



Premier Analytical Services
The Lord Rank Centre
Lincoln Road
High Wycombe
Buckinghamshire
HP12 3QS
United Kingdom

Tel: +44 (0)1494 526191
Fax: +44 (0)1494 428060
www.paslabs.co.uk

Survey of Acrylamide and Furans in UK Retail Products: Results for Samples Purchased Between January 2018 and November 2018

A report prepared for the Food Standards Agency

March 2019



Premier Analytical Services
The Lord Rank Centre
Lincoln Road
High Wycombe
Buckinghamshire
HP12 3QS
United Kingdom

Tel: +44 (0)1494 526191
Fax: +44 (0)1494 428060
www.paslabs.co.uk

Report No: C040

Authors: Colin G. Hamlet, Li Liang, Ben Baxter, Donika Apostilova,
Rozeela Ali

Date: First draft: March 2019
Final version: October 2019

Sponsor: Food Standards Agency,
Clive House,
70 Petty France,
London, SW1H 9EX

Sponsors Project Title: Survey of Acrylamide and Furans in UK Retail Products:
Summary Report for Samples Purchased Between
January 2018 and November 2018

Sponsors Project reference No: FS102075

Distribution: 1.
2.
3.
4.
5.

© Crown Copyright 2019

This report has been produced by Premier Analytical Services under a contract placed by the Food Standards Agency (the Agency). The views expressed herein are not necessarily those of the Agency. Premier Analytical Services warrants that all reasonable skill and care has been used in preparing this report. Notwithstanding this warranty, Premier Analytical Services shall not be under any liability for loss of profit, business, revenues or any special indirect or consequential damage of any nature whatsoever or loss of anticipated saving or for any increased costs sustained by the client or his or her servants or agents arising in any way whether directly or indirectly as a result of reliance on this report or of any error or defect in this report.

1. EXECUTIVE SUMMARY

This report refers to work carried out as part of a rolling survey of process contaminants in UK retail foods. The report contains the results for concentrations of acrylamide and furans in food samples purchased between January 2018 and November 2018:

- A total of 275 samples (comprising multiple lots) were collected by an independent sampling contractor from retail and fast food outlets in seven regions of the UK
- The selection of samples for 2018 was based on a core sampling and analysis plan from previous acrylamide and furan survey years (November 2011- December 2013) with additional samples selected by the Agency.
- Samples were categorised in accordance with the requirements for the submission of data to EFSA¹.
- Where necessary, foods were cooked or prepared according to the manufacturers' guidelines prior to homogenisation and analysis.
- All analyses were carried out using accredited methods: a total of 275 tests were carried out for acrylamide and 134 tests for furans (furan, 2-methyl furan and 3-methyl furan).

For this period, five products were found contain acrylamide levels that exceeded European Commission 'Indicative Values' (IV)² for their food category and 16 products were found to exceed European Commission 'Benchmark Levels' (BML)³.

¹ EFSA (European Food Safety Authority), 2017. Specific reporting requirements for contaminants and food additives occurrence data submission in SSD2. EFSA supporting publication 2017:EN-1261. 43 pp. doi:10.2903/sp.efsa.2017.EN-1261.

² Commission Recommendation of 8 November 2013 on investigations into the levels of acrylamide in food (2013/647/EU), oJ L 301, 15-17, 12.11.13

³ Commission Regulation (EU) 2017/2158 of 20 November 2017 establishing mitigation measures and benchmark levels for the reduction of the presence of acrylamide in food

2. CONTENTS

1. EXECUTIVE SUMMARY	4
2. CONTENTS.....	5
3. INTRODUCTION	7
3.1 ACRYLAMIDE	7
3.2 FURAN AND METHYL FURANS.....	7
3.3 EC RECOMMENDATIONS	8
3.4 EUROPEAN FOOD SAFETY AUTHORITY	8
3.5 MEASURES CONCERNING ACRYLAMIDE LEVELS IN RETAIL FOODS.....	9
3.6 FSA SURVEYS	9
4. METHODS	10
4.1 SAMPLING	10
4.2 SAMPLE PREPARATION AND ANALYSIS.....	10
5. RESULTS SUMMARIES	11
5.1 ACRYLAMIDE	12
5.2 FURANS	18
5.2.1 Effects of domestic preparation on furans in coffee	23
6. APPENDICES	26
6.1 SAMPLING PLAN.....	26
6.2 SAMPLE PREPARATION DETAILS AND ANALYTICAL METHODS.....	28
6.2.1 Sample preparation	28
6.2.2 Acrylamide analysis by GC-MS/MS	31
6.2.3 Analysis of furans by GC-MS.....	31
6.3 ANALYTICAL QUALITY ASSURANCE	32
6.4 INDIVIDUAL SAMPLE TEST RESULTS	ERROR! BOOKMARK NOT DEFINED.
6.4.1 Acrylamide	Error! Bookmark not defined.
6.4.2 Furan	Error! Bookmark not defined.
6.4.3 2-Methyl furan.....	Error! Bookmark not defined.
6.4.4 3-Methyl furan.....	Error! Bookmark not defined.

TABLES

Table 1. Summary of samples received (Jan 2018 - Nov 2018) and tests undertaken.....	11
Table 2. Summary of acrylamide concentrations in each food category / sub-category	14
Table 3. Summary of furan concentrations as received / consumed by survey category.....	18
Table 4. Summary of 2-methyl furan concentrations as received / consumed by survey category	19
Table 5. Summary of 3-methyl furan concentrations (mean and range) as received / consumed by survey category	20
Table 6. Sampling plan Jan - Nov 2018.....	26
Table 7. Details of the domestic cooking conditions	29
Table 8. Details of the domestic preparation of coffee and coffee substitutes prior to the analysis of furans “as consumed”.....	30
Table 9. Summary of data obtained from the analysis of IHRM and spiked samples during this survey	32
Table 10. FAPAS z-scores obtained during the survey period	33

FIGURES

Figure 1. Acrylamide in product Categories (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for 2018	17
Figure 2. Furan in product categories / sub categories as received (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the 2018 survey year.....	21
Figure 3. 2-methyl furan in product categories / sub categories as received (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the 2018 survey year.....	22
Figure 4. 3-methyl furan in product categories / sub categories as received (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the 2018 survey year.....	23
Figure 5 Effects of domestic preparation of coffee and coffee substitutes on amounts of furans: results are expressed on an as received and as consumed basis (normalised solids and liquid)	25

3. INTRODUCTION

Acrylamide, furan and alkyl furans (e.g. 2-methyl furan and 3-methyl furan) are organic compounds produced naturally when some foods are subjected to high temperatures during cooking (including home-cooking) and processing. Regular and prolonged exposure over a lifetime to foods containing high levels of acrylamide and furan has the potential to increase the risk of developing cancer. Experts, including the international Joint Food and Agriculture Organisation and the World Health Organisation Expert Committee on Food Additives (JECFA), have previously concluded that current global levels of dietary exposure to acrylamide and furan indicate a human health concern⁴. The UK Food Standards Agency (FSA) has concluded that exposure to acrylamide and furan should be as low as reasonably achievable (ALARA). The FSA has produced advice for consumers in relation to acrylamide in food⁵.

3.1 Acrylamide

Acrylamide is a low molecular weight, water soluble organic compound with industrial applications such as the production of polyacrylamides. In 2002 Swedish scientists discovered that acrylamide could form naturally during the preparation of (mostly) starchy foods as temperatures exceeded 120°C. Acrylamide is formed mainly from sugars and the amino acid asparagine, both of which are naturally present in foods. The chemical process that causes this occurs as a minor part of the so called Maillard Reaction; the Maillard Reaction is mainly responsible for the desirable colour and taste of food. Although acrylamide does not occur in foods subjected to lower temperatures and relatively short process times e.g. boiled potatoes, it has been found in a wide range of home-cooked and processed foods, including, bread, coffee, crispbreads, French fries and potato crisps.

3.2 Furan and methyl furans

Furan and methyl furans are volatile organic compounds that are also formed in certain foods during thermal processing. Furan has been found in a variety of products, including coffee, prefabricated potato snacks and canned and jarred products which, during processing, have been subjected to a high temperature heat treatment (e.g. roasting, frying, canning etc). The methyl furans are also known to occur in foods, especially coffee. Furan can be formed in food from a variety of precursors naturally present in food (e.g. amino acids, β -carotene,

⁴ Joint FAO/WHO Expert Committee on Food Additives (2010), Summary and conclusions of the Seventy-second meeting, Rome, 16–25 February 2010. Rome, FAO / WHO

⁵ http://www.food.gov.uk/safereating/chemsafe/acrylamide_branch

dehydroascorbic acid, polyunsaturated fatty acids and their triglycerides, sugars and vitamin C) and some food additives (e.g. isoascorbic acid, E315) via complex steps which might involve oxidation or the Maillard reaction. The methyl furans have been shown to form in model reactions, similar to furan, from precursors commonly found in foods. Food characteristics, processing and cooking conditions, and losses of furans mainly due to evaporation during the preparation of food at consumer level, determine the final concentrations in food as consumed.

Furan has been classified by the IARC as a possible human carcinogen. Evidence indicates that the latter may occur via a genotoxic mechanism: The harmful effects of furan result from the formation of a reactive metabolite in the body which can bind to cellular components such as DNA. The 2- and 3-methyl substituted furans are believed to be metabolically activated in a similar fashion as the parent furan.

In 2007, the European Commission recommended that member states should carry out monitoring for the presence of furan in heated foods⁶.

3.3 EC Recommendations

This survey was conducted in response to two European Commission Recommendations for pan-European activity on process contaminants: (i) European Commission Recommendation (EU) No. 2010/307 to investigate the levels of acrylamide in food, and in particular to monitor the effectiveness of acrylamide reduction measures as specified in the FoodDrinkEurope toolbox and (ii) European Commission Recommendation (EC) No. 2007/196, to monitor the occurrence levels of furan in foodstuffs.

3.4 European Food Safety Authority

As with previous surveys on acrylamide and furan, all data from this survey will be submitted to the European Food Safety Authority (EFSA). EFSA collates the acrylamide results with those from other Member States and, in the case of furan and methyl furans, these data will be used by EFSA as the basis of developing a risk assessment. EFSA publishes the acrylamide exposure assessments and trend analyses on their website⁷.

⁶ Commission recommendation of 28 March 2007 on the monitoring of the presence of furan in foodstuffs. Oj L 88/56 29.3.2007

⁷ Available at: <http://www.efsa.europa.eu/en/topics/topic/acrylamide.htm>

On 4th June 2015, EFSA published its Scientific Opinion on acrylamide in food⁸. EFSA agreed with the previous evaluations, that acrylamide in food has the potential to increase the risk of developing cancer. EFSA also considered possible harmful effects of acrylamide on the nervous system and male reproduction, and based on current levels of dietary exposure, these effects were not considered to be a concern. Further information on acrylamide can be obtained from the EFSA website.

In September 2017, EFSA published its Scientific Opinion on furan and methyl furans in food⁹. While an understanding of all the risks posed to health from the presence of furan and methyl furans in food was incomplete, EFSA has recommended that additional data is needed on the toxicity of methyl furans, their occurrence in foods and the effects of the distinct stages of coffee preparation on furan and methyl furans concentrations for all coffee types.

3.5 Measures concerning acrylamide levels in retail foods

There are no statutory maximum acrylamide levels, however in 2013 the EC introduced a measure for enforcement actions against food business operators found to exceed Indicative Values (IV)¹⁰ for certain categories of foods. The Recommendation was replaced in April 2018 by new legislation establishing best practice, mitigation measures and benchmark levels (BML) for the reduction of the presence of acrylamide in food¹¹.

3.6 FSA Surveys

Information concerning acrylamide¹² and results for all previous surveys can be accessed from the FSA website.

The results obtained from this 2018 survey conclude a surveillance programme for the period 2014-2018 for which analyses of all data and trends concerning amounts of acrylamide and furan in UK retail foods may be undertaken.

⁸ EFSA CONTAM Panel 2015, Scientific Opinion on acrylamide in food. EFSA Journal 2015;13(6):4104, 321 pp. Available at: <https://www.efsa.europa.eu/en/efsajournal/pub/4104> [Accessed June 2016]

⁹ EFSA CONTAM Panel 2017, Scientific opinion on the risks for public health related to the presence of furan and methylfurans in food. EFSA Journal 2017;15(10):5005,142 pp.

¹⁰ Commission Recommendation of 8 November 2013 on investigations into the levels of acrylamide in food (2013/647/EU), oj L 301, 15-17, 12.11.13

¹¹ Commission Regulation (EU) 2017/2158 of 20 November 2017 establishing mitigation measures and benchmark levels for the reduction of the presence of acrylamide in food

¹² Available at: <https://www.food.gov.uk/science/acrylamide-0>

4. METHODS

4.1 Sampling

Prior to the commencement of sampling, the FSA agreed a detailed sampling plan with the analytical contractor (Premier Analytical Services) who was responsible for coordinating the purchase and collection of samples (via a sampling contractor¹³). A total of 275 samples comprising multiple lots were purchased representing the majority of Categories / products detailed by EFSA¹⁴ (note, Category 3 was omitted by the Agency from the 2018 survey) and the European Commission¹⁵: French fries / potato products sold as ready to eat (Categories 1 and 10) were obtained from restaurants, fast food outlets and chip shops; all other samples (Categories 2, 4-11) were collected from a wide range of retail outlets including major and smaller supermarkets and independent retailers in the UK. A summary of the 2018 sampling plan is given in Table 6 of the appendices (see section 6).

4.2 Sample preparation and analysis

Samples received at the laboratory were prepared and stored according to the Food Standards Agency “Guidelines for undertaking surveys”¹⁶. Bread from food categories 4 was cooked according to manufacturers’ guidelines prior to the determination of acrylamide; because of the volatile nature of the furans, coffee and coffee substitutes were tested before and after preparation for consumption according to manufacturer’s guidelines. Further details of the sample preparation procedures used are given in the appendices (see section 6.2 and Table 7 and Table 8).

Analysis of samples for the 2018 survey was carried out using UKAS accredited methods: the measurements of acrylamide, furan, 2-methyl furan and 3-methyl 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. Further details of the methods together with the analytical quality assurance procedures and measurement uncertainty can be found in the appendices (see sections 6.2 and 6.3).

¹³ Sampling Sorbet, Orchard House, 3 Mill Hill, Swaffham Prior, Cambridge, CB25 0JZ

¹⁴ EFSA (European Food Safety Authority), 2017. Specific reporting requirements for contaminants and food additives occurrence data submission in SSD2. EFSA supporting publication 2017:EN-1261. 43 pp. doi:10.2903/sp.efsa.2017.EN-1261.

¹⁵ Commission Recommendation of 8 November 2013 on investigations into the levels of acrylamide in food (2013/647/EU), oJ L 301, 15-17, 12.11.13

¹⁶ Guidelines for undertaking surveys. Available at: www.food.gov.uk/sites/default/files/multimedia/pdfs/fsasurveysguidance.pdf [accessed June 2015]

5. RESULTS SUMMARIES

A total of 275 samples were collected over the period January 2017 - November 2018 for the analysis of acrylamide and furans in accordance with the test requirements given in Table 1.

Table 1. Summary of samples received (Jan 2018 - Nov 2018) and tests undertaken

Food category / sub category ¹⁷	Description	Number of samples received	Analyses			
			acrylamide		Furans ^a	
			As received	As consumed	As received	As consumed
1	French fries, sold as ready-to-eat	30	30	-	-	-
2	Potato crisps	20	20	-	-	-
4	Bread	40	40	-	-	-
5	Breakfast cereals	32	32	-	32	-
6	Biscuits / crackers	32	32	-	32	-
7	Coffee and coffee substitutes	12	12	-	12	12
8	Baby foods	32 ^b	32	-	32	-
9	Processed cereal based foods for infants & young children	33 ^b	33	-	10	-
10	Other products, based on cereals, potatoes, cocoa and coffee	28	28	-	-	-
10.2	Cake and pastry	6	6	-	-	-
10.3	Savoury snacks	5	5	-	-	-
10.4	Other products, based on cereals	9	9	-	-	-

¹⁷ EFSA (European Food Safety Authority), 2017. Specific reporting requirements for contaminants and food additives occurrence data submission in SSD2. EFSA supporting publication 2017:EN-1261. 43 pp. doi:10.2903/sp.efsa.2017.EN-1261.

10.5	Baked potato from fast Other products, based on potatoes	2	2	-	-	-
10.6	Other products, based on cocoa	6	6	-	-	-
11	Other products, not based on cereals, potatoes, cocoa and coffee	16	16	-	4	-
	Battered / bread crumbed fish	2	2	-	-	-
	Canned / jarred black olives	2	2	-	2	-
	Canned prunes	2	2	-	2	-
	Chips / crisps, mixed vegetables	2	2	-	-	-
	Chips / crisps, plantain	2	2	-	-	-
	Dried fruit (dark)	2	2	-	-	-
	Liquorice	2	2	-	-	-
	Sweet potato fries, sold as ready-to-eat	2	2	-	-	-
	Totals	275	275	-	122	12

^a furan, 2-methyl furan and 3-methyl furan; ^b some samples comprised multiple batch codes due to limited availability

5.1 Acrylamide

A summary of acrylamide concentrations measured in each of the main categories and sub-categories of the 2018 survey samples is given in Table 2: The individual sample results for each category can be found in the appendix.

Samples from Categories 1-2 and 4-9 were subject to European Commission IV or BML legislation depending on the date of sampling. For this period, five products were found

contain acrylamide levels that exceeded European Commission 'Indicative Values' (IV) for their food category and 16 products were found to exceed European Commission 'Benchmark Levels' (BML).

Figure 1, which has been ordered by increasing mean concentrations (average of all data for selected Categories / sub Categories for 2018), shows that categories / sub-categories with the lowest mean amounts of acrylamide (<100 µg/kg) were: Cake and pastries (Cat 10); tortillas / corn snacks (Cat 10); processed cereal based foods for infants and young children (Cat 9); dried fruit, dark (Cat 11); baby foods other than processed cereal based foods (Cat 8); soft bread (Cat 4); and battered / bread crumbed fish (Cat 11). Product Categories with the highest mean concentrations of acrylamide for 2018 (>500 µg/kg) included: coffee and coffee substitutes (Cat 7); potato crisps and potato based crackers (Cat 2); chips / crisps from mixed vegetables (Cat 11).

Table 2. Summary of acrylamide concentrations in each food category / sub-category

Food category ^a	Sub category ^a	Description	Sampling date	n	Acrylamide (µg/kg)						n>IV ^c	n>BML ^d
					mean	min	max	SE	IV	BML		
1	-	French fries sold as ready to eat	2018	30	200	12	623	26.9	-	-	-	-
	1.1	French fries from fresh potatoes ^b	Mar	15	189	47	623	34.5	600	-	1	-
			Nov	15	211	12	540	42.2	-	500	-	1
2	-	Potato crisps and potato-based crackers	2018	20	621	33	997	70.2	-	-	-	-
	2.1	Potato crisp from fresh potatoes ^b	Mar	5	793	503	973	95.3	1000	-	0	-
			Nov	5	533	253	629	70.4	-	750	-	0
	2.2	Potato crisp from potato dough	2018	5	742	382	994	105	-	750	-	3
	2.3	Unspecified potato crisps	2018	5	416	33	997	212	-	750	-	2
4	-	Soft bread	2018	40	17	3	76	2.5	-	-	-	-
	4.1	Wheat based bread	-	28	18	3	76	3.4	80	-	0	-
	4.2	Soft bread other than wheat-based bread	-	12	17	4	41	3.2	150	-	0	-
5	-	Breakfast cereals (excluding porridge)	2018	32	184	4	808	33.9	-	-	-	-
	5.1	Maize, oat, spelt, barley and rice-based products	-	14	129	4	808	54.2	200	-	1	-
	5.3	Bran products and whole grain cereals, gun puffed grain	-	18	227	17	634	41.5	400	-	3	-
6	-	Biscuits, crackers, crisp bread and similar (excluding pastry and cake)	2018	32	223	13	1321	44.0	-	-	-	-
	6.1	Crackers with the exception of potato-based crackers	-	6	210	50	474	70.6	-	400	-	1
	6.2	Crisp bread	-	6	194	13	320	51.6	-	350	-	0
	6.3	Biscuits and wafers	-	14	287	25	1321	91.9	-	350	-	2
	6.4	Gingerbread	-	2	87	71	103	16.1	-	800	-	0

	6.5	Products similar to the other products in this category	-	4	134	56	244	45.4	-	300	-	0
7	-	Coffee and coffee substitutes	2018	12	577	227	1249	87.8	-	-	-	-
	7.1	Roasted coffee (dry)	-	4	253	227	273	10.2	-	400	-	0
	7.2	Instant coffee (dry)	-	6	702	609	856	33.7	-	850	-	1
	7.3	Substitute coffee (dry) mainly based on cereals	-	2	847	445	1249	-	-	- ^e	-	-
8	-	Baby foods , other than processed cereal based foods	2018	32	20	5	71	2.6	-	-	-	-
	8.1	Baby foods not containing prunes	-	30	19	5	71	2.6	-	40	-	2
	8.2	Baby foods, containing prunes	-	2	25	16	35	-	-	40	-	0
9		Processed cereal-based foods for infants and young children	2018	33	48	0	292	12.9	-	-	-	-
	9.1	Biscuits and rusks for infants and young children	-	15	98	9	292	22.5	-	150	-	4
	9.2	Other processed cereal-based foods for infants and young children	-	18	7	0	17	0.9	-	40	-	0
10		Other products, based on cereals, potatoes, cocoa and coffee	2018	28	125	5	356	18.7	-	-	-	-
	10.2	Cake and pastry	-	6	67	5	191	28.0	-	-	-	-
	10.3	Savoury snacks	-	5	153	72	268	33.7	-	-	-	-
	10.4	Other products, based on cereals	-	9	122	7	326	40.6	-	-	-	-
	10.5	Other products, based on potatoes	-	2	170	164	176	-	-	-	-	-
	10.6	Other products, based on cocoa	-	6	148	20	356	47.1	-	-	-	-

Table 2 continued...

Food category ^a	Sub category ^a	Description	Sampling date	n	Acrylamide (µg/kg)						n>IV ^c	n>BML ^d
					mean	min	max	SE	IV	BML		
11	-	Other products, not based on cereals, potatoes, cocoa and coffee	2018	16	297	7	1329	92.0	-	-	-	-
	-	Battered / bread crumbed fish	-	2	7	7	8	-	-	-	-	-
	-	Canned / jarred black olives	-	2	366	340	392	-	-	-	-	-
	-	Canned prunes	-	2	212	70	355	-	-	-	-	-
	-	Chips / crisps, mixed vegetables	-	2	1165	1002	1329	-	-	-	-	-
	-	Chips / crisps, plantain	-	2	228	163	294	-	-	-	-	-
	-	Dried fruit (dark)	-	2	38	26	50	-	-	-	-	-
	-	Liquorice	-	2	111	108	114	-	-	-	-	-
	-	Sweet potato fries sold as ready-to-eat	-	2	249	177	320	-	-	-	-	-

^a according to EFSA¹⁸; ^b products prepared from seasonal potatoes; ^c EC Indicative Values¹⁹; ^d EC Benchmark Levels²⁰; ^e Level dependent upon relative proportions of cereals and chicory in the products (not given on packs).

¹⁸ EFSA (European Food Safety Authority), 2017. Specific reporting requirements for contaminants and food additives occurrence data submission in SSD2. EFSA supporting publication 2017:EN-1261. 43 pp. doi:10.2903/sp.efsa.2017.EN-1261.

¹⁹ Commission Recommendation of 8 November 2013 on investigations into the levels of acrylamide in food (2013/647/EU), oJ L 301, 15-17, 12.11.13

²⁰ Commission Regulation (EU) 2017/2158 of 20 November 2017 establishing mitigation measures and benchmark levels for the reduction of the presence of acrylamide in food

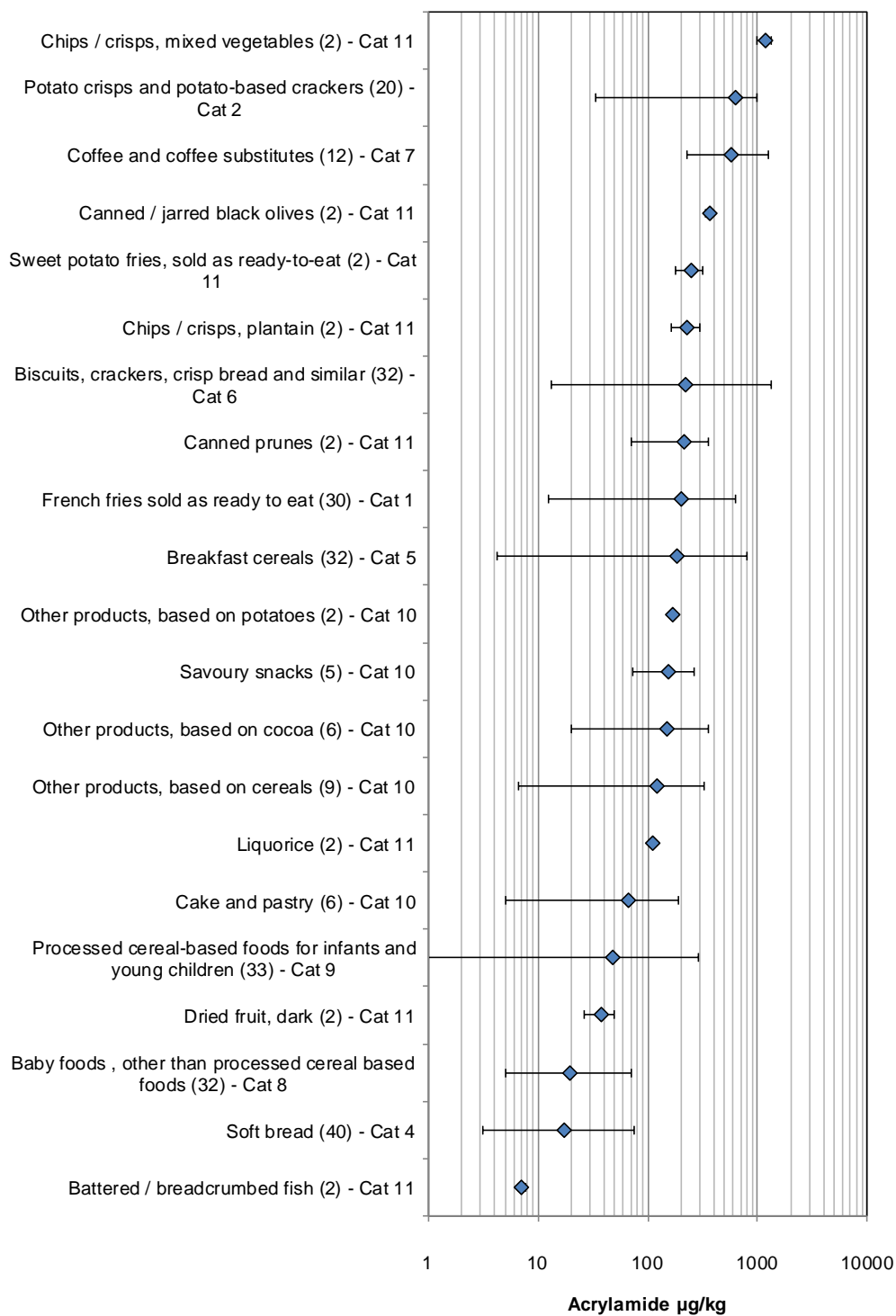


Figure 1. Acrylamide in product Categories (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for 2018

5.2 Furans

Samples from Categories 5-9, and 11 (134 in total) were tested for furan, 2-methyl furan and 3-methyl furan (Table 3, Table 4 and Table 5). The individual sample results for furans in each category can be found in the appendix.

Figures 2-4, which have been ordered by increasing mean concentrations for the survey, shows that categories / sub-categories with highest amounts of furans were the coffee and coffee substitutes (Category 7); the relative amounts of each furan in this category were in the order 2-methyl furan > furan >> 3-methyl furan.

Table 3. Summary of furan concentrations as received / consumed by survey category

Survey category	Description	Sampling date	n	Furan ($\mu\text{g}/\text{kg}$) ^a			
				Mean	min	max	SE
5	Breakfast cereals (excluding porridge)	2018	32	23	0	94	4.5
6	Biscuits, crackers, crisp bread and similar (excluding pastry and cake)	2018	32	28	0	152	6.4
7	Coffee and coffee substitutes	2018	12	1159	70	4139	391.6
	Coffee and coffee substitutes, as consumed	2018	12	22	2	120	11.1
	Roast	2018	4	2787	1809	4139	584.2
	Roast, as consumed	2018	4	58	6	120	26.3
	Instant	2018	6	422	165	599	60.2
	Instant, as consumed	2018	6	4	2	5	0.5
	Other	2018	2	116	70	161	-
	Other, as consumed	2018	2	2	2	3	-
8	Baby foods, other than processed cereal based foods	2018	32	36	5	94	3.3
9	Processed cereal-based foods for infants and young children	2018	10	6	0	17	1.7
11	Other products, not based on cereals, potatoes, cocoa and coffee	2018	4	11	5	16	2.3
	Canned / Jarred olives	2018	2	13	9	16	-
	Canned prunes	2018	2	9	5	13	-

^a Lower bound concentrations (values < LOD = 0)

Table 4. Summary of 2-methyl furan concentrations as received / consumed by survey category

Survey category	Description	Sampling date	n	2-methyl furan ($\mu\text{g}/\text{kg}$) ^a			
				Mean	min	max	SE
5	Breakfast cereals (excluding porridge)	2018	32	18	0	70	3.3
6	Biscuits, crackers, crisp bread and similar (excluding pastry and cake)	2018	32	26	2	137	5.6
7	Coffee and coffee substitutes	2018	12	4898 ^{b,c}	77	18129 ^b	1847.6
	Coffee and coffee substitutes, as consumed	2018	12	62	1	382	33.8
	Roast	2018	4	12281 ^{b,c}	6751	18129 ^b	3147.8
	Roast, as consumed	2018	4	170	22	382	82.1
	Instant	2018	6	1554	602	2375	241.4
	Instant, as consumed	2018	6	10	4	17	1.8
	Other	2018	2	164	77	251	-
	Other, as consumed	2018	2	2	1	3	-
8	Baby foods, other than processed cereal based foods	2018	32	4	0	11	0.4
9	Processed cereal-based foods for infants and young children	2018	10	4	1	16	1.5
11	Other products, not based on cereals, potatoes, cocoa and coffee	2018	4	3	0	7	1.6
	Canned / Jarred olives	2018	2	6	4	7	-
	Canned prunes	2018	2	1	0	1	-

^a Lower bound concentrations (values < LOD = 0); ^b extrapolated value(s) in excess of upper calibration limit; ^c semi-quantitative value - spike recovery on roast coffee below expected level

Table 5. Summary of 3-methyl furan concentrations (mean and range) as received / consumed by survey category

Survey category	Description	Sampling date	n	3-methyl furan ($\mu\text{g}/\text{kg}$) ^a			
				Mean	min	max	SE
5	Breakfast cereals (excluding porridge)	2018	32	0	0	0	0
6	Biscuits, crackers, crisp bread and similar (excluding pastry and cake)	2018	32	2	0	15	3.7
7	Coffee and coffee substitutes	2018	12	213	24	652	64.8
	Coffee and coffee substitutes, as consumed	2018	12	2	0	16	1.4
	Roast	2018	4	480	303	652	99.6
	Roast, as consumed	2018	4	7	1	16	3.4
	Instant	2018	6	98	73	125	7.24
	Instant, as consumed	2018	6	0	0	1	0.1
	Other	2018	2	26	24	28	-
	Other, as consumed	2018	2	0	0	0	-
8	Baby foods, other than processed cereal based foods	2018	32	3	0	10	0.43
9	Other products, based on cereals, potatoes, cocoa and coffee	2018	10	1	0	4	0.4
11	Other products, not based on cereals, potatoes, cocoa and coffee	2018	4	5	2	9	2
	Canned / Jarred olives	2018	2	9	8	9	-
	Canned prunes	2018	2	2	2	2	-

^a Lower bound concentrations (values < LOD = 0)

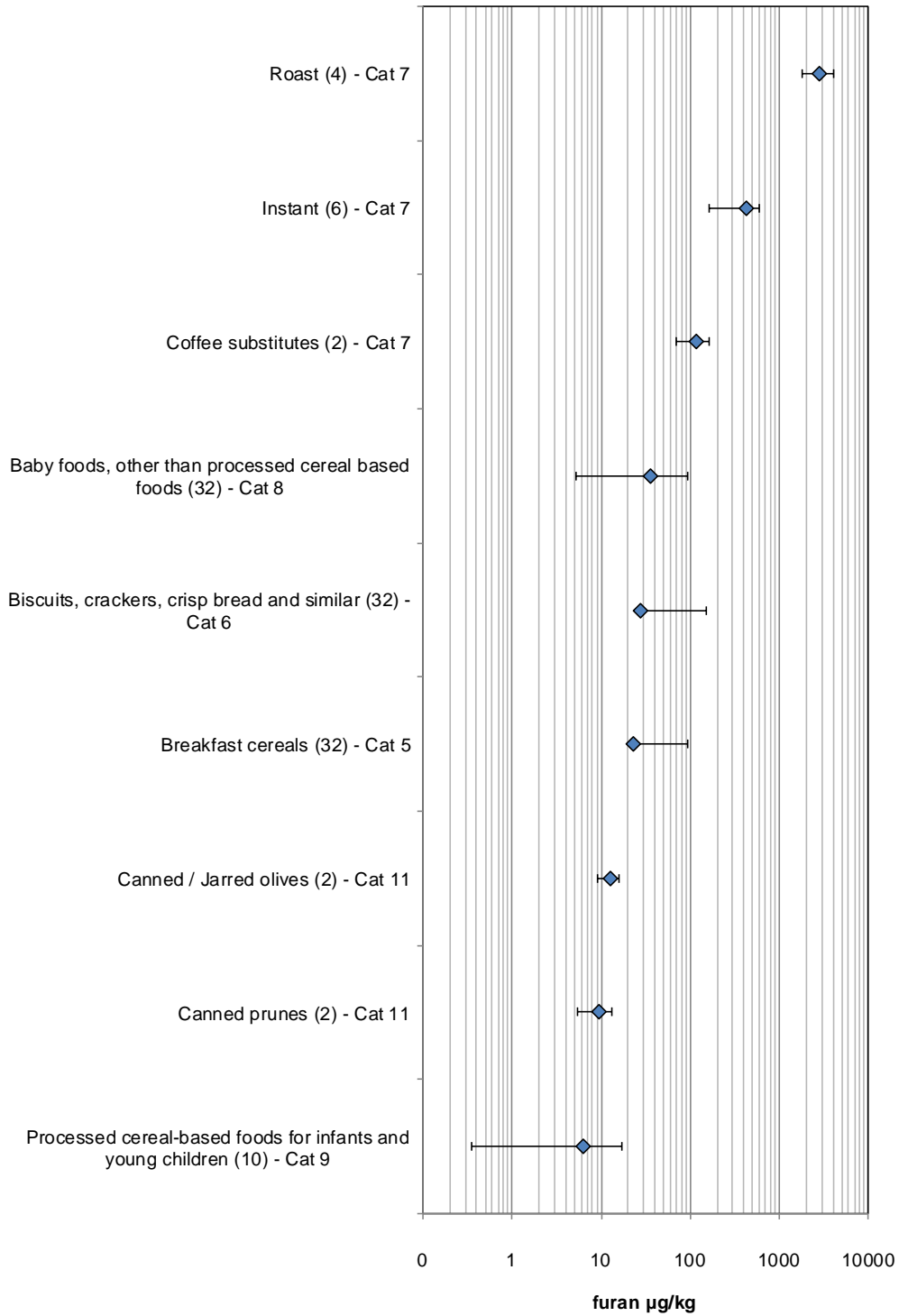


Figure 2. Furan in product categories / sub categories as received (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the 2018 survey year

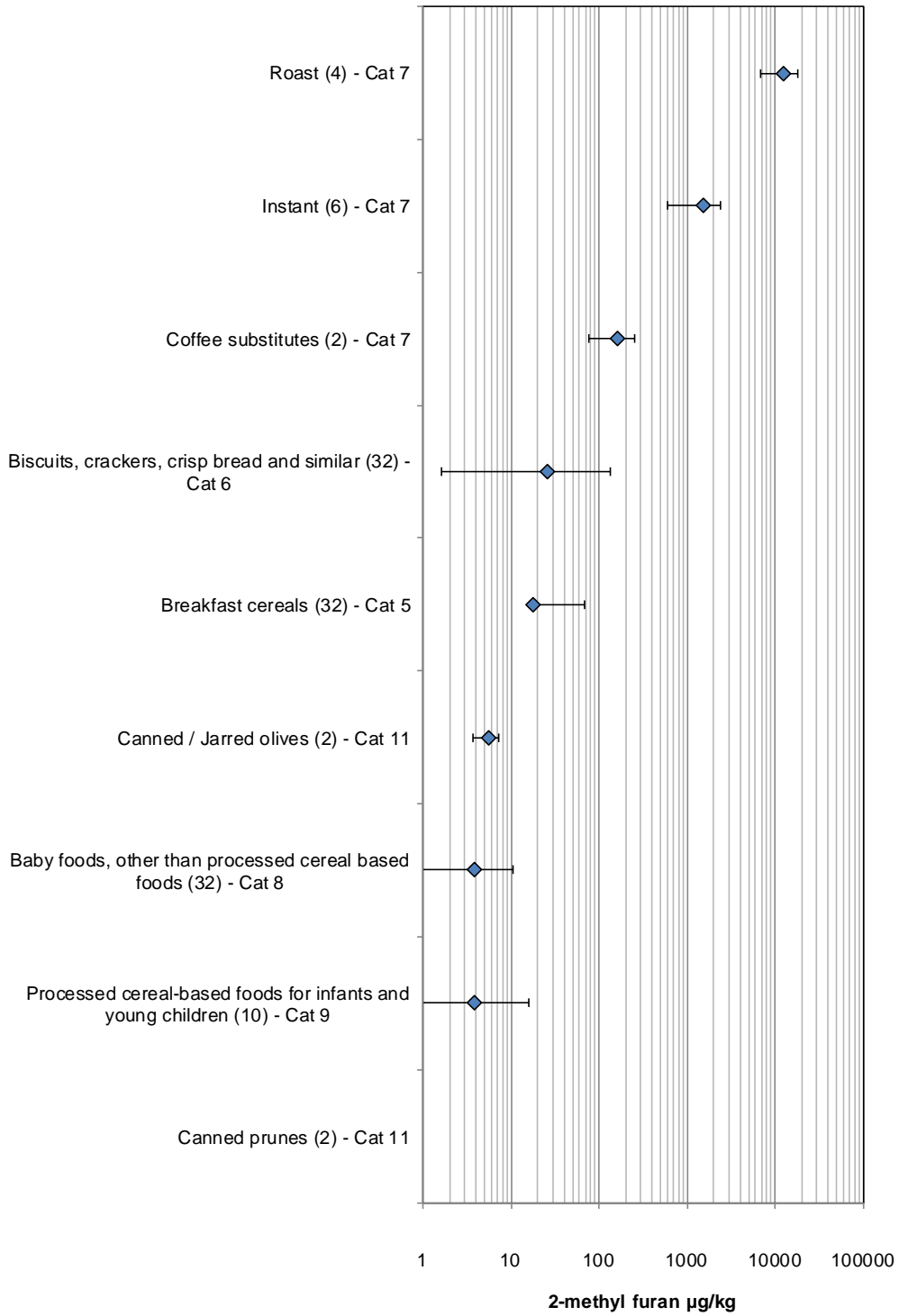


Figure 3. 2-methyl furan in product categories / sub categories as received (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the 2018 survey year

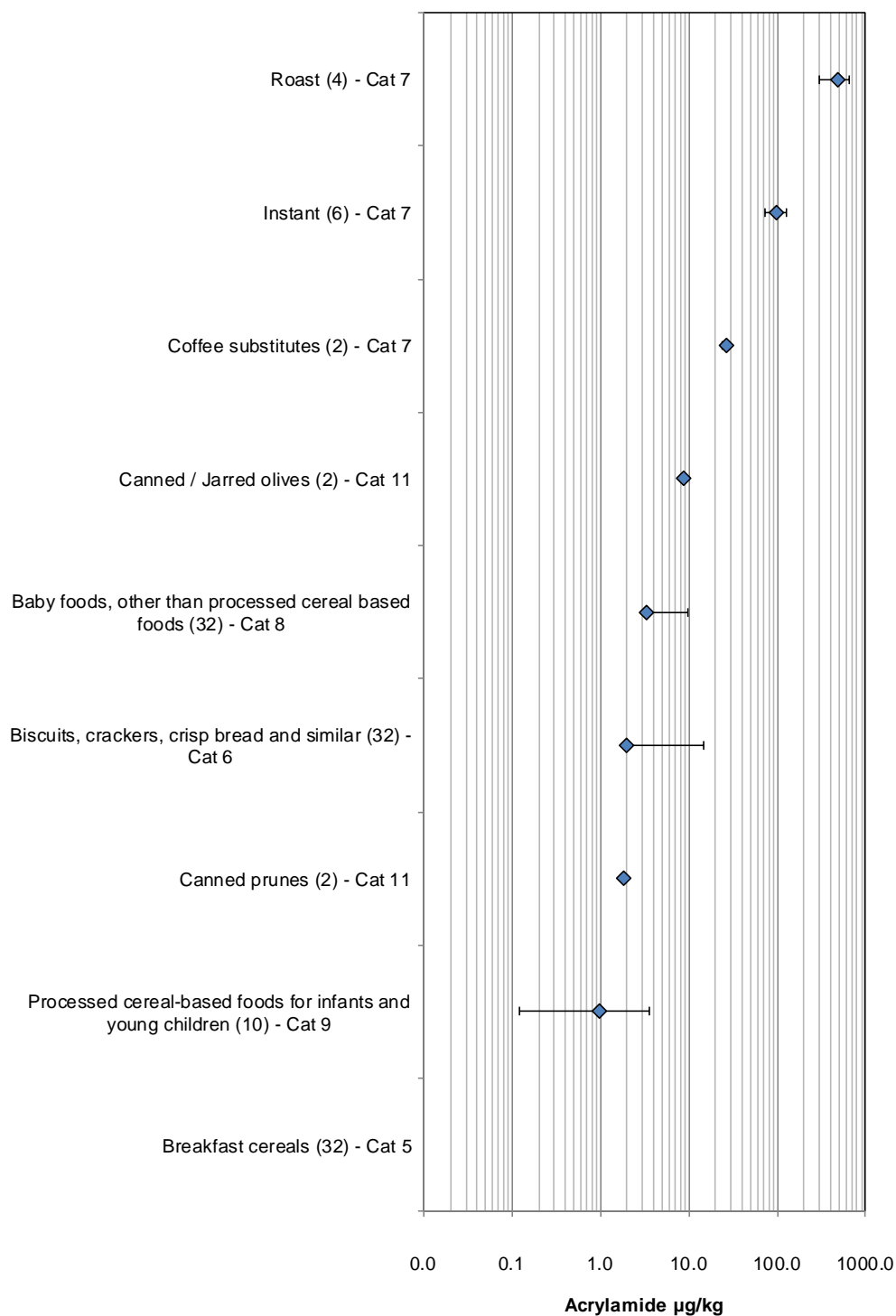
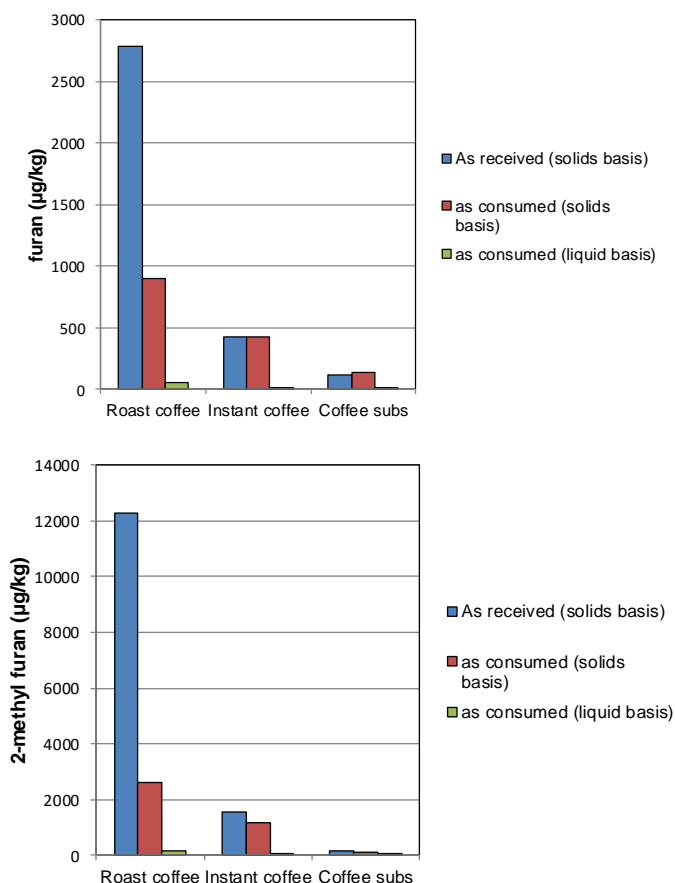


Figure 4. 3-methyl furan in product categories / sub categories as received (logarithmic scale) in order of increasing concentrations: mean, range and number of samples (in parentheses) for the 2018 survey year

5.2.1 Effects of domestic preparation on furans in coffee

All samples from Category 7 were analysed as received and as consumed to determine potential losses of furans during domestic preparation. When the results as consumed were

normalised to a solids basis, Figure 8 shows that the greatest losses of all furans (circa 60-75%) occurred during the preparation of the roast and ground coffees. The preparation of instant coffee on the other hand appeared to result in much less loss of furan and 2-methyl furan although it is not known if this effect was due to an enhanced “extraction” of furan during the addition of hot water or in situ formation of furan at elevated temperature. These results were consistent with previous findings for furan²¹.



²¹ Hamlet, C. G., Asuncion, L., & Liang, L., (2014) Survey of acrylamide and furan in UK retail products –analysis phase: Summary report for samples purchased between November 2011 and December 2013. Report No. C030 prepared for the UK Food Standards Agency. High Wycombe: Premier Analytical Services.

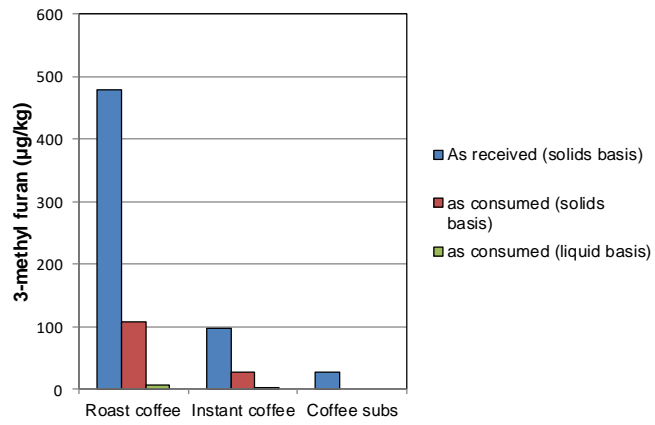


Figure 5 Effects of domestic preparation of coffee and coffee substitutes on amounts of furans: results are expressed on an as received and as consumed basis (normalised solids and liquid)

6. APPENDICES

6.1 Sampling plan

Table 6. Sampling plan Jan - Nov 2018

		Sample numbers in product category																												
Category	1. French fries sold as ready to eat	2. Potato crisps and potato-based crackers			4. Soft bread		5. Breakfast cereals (excluding porridge)			6. Biscuits, crackers, crisp bread and similar (excluding pastry and cake)					7. Coffee and coffee substitutes				8. Baby foods, other than processed cereal based foods		9. Processed cereal-based foods for infants and young children		10. Other products, based on cereals, potatoes, cocoa and coffee					11. Other products, not based on cereals, potatoes, cocoa and coffee	Total	
Sub category	1.1	2.1	2.2	2.3	4.1	4.2	5.1	5.2	5.3	6.1	6.2	6.3	6.4	6.5	7.1	7.2	7.3	7.4	8.1	8.2	9.1	9.2	10.2	10.3	10.4	10.5	10.6			
Jan-18					27	13																							40	

6.2 Sample preparation details and analytical methods

6.2.1 Sample preparation

All samples were prepared according to the Food Standards Agency “Guidelines for undertaking surveys”²². Where practical, digital images (samples and packaging) were recorded and all packaging retained.

Bread (category 4) was cooked according to the manufacturers’ guidelines using domestic appliances e.g. oven and microwave (see Table 7): Appliances were equilibrated for approximately 10 minutes prior to cooking; bread was baked on the middle oven shelf.

Coffee samples “as consumed” were prepared according to the manufacturer’s guidelines given on the packaging: retail domestic coffee preparation equipment was used as required, e.g. a cafetière or espresso coffee maker (see Table 8).

6.2.1.1 Homogenisation

Samples requiring analysis of furan, 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(s).

Where practical, entire samples (approximately 1kg) were homogenised using a food processor:

- Potato products from Categories 1 and 10 and liquorice from category 11 were homogenized with water (1:2 sample/water w/w) using a high-speed blender or food processor.
- Canned / jarred products were drained & stones removed prior to homogenization.
- A domestic cheese grater was used for the chocolate.
- Bread from category 4 was air-dried (weight loss recorded) prior to homogenising.
- Category 7 and 9 samples (ground/milled products) were mixed thoroughly prior to analysis
 - A coffee grinder was used for the whole coffee beans.

²² Guidelines for undertaking surveys. Available at: <https://www.food.gov.uk/sites/default/files/multimedia/pdfs/fsasurveysguidance.pdf> [accessed June 2015]

An aliquot of the homogenised sample was taken for analysis while the remainder was divided equally into four 100 ml pots and stored at -18°C.

6.2.1.2 Homogeneity testing

Representative samples from Categories 1-11 were selected at random and the homogeneity determined by replicate (6) sodium analyses: It was assumed 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 Gorsuch²³. Each batch was analysed with a blank and an in-house reference material.

Table 7. Details of the domestic cooking conditions

Category 4 - 2018 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
18C-02192	4.1	4 green olive ciabatta rolls	Marks & Spencer	12/02/18	09/04/2018	Oven 180°C~7min

^a product stored at -18°C prior to cooking

²³ Gorsuch, T., T., 1970. The Destruction of Organic Matter. Pergamon Press. p21

Table 8. Details of the domestic preparation of coffee and coffee substitutes prior to the analysis of furans “as consumed”.

Category 7 - 2018 samples

Sample code	Product description	Brand	Best before date	Date of preparation	Preparation conditions
18C-02318	Coffee bags	Lyons	11/2019	21/02/19	Freshly boiled water
18C-02319	Italian espresso roasted & ground coffee	Waitrose	02/2020	21/02/19	Espresso coffee maker
18C-02320	Gajah mountain, Sumatra cafetière grind coffee	Union Hand-Roasted Coffee		21/02/19	Espresso coffee maker
18C-02321	Sumatra Mandheling roast & ground coffee	Tesco Finest	05/2019	21/02/19	Cafetière
18C-02322	Freeze dried soluble with finely ground roasted coffee	Nescafé Gold Blend	10/2019	21/02/19	Freshly boiled water
18C-02323	Freeze dried decaffeinated soluble coffee with decaffeinated finely ground roasted coffee	Nescafé Gold Blend Decaff	08/2019	21/02/19	Freshly boiled water
18C-02324	Freeze dried instant coffee	Kenco Smooth	17/02/2020	21/02/19	Freshly boiled water
18C-02325	Freeze dried decaffeinated instant coffee	Kenco Decaff	16/04/2020	21/02/19	Freshly boiled water
18C-02326	Freeze dried instant coffee	L'OR Classic	27/03/2020	21/02/19	Freshly boiled water
18C-02327	Freeze dried decaffeinated instant coffee	L'OR Décaféiné	04/03/2020	21/02/19	Freshly boiled water
18C-02328	Organic cereal coffee	Lima Yannoh Instant	30/11/2019	21/02/19	Freshly boiled water
18C-02329	Instant cereal drink	Barley Cup	30/11/2020	21/02/19	Freshly boiled water

6.2.2 Acrylamide analysis by GC-MS/MS

Acrylamide was determined as the brominated derivative, 2-bromopropenamide, according to the method of Hamlet and Sadd²⁴.

Method performance (5 g sample, typical): limits of detection (LOD) and quantification (LOQ) were 0.5 and 3.0 µg/kg respectively; the estimated value for the method uncertainty (single determination) was: ±5.4% (expanded relative uncertainty with a coverage factor of 2). A summary of the method performance data from this survey can be found in Table 9.

6.2.3 Analysis of furans by GC-MS

Furan, 2-methyl furan and 3-methyl furan were measured in samples using a headspace method based on the original procedure of Becalski et al²⁵ with modifications according to Becalski et al^{26,27} and Shen et al²⁸. Pre-chilled samples were homogenised at 3°C and an aliquot transferred to a headspace vial containing sodium chloride. Isotopically labelled furans (internal standards) were added and the samples incubated at 40°C prior to sampling the headspace for GC/MS analysis. Because of the volatile nature of the furans all samples were analysed in duplicate: either single analyses of duplicate packs or duplicate analyses of single packs (depending upon availability).

Method performance (10g sample, typical): The LOD and LOQ for all furans were 1 µg/kg and 2.5 µg/kg respectively (unless indicated otherwise in the results). The estimated uncertainty for a single determination of each furan (expanded relative uncertainty with a coverage factor of 2) was as follows:

Furans	RU (%)	Range (µg/kg)
--------	--------	---------------

²⁴ 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.

²⁵ 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.

²⁶ Becalski, A., Hayward, S., Krakalovich, T., Pelletier, L., Roscoe, V., and Vavasour, E. (2010), Development of an analytical method and survey of foods for furan, 2-methylfuran and 3-methylfuran with estimated exposure. *Food Additives and Contaminants*, 27 (6), 764-775.

²⁷ Becalski, A., Halldorson, T., Hayward, S., Roscoe, V. (2016), Furan, 2-methylfuran and 3-methylfuran in coffee on the Canadian market. *Journal of Food Composition and Analysis*, 47, 113-119.

²⁸ Shen, M., Liu, Q., Jia, H., Jiang, Y., Nie, S., Xie, J., Li, C., Xie, M., (2016), Simultaneous determination of furan and 2-alkylfurans in heatprocessed foods by automated static headspace gas chromatography mass spectrometry. *LWT - Food Science and Technology* 72, 44-54.

Furan	4.1	86-117
2-methyl furan	8.5	86-103
3-methyl furan	9.0	85-99

A summary of the method performance data from this survey can be found in Table 9.

6.3 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 included a procedural blank, an In-House Reference Material (IHRM) and / or spiked sample. Method performance was monitored by assessing the data from IHRMs and spiked samples in accordance with the rules governing Shewhart control charts²⁹ (this data is summarised in Table 9). The laboratory also participated in the FAPAS proficiency testing schemes available for acrylamide and furan (see Table 10). 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 $\pm 10\%$ of the first measurement.

Table 9. Summary of data obtained from the analysis of IHRM and spiked samples during this survey

(A) Acrylamide IHRM data

Reference material	Accepted value ($\mu\text{g}/\text{kg}$)				Measured values ($\mu\text{g}/\text{kg}$)			
	n	mean	range ^a	SE	n	mean	range	SE
IHRM 1 ^b	7	22	16-28	0.73	3	20	19-20	0.32
IHRM 2 ^b	15	26	19-34	0.63	9	26	23-30	0.65
IHRM 3 ^c	6	1262	1182-1342	10.86	5	1234	1209-1254	8.950

^a upper and lower action limits; ^b dried bread crumb; ^c Biscuit crumb

²⁹ BS 7785:1994, ISO 8258:1991, Shewhart control charts, British Standards Institution. Available at: www.bsonline.bsi-global.com/server/index.jsp

(B) Acrylamide spike recovery data

Nominal spike range (µg/kg)	Recovery (%) ^a			
	n	mean	range	SE
42-50	2	92	81-102	-
500-1242	10	97.1	80-111	2.86

^a the acceptable recovery range was 80-120%

(C) Furan spiked recovery data

Nominal spike level (µg/kg)	Recovery (%) ^a			
	n	mean	range	SE
Low spike ^b	14	95.4	79.2-116	2.9
High spike ^b	14	98.7	87.8-114	2.0

^a the acceptable recovery range was 80-120%; ^b spike range (determined by sample type / preparation e.g. as received / as consumed)

(D) 2-methyl furan spiked recovery data

Nominal spike level (µg/kg)	Recovery (%) ^a			
	n	mean	range	SE
Low spike ^b	14	96.7	83.0-114	2.8
High spike ^c	14	96.7	57.9 ^c -119	3.8

^a the acceptable recovery range was 80-120%; ^b spike range (determined by sample type / preparation e.g. as received / as consumed); ^c Cat 7 spike only

(E) 3-methyl furan spiked recovery data

Nominal spike level (µg/kg)	Recovery (%) ^a			
	n	mean	range	SE
Low spike ^b	14	92.3	79.7-105	2.0
High spike ^c	14	96.6	80.1-118	2.4

^a the acceptable recovery range was 80-120%; ^b spike range (determined by sample type / preparation e.g. as received / as consumed)

Table 10. FAPAS z-scores obtained during the survey period

Contaminant	Series	n	z-score	
			mean	range
Acrylamide ^a	30	6	-0.2	-0.4 to 0.3

Furan ^b	30	2	0.4	-0.2 to 1.0
2-Methyl furan ^b	30	1	-	0.5
3-Methyl furan ^b	30	1	-	-0.5

^a Apr 2018 – Jan 19 ; ^b Feb 2018 – Feb 2019

6.4 Individual sample test results

6.4.1 Acrylamide

Category 1 French fries from fresh potatoes – March 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02253	Regular fries	Burger King	Not applicable	Not applicable	UK	Newmarket	153
18C-02254	Chips	Café Fresco	Not applicable	Not applicable	UK	Cardiff	214
18C-02255	Chips	Canton Fish Bar	Not applicable	Not applicable	UK	Cardiff	201
18C-02256	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	UK	Cardiff	173
18C-02257	Chips	The Abbey	Not applicable	Not applicable	UK	Edinburgh	168
18C-02258	Chips	Newton Fish Bar	Not applicable	Not applicable	UK	Birmingham	47
18C-02259	Chips	Moto The Kitchen	Not applicable	Not applicable	UK	Wolverhampton	194
18C-02260	Regular fries	KFC	Not applicable	Not applicable	UK	Keele	235
18C-02261	Chips	21 Fish & Chips	Not applicable	Not applicable	UK	Congleton	237
18C-02262	Side chips	DV8	Not applicable	Not applicable	UK	Congleton	623
18C-02263	Hand cut chips	The Trinity	Not applicable	Not applicable	UK	London	116
18C-02264	Chips	Perfect Fried Chicken	Not applicable	Not applicable	UK	London	95
18C-02265	Chips	Silver Lounge Café	Not applicable	Not applicable	UK	Larne	72

Category 1 French fries from fresh potatoes – March 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02266	Chips	The Upper Crust	Not applicable	Not applicable	UK	Larne	111
18C-02267	Chips	Sainsbury's Café	Not applicable	Not applicable	UK	Cambridge	193

Category 1 French fries from fresh potatoes – November 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-17897	Regular fries	Burger King	Not applicable	Not applicable	UK	Newmarket	177
18C-17898	Chips	Café Fresco	Not applicable	Not applicable	UK	Cardiff	408
18C-17899	Chips	Canton Fish Bar	Not applicable	Not applicable	UK	Cardiff	70
18C-17900	Chips	Zero Plus Fish Bar	Not applicable	Not applicable	UK	Cardiff	167
18C-17901	Chips	The Abbey	Not applicable	Not applicable	UK	Edinburgh	432
18C-17902	Chips	Newton Fish Bar	Not applicable	Not applicable	UK	Birmingham	62
18C-17903	Chips	Moto The Kitchen	Not applicable	Not applicable	UK	Wolverhampton	436
18C-17904	Regular fries	KFC	Not applicable	Not applicable	UK	Larne	113
18C-17905	Chips	21 Fish & Chips	Not applicable	Not applicable	UK	Congleton	143
18C-17906	Side chips	DV8	Not applicable	Not applicable	UK	Congleton	540
18C-17907	Hand cut chips	The Trinity	Not applicable	Not applicable	UK	London	64
18C-17908	Chips	Perfect Fried Chicken	Not applicable	Not applicable	UK	London	12
18C-17909	Chips	Silver Lounge Café	Not applicable	Not applicable	UK	Larne	200
18C-17910	Chips	The Upper Crust	Not applicable	Not applicable	UK	Larne	125
18C-17911	Chips	Sainsbury's Café	Not applicable	Not applicable	UK	Cambridge	217

Category 2 Potato crisps and potato-based crackers – March 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02395	Lightly salted handcooked crisps	JackPots	12 05 2018	LOT 1289 DC 304 Field: Huttons	Essex	Ilford	907
18C-02396	Sea salted potato crisps - 6 pack	Seabrook	30 JUN 18	8064 R2	UK	Cambridge	952
18C-02397	Simply salted potato crisps - 6 bags	Walkers Lights	05 05 18	GBL 184 044 6986	None declared	Cambridge	503
18C-02398	Ready salted potato crisps - 6 pack	Snackrite	16 JUN 18	K 8 069 Line001	Britain	Birmingham	973
18C-02399	Ready salted potato crisps - 6 pack	Walkers	09 06 18	GBL288 068 0793	British potatoes	Cambridge	630

Category 2 Potato crisps and potato-based crackers – November 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-17254	Sea salt popped potato chips	Popchips	29/08/2019	(1) 18241C	EU	Newmarket	884
18C-17255	Poppables - Cheddar cheese	Walkers	02 02 19	GBN2 08251 8005	None declared	Cambridge	382
18C-17256	Sour cream & onion air popped potato chips	Snaktastic	26 JAN 19	8 278 39	None declared	St Neots	994
18C-17257	Spicy BBQ popped snacks	Morrisons	03/09/2019	18246A (2)	None declared	Cambridge	788
18C-17258	Salt & vinegar popped snacks	Tesco	24/06/2019	(1) 18267A	UK	Newmarket	664
18C-17259	Ready salted potato rings	Marks & Spencer	25 12 2018	YH 2 AB	UK	Cambridge	57
18C-17260	Ready salted potato loops - 6 pack	Asda	05 JAN 19	K 8 288 F3	UK	Cambridge	997
18C-17261	Hoops - ready salted potato hoops	Snackrite	09 02 2019	Y HM 1 8282	None declared	St Neots	33
18C-17262	Potato hoops - ready salted	Snaktastic	09 FEB 19	MP03 8 291	None declared	St Neots	869
18C-17263	French fries - ready salted	Walkers	26 01 19	GBC 903 285 D 5321	None declared	Cambridge	125

Category 2 Potato crisps and potato-based crackers – November 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-17264	Lightly salted handcooked crisps	JackPots	27 05 19	DC1: 316 WEEK: 46	Essex, England	Colchester	629
18C-17265	Sea salted potato crisps - 6 pack	Seabrook	09 FEB 19	8288 R1	UK	Cambridge	593
18C-17266	Simply salted potato crisps - 6 bags	Walkers Lights	12 01 19	GBL 185 295 5954	None declared	Cambridge	253
18C-17267	Ready salted potato crisps - 6 pack	Snackrite	09 FEB 19	K 8 310 F 6	Britain	Birmingham	585
18C-17268	Ready salted potato crisps - 6 pack	Walkers	26 01 19	GBL 189 299 9487	British potatoes	Cambridge	604

Category 4 Soft bread – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02181	Toastie thick sliced white bread	Warburtons	14 FEB	(2) 3RZMW FHBD8	None declared	Newmarket	4
18C-02182	Demi baguette	Co-op	None declared	None declared	None declared	Cambridge	3
18C-02183	White bloomer - sliced	Greggs	None declared	None declared	None declared	Newmarket	9
18C-02184	Tiger bloomer - sliced	Tesco Bakery	10 Feb	None declared	None declared	Newmarket	6
18C-02185	White finger roll - 6 pack	Tesco Bakery	12 Feb	None declared	None declared	Newmarket	4
18C-02186	Wholemeal sliced bread	Brace's	15 FEB	E 20 U 1	United Kingdom	Cardiff	11
18C-02187	Pan premium white bread	Brennans	10 MAR	F 08	None declared	Larne	6
18C-02188	Plain white bread	Sunblest	12 MAR	BE6 8 064 2159	Northern Ireland	Templepatrick	29
18C-02189	Harvest Pride premium sliced bread	Linwoods	11 MAR	A 109	None declared	Ballyclare	5
18C-02190	Sliced wholemeal bread	Hovis Nimble	21/02/2018	X12 2 E X	None declared	Cambridge	76
18C-02191	Soya & linseed bread	Burgen	15 FEB	ST 9 040 1145	UK	Cambridge	9
18C-02192	4 green olive ciabatta rolls	Marks & Spencer	12/02/2018	None declared	UK	Cambridge	28

Category 4 Soft bread – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02193	Stoneground wholemeal medium sliced bread	Waitrose	12 FEB	LBQ12	None declared	Newmarket	21
18C-02194	Sunflower, chia & pumpkin bread	Vogel's	06 MAR	C	None declared	Newmarket	13
18C-02195	Thick sliced soft white bread	Hovis	21/02/2018	X72 E D W	None declared	Cambridge	9
18C-02196	Classic wholemeal batch baked bread	Allinson's	12 FEB	WBD1 8 037 0458	UK	Cambridge	27
18C-02197	Walnut cob	Sainsbury's Taste the Difference	09 Feb	Display until 08 Feb	UK	Cambridge	9
18C-02198	Thick sliced soft white bread	Roberts	25 MAR	FRS1 01D 078 2418R	None declared	Congleton	11
18C-02199	Burger buns - 6pk	Asda	10-02-18	None declared	None declared	Cambridge	11
18C-02200	Soft white loaf - medium	Kingsmill	17 FEB	ST03 8 0411407	UK	Cambridge	9
18C-02201	Brown bread with added wheat flakes - thick sliced	Hovis Granary	24 FEB	RWF 4 F G 32 C	None declared	Cambridge	32
18C-02202	Thick cut malted grain loaf	Morrisons The Best	21 FEB	RWF2 B D L 13	UK	Cambridge	27

Category 4 Soft bread – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02203	Brown Bloomer - brown multigrain bread	Jackson's	14 02 18	E AZOENB D	Yorkshire, England	Newmarket	71
18C-02204	Seeded five seeds batch bread	Warburtons	13 FEB	PDZN W DOBD 14 (2)	None declared	Newmarket	22
18C-02205	Organic sunflower seed bread with rye and sunflower seeds	Schneider Brot	01.06.2018	D11201737	Germany	Newmarket	6
18C-02206	German style rye bread	Kelderman	06.03.18	A G 4	None declared	Cambridge	14
18C-02207	Wholegrain rye bread	Rowan Hill Bakery	20.02	Y 2 B	Germany	St Neots	5
18C-02208	Sourdough bloomer	Tesco	12 Feb	None declared	None declared	Cardiff	3
18C-02209	Brown ciabatta rolls	Schär	13.03.18	C D 2.2	Germany	Newmarket	16
18C-02210	Gluten free spicy fruit loaf	Genius	08 MAR 18	L8048	UK	Cambridge	11
18C-02211	Dark rye bread with inulin	The Polish Bakery	27 FEB	None declared	UK	Cambridge	21
18C-02212	Cherry tomato, basil & mozzarella flatbread	Soli	None declared	8030	Netherlands	Newmarket	6

Category 4 Soft bread – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02213	Pure grain bread	The Heart of Nature	04 MAR 2018	None declared	Poland	Newmarket	14
18C-02214	Organic rye bread	The Village Bakery Melmerby	28 FEB	None declared	None declared	Newmarket	13
18C-02215	Spelt sourdough bread	Waitrose 1	25 FEB	None declared	None declared	Newmarket	19
18C-02216	Pumpernickel rolls	Morrisons	None declared	None declared	None declared	Cambridge	21
18C-02217	Authentic New York style plain bagels	New York Bakery Co	02 MAR 18	L9 054	Canada	Cambridge	16
18C-02218	Organic rye bread amaranth/quinoa	Biona Organic	15.08.2018	1020	Germany	Newmarket	4
18C-02219	Organic pumpernickel	House of Westphalia Ltd	01.07.2018	03015 DKL	Germany	Edinburgh	41
18C-02220	Sourdough based German style rye bread	Marks & Spencer	None declared	None declared	Baked in store	Cambridge	33

Category 5 Breakfast cereals (excluding porridge) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02221	Honey multigrain flakes of wholegrain corn, spelt & barley	Rude Health	27 09 18	L 270 M	None declared	Cambridge	120
18C-02222	Organic whole wheat cereal biscuits	Weetabix Organic	20/12/2018	17354 2	None declared	Newmarket	104
18C-02223	Grape-nuts - wheat & malted barley cereal	Post	121018	RGA 3	USA	Cambridge	71
18C-02224	Puffed wheat	Good Grain	DEC 2018	171123-2p-1	EU	Cambridge	316
18C-02225	Bran flakes	Tesco	10/2018	P4 B1 80100953	UK	Newmarket	411
18C-02226	Apricot wheats	Tesco	09/2018	L1 73510952	UK	Newmarket	17
18C-02227	Wholegrain bran flakes	Sainsbury's	29 JAN 2019	8029 B4	UK	Cambridge	634
18C-02228	Cornflakes	Kellogg's	12 01 19	04 MC	None declared	Cambridge	54
18C-02229	Shreddies - whole wheat fortified malted cereal	Nestlé	08/2018	73200925 09.12 L3	None declared	Cambridge	167
18C-02230	Puffed wheat	Honey Monster Puffs	DEC 2018	171120-3p-1	EU	Cambridge	207

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02231	Whole wheat cereal biscuits	Morrisons	15/12/2018	7349 2	UK	Cambridge	122
18C-02232	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	17 02 19	L31 10.19 MC	None declared	Cambridge	151
18C-02233	Shredded wheat - whole grain wheat cereal biscuits	Nestlé	08/2018	73280952 G	None declared	Cambridge	65
18C-02234	Wheat biscuits	Tesco Everyday Value	04/02/2019	1	UK	Newmarket	91
18C-02235	Golden puffs	Harvest Morn	19.01.2019	18025 AEF	None declared	Cambridge	350
18C-02236	Malted wheaties	Asda	24/01/2019	8024 A	UK	Cambridge	108
18C-02237	Crunchy bran - high fibre cereal	Weetabix	02/01/2019	8002 9	None declared	Cambridge	168
18C-02238	Organic bran flakes	Tree of Life	20/10/18	63494 RP2	Produce of UK	Cambridge	551
18C-02239	Bran flakes	Co-op	10/2018	80070953 P4 B1	UK using British wheat	Cambridge	400
18C-02240	Wholewheat biscuits	Waitrose Essential	21/11/2018	7325 2	None declared	Newmarket	161
18C-02241	Cranberry & cashew granola	Just Live a Little	01/12/18	None declared	UK	Newmarket	85

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02242	3 seed granola	Marks & Spencer	05/2018	7306	UK	Cambridge	54
18C-02243	Rice krispies	Kellogg's	18/12/18	P: 18/12/17 L7 3520346340254	None declared	Cambridge	54
18C-02244	Rice snaps	Tesco	10/2018	80200953	UK	Newmarket	95
18C-02245	Spelt bran flakes	Sharpham Park	21.12.2018	RWL 17354	None declared	Cambridge	92
18C-02246	Multi-grain high fibre flakes	Nature's Store	17/02/2019	P 17/08/2017	Italy	Newmarket	177
18C-02247	Choco rice crispies	Co-op	12/06/2019	None declared	Italy using Italian rice	Cambridge	808
18C-02248	Corn flakes	Crownfield	24.11.2018	6491116 328 K	None declared	St Neots	46
18C-02249	Organic wholegrain puffed rice cereal	Kallø	11.2018	L 334 M	Switzerland	Cambridge	29
18C-02250	Honey hoops - extruded corn with honey	Morrisons Free From	02/11/2018	None declared	Italy	Cambridge	7
18C-02251	Organic buckwheat flakes	Big Oz	04/01/2019	120817LOV	UK	Cambridge	4
18C-02252	Granola - pecan & Brazil nuts	Quaker Oats	11 08 18	XPLWT 4V 320 5	None declared	Cambridge	186

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02268	Cream crackers	Waitrose Essential	26 JAN 19	8 117 BC	None declared	Newmarket	71
18C-02269	Organic wholemeal digestive biscuits	Doves Farm	07 OCT 18	8033	Ingredients from more than one country. Baked in the UK	Newmarket	197
18C-02270	Dark rye crispbread	Ryvita	29-01-2019	4 8122	UK	Cambridge	256
18C-02271	Stem ginger biscuits	Fox's Crinkle Crunch	26 01 19	S D	None declared	Cambridge	1321
18C-02272	Rich tea biscuits	Asda	20 OCT 18	H A 1 MRP	UK	Cambridge	268
18C-02273	Crunchy ginger biscuits	McVitie's Ginger Nuts	18 08 18	8037 C 1	UK	Cambridge	198
18C-02274	Ginger nuts biscuits	Tesco Everyday Value	15 12 18	8065	UK	Cambridge	168
18C-02275	Cream crackers	Morrisons	03 NOV 18	8 117 BB	UK	Cambridge	75
18C-02276	Extra wheatgerm crackers	Hovis	24 11 18	8071 C	None declared	Cambridge	474
18C-02277	High bake water biscuits	Sainsbury's	27 10 18	8106 1 C	UK	Cambridge	331
18C-02278	Wheat & rye crackers	Jacob's Krackawheat	06 OCT 18	T1 B	None declared	Cambridge	256

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02279	Malted milk biscuits	Marks & Spencer	21/11/2018	8 082 G8	UK	Cambridge	291
18C-02280	Original sourdough rye thin crispbread	Finn Crisp	15 01 2019	Production date: 15 01 2018	Finland	Newmarket	61
18C-02281	Flatbreads - mixed seed	Jacob's	13 10 18	8096 1 C	None declared	Cambridge	244
18C-02282	Shortbread fingers	Paterson's	APR 2019	L18100	None declared	Cambridge	29
18C-02283	Scandinavian bran crispbread	GG Slimming World	03022020	None declared	Norway	Newmarket	320
18C-02284	Cream crackers	Jacob's	12 01 19	8 097 BC	None declared	Cambridge	50
18C-02285	Butter crisps	Jules Destrooper	29/05/2019	SL259258	Belgium	Newmarket	200
18C-02286	Rough oatcakes	Nairn's	25 OCT 2018	1658	Scotland	Cambridge	174
18C-02287	30 mini gingerbread men bites	Asda	29/07/18	8 120	UK	Cambridge	71
18C-02288	Mini gingerbread men	Tesco	14/08/18	81361 (M/M)	UK	Cambridge	103
18C-02289	Biscuits with wholegrains - live yogurt filling	Belvita Breakfast Yogurt Crunch	28.08.2018	OHF5080612	None declared	Cambridge	63

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02290	Cranberry & orange breakfast biscuits	Marks & Spencer	12/12/2018	D	Scotland	Cambridge	56
18C-02291	Double fan wafers	Carousel	43861	L8008	UK	Cambridge	254
18C-02292	Fan wafers	Asda	FEB 19	8 039 G11X	UK	Cambridge	125
18C-02293	Wafers	Askey's	JAN 20	8101 G10Y	UK	Cambridge	727
18C-02294	Sourdough crispbread	Peter's Yard	03 2019	2393	UK	Newmarket	228
18C-02295	Organic crispbreads - spelt & muesli	The Foodie Market	20.10.2018	SBDMA3-382443	None declared	Bury St Edmunds	13
18C-02296	Wholegrain rye crispbread	Rivercote	20.03.2019	2 8 079	UK	St Neots	287
18C-02297	Garibaldi	Morrisons	27 OCT 2018	8 109 L2	None declared	Cambridge	37
18C-02298	Caramelised biscuits	Belmont Biscuits	43482	8107 1	None declared	Bury St Edmunds	172
18C-02299	Wafers - crispy wafers filled with vanilla flavoured cream	Pink Panther	07 04 2019	None declared	Poland	Newmarket	25

Category 7 Coffee and coffee substitutes – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02318	Coffee bags	Lyons	NOV 2019	8121	None declared	Cambridge	264
18C-02319	Italian espresso roasted & ground coffee	Waitrose	FEB20	18051 ARD C/352/7/ L13	Italy	Newmarket	227
18C-02320	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Hand roasted & hand packed 12 JUN 2018	Sumatra	London	248
18C-02321	Sumatra Mandheling roast & ground coffee	Tesco Finest	May 2019	8142 2	Indonesia Packed in the UK	Newmarket	273
18C-02322	Freeze dried soluble with finely ground roasted coffee	Nescafé Gold Blend	10 2019	81171092B	None declared	Cambridge	609
18C-02323	Freeze dried decaffeinated soluble coffee with decaffeinated finely ground roasted coffee	Nescafé Gold Blend Decaff	08.2019	80361092 1	None declared	Newmarket	673
18C-02324	Freeze dried instant coffee	Kenco Smooth	17/02/2020	LHB0180763	None declared	Newmarket	688

Category 7 Coffee and coffee substitutes – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02325	Freeze dried decaffeinated instant coffee	Kenco Decaff	16-04-2020	L8107	None declared	Newmarket	856
18C-02326	Freeze dried instant coffee	L'OR Classic	27-03-2020	L8087	None declared	Cambridge	681
18C-02327	Freeze dried decaffeinated instant coffee	L'OR Décaféiné	04-03-2020	L8064	None declared	Cambridge	704
18C-02328	Organic cereal coffee	Lima Yannoh Instant	30.11.2019	L017087	Switzerland	Cambridge	445
18C-02329	Instant cereal drink	Barley Cup	30.11.2020	7484B	None declared	Cambridge	1249

Category 8 Baby foods, other than processed cereal based foods – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02330	Cottage pie	Heinz By Nature	25/04/2019	8116	EU	Cambridge	16
18C-02331	Organic carrot, sweet potato & squash	Piccolo	12/05/2019	A071	EU	Newmarket	11
18C-02332	Organic sweet potato, carrot & cauliflower	Babease Baby Plan	15 03 2019	2	UK	Newmarket	71
18C-02333	Organic parsnips, sweet potato & broccoli	Hipp Organic	14/05/2019	0592 J-	France		5
18C-02334	Cheese & tomato pasta stars	Heinz By Nature	09/2019	8073 0428 C	EU		28
18C-02335	Organic carrots, apples & parsnips	Ella's Kitchen	05/19	111112066 111112076 121112046 121112056	EU	Cambridge	6
18C-02336	Organic spaghetti with tomatoes & mozzarella	Hipp Organic	10/19	DE LA34141 P04/18 030820 030849 030867	Germany	Cambridge	18
18C-02337	Sweet potato & tender chicken	Heinz By Nature	08/2019	8037 0470 B	EU	Newmarket	34

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02338	Organic carrots, cauliflower & peas	Hipp Organic	08/19	LA29889 DE P02/18 131531 131567 131569 131599	Germany	Newmarket	16
18C-02339	Spaghetti bolognese	Heinz By Nature	29/03/2019	8089	EU	Cambridge	9
18C-02340	Spaghetti bolognese	Cow & Gate	07/07/2019	AT [4] 097	EU	Cambridge	14
18C-02341	Organic ravioli with bolognese sauce	Hipp Organic	13.01.19	LA30756	Austria	Cambridge	14
18C-02342	Organic cheesy pasta with veg	Ella's Kitchen	MAY 2019	L8138 B4 LA	EU	Cambridge	13
18C-02343	Organic vegetable + lentil bake	Ella's Kitchen	JUN 2019	L8130 B6 LA x 3, LC x 1	EU	Cambridge	14
18C-02344	Creamed carrot & potato	Cow & Gate	04.05.2020	106975/ 101072352 08989.02/	EU	Cambridge	23
18C-02345	Carrot and lamb hotpot	Cow & Gate	04.05.2020	106966/10107 2356 08480.05	EU	Newmarket	17

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02346	Organic beef stew with spuds	Ella's Kitchen	JAN 2019	L8101 B6 LB	EU	Cambridge	17
18C-02347	Creamed cottage pie	Cow & Gate	22.03.2020	107019 101064612 09190.04/	EU	Cambridge	8
18C-02348	Succulent pork casserole	Cow & Gate	10.04.2020	106929 101069194 08990.06/	EU	Cambridge	30
18C-02349	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	22 01 2019	1	UK		5
18C-02350	Organic squash, carrots, apples & prunes	Ella's Kitchen	04/19	1106908436 x 2 1206908436 x 2	EU	Newmarket	16
18C-02351	Organic prunes	Ella's Kitchen	06/19	1512509266 1612509266 x 2 1712509226 x 2 1712509236	EU	Cambridge	35
18C-02352	Sweet potato, parsnip & mango	Heinz By Nature	20/03/19	0568 J-8080	EU	Cambridge	5

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02353	Potato & fish pie	Heinz By Nature	24/01/19	H - 8 024 0900	EU	Cambridge	33
18C-02354	Organic buttered vegetables	Hipp Organic	10/18	LA16141 DE P04/17 024635 024675 038430 042004	Germany	Cambridge	8
18C-02355	Sweet potato mash & chicken	Cow & Gate	09/03/2019	AL [4] 342	EU	Cambridge	23
18C-02356	Organic sweet potato & chicken	Hipp Organic	21.11.18	LA30247	Austria	Cambridge	6
18C-02357	Chicken & sweet potato curry	For Aisha	12/04/2019	0872 J-	EU	Cambridge	22
18C-02358	Organic sweet potato, carrot & swede	Sainsbury's Little Ones	27/06/2019	1360 G -	France	Cambridge	13
18C-02359	Beef & sweet potato mash	Heinz By Nature	07/2019	8010 0412 A	EU	Cambridge	39
18C-02360	Cheesy curly pasta with veggies	Kiddylicious Little Bistro	01/2019	8010B KDWM930080 SLE8634	UK	Cambridge	19
18C-02361	Sweet potatoes, broccoli & carrots	Ella's Kitchen	06/2019	0555 03 G - 8132	EU	Cambridge	46

Category 9 Processed cereal based foods for infants & young children – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02362	My first muesli - cereal with raisins, mixed fruit & hazelnuts	Cow & Gate	26 04 19	TB	EU	Cambridge	4
18C-02363	Organic baby rice	Aptamil	08/08/2019	L0022321358 000022476 000022483 000022490 000022497 000022504	EU	Cambridge	1
18C-02364	Creamy oat porridge	Heinz	1ST DEC 2019	L18157KCA03	England	Cambridge	<0.5
18C-02365	Baby rice	Cow & Gate	10.06.20	L3	EU	Cambridge	4
18C-02366	Multigrain banana porridge	Cow & Gate	31.05.20	L3	EU	Cambridge	12
18C-02367	Rusks - original	Farley's	01 11 2019	8 149	England	Cambridge	23
18C-02368	Organic banana multigrain porridge	Sainsbury's Little Ones	13/06/2019	L0047420798	Portugal	Cambridge	8
18C-02369	Organic creamy porridge	Hipp Organic	31.08.2019	6013085 214 A	Croatia	Newmarket	4

Category 9 Processed cereal based foods for infants & young children – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02370	Organic baby rice	Hipp Organic	30.11.2019	6013003 201 B	Croatia	Newmarket	3
18C-02371	Organic banana & plum porridge	Organix	22.07.2019	LE PROD. DATE: 22.05.2018	Austria	Cambridge	12
18C-02372	Organic vanilla & banana baby biscuits	Ella's Kitchen	07/02/2019	8219N	EU	Cambridge	116
18C-02373	Chocolate biscotti	Heinz Snack	30/06/19	8089 1A	Italy	Cambridge	37
18C-02374	Organic parsnip & poppy seed savoury biccies	Ella's Kitchen	08 04 2019	8193 SA	EU	Newmarket	87
18C-02375	Organic farm animal biscuits	Organix Goodies	05.06.2019	L 156 B	Germany	Cambridge	53
18C-02376	Organic vanilla baby biscuits	Organix Finger Foods	27.03.2019	L178 C	Germany	Cambridge	21
18C-02377	Organic gingerbread men biscuits	Organix Goodies	05.06.2019	L156 A	Germany	Cambridge	77
18C-02378	Multigrain fruit muesli	Aptamil	23.06.19	PD	EU	Cambridge	9
18C-02379	Banana & cinnamon muesli	Ella's Kitchen	10/072019	19118	EU	Cambridge	12

Category 9 Processed cereal based foods for infants & young children – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02380	Alphabet biscuits	Organix Goodies	11.01.2019	L101 B	Germany	Newmarket	91
18C-02381	Sunrise banana porridge	Heinz	1ST DEC 2019	L18157KCA01	England	Cambridge	4
18C-02382	Multigrain porridge with buckwheat	Cow & Gate	25.07.2019	L:101071391 05A	EU	Cambridge	5
18C-02383	Reduced sugar rusks	Farley's	01 10 2019	8108	England	Newmarket	35
18C-02384	Strawberry & peach Peppa Pig biscuits	Heinz So Yummy	09/07/2019	8190 2	EU	Cambridge	9
18C-02385	Banana soft biscotti	Kiddylicious	23.05.2019	182103	EU	Cambridge	292
18C-02386	Creamy peach & apricot porridge - no added sugar	Heinz First Steps	1ST OCT 2019	L18193KCAX2	England	Cambridge	11
18C-02387	Baby rice with garden veg - gluten free	Heinz First Steps	1ST MAR 2019	L18171KCA01	England	Cambridge	8
18C-02388	Multigrain & apple cereal	Aptamil	04.09.19	L3	EU	Cambridge	8
18C-02389	Go Go biscuits - apple	Little Dish	01 JAN 2019	2638	Britain	Cambridge	181

Category 9 Processed cereal based foods for infants & young children – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-02390	Natural teething biscuits	Bickiepegs	06-2020	18046	None declared	Cambridge	218
18C-02391	Organic apple flavoured biscotti	Asda Little Angels	25/04/2019	L 20618A	Italy	Cambridge	208
18C-02392	Organic apple biscotti	Organic Mamia	15/10/2019	2 8197	Italy	St Neots	23
18C-02393	Strawberry & raspberry porridge	Ella's Kitchen	18/04/2019	16918	EU	Cambridge	6
18C-02394	Raspberry & banana muesli	Organix	22.07.2019	QE PROD. DATE: 22.05.2018	Austria	Cambridge	17

Category 10 Other products, based on cereals, potatoes, cocoa and coffee – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-10606	Organic lightly salted wholegrain rice cakes	Kallø	26/04/2019	C	Czech Republic	Cambridge	72
18C-10607	Lightly salted rice crackers	The Snack Organisation	20MAY2019	A	Thailand	Newmarket	155
18C-10608	Pretzels - original sea salted	Penn State	JAN 19	8123 1	UK	Cambridge	171
18C-10609	Ready-to-eat plain noodles (no vegetables)	Wokswagon	None declared	None declared	UK	Cambridge	7
18C-10610	Ready-to-eat plain noodles	Wasabi Sushi & Bento	None declared	None declared	UK	Cambridge	74
18C-10613	Ready-to-eat cheese & tomato pizza	Domino's Pizza	None declared	43277	UK	Cambridge	19
18C-10614	Ready-to-eat margherita pizza	Pizza Hut	None declared	None declared	UK	Cambridge	27
18C-10615	Salted giant pretzels	Marks & Spencer	20/11/2018	1 8149	UK	Cambridge	150
18C-10765	Rich & fruity fruit cake	Waitrose	28 02 19	82282E	None declared	Newmarket	23
18C-10766	4 rich fruit cake slices	Sainsbury's Deliciously Free From	18/02/19	P/454348	UK	Cambridge	80

Category 10 Other products, based on cereals, potatoes, cocoa and coffee – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-10767	Sticky ginger loaf	Marks & Spencer	28/09/2018	JGF1	UK	Cambridge	80
18C-10768	Ginger parkin	Elisabeth Botham's	12 FEB 2019	0255	None declared	Whitby	191
18C-10769	8 all-butter croissants	Tesco	27 SEP	M2	UK	Newmarket	5
18C-10770	All butter sweet pastry tartlets	Marks & Spencer	03/03/2019	2018269675	France	Cambridge	23
18C-10771	Cool original flavour corn chips	Doritos	15 12 18	GBC 112 237A 6865	None declared	Cambridge	268
18C-10772	Lightly salted tortilla chips	Tesco Everyday Value	05 JAN 19	8239 B5 C	UK	Cambridge	101
18C-10773	Sweet & salty popcorn	Proper Corn	15.02.19	M2348	UK	Newmarket	232
18C-10774	Cinema sweet popcorn	Butterkist	02 2019	L138218	None declared	Cambridge	251
18C-10775	Crunchy cereal bars - oats & honey	Nature Valley	16/07/2019	LB 2504025567	Spain	Cambridge	326
18C-10776	Wholegrain oat cereal bar - raisins and hazelnuts	Jordans Frusli	13 04 19	8226/2	UK	Cambridge	11
18C-10777	Organic cocoa	Green & Black's Organic	SEP 2020	L8272	None declared	Cambridge	129

Category 10 Other products, based on cereals, potatoes, cocoa and coffee – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-10778	Bournville cocoa	Cadbury	20.08.2020	OCI0283421	None declared	Cambridge	356
18C-10779	Chocolate powder - West African 70% cocoa solids	Mortimer Chocolate Company	JUL 2019	8204	West Africa, made in the UK	Mortimer Common	20
18C-10780	70% dark chocolate	Divine	09.2020	L18372 a	Made in Germany using Ghanaian cocoa	Newmarket	102
18C-10781	Extra dark chocolate chunks	Dr.Oetker	MAR 20	L 8 256/2	None declared	Cambridge	94
18C-10782	Pure dark chocolate	Madécasse	21/03/2020	None declared	Italy	Newmarket	187
18C-10783	Baked potato	Tesco Café	None declared	None declared	None declared	Cambridge	164
18C-10784	Baked potato	The Baked Potato Shop	None declared	None declared	Scotland	Edinburgh	176

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-10611	Ready-to-eat regular cod	Fish'n'chick'n'	None declared	None declared	UK	Cambridge	7
18C-10612	Filet-O-Fish (no bun, sauce or cheese)	McDonalds	None declared	None declared	UK	Cambridge	8
18C-10786	Sweet potato, parsnip and beetroot vegetable crisps	Marks & Spencer	15-12-2018	B 235 035197	Netherlands	Cambridge	1329
18C-10787	Lightly salted veg chips	Kettle Veg Chips	22-12-2018	D 215 034499	Netherlands	Newmarket	1002
18C-10788	Sweet plantain chips	Grace	03 05 19	B 11	Columbia	Cambridge	163
18C-10789	Plantain chips - jungle chilli	Samai	MAY/2019	131318 C	Ecuador	Cambridge	294
18C-10790	Sweet potato fries (ready-to-eat)	Bill's Restaurant	Not applicable	Not applicable	United Kingdom	Cambridge	320
18C-10791	Sweet potato fries (ready-to-eat)	Wildwood	Not applicable	Not applicable	United Kingdom	Newmarket	177
18C-10792	Prunes in syrup	Tesco	AUG 2020	8220 L - PRY V12 12.7	UK	Newmarket	355
18C-10793	Pitted prunes in fruit juice	Sainsbury's	JUN 2020	8158 04 L-DAS V9	UK	Cambridge	70
18C-10794	Pitted black olives in brine	Tesco	AUG2020	8233	Spain	Cambridge	392

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Acrylamide (µg/kg)
18C-10795	Pitted black olives in brine	Crespo	19.07.2021	L80569 II 064846 064870 064879	Spain	Cambridge	340
18C-10796	Organic grown partially rehydrated dried prunes	Waitrose Duchy Organic	30/08/2019	L8242H170	France	Newmarket	50
18C-10797	Blocked stoned dates	Whitworths	NOV 2019	L8 190 B	Produce of more than one country Packed in the UK	Cambridge	26
18C-10798	Natural original liquorice	Panda	04.09.19	Production date: 05.06.18	Finland	Cambridge	114
18C-10799	Pontefract cakes soft liquorice	Haribo	11/2019	L441-24118 - 01 021 01 1756	None declared	Cambridge	108

6.4.2 Furan

Category 5 Breakfast cereals (excluding porridge) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan ($\mu\text{g}/\text{kg}$ as received)
18C-02221	Honey multigrain flakes of wholegrain corn, spelt & barley	Rude Health	27 09 18	L 270 M	None declared	Cambridge	14
18C-02222	Organic whole wheat cereal biscuits	Weetabix Organic	20/12/2018	17354 2	None declared	Newmarket	<10
18C-02223	Grape-nuts - wheat & malted barley cereal	Post	121018	RGA 3	USA	Cambridge	33
18C-02224	Puffed wheat	Good Grain	DEC 2018	171123-2p-1	EU	Cambridge	83
18C-02225	Bran flakes	Tesco	10/2018	P4 B1 80100953	UK	Newmarket	30
18C-02226	Apricot wheats	Tesco	09/2018	L1 73510952	UK	Newmarket	0
18C-02227	Wholegrain bran flakes	Sainsbury's	29 JAN 2019	8029 B4	UK	Cambridge	52
18C-02228	Cornflakes	Kellogg's	12 01 19	04 MC	None declared	Cambridge	37
18C-02229	Shreddies - whole wheat fortified malted cereal	Nestlé	08/2018	73200925 09.12 L3	None declared	Cambridge	14

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02230	Puffed wheat	Honey Monster Puffs	DEC 2018	171120-3p-1	EU	Cambridge	58
18C-02231	Whole wheat cereal biscuits	Morrisons	15/12/2018	7349 2	UK	Cambridge	16
18C-02232	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	17 02 19	L31 10.19 MC	None declared	Cambridge	12
18C-02233	Shredded wheat - whole grain wheat cereal biscuits	Nestlé	08/2018	73280952 G	None declared	Cambridge	<10
18C-02234	Wheat biscuits	Tesco Everyday Value	04/02/2019	1	UK	Newmarket	<10
18C-02235	Golden puffs	Harvest Morn	19.01.2019	18025 AEF	None declared	Cambridge	94
18C-02236	Malted wheaties	Asda	24/01/2019	8024 A	UK	Cambridge	11
18C-02237	Crunchy bran - high fibre cereal	Weetabix	02/01/2019	8002 9	None declared	Cambridge	61
18C-02238	Organic bran flakes	Tree of Life	20/10/18	63494 RP2	Produce of UK	Cambridge	40
18C-02239	Bran flakes	Co-op	10/2018	80070953 P4 B1	UK using British wheat	Cambridge	35

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02240	Wholewheat biscuits	Waitrose Essential	21/11/2018	7325 2	None declared	Newmarket	17
18C-02241	Cranberry & cashew granola	Just Live a Little	01/12/18	None declared	UK	Newmarket	<10
18C-02242	3 seed granola	Marks & Spencer	05/2018	7306	UK	Cambridge	<10
18C-02243	Rice krispies	Kellogg's	18/12/18	P: 18/12/17 L7 352034634025 4	None declared	Cambridge	<10
18C-02244	Rice snaps	Tesco	10/2018	80200953	UK	Newmarket	12
18C-02245	Spelt bran flakes	Sharpham Park	21.12.2018	RWL 17354	None declared	Cambridge	41
18C-02246	Multi-grain high fibre flakes	Nature's Store	17/02/2019	P 17/08/2017	Italy	Newmarket	25
18C-02247	Choco rice crispies	Co-op	12/06/2019	None declared	Italy using Italian rice	Cambridge	<10
18C-02248	Corn flakes	Crownfield	24.11.2018	6491116 328 K	None declared	St Neots	31
18C-02249	Organic wholegrain puffed rice cereal	Kallø	11.2018	L 334 M	Switzerland	Cambridge	<10
18C-02250	Honey hoops - extruded corn with honey	Morrisons Free From	02/11/2018	None declared	Italy	Cambridge	<10

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan ($\mu\text{g}/\text{kg}$ as received)
18C-02251	Organic buckwheat flakes	Big Oz	04/01/2019	120817LOV	UK	Cambridge	<10
18C-02252	Granola - pecan & Brazil nuts	Quaker Oats	11 08 18	XPLWT 4V 320 5	None declared	Cambridge	14

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02268	Cream crackers	Waitrose Essential	26 JAN 19	8 117 BC	None declared	Newmarket	23
18C-02269	Organic wholemeal digestive biscuits	Doves Farm	07 OCT 18	8033	Ingredients from more than one country. Baked in the UK	Newmarket	14
18C-02270	Dark rye crispbread	Ryvita	29-01-2019	4 8122	UK	Cambridge	152
18C-02271	Stem ginger biscuits	Fox's Crinkle Crunch	26 01 19	S D	None declared	Cambridge	5
18C-02272	Rich tea biscuits	Asda	20 OCT 18	H A 1 MRP	UK	Cambridge	24
18C-02273	Crunchy ginger biscuits	McVitie's Ginger Nuts	18 08 18	8037 C 1	UK	Cambridge	31
18C-02274	Ginger nuts biscuits	Tesco Everyday Value	15 12 18	8065	UK	Cambridge	9
18C-02275	Cream crackers	Morrisons	03 NOV 18	8 117 BB	UK	Cambridge	23
18C-02276	Extra wheatgerm crackers	Hovis	24 11 18	8071 C	None declared	Cambridge	26
18C-02277	High bake water biscuits	Sainsbury's	27 10 18	8106 1 C	UK	Cambridge	41
18C-02278	Wheat & rye crackers	Jacob's Krackawheat	06 OCT 18	T1 B	None declared	Cambridge	64

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02279	Malted milk biscuits	Marks & Spencer	21/11/2018	8 082 G8	UK	Cambridge	4
18C-02280	Original sourdough rye thin crispbread	Finn Crisp	15 01 2019	Production date: 15 01 2018	Finland	Newmarket	22
18C-02281	Flatbreads - mixed seed	Jacob's	13 10 18	8096 1 C	None declared	Cambridge	54
18C-02282	Shortbread fingers	Paterson's	APR 2019	L18100	None declared	Cambridge	4
18C-02283	Scandinavian bran crispbread	GG Slimming World	03022020	None declared	Norway	Newmarket	51
18C-02284	Cream crackers	Jacob's	12 01 19	8 097 BC	None declared	Cambridge	13
18C-02285	Butter crisps	Jules Destrooper	29/05/2019	SL259258	Belgium	Newmarket	6
18C-02286	Rough oatcakes	Nairn's	25 OCT 2018	1658	Scotland	Cambridge	19
18C-02287	30 mini gingerbread men bites	Asda	29/07/18	8 120	UK	Cambridge	<1.4
18C-02288	Mini gingerbread men	Tesco	14/08/18	81361 (M/M)	UK	Cambridge	3
18C-02289	Biscuits with wholegrains - live yogurt filling	Belvita Breakfast Yogurt Crunch	28.08.2018	OHF5080612	None declared	Cambridge	5

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02290	Cranberry & orange breakfast biscuits	Marks & Spencer	12/12/2018	D	Scotland	Cambridge	5
18C-02291	Double fan wafers	Carousel	43861	L8008	UK	Cambridge	28
18C-02292	Fan wafers	Asda	FEB 19	8 039 G11X	UK	Cambridge	4
18C-02293	Wafers	Askey's	JAN 20	8101 G10Y	UK	Cambridge	70
18C-02294	Sourdough crispbread	Peter's Yard	03 2019	2393	UK	Newmarket	18
18C-02295	Organic crispbreads - spelt & muesli	The Foodie Market	20.10.2018	SBDMA3-382443	None declared	Bury St Edmunds	3
18C-02296	Wholegrain rye crispbread	Rivercote	20.03.2019	2 8 079	UK	St Neots	139
18C-02297	Garibaldi	Morrisons	27 OCT 2018	8 109 L2	None declared	Cambridge	5
18C-02298	Caramelised biscuits	Belmont Biscuits	43482	8107 1	None declared	Bury St Edmunds	20
18C-02299	Wafers - crispy wafers filled with vanilla flavoured cream	Pink Panther	07 04 2019	None declared	Poland	Newmarket	6

Category 7 Coffee and coffee substitutes – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)	Furan (µg/kg as consumed)
18C-02318	Coffee bags	Lyons	NOV 2019	8121	None declared	Cambridge	1809	25
18C-02319	Italian espresso roasted & ground coffee	Waitrose	FEB20	18051 ARD C/352/7/ L13	Italy	Newmarket	4139	6
18C-02320	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Hand roasted & hand packed 12 JUN 2018	Sumatra	London	1812	82
18C-02321	Sumatra Mandheling roast & ground coffee	Tesco Finest	May 2019	8142 2	Indonesia Packed in the UK	Newmarket	3387	120
18C-02322	Freeze dried soluble with finely ground roasted coffee	Nescafé Gold Blend	10 2019	81171092 B	None declared	Cambridge	599	5

Category 7 Coffee and coffee substitutes – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)	Furan (µg/kg as consumed)
18C-02323	Freeze dried decaffeinated soluble coffee with decaffeinated finely ground roasted coffee	Nescafé Gold Blend Decaff	08.2019	80361092 1	None declared	Newmarket	441	4
18C-02324	Freeze dried instant coffee	Kenco Smooth	17/02/2020	LHB01807 63	None declared	Newmarket	165	2
18C-02325	Freeze dried decaffeinated instant coffee	Kenco Decaff	16-04-2020	L8107	None declared	Newmarket	443	4
18C-02326	Freeze dried instant coffee	L'OR Classic	27-03-2020	L8087	None declared	Cambridge	512	4
18C-02327	Freeze dried decaffeinated instant coffee	L'OR Décaféiné	04-03-2020	L8064	None declared	Cambridge	372	4
18C-02328	Organic cereal coffee	Lima Yannoh Instant	30.11.2019	L017087	Switzerland	Cambridge	161	3
18C-02329	Instant cereal drink	Barley Cup	30.11.2020	7484B	None declared	Cambridge	70	2

Category 8 Baby foods, other than processed cereal based foods – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02330	Cottage pie	Heinz By Nature	25/04/2019	8116	EU	Cambridge	36
18C-02331	Organic carrot, sweet potato & squash	Piccolo	12/05/2019	A071	EU	Newmarket	23
18C-02332	Organic sweet potato, carrot & cauliflower	Babease Baby Plan	15 03 2019	2	UK	Newmarket	94
18C-02333	Organic parsnips, sweet potato & broccoli	Hipp Organic	14/05/2019	0592 J-	France		37
18C-02334	Cheese & tomato pasta stars	Heinz By Nature	09/2019	8073 0428 C	EU		22
18C-02335	Organic carrots, apples & parsnips	Ella's Kitchen	05/19	1111112066 1111112076 1211112046 1211112056	EU	Cambridge	5
18C-02336	Organic spaghetti with tomatoes & mozzarella	Hipp Organic	10/19	DE LA34141 P04/18 030820 030849 030867	Germany	Cambridge	28
18C-02337	Sweet potato & tender chicken	Heinz By Nature	08/2019	8037 0470 B	EU	Newmarket	33

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02338	Organic carrots, cauliflower & peas	Hipp Organic	08/19	LA29889 DE P02/18 131531 131567 131569 131599	Germany	Newmarket	30
18C-02339	Spaghetti bolognese	Heinz By Nature	29/03/2019	8089	EU	Cambridge	46
18C-02340	Spaghetti bolognese	Cow & Gate	07/07/2019	AT [4] 097	EU	Cambridge	28
18C-02341	Organic ravioli with bolognese sauce	Hipp Organic	13.01.19	LA30756	Austria	Cambridge	25
18C-02342	Organic cheesy pasta with veg	Ella's Kitchen	MAY 2019	L8138 B4 LA	EU	Cambridge	23
18C-02343	Organic vegetable + lentil bake	Ella's Kitchen	JUN 2019	L8130 B6 LA x 3, LC x 1	EU	Cambridge	58
18C-02344	Creamed carrot & potato	Cow & Gate	04.05.2020	106975/ 101072352 08989.02/	EU	Cambridge	61
18C-02345	Carrot and lamb hotpot	Cow & Gate	04.05.2020	106966/10107 2356 08480.05	EU	Newmarket	30

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02346	Organic beef stew with spuds	Ella's Kitchen	JAN 2019	L8101 B6 LB	EU	Cambridge	32
18C-02347	Creamed cottage pie	Cow & Gate	22.03.2020	107019 101064612 09190.04/	EU	Cambridge	27
18C-02348	Succulent pork casserole	Cow & Gate	10.04.2020	106929 101069194 08990.06/	EU	Cambridge	25
18C-02349	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	22 01 2019	1	UK		27
18C-02350	Organic squash, carrots, apples & prunes	Ella's Kitchen	04/19	1106908436 x 2 1206908436 x 2	EU	Newmarket	8
18C-02351	Organic prunes	Ella's Kitchen	06/19	1512509266 1612509266 x 2 1712509226 x 2 1712509236	EU	Cambridge	5
18C-02352	Sweet potato, parsnip & mango	Heinz By Nature	20/03/19	0568 J-8080	EU	Cambridge	49

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02353	Potato & fish pie	Heinz By Nature	24/01/19	H - 8 024 0900	EU	Cambridge	44
18C-02354	Organic buttered vegetables	Hipp Organic	10/18	LA16141 DE P04/17 024635 024675 038430 042004	Germany	Cambridge	19
18C-02355	Sweet potato mash & chicken	Cow & Gate	09/03/2019	AL [4] 342	EU	Cambridge	50
18C-02356	Organic sweet potato & chicken	Hipp Organic	21.11.18	LA30247	Austria	Cambridge	19
18C-02357	Chicken & sweet potato curry	For Aisha	12/04/2019	0872 J-	EU	Cambridge	49
18C-02358	Organic sweet potato, carrot & swede	Sainsbury's Little Ones	27/06/2019	1360 G -	France	Cambridge	60
18C-02359	Beef & sweet potato mash	Heinz By Nature	07/2019	8010 0412 A	EU	Cambridge	46
18C-02360	Cheesy curly pasta with veggies	Kiddylicious Little Bistro	01/2019	8010B KDWM930080 SLE8634	UK	Cambridge	50
18C-02361	Sweet potatoes, broccoli & carrots	Ella's Kitchen	06/2019	0555 03 G - 8132	EU	Cambridge	55

Category 9 Processed cereal based foods for infants & young children – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-02367	Rusks - original	Farley's	01 11 2019	8 149	England	Cambridge	4
18C-02368	Organic banana multigrain porridge	Sainsbury's Little Ones	13/06/2019	L0047420798	Portugal	Cambridge	2
18C-02371	Organic banana & plum porridge	Organix	22.07.2019	LE PROD. DATE: 22.05.2018	Austria	Cambridge	7
18C-02374	Organic parsnip & poppy seed savoury biccies	Ella's Kitchen	08 04 2019	8193 SA	EU	Newmarket	17
18C-02376	Organic vanilla baby biscuits	Organix Finger Foods	27.03.2019	L178 C	Germany	Cambridge	5
18C-02377	Organic gingerbread men biscuits	Organix Goodies	05.06.2019	L156 A	Germany	Cambridge	14
18C-02379	Banana & cinnamon muesli	Ella's Kitchen	10/072019	19118	EU	Cambridge	7
18C-02383	Reduced sugar rusks	Farley's	01 10 2019	8108	England	Newmarket	3
18C-02389	Go Go biscuits - apple	Little Dish	01 JAN 2019	2638	Britain	Cambridge	5
18C-02391	Organic apple flavoured biscotti	Asda Little Angels	25/04/2019	L 20618A	Italy	Cambridge	<2

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	Furan (µg/kg as received)
18C-10792	Prunes in syrup	Tesco	AUG 2020	8220 L - PRY V12 12.7	UK	Newmarket	13
18C-10793	Pitted prunes in fruit juice	Sainsbury's	JUN 2020	8158 04 L- DAS V9	UK	Cambridge	5
18C-10794	Pitted black olives in brine	Tesco	AUG2020	8233	Spain	Cambridge	9
18C-10795	Pitted black olives in brine	Crespo	19.07.2021	L80569 II 064846 064870 064879	Spain	Cambridge	16

6.4.3 2-methyl furan

Category 5 Breakfast cereals (excluding porridge) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02221	Honey multigrain flakes of wholegrain corn, spelt & barley	Rude Health	27 09 18	L 270 M	None declared	Cambridge	<10
18C-02222	Organic whole wheat cereal biscuits	Weetabix Organic	20/12/2018	17354 2	None declared	Newmarket	<10
18C-02223	Grape-nuts - wheat & malted barley cereal	Post	121018	RGA 3	USA	Cambridge	16
18C-02224	Puffed wheat	Good Grain	DEC 2018	171123-2p-1	EU	Cambridge	34
18C-02225	Bran flakes	Tesco	10/2018	P4 B1 80100953	UK	Newmarket	18
18C-02226	Apricot wheats	Tesco	09/2018	L1 73510952	UK	Newmarket	<10
18C-02227	Wholegrain bran flakes	Sainsbury's	29 JAN 2019	8029 B4	UK	Cambridge	39
18C-02228	Cornflakes	Kellogg's	12 01 19	04 MC	None declared	Cambridge	17
18C-02229	Shreddies - whole wheat fortified malted cereal	Nestlé	08/2018	73200925 09.12 L3	None declared	Cambridge	<10

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02230	Puffed wheat	Honey Monster Puffs	DEC 2018	171120-3p-1	EU	Cambridge	31
18C-02231	Whole wheat cereal biscuits	Morrisons	15/12/2018	7349 2	UK	Cambridge	20
18C-02232	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	17 02 19	L31 10.19 MC	None declared	Cambridge	10
18C-02233	Shredded wheat - whole grain wheat cereal biscuits	Nestlé	08/2018	73280952 G	None declared	Cambridge	11
18C-02234	Wheat biscuits	Tesco Everyday Value	04/02/2019	1	UK	Newmarket	11
18C-02235	Golden puffs	Harvest Morn	19.01.2019	18025 AEF	None declared	Cambridge	69
18C-02236	Malted wheaties	Asda	24/01/2019	8024 A	UK	Cambridge	<10
18C-02237	Crunchy bran - high fibre cereal	Weetabix	02/01/2019	8002 9	None declared	Cambridge	32
18C-02238	Organic bran flakes	Tree of Life	20/10/18	63494 RP2	Produce of UK	Cambridge	70
18C-02239	Bran flakes	Co-op	10/2018	80070953 P4 B1	UK using British wheat	Cambridge	25

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02240	Wholewheat biscuits	Waitrose Essential	21/11/2018	7325 2	None declared	Newmarket	23
18C-02241	Cranberry & cashew granola	Just Live a Little	01/12/18	None declared	UK	Newmarket	<10
18C-02242	3 seed granola	Marks & Spencer	05/2018	7306	UK	Cambridge	<10
18C-02243	Rice krispies	Kellogg's	18/12/18	P: 18/12/17 L7 352034634025 4	None declared	Cambridge	<10
18C-02244	Rice snaps	Tesco	10/2018	80200953	UK	Newmarket	<10
18C-02245	Spelt bran flakes	Sharpham Park	21.12.2018	RWL 17354	None declared	Cambridge	47
18C-02246	Multi-grain high fibre flakes	Nature's Store	17/02/2019	P 17/08/2017	Italy	Newmarket	23
18C-02247	Choco rice crispies	Co-op	12/06/2019	None declared	Italy using Italian rice	Cambridge	<10
18C-02248	Corn flakes	Crownfield	24.11.2018	6491116 328 K	None declared	St Neots	15
18C-02249	Organic wholegrain puffed rice cereal	Kallø	11.2018	L 334 M	Switzerland	Cambridge	11

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02250	Honey hoops - extruded corn with honey	Morrisons Free From	02/11/2018	None declared	Italy	Cambridge	<10
18C-02251	Organic buckwheat flakes	Big Oz	04/01/2019	120817LOV	UK	Cambridge	21
18C-02252	Granola - pecan & Brazil nuts	Quaker Oats	11 08 18	XPLWT 4V 320 5	None declared	Cambridge	19

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02268	Cream crackers	Waitrose Essential	26 JAN 19	8 117 BC	None declared	Newmarket	20
18C-02269	Organic wholemeal digestive biscuits	Doves Farm	07 OCT 18	8033	Ingredients from more than one country. Baked in the UK	Newmarket	22
18C-02270	Dark rye crispbread	Ryvita	29-01-2019	4 8122	UK	Cambridge	137
18C-02271	Stem ginger biscuits	Fox's Crinkle Crunch	26 01 19	S D	None declared	Cambridge	5
18C-02272	Rich tea biscuits	Asda	20 OCT 18	H A 1 MRP	UK	Cambridge	41
18C-02273	Crunchy ginger biscuits	McVitie's Ginger Nuts	18 08 18	8037 C 1	UK	Cambridge	84
18C-02274	Ginger nuts biscuits	Tesco Everyday Value	15 12 18	8065	UK	Cambridge	11
18C-02275	Cream crackers	Morrisons	03 NOV 18	8 117 BB	UK	Cambridge	20
18C-02276	Extra wheatgerm crackers	Hovis	24 11 18	8071 C	None declared	Cambridge	14
18C-02277	High bake water biscuits	Sainsbury's	27 10 18	8106 1 C	UK	Cambridge	20
18C-02278	Wheat & rye crackers	Jacob's Krackawheat	06 OCT 18	T1 B	None declared	Cambridge	44

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02279	Malted milk biscuits	Marks & Spencer	21/11/2018	8 082 G8	UK	Cambridge	5
18C-02280	Original sourdough rye thin crispbread	Finn Crisp	15 01 2019	Production date: 15 01 2018	Finland	Newmarket	19
18C-02281	Flatbreads - mixed seed	Jacob's	13 10 18	8096 1 C	None declared	Cambridge	28
18C-02282	Shortbread fingers	Paterson's	APR 2019	L18100	None declared	Cambridge	2
18C-02283	Scandinavian bran crispbread	GG Slimming World	03022020	None declared	Norway	Newmarket	38
18C-02284	Cream crackers	Jacob's	12 01 19	8 097 BC	None declared	Cambridge	9
18C-02285	Butter crisps	Jules Destrooper	29/05/2019	SL259258	Belgium	Newmarket	4
18C-02286	Rough oatcakes	Nairn's	25 OCT 2018	1658	Scotland	Cambridge	11
18C-02287	30 mini gingerbread men bites	Asda	29/07/18	8 120	UK	Cambridge	4
18C-02288	Mini gingerbread men	Tesco	14/08/18	81361 (M/M)	UK	Cambridge	6

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02289	Biscuits with wholegrains - live yogurt filling	Belvita Breakfast Yogurt Crunch	28.08.2018	OHF5080612	None declared	Cambridge	2
18C-02290	Cranberry & orange breakfast biscuits	Marks & Spencer	12/12/2018	D	Scotland	Cambridge	5
18C-02291	Double fan wafers	Carousel	43861	L8008	UK	Cambridge	16
18C-02292	Fan wafers	Asda	FEB 19	8 039 G11X	UK	Cambridge	2
18C-02293	Wafers	Askey's	JAN 20	8101 G10Y	UK	Cambridge	51
18C-02294	Sourdough crispbread	Peter's Yard	03 2019	2393	UK	Newmarket	16
18C-02295	Organic crispbreads - spelt & muesli	The Foodie Market	20.10.2018	SBDMA3-382443	None declared	Bury St Edmunds	2
18C-02296	Wholegrain rye crispbread	Rivercote	20.03.2019	2 8 079	UK	St Neots	93
18C-02297	Garibaldi	Morrisons	27 OCT 2018	8 109 L2	None declared	Cambridge	15
18C-02298	Caramelised biscuits	Belmont Biscuits	43482	8107 1	None declared	Bury St Edmunds	73
18C-02299	Wafers - crispy wafers filled with vanilla flavoured cream	Pink Panther	07 04 2019	None declared	Poland	Newmarket	3

Category 7 Coffee and coffee substitutes – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan ($\mu\text{g}/\text{kg}$ as received)	2-methyl furan ($\mu\text{g}/\text{kg}$ as consumed)
18C-02318	Coffee bags	Lyons	NOV 2019	8121	None declared	Cambridge	6922 ^a	61
18C-02319	Italian espresso roasted & ground coffee	Waitrose	FEB20	18051 ARD C/352/7/ L13	Italy	Newmarket	18129 ^{a,b}	22
18C-02320	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Hand roasted & hand packed 12 JUN 2018	Sumatra	London	6751 ^a	216
18C-02321	Sumatra Mandheling roast & ground coffee	Tesco Finest	May 2019	8142 2	Indonesia Packed in the UK	Newmarket	17321 ^{a,b}	382
18C-02322	Freeze dried soluble with finely ground roasted coffee	Nescafé Gold Blend	10 2019	81171092 B	None declared	Cambridge	2375	17
18C-02323	Freeze dried decaffeinated soluble coffee with decaffeinated finely ground roasted coffee	Nescafé Gold Blend Decaff	08.2019	80361092 1	None declared	Newmarket	1928	12

18C-02324	Freeze dried instant coffee	Kenco Smooth	17/02/2020	LHB01807 63	None declared	Newmarket	602	4
18C-02325	Freeze dried decaffeinated instant coffee	Kenco Decaff	16-04-2020	L8107	None declared	Newmarket	1434	9
18C-02326	Freeze dried instant coffee	L'OR Classic	27-03-2020	L8087	None declared	Cambridge	1548	10
18C-02327	Freeze dried decaffeinated instant coffee	L'OR Décaféiné	04-03-2020	L8064	None declared	Cambridge	1435	11
18C-02328	Organic cereal coffee	Lima Yannoh Instant	30.11.2019	L017087	Switzerland	Cambridge	251	3
18C-02329	Instant cereal drink	Barley Cup	30.11.2020	7484B	None declared	Cambridge	77	1

^a extrapolated value(s) in excess of upper calibration limit; ^b semi-quantitative value - spike recovery on roast coffee below expected level

Category 8 Baby foods, other than processed cereal based foods – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02330	Cottage pie	Heinz By Nature	25/04/2019	8116	EU	Cambridge	3
18C-02331	Organic carrot, sweet potato & squash	Piccolo	12/05/2019	A071	EU	Newmarket	4
18C-02332	Organic sweet potato, carrot & cauliflower	Babease Baby Plan	15 03 2019	2	UK	Newmarket	5
18C-02333	Organic parsnips, sweet potato & broccoli	Hipp Organic	14/05/2019	0592 J-	France		2
18C-02334	Cheese & tomato pasta stars	Heinz By Nature	09/2019	8073 0428 C	EU		4
18C-02335	Organic carrots, apples & parsnips	Ella's Kitchen	05/19	1111112066 1111112076 1211112046 1211112056	EU	Cambridge	1
18C-02336	Organic spaghetti with tomatoes & mozzarella	Hipp Organic	10/19	DE LA34141 P04/18 030820 030849 030867	Germany	Cambridge	6
18C-02337	Sweet potato & tender chicken	Heinz By Nature	08/2019	8037 0470 B	EU	Newmarket	4

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02338	Organic carrots, cauliflower & peas	Hipp Organic	08/19	LA29889 DE P02/18 131531 131567 131569 131599	Germany	Newmarket	3
18C-02339	Spaghetti bolognese	Heinz By Nature	29/03/2019	8089	EU	Cambridge	5
18C-02340	Spaghetti bolognese	Cow & Gate	07/07/2019	AT [4] 097	EU	Cambridge	5
18C-02341	Organic ravioli with bolognese sauce	Hipp Organic	13.01.19	LA30756	Austria	Cambridge	4
18C-02342	Organic cheesy pasta with veg	Ella's Kitchen	MAY 2019	L8138 B4 LA	EU	Cambridge	3
18C-02343	Organic vegetable + lentil bake	Ella's Kitchen	JUN 2019	L8130 B6 LA x 3, LC x 1	EU	Cambridge	11
18C-02344	Creamed carrot & potato	Cow & Gate	04.05.2020	106975/ 101072352 08989.02/	EU	Cambridge	3
18C-02345	Carrot and lamb hotpot	Cow & Gate	04.05.2020	106966/10107 2356 08480.05	EU	Newmarket	4

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02346	Organic beef stew with spuds	Ella's Kitchen	JAN 2019	L8101 B6 LB	EU	Cambridge	2
18C-02347	Creamed cottage pie	Cow & Gate	22.03.2020	107019 101064612 09190.04/	EU	Cambridge	3
18C-02348	Succulent pork casserole	Cow & Gate	10.04.2020	106929 101069194 08990.06/	EU	Cambridge	4
18C-02349	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	22 01 2019	1	UK		2
18C-02350	Organic squash, carrots, apples & prunes	Ella's Kitchen	04/19	1106908436 x 2 1206908436 x 2	EU	Newmarket	1
18C-02351	Organic prunes	Ella's Kitchen	06/19	1512509266 1612509266 x 2 1712509226 x 2 1712509236	EU	Cambridge	<0.4
18C-02352	Sweet potato, parsnip & mango	Heinz By Nature	20/03/19	0568 J-8080	EU	Cambridge	2

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02353	Potato & fish pie	Heinz By Nature	24/01/19	H - 8 024 0900	EU	Cambridge	4
18C-02354	Organic buttered vegetables	Hipp Organic	10/18	LA16141 DE P04/17 024635 024675 038430 042004	Germany	Cambridge	3
18C-02355	Sweet potato mash & chicken	Cow & Gate	09/03/2019	AL [4] 342	EU	Cambridge	4
18C-02356	Organic sweet potato & chicken	Hipp Organic	21.11.18	LA30247	Austria	Cambridge	3
18C-02357	Chicken & sweet potato curry	For Aisha	12/04/2019	0872 J-	EU	Cambridge	6
18C-02358	Organic sweet potato, carrot & swede	Sainsbury's Little Ones	27/06/2019	1360 G -	France	Cambridge	2
18C-02359	Beef & sweet potato mash	Heinz By Nature	07/2019	8010 0412 A	EU	Cambridge	5
18C-02360	Cheesy curly pasta with veggies	Kiddylicious Little Bistro	01/2019	8010B KDWM930080 SLE8634	UK	Cambridge	8
18C-02361	Sweet potatoes, broccoli & carrots	Ella's Kitchen	06/2019	0555 03 G - 8132	EU	Cambridge	5

Category 9 Processed cereal based foods for infants & young children – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-02367	Rusks - original	Farley's	01 11 2019	8 149	England	Cambridge	<2
18C-02368	Organic banana multigrain porridge	Sainsbury's Little Ones	13/06/2019	L0047420798	Portugal	Cambridge	<2
18C-02371	Organic banana & plum porridge	Organix	22.07.2019	LE PROD. DATE: 22.05.2018	Austria	Cambridge	3
18C-02374	Organic parsnip & poppy seed savoury biccies	Ella's Kitchen	08 04 2019	8193 SA	EU	Newmarket	8
18C-02376	Organic vanilla baby biscuits	Organix Finger Foods	27.03.2019	L178 C	Germany	Cambridge	4
18C-02377	Organic gingerbread men biscuits	Organix Goodies	05.06.2019	L156 A	Germany	Cambridge	16
18C-02379	Banana & cinnamon muesli	Ella's Kitchen	10/072019	19118	EU	Cambridge	<2
18C-02383	Reduced sugar rusks	Farley's	01 10 2019	8108	England	Newmarket	<2
18C-02389	Go Go biscuits - apple	Little Dish	01 JAN 2019	2638	Britain	Cambridge	2
18C-02391	Organic apple flavoured biscotti	Asda Little Angels	25/04/2019	L 20618A	Italy	Cambridge	<2

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	2-methyl furan (µg/kg as received)
18C-10792	Prunes in syrup	Tesco	AUG 2020	8220 L - PRY V12 12.7	UK	Newmarket	<0.4
18C-10793	Pitted prunes in fruit juice	Sainsbury's	JUN 2020	8158 04 L-DAS V9	UK	Cambridge	1
18C-10794	Pitted black olives in brine	Tesco	AUG2020	8233	Spain	Cambridge	4
18C-10795	Pitted black olives in brine	Crespo	19.07.2021	L80569 II 064846 064870 064879	Spain	Cambridge	7

6.4.4 3-methyl furan

Category 5 Breakfast cereals (excluding porridge) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02221	Honey multigrain flakes of wholegrain corn, spelt & barley	Rude Health	27 09 18	L 270 M	None declared	Cambridge	<10
18C-02222	Organic whole wheat cereal biscuits	Weetabix Organic	20/12/2018	17354 2	None declared	Newmarket	<10
18C-02223	Grape-nuts - wheat & malted barley cereal	Post	121018	RGA 3	USA	Cambridge	<10
18C-02224	Puffed wheat	Good Grain	DEC 2018	171123-2p-1	EU	Cambridge	<10
18C-02225	Bran flakes	Tesco	10/2018	P4 B1 80100953	UK	Newmarket	<10
18C-02226	Apricot wheats	Tesco	09/2018	L1 73510952	UK	Newmarket	<10
18C-02227	Wholegrain bran flakes	Sainsbury's	29 JAN 2019	8029 B4	UK	Cambridge	<10
18C-02228	Cornflakes	Kellogg's	12 01 19	04 MC	None declared	Cambridge	<10
18C-02229	Shreddies - whole wheat fortified malted cereal	Nestlé	08/2018	73200925 09.12 L3	None declared	Cambridge	<10

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02230	Puffed wheat	Honey Monster Puffs	DEC 2018	171120-3p-1	EU	Cambridge	<10
18C-02231	Whole wheat cereal biscuits	Morrisons	15/12/2018	7349 2	UK	Cambridge	<10
18C-02232	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	17 02 19	L31 10.19 MC	None declared	Cambridge	<10
18C-02233	Shredded wheat - whole grain wheat cereal biscuits	Nestlé	08/2018	73280952 G	None declared	Cambridge	<10
18C-02234	Wheat biscuits	Tesco Everyday Value	04/02/2019	1	UK	Newmarket	<10
18C-02235	Golden puffs	Harvest Morn	19.01.2019	18025 AEF	None declared	Cambridge	<10
18C-02236	Malted wheaties	Asda	24/01/2019	8024 A	UK	Cambridge	<10
18C-02237	Crunchy bran - high fibre cereal	Weetabix	02/01/2019	8002 9	None declared	Cambridge	<10
18C-02238	Organic bran flakes	Tree of Life	20/10/18	63494 RP2	Produce of UK	Cambridge	<10
18C-02239	Bran flakes	Co-op	10/2018	80070953 P4 B1	UK using British wheat	Cambridge	<10

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02240	Wholewheat biscuits	Waitrose Essential	21/11/2018	7325 2	None declared	Newmarket	<10
18C-02241	Cranberry & cashew granola	Just Live a Little	01/12/18	None declared	UK	Newmarket	<10
18C-02242	3 seed granola	Marks & Spencer	05/2018	7306	UK	Cambridge	<10
18C-02243	Rice krispies	Kellogg's	18/12/18	P: 18/12/17 L7 352034634025 4	None declared	Cambridge	<10
18C-02244	Rice snaps	Tesco	10/2018	80200953	UK	Newmarket	<10
18C-02245	Spelt bran flakes	Sharpham Park	21.12.2018	RWL 17354	None declared	Cambridge	<10
18C-02246	Multi-grain high fibre flakes	Nature's Store	17/02/2019	P 17/08/2017	Italy	Newmarket	<10
18C-02247	Choco rice crispies	Co-op	12/06/2019	None declared	Italy using Italian rice	Cambridge	<10
18C-02248	Corn flakes	Crownfield	24.11.2018	6491116 328 K	None declared	St Neots	<10
18C-02249	Organic wholegrain puffed rice cereal	Kallø	11.2018	L 334 M	Switzerland	Cambridge	<10

Category 5 Breakfast cereals (excluding porridge) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02250	Honey hoops - extruded corn with honey	Morrisons Free From	02/11/2018	None declared	Italy	Cambridge	<10
18C-02251	Organic buckwheat flakes	Big Oz	04/01/2019	120817LOV	UK	Cambridge	<10
18C-02252	Granola - pecan & Brazil nuts	Quaker Oats	11 08 18	XPLWT 4V 320 5	None declared	Cambridge	<10

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02268	Cream crackers	Waitrose Essential	26 JAN 19	8 117 BC	None declared	Newmarket	1
18C-02269	Organic wholemeal digestive biscuits	Doves Farm	07 OCT 18	8033	Ingredients from more than one country. Baked in the UK	Newmarket	1
18C-02270	Dark rye crispbread	Ryvita	29-01-2019	4 8122	UK	Cambridge	15
18C-02271	Stem ginger biscuits	Fox's Crinkle Crunch	26 01 19	S D	None declared	Cambridge	<0.8
18C-02272	Rich tea biscuits	Asda	20 OCT 18	H A 1 MRP	UK	Cambridge	<0.8
18C-02273	Crunchy ginger biscuits	McVitie's Ginger Nuts	18 08 18	8037 C 1	UK	Cambridge	<0.8
18C-02274	Ginger nuts biscuits	Tesco Everyday Value	15 12 18	8065	UK	Cambridge	<0.8
18C-02275	Cream crackers	Morrisons	03 NOV 18	8 117 BB	UK	Cambridge	1
18C-02276	Extra wheatgerm crackers	Hovis	24 11 18	8071 C	None declared	Cambridge	2
18C-02277	High bake water biscuits	Sainsbury's	27 10 18	8106 1 C	UK	Cambridge	1
18C-02278	Wheat & rye crackers	Jacob's Krackawheat	06 OCT 18	T1 B	None declared	Cambridge	3

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02279	Malted milk biscuits	Marks & Spencer	21/11/2018	8 082 G8	UK	Cambridge	<0.8
18C-02280	Original sourdough rye thin crispbread	Finn Crisp	15 01 2019	Production date: 15 01 2018	Finland	Newmarket	4
18C-02281	Flatbreads - mixed seed	Jacob's	13 10 18	8096 1 C	None declared	Cambridge	3
18C-02282	Shortbread fingers	Paterson's	APR 2019	L18100	None declared	Cambridge	<0.8
18C-02283	Scandinavian bran crispbread	GG Slimming World	03022020	None declared	Norway	Newmarket	9
18C-02284	Cream crackers	Jacob's	12 01 19	8 097 BC	None declared	Cambridge	<0.8
18C-02285	Butter crisps	Jules Destrooper	29/05/2019	SL259258	Belgium	Newmarket	<0.8
18C-02286	Rough oatcakes	Nairn's	25 OCT 2018	1658	Scotland	Cambridge	2
18C-02287	30 mini gingerbread men bites	Asda	29/07/18	8 120	UK	Cambridge	<0.8
18C-02288	Mini gingerbread men	Tesco	14/08/18	81361 (M/M)	UK	Cambridge	<0.8

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02289	Biscuits with wholegrains - live yogurt filling	Belvita Breakfast Yogurt Crunch	28.08.2018	OHF5080612	None declared	Cambridge	<0.8
18C-02290	Cranberry & orange breakfast biscuits	Marks & Spencer	12/12/2018	D	Scotland	Cambridge	<0.8
18C-02291	Double fan wafers	Carousel	43861	L8008	UK	Cambridge	1
18C-02292	Fan wafers	Asda	FEB 19	8 039 G11X	UK	Cambridge	<0.8
18C-02293	Wafers	Askey's	JAN 20	8101 G10Y	UK	Cambridge	3
18C-02294	Sourdough crispbread	Peter's Yard	03 2019	2393	UK	Newmarket	1
18C-02295	Organic crispbreads - spelt & muesli	The Foodie Market	20.10.2018	SBDMA3-382443	None declared	Bury St Edmunds	2
18C-02296	Wholegrain rye crispbread	Rivercote	20.03.2019	2 8 079	UK	St Neots	13
18C-02297	Garibaldi	Morrisons	27 OCT 2018	8 109 L2	None declared	Cambridge	<0.8
18C-02298	Caramelised biscuits	Belmont Biscuits	43482	8107 1	None declared	Bury St Edmunds	1
18C-02299	Wafers - crispy wafers filled with vanilla flavoured cream	Pink Panther	07 04 2019	None declared	Poland	Newmarket	<0.8

Category 7 Coffee and coffee substitutes – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)	3-methyl furan (µg/kg as consumed)
18C-02318	Coffee bags	Lyons	NOV 2019	8121	None declared	Cambridge	312	3
18C-02319	Italian espresso roasted & ground coffee	Waitrose	FEB20	18051 ARD C/352/7/ L13	Italy	Newmarket	652	1
18C-02320	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Hand roasted & hand packed 12 JUN 2018	Sumatra	London	303	9
18C-02321	Sumatra Mandheling roast & ground coffee	Tesco Finest	May 2019	8142 2	Indonesia Packed in the UK	Newmarket	652	16
18C-02322	Freeze dried soluble with finely ground roasted coffee	Nescafé Gold Blend	10 2019	81171092 B	None declared	Cambridge	125	1

Category 7 Coffee and coffee substitutes – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)	3-methyl furan (µg/kg as consumed)
18C-02323	Freeze dried decaffeinated soluble coffee with decaffeinated finely ground roasted coffee	Nescafé Gold Blend Decaff	08.2019	80361092 1	None declared	Newmarket	102	<0.4
18C-02324	Freeze dried instant coffee	Kenco Smooth	17/02/2020	LHB01807 63	None declared	Newmarket	73	<0.4
18C-02325	Freeze dried decaffeinated instant coffee	Kenco Decaff	16-04-2020	L8107	None declared	Newmarket	93	<0.4
18C-02326	Freeze dried instant coffee	L'OR Classic	27-03-2020	L8087	None declared	Cambridge	108	<0.4
18C-02327	Freeze dried decaffeinated instant coffee	L'OR Décaféiné	04-03-2020	L8064	None declared	Cambridge	88	<0.4
18C-02328	Organic cereal coffee	Lima Yannoh Instant	30.11.2019	L017087	Switzerland	Cambridge	28	<0.4
18C-02329	Instant cereal drink	Barley Cup	30.11.2020	7484B	None declared	Cambridge	24	<0.4

Category 8 Baby foods, other than processed cereal based foods – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02330	Cottage pie	Heinz By Nature	25/04/2019	8116	EU	Cambridge	4
18C-02331	Organic carrot, sweet potato & squash	Piccolo	12/05/2019	A071	EU	Newmarket	4
18C-02332	Organic sweet potato, carrot & cauliflower	Babease Baby Plan	15 03 2019	2	UK	Newmarket	4
18C-02333	Organic parsnips, sweet potato & broccoli	Hipp Organic	14/05/2019	0592 J-	France		3
18C-02334	Cheese & tomato pasta stars	Heinz By Nature	09/2019	8073 0428 C	EU		1
18C-02335	Organic carrots, apples & parsnips	Ella's Kitchen	05/19	1111112066 1111112076 1211112046 1211112056	EU	Cambridge	1
18C-02336	Organic spaghetti with tomatoes & mozzarella	Hipp Organic	10/19	DE LA34141 P04/18 030820 030849 030867	Germany	Cambridge	3
18C-02337	Sweet potato & tender chicken	Heinz By Nature	08/2019	8037 0470 B	EU	Newmarket	2

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02338	Organic carrots, cauliflower & peas	Hipp Organic	08/19	LA29889 DE P02/18 131531 131567 131569 131599	Germany	Newmarket	2
18C-02339	Spaghetti bolognese	Heinz By Nature	29/03/2019	8089	EU	Cambridge	6
18C-02340	Spaghetti bolognese	Cow & Gate	07/07/2019	AT [4] 097	EU	Cambridge	4
18C-02341	Organic ravioli with bolognese sauce	Hipp Organic	13.01.19	LA30756	Austria	Cambridge	2
18C-02342	Organic cheesy pasta with veg	Ella's Kitchen	MAY 2019	L8138 B4 LA	EU	Cambridge	3
18C-02343	Organic vegetable + lentil bake	Ella's Kitchen	JUN 2019	L8130 B6 LA x 3, LC x 1	EU	Cambridge	8
18C-02344	Creamed carrot & potato	Cow & Gate	04.05.2020	106975/ 101072352 08989.02/	EU	Cambridge	1
18C-02345	Carrot and lamb hotpot	Cow & Gate	04.05.2020	106966/10107 2356 08480.05	EU	Newmarket	1

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02346	Organic beef stew with spuds	Ella's Kitchen	JAN 2019	L8101 B6 LB	EU	Cambridge	2
18C-02347	Creamed cottage pie	Cow & Gate	22.03.2020	107019 101064612 09190.04/	EU	Cambridge	3
18C-02348	Succulent pork casserole	Cow & Gate	10.04.2020	106929 101069194 08990.06/	EU	Cambridge	3
18C-02349	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	22 01 2019	1	UK		1
18C-02350	Organic squash, carrots, apples & prunes	Ella's Kitchen	04/19	1106908436 x 2 1206908436 x 2	EU	Newmarket	<0.4
18C-02351	Organic prunes	Ella's Kitchen	06/19	1512509266 1612509266 x 2 1712509226 x 2 1712509236	EU	Cambridge	<0.4
18C-02352	Sweet potato, parsnip & mango	Heinz By Nature	20/03/19	0568 J-8080	EU	Cambridge	3

Category 8 Baby foods, other than processed cereal based foods – 2018 samples, cont.

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02353	Potato & fish pie	Heinz By Nature	24/01/19	H - 8 024 0900	EU	Cambridge	6
18C-02354	Organic buttered vegetables	Hipp Organic	10/18	LA16141 DE P04/17 024635 024675 038430 042004	Germany	Cambridge	2
18C-02355	Sweet potato mash & chicken	Cow & Gate	09/03/2019	AL [4] 342	EU	Cambridge	5
18C-02356	Organic sweet potato & chicken	Hipp Organic	21.11.18	LA30247	Austria	Cambridge	9
18C-02357	Chicken & sweet potato curry	For Aisha	12/04/2019	0872 J-	EU	Cambridge	10
18C-02358	Organic sweet potato, carrot & swede	Sainsbury's Little Ones	27/06/2019	1360 G -	France	Cambridge	3
18C-02359	Beef & sweet potato mash	Heinz By Nature	07/2019	8010 0412 A	EU	Cambridge	3
18C-02360	Cheesy curly pasta with veggies	Kiddylicious Little Bistro	01/2019	8010B KDWM930080 SLE8634	UK	Cambridge	7
18C-02361	Sweet potatoes, broccoli & carrots	Ella's Kitchen	06/2019	0555 03 G - 8132	EU	Cambridge	2

Category 9 Processed cereal based foods for infants & young children – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-02367	Rusks - original	Farley's	01 11 2019	8 149	England	Cambridge	<2
18C-02368	Organic banana multigrain porridge	Sainsbury's Little Ones	13/06/2019	L0047420798	Portugal	Cambridge	<2
18C-02371	Organic banana & plum porridge	Organix	22.07.2019	LE PROD. DATE: 22.05.2018	Austria	Cambridge	<2
18C-02374	Organic parsnip & poppy seed savoury biccies	Ella's Kitchen	08 04 2019	8193 SA	EU	Newmarket	4
18C-02376	Organic vanilla baby biscuits	Organix Finger Foods	27.03.2019	L178 C	Germany	Cambridge	<2
18C-02377	Organic gingerbread men biscuits	Organix Goodies	05.06.2019	L156 A	Germany	Cambridge	<2
18C-02379	Banana & cinnamon muesli	Ella's Kitchen	10/072019	19118	EU	Cambridge	<2
18C-02383	Reduced sugar rusks	Farley's	01 10 2019	8108	England	Newmarket	3
18C-02389	Go Go biscuits - apple	Little Dish	01 JAN 2019	2638	Britain	Cambridge	<2
18C-02391	Organic apple flavoured biscotti	Asda Little Angels	25/04/2019	L 20618A	Italy	Cambridge	<2

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee – 2018 samples

Laboratory sample code	Product description	Brand name	Best before date	Batch code	Country of origin	UK town where purchased	3-methyl furan (µg/kg as received)
18C-10792	Prunes in syrup	Tesco	AUG 2020	8220 L - PRY V12 12.7	UK	Newmarket	2
18C-10793	Pitted prunes in fruit juice	Sainsbury's	JUN 2020	8158 04 L- DAS V9	UK	Cambridge	2
18C-10794	Pitted black olives in brine	Tesco	AUG2020	8233	Spain	Cambridge	8
18C-10795	Pitted black olives in brine	Crespo	19.07.2021	L80569 II 064846 064870 064879	Spain	Cambridge	9