	156	6	6
12C-00527	Prebiotic seed & oat granola	Marks & Spencer	01 2013	2205	UK	Bury St Edmunds	139	11	10
12C-00528	Baked oat bars - honey & almond	Jordans	29 03 13	2241/1	UK	London	124	5	6
12C-00529	Pringles original savoury snack	Pringles	11/2013	L2225275550 0205	Belgium	London	190	22	23
12C-00530	Teddy shaped potato snack - 6 pack	Pom-bear	16 MAR 13	20J1	None declared	Cambridge	391	16	15
12C-00531	Original salted potato rings	Hula Hoops	22 12 2012	YHFW2A 2233	UK	London	251	37	25
12C-00532	Soured cream & onion party snax	Asda	24 NOV 12	SCK 12242 710	UK	Cambridge	1480	26	27
12C-00533	30 mini gingerbread men mini bites	Asda Bakery	19/12/12	2 264 (2)	UK	Cambridge	87	ND	ND
12C-00534	Gingerbread spider	Waitrose	41320	2 289	UK	Newmarket	86	ND	ND

^a Cooked basis

Category 10 – 2012 samples, continued

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
12C-00535	Gingerbread biscuit decorated with fondant icing	Tesco	31/01/13	2 277	UK	Cambridge	70	ND	ND
12C-00536	9 gingerbread men biscuits	Marks & Spencer	20/02/2013	L2261 E	UK	Cambridge	126	ND	ND
12C-00537	Organic cocoa	Green & Black's Organic	AUG 2014	L2233	None declared	Cambridge	71	ND	ND
12C-00538	Bournville cocoa	Cadbury	07.08.2014	OCI 0223221	None declared	Cambridge	497	39	37
12C-00539	Pure dark chocolate powder	Mortimer Chocolate Company	AUG 2013	2219	West Africa, made in the UK	Newmarket	77	21	20
12C-00540	Prunes in syrup	Tesco	JUN 2014	L170 L12.7 PRY V9 L	UK	Cambridge	310	43	44
12C-00541	Californian prunes in fruit juice	Sainsbury's	JUL 2014	L190 L12.9 07S V2 L	UK	Cambridge	195	32	38
12C-00542	Pitted black olives in brine	Tesco	JUN 2014	L2181	Spain	Cambridge	313	7	9
12C-00543	Pitted black olives in brine	Crespo	09.07.2015	L20511 II 033084 033085 033100 033106	Spain	Cambridge	164	8	8
12C-00544	Organic traditional prunes	Crazy Jack Organic	FEB 2013	L2199 H0 61	Packed in the UK	Cambridge	47	N/A	N/A
12C-00545	Stoned dates	Whitworths	DEC 2013	L2240B	Produce of more than one country Packed in the UK	Cambridge	48	N/A	N/A
12C-00546	Scottish raspberry preserve	Mackays	AUG 2016	2233 RY LI	Scotland	Witham	N/A	3	3
12C-00547	Strawberry jam	Hartley's	JUL 2014	2207	None declared	Cambridge	N/A	2	3
12C-00548	Blackcurrant conserve	Marks & Spencer	04 2013	H2201	UK	Newmarket	N/A	ND	ND
12C-00549	Apricot jam	Duerr's	JUN 2014	L2165	None declared	Newmarket	N/A	3	3
12C-00550	Soft licorice	Panda	20.03.13	None declared	None declared	Newmarket	164	N/A	N/A
12C-00551	Pontefract cakes soft liquorice	Haribo	12/2013	L441-25012 - 0101801 023	None declared	Cambridge	172	N/A	N/A
12C-00554	70% dark chocolate	Divine	06.2013	L121514	Germany using Ghanaian cocoa	Witham	161	N/A	N/A
12C-13421	Original potato chips	Popchips	08.08.13	12221 B	UK	Newmarket	2194	N/A	N/A
12C-13422	Cracked black pepper & salt popped potato chips	Marks & Spencer Count On Us	10/09/2013	12258C	UK	South Woodford	2454	N/A	N/A
12C-13424	Baked potato	Tesco Café	None declared	None declared	Not applicable	Cambridge	882	N/A	N/A

Category 10 – 2013 samples

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00173	Veg crisps	Tyrrell's	19 12 13	13 227 2	England	Newmarket	838	20	18
EX13C-00174	Vegetable crisps	Marks & Spencer	26/11/2013	13225 2	UK	Cambridge	491	12	12
EX13C-00175	Vegetable crisps	Waitrose	04 DEC 13	3 240 2	UK	Newmarket	1411	16	15
EX13C-00176	Golden parsnip, sweet potato & beetroot chips	Kettle Vegetable Chips	07 DEC 13	3 246 2	UK	Cambridge	1086	14	14
EX13C-00177	Sweet microwave popcorn	Butterkist	06 2014	LW3177	UK	Cambridge	206	234 ^a	54 ^a
EX13C-00178	Sweet microwave popcorn	Popz	04.2015	None declared	EU	Newmarket	196	26 ^a	49 ^a
EX13C-00179	Cool original flavour corn chips	Doritos	14 12 13	GBC 110 232 D 5055	None declared	London	55	21	21
EX13C-00180	Lightly salted tortilla chips	Tesco Everyday Value	27/02/2014	33239 0621	Belgium	Cambridge	85	13	13
EX13C-00181	Jamaica ginger cake	McVitie's	13 DEC 13	F3	UK	London	90	N/A	N/A
EX13C-00182	Ginger loaf cake	Sainsbury's	14.11.2013	0049 5 46	Denmark	Cambridge	56	N/A	N/A
EX13C-00183	Stem ginger loaf cake	Waitrose	24 SEP	D/13252	UK	Newmarket	156	N/A	N/A
EX13C-00184	Ginger loaf cake	Marks & Spencer	26/09/13	248	UK	Cambridge	268	N/A	N/A
EX13C-00185	All-butter pastry case	Asda Extra Special	14/MAY/2014	ALT135	UK	London	2	N/A	N/A
EX13C-00186	All butter sweet pastry tartlets	Marks & Spencer	23/04/14	LOT: H13233033	France	Cambridge	45	N/A	N/A
EX13C-00045	Fig & cranberry granola	The Food Doctor	06 11 13	3037	UK	Cambridge	63	7	7
EX13C-00187	Crunchy granola bars - oats & honey	Nature Valley	08/07/2014	LB 2502285088	Spain	London	236	ND	3
EX13C-00046	High-fibre 3 seed granola	Marks & Spencer	07/2013	3007	UK	Cambridge	141	4	5
EX13C-00188	Baked oat bars - honey & almonds	Jordans	16 03 14	3227/4	UK	Newmarket	120	3	2
EX13C-00189	Pringles original savoury snack	Pringles	13/11/14	L3226035760 0315	Belgium	London	302	29	30
EX13C-00190	Teddy shaped potato snack - 6 pack	Pom-bear	28/12/2013	2 3182	None declared	London	303	9	8
EX13C-00191	Original salted potato rings	Hula Hoops	04 01 2014	YHFW2B 3246	UK	London	127	28	25
EX13C-00192	Soured cream & onion party snax	Asda	30-NOV-13	K 3247 22	UK	London	1216	25	27
EX13C-00193	2 gingerbread men	Asda	07/02/14	3 283	UK	Newmarket	37	1	2
EX13C-00194	Gingerbread spider	Waitrose	41673	3 276	UK	Newmarket	54	3	3
EX13C-00195	5 decorate your own gingerbread men	Tesco	09/02/14	3 282	UK	Cambridge	78	9	9
EX13C-00196	9 gingerbread men biscuits	Marks & Spencer	01/01/2014	L3211 D	UK	Cambridge	210	7	7
EX13C-00197	Organic cocoa	Green & Black's Organic	SEP 2015	L3246	None declared	Cambridge	115	5	5
EX13C-00198	Bournville cocoa	Cadbury	07.08.2015	OCI O233231	None declared	Cambridge	536	26	26

^a Cooked basis

Category 10 – 2013 samples, continued...

Sample code	Product description	Brand	Best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)	Furan (µg/kg)	
								Pack (a)	Pack (b)
EX13C-00199	Pure dark chocolate powder	Mortimer Chocolate Company	AUG 2014	3241	West Africa, made in the UK	Newmarket	60	5	4
EX13C-00200	Prunes in syrup	Tesco	SEP 2015	3266 12.7 PRY V9 L	UK	Cambridge	249	47	44
EX13C-00201	Californian prunes in fruit juice	Sainsbury's	SEP 2015	DAS V5 3246 04 L	UK	Cambridge	72	15	15
EX13C-00202	Pitted black olives in brine	Tesco	JUL 2015	3189	Spain	Cambridge	659	7	8
EX13C-00203	Pitted black olives in brine	Crespo	17.07.2016	L30701 II 025412 025425 025426	Spain	Cambridge	283	8	8
EX13C-00204	Organic soft dried prunes	Waitrose Organic	AUG 2014	L3225H070	Produce in France Produced in the UK	Newmarket	33	N/A	N/A
EX13C-00205	Stoned dates	Whitworths	SEP 2014	L3 135 B	None declared	Cambridge	11	N/A	N/A
EX13C-00206	Scottish raspberry preserve	Mackays	OCT 2017	3288 RY L2	Scotland	Cambridge	N/A	2	2
EX13C-00207	Strawberry jam	Hartley's	JUL 2015	3203	None declared	Cambridge	N/A	3	3
EX13C-00208	Blackcurrant conserve	Marks & Spencer	07/2014	H3198	UK	Newmarket	N/A	1	1
EX13C-00209	Apricot jam	Duerr's	JUN 2015	L3160 000026184 000026219 000026252	None declared	Newmarket	N/A	4	4
EX13C-00210	Original liquorice	Panda	20.08.14	None declared	None declared	Cambridge	275	N/A	N/A
EX13C-00211	Pontefract cakes soft liquorice	Haribo	01/2015	L441-27513 - 01 017 01 1730	None declared	Newmarket	114	N/A	N/A
EX13C-00212	70% dark chocolate	Divine	02.2015	L113325	Germany using Ghanaian cocoa	Cambridge	108	N/A	N/A
EX13C-00257	Original potato chips	Popchips	17/10/14	D E6.2 42	EU	Newmarket	1616	N/A	N/A
EX13C-00258	Cracked black pepper & salt popped potato chips	Marks & Spencer	14/10/2014	13292C	UK	Cambridge	2127	N/A	N/A
EX13C-00260	Baked potato	Tesco Café	None declared	None declared	Not applicable	Cambridge	377	N/A	N/A