



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  
Web: <http://www.paslabs.co.uk/>

# **Survey of Acrylamide and Furan in UK Retail Products: Results for Samples Purchased Between January 2016 and November 2016**

A report prepared for the Food Standards Agency

March 2017



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  
Web: <http://www.paslabs.co.uk/>

Report No: C038

Authors: Colin G. Hamlet, Li Liang, Antonia Andreou, Laura Carbone

Date: First draft: March 2017  
Final version: November 2017

Sponsor: Food Standards Agency,  
Aviation House,  
125 Kingsway,  
London, WC2B 6N

Sponsors Project Title: Survey of Acrylamide and Furan in UK Retail Products: Summary  
Report for Samples Purchased Between January 2016 and November  
2016

Sponsors Project reference No: FS102075

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

© Crown Copyright 2017

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 2016 and November 2016:

- A total of 274 samples (comprising multiple lots) were collected by an independent sampling contractor (Ventress Technical) from retail and fast food outlets in seven regions of the UK
- The selection of samples followed a core sampling and analysis plan from a previous acrylamide and furan survey (November 2011- December 2013).
- Samples were categorised in accordance with the requirements for the submission of data to EFSA<sup>1,2</sup>.
- 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 269 tests were carried out for acrylamide and 120 for furans (furan, 2-methyl furan and 3-methyl furan).
- For this period, the number of products found to contain acrylamide levels that exceeded European Commission 'Indicative Values' (IV)<sup>3</sup> for their food category was 13.

---

<sup>1</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>2</sup> EFSA (European Food Safety Authority), 2015. Specific requirements for chemical contaminant and food additive occurrence data submission. EFSA supporting publication 2015:EN-833. 26 pp.

<sup>3</sup> 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

## 2. CONTENTS

1. EXECUTIVE SUMMARY .....	4
2. CONTENTS .....	5
3. INTRODUCTION .....	6
3.1 ACRYLAMIDE .....	6
3.2 FURANS .....	6
3.3 EC RECOMMENDATIONS .....	7
3.4 EUROPEAN FOOD SAFETY AUTHORITY.....	7
3.5 FSA SURVEYS .....	7
4. METHODS.....	8
4.1 SAMPLING .....	8
4.2 SAMPLE PREPARATION AND ANALYSIS .....	8
5. RESULTS SUMMARIES .....	9
5.1 ACRYLAMIDE .....	10
5.2 FURANS.....	12
6. APPENDICES .....	15
6.1 SAMPLING PLAN.....	15
6.2 SAMPLE PREPARATION DETAILS AND ANALYTICAL METHODS .....	16
6.2.1 Sample preparation.....	16
6.2.2 Acrylamide analysis by GC/MS/MS .....	20
6.2.3 Analysis of furans by GC/MS .....	20
6.3 ANALYTICAL QUALITY ASSURANCE.....	20
6.4 INDIVIDUAL SAMPLE TEST RESULTS .....	25
6.4.1 Acrylamide .....	25
6.4.2 Furan.....	41
6.4.3 2-methyl furan .....	49
6.4.4 3-methyl furan .....	52

## TABLES

Table 1. Summary of samples received (Jan 2016 - Nov 2016) and tests undertaken.....	9
Table 2. Summary of acrylamide concentrations in each product category / sub-category.....	10
Table 3. Summary of furan concentrations (mean and range) as received / consumed by product category ...	12
Table 4. Summary of 2-methyl furan concentrations (mean and range) as received / consumed by product category .....	13
Table 5. Summary of 3-methyl furan concentrations (mean and range) as received / consumed by product category .....	14
Table 6. Sampling plan Jan - Nov 2016.....	15
Table 7. Details of the domestic cooking conditions .....	17
Table 8. Details of the domestic preparation of coffee and coffee substitutes prior to the analysis of furans “as consumed”. .....	19
Table 9. Summary of data obtained from the analysis of IHRMs and spiked samples during this survey .....	22
Table 10. FAPAS z-scores obtained during the survey period .....	24

### 3. INTRODUCTION

Absent in raw food, or the raw materials used to make food, acrylamide and furan are chemical substances 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 concluded that current global levels of dietary exposure to acrylamide and furan indicate a human health concern<sup>4</sup>. 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 food<sup>5</sup>.

#### 3.1 Acrylamide

Acrylamide is a chemical that forms naturally in (mostly) starchy foods during every-day high temperature cooking (as foods lose moisture and temperatures exceed 120°C) such as baking, frying and roasting. It 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 Furans

Furan can form from various precursors naturally present in food (e.g. amino acids,  $\beta$ -carotene, 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. Furan is 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).

Furan is highly volatile; however once formed as a result of the heat treatment, it cannot evaporate from processed food contained in an airtight sealed pack until the container is opened. Residual furan that may be present in the food after first opening the container may also evaporate over time, although the amount of furan lost will be dependent on the conditions of storage. 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.

---

<sup>4</sup> 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

<sup>5</sup> [http://www.food.gov.uk/safereating/chemsafe/acrylamide\\_branch/](http://www.food.gov.uk/safereating/chemsafe/acrylamide_branch/)

The 2- and 3-methyl substituted furans are believed to be metabolically activated in a similar fashion as the parent furan. They are known to occur in foods, especially coffee and have also been shown to form in model reactions, similar to furan, from precursors commonly found foods.

In 2007, the European Commission recommended that member states should carry out monitoring for the presence of furan in heated foods<sup>6</sup>. EFSA has been requested by the European Commission to assess for a scientific opinion on the health risk related to the presence of furan and its methyl analogues in food (Mandate M-2016-0012<sup>7</sup>) and within this context has launched a call for data on 2-methyl furan and 3-methyl furan.

### **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, 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 website<sup>8</sup>.

On 4th June 2015, EFSA published its Scientific Opinion on acrylamide in food<sup>9</sup>. 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.

### **3.5 FSA Surveys**

Information and results for all previous surveys can be accessed from the FSA website<sup>10</sup>.

The results obtained from this 2016 survey form part of a longer term surveillance programme. It is expected that following the current survey period (2014-2018), further analyses of all data and trends regarding the levels of acrylamide and furan in UK retail foods will be carried out.

---

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

<sup>7</sup> EFSA 2016, Call for furan and its methyl analogues (2-methylfuran and 3-methylfuran) occurrence data in food. Available at: <https://www.efsa.europa.eu/en/data/call/160216b>

<sup>8</sup> Available at: <http://www.efsa.europa.eu/en/topics/topic/acrylamide.htm>

<sup>9</sup> 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]

<sup>10</sup> Available at: [http://www.food.gov.uk/science/research/surveillance/fdsurvey\\_2013/acrylamide-and-furan-survey/](http://www.food.gov.uk/science/research/surveillance/fdsurvey_2013/acrylamide-and-furan-survey/)

## 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 Ventress Technical). A total of 274 samples comprising multiple lots were purchased to cover the 11 Food categories in line with the requirements of EFSA<sup>11,12</sup> and the European Commission<sup>13</sup>: 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 2-11) were collected from a wide range of retail outlets including major and smaller supermarkets and independent retailers in the UK.

Details of the sampling plan are 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”<sup>14</sup>. Potato products from food category 3 and Popcorn from food category 10 were cooked according to manufacturers’ guidelines prior to the determination of acrylamide; because of the volatile nature of furan, coffee and coffee substitutes were tested for furan before and after preparation for consumption 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 2016 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).

---

<sup>11</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants’ data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>12</sup> EFSA (European Food Safety Authority), 2015. Specific requirements for chemical contaminant and food additive occurrence data submission. EFSA supporting publication 2015:EN-833. 26 pp.

<sup>13</sup> 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

<sup>14</sup> Guidelines for undertaking surveys. Available at: <https://www.food.gov.uk/sites/default/files/multimedia/pdfs/fsasurveysguidance.pdf> [accessed June 2015]



## 5. RESULTS SUMMARIES

A total of 274 samples were received over the period January 2016 - November 2016 for the analysis of acrylamide and furans in accordance with the test requirements given in Table 1.

Table 1. Summary of samples received (Jan 2016 - Nov 2016) and tests undertaken

Food category / sub category <sup>a</sup>	Description	Number of samples received	Analyses			
			acrylamide		furans	
			As received	As consumed	As received	As consumed
<b>1</b>	French fries, sold as ready-to-eat	40	80	-	-	-
<b>2</b>	Potato crisps	30	55	-	-	-
<b>3</b>	Pre-cooked French fries/potato products for home cooking	30	-	30	-	-
<b>4</b>	Bread	25	45	-	-	-
<b>5</b>	Breakfast cereals	24	22	-	24	-
<b>6</b>	Biscuits / crackers	30	30	-	30	-
<b>7</b>	Coffee and coffee substitutes	20	20	-	20	20
<b>8</b>	Baby foods	24 <sup>b</sup>	22	-	22 <sup>c</sup>	-
<b>9</b>	Processed cereal based foods for infants & young children	22 <sup>b</sup>	21	-	-	-
<b>10</b>	Other products, based on cereals, potatoes, cocoa and coffee	-	-	-	-	-
10.2	<i>Cake / pastry</i>	6	6	-	-	-
10.3	<i>Tortilla/corn snacks</i>	2	2	-	-	-
10.4	<i>Cereal bars / granola</i>	2	2	-	-	-
	<i>Popcorn</i>	2	-	2	-	2 <sup>c</sup>
10.5	<i>Baked potato from fast food outlet</i>	1	1	-	-	-
10.6	<i>Cocoa/choc powder</i>	3	3	-	-	-
	<i>Chocolate (dark)</i>	1	1	-	-	-
<b>11</b>	Other products, not based on cereals, potatoes, cocoa and coffee	-	-	-	-	-
	<i>Canned black olives</i>	2	2	-	-	-
	<i>Canned prunes</i>	2	2	-	2 <sup>c</sup>	-
	<i>Dried fruit (dark)</i>	2	2	-	-	-
	<i>Liquorice</i>	2	2	-	-	-
	<i>Vegetable crisps</i>	4	4	-	-	-
	<b>Totals</b>	<b>274</b>	<b>237</b>	<b>32</b>	<b>98</b>	<b>22</b>

<sup>a</sup> according to EFSA<sup>15,16</sup>; includes duplicate samples with different batch numbers; <sup>c</sup> samples additionally tested for 2-, and 3-methyl furan

<sup>15</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>16</sup> European Food Safety Authority, 2015; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2015: 2015:EN-833.

## 5.1 ACRYLAMIDE

A summary of acrylamide concentrations (mean, range, number of samples and IV) measured in each of the main categories and sub-categories of the 2016 survey samples is given in Table 2: 269 tests were carried out for acrylamide and the individual sample results for each category can be found in 6.4 of the Appendices.

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

Food category / sub category <sup>a</sup>	Description	Sampling date <sup>b</sup>	n	Acrylamide (µg/kg)					n>IV
				mean	min	max	SE	IV <sup>c</sup>	
<b>1</b>	<b>French fries sold as ready to eat</b>	<b>2016</b>	<b>40</b>	<b>208</b>	<b>31</b>	<b>774</b>	<b>28</b>	-	-
1.1	<i>French fries from fresh potatoes</i>	<i>Mar-16<sup>b</sup></i>	20	242	31	774	43	600	1
		<i>Nov-16<sup>b</sup></i>	20	174	39	666	35	600	1
<b>2</b>	<b>Potato crisps and potato-based crackers</b>	<b>2016</b>	<b>30</b>	<b>617</b>	<b>28</b>	<b>1438</b>	<b>65</b>	-	-
2.1	<i>Potato crisp from fresh potatoes</i>	<i>Mar-16<sup>b</sup></i>	12	815	453	1438	95	1000	3
		<i>Nov-16<sup>b</sup></i>	12	497	193	1065	80	1000	1
2.4	<i>Potato-based crackers</i>	<i>2016</i>	6	463	28	1133	164	1000	1
<b>3</b>	<b>Pre-cooked French fries, potato products for home cooking</b>	<b>2016</b>	<b>30</b>	<b>191</b>	<b>3</b>	<b>2026</b>	<b>68</b>	-	-
3.1	<i>Fries baked in the oven (oven fries)</i>	<i>Mar-16<sup>b</sup></i>	6	165	17	334	57	-	-
		<i>Nov-16<sup>b</sup></i>	6	59	59	127	20	-	-
3.2	<i>Deep fried fries</i>	<i>Mar-16<sup>b</sup></i>	2	39	9	68	-	-	-
		<i>Nov-16<sup>b</sup></i>	2	12	3	22	-	-	-
3.3	<i>Unspecified pre-cooked French fries, potato products for home cooking</i>	<i>Mar-16<sup>b</sup></i>	7	471	55	2026	265	-	-
		<i>Nov-16<sup>b</sup></i>	7	139	21	420	61	-	-
<b>4</b>	<b>Soft bread</b>	<b>2016</b>	<b>25</b>	<b>18</b>	<b>4</b>	<b>85</b>	<b>3</b>	-	-
4.1	<i>Wheat based bread</i>	<i>2016</i>	24	18	4	85	4	80	1
4.2	<i>Soft bread other than wheat based bread</i>	<i>2016</i>	1	11	-	-	-	150	0
<b>5</b>	<b>Breakfast cereals (excluding porridge)</b>	<b>2016</b>	<b>22</b>	<b>154</b>	<b>34</b>	<b>426</b>	<b>25</b>	-	-
5.1	<i>Maize, oat, spelt, barley and rice based products</i>	<i>2016</i>	4	75	51	145	23	200	0
5.3	<i>Bran products and whole grain cereals, gun puffed grain</i>	<i>2016</i>	18	172	34	426	28	400	1
<b>6</b>	<b>Biscuits, crackers, crisp bread and similar (excluding pastry and cake)</b>	<b>2016</b>	<b>30</b>	<b>306</b>	<b>18</b>	<b>1683</b>	<b>75</b>	-	-
6.1	<i>Crackers with the exception of potato based crackers</i>	<i>2016</i>	6	210	65	441	66	500	0
6.2	<i>Crisp bread</i>	<i>2016</i>	3	181	82	282	58	450	0
6.3	<i>Biscuits and wafers</i>	<i>2016</i>	11	391	38	1383	146	500	2
6.4	<i>Gingerbread</i>	<i>2016</i>	4	128	95	219	30	1000	0
6.5	<i>Products similar to the other products in this category</i>	<i>2016</i>	6	425	18	1683	254	500	1

Table 2 continued...

Food category / sub category <sup>a</sup>	Description	Sampling date <sup>b</sup>	n	Acrylamide (µg/kg)					n>IV
				mean	min	max	SE	IV <sup>c</sup>	
<b>7</b>	<b>Coffee and coffee substitutes</b>	<b>2016</b>	<b>20</b>	<b>539</b>	<b>16</b>	<b>1808</b>	<b>89</b>	-	-
	7.1 <i>Roasted coffee (dry)</i>	2016	6	276	198	384	27	450	0
	7.2 <i>Instant coffee (dry)</i>	2016	6	760	673	873	30	900	0
	7.3 <i>Substitute coffee (dry) mainly based on cereals</i>	2016	4	906	333	1808	320	2000	0
	7.4 <i>Other coffee substitutes (dry)</i>	2016	2	194	16	371	-	4000	0
<b>8</b>	<b>Baby foods , other than processed cereal based foods</b>	<b>2016</b>	<b>22</b>	<b>12</b>	<b>3</b>	<b>51</b>	<b>3</b>	-	-
	8.1 <i>Baby foods not containing prunes</i>	2016	20	13	3	51	3	50	1
	8.2 <i>Baby foods, containing prunes</i>	2016	2	8	4	11	-	80	0
<b>9</b>	<b>Processed cereal-based foods for infants and young children</b>	<b>2016</b>	<b>21</b>	<b>21</b>	<b>3</b>	<b>86</b>	<b>5</b>	-	-
	9.1 <i>Biscuits and rusks for infants and young children</i>	2016	6	47	27	86	9	200	0
	9.2 <i>Other processed cereal-based foods for infants and young children</i>	2016	15	10	3	40	2	50	0
<b>10</b>	<b>Other products, based on cereals, potatoes, cocoa and coffee</b>	<b>2016</b>	<b>17</b>	<b>194</b>	<b>4</b>	<b>789</b>	<b>52</b>	-	-
	10.2 <i>Cake and pastry</i>	2016	6	140	5	486	72	-	-
	10.3 <i>Savoury snacks</i>	2016	2	73	39	108	-	-	-
	10.4 <i>Other products, based on cereals</i>	2016	4	221	4	367	84	-	-
	10.5 <i>Other products, based on potatoes</i>	2016	1	789	-	-	-	-	-
	10.6 <i>Other products, based on cocoa</i>	2016	4	160	23	406	85	-	-
<b>11</b>	<b>Other products, not based on cereals, potatoes, cocoa and coffee</b>	<b>2016</b>	<b>12</b>	<b>698</b>	<b>14</b>	<b>2957</b>	<b>249</b>	-	-
	<i>Vegetable crisps</i>	2016	4	1650	847	2957	455	-	-
	<i>Black olives, canned</i>	2016	2	409	241	578	-	-	-
	<i>Prunes, canned</i>	2016	2	139	85	194	-	-	-
	<i>Liquorice candies</i>	2016	2	319	209	430	-	-	-
	<i>Dates / prunes</i>	2016	2	18	14	21	-	-	-

<sup>a</sup> according to EFSA<sup>17,18</sup>; <sup>b</sup> products prepared from seasonal potatoes; <sup>c</sup> EC Indicative Values<sup>19</sup>

<sup>17</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>18</sup> European Food Safety Authority, 2015; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2015: 2015:EN-833.

<sup>19</sup> 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

## 5.2 FURANS

Samples from Categories 5-8, 10, and 11 were all tested for furan Table 3; samples from Categories 8, 10, 11 were additionally tested for 2-, and 3-methy furan (Table 4 and Table 5) following the extension and implementation of an analytical method to measure these furan analogues. The individual sample results for furans in each category can be found in 6.4 of the Appendices.

Table 3. Summary of furan concentrations (mean and range) as received / consumed by product category

Food category <sup>a</sup>	Description	Sampling date	n	Furan (µg/kg)			SE
				Mean <sup>b</sup>	min	max	
5	<b>Breakfast cereals (excluding porridge)</b>	2016	24	38	0	202	10
6	<b>Biscuits, crackers, crisp bread and similar (excluding pastry and cake)</b>	2016	30	35	0	216	9
7	<b>Coffee and coffee substitutes</b>	2016	20	1741	0	5440	435
	<b>Coffee and coffee substitutes, as consumed</b>	2016	20	48	0	166	15
	<i>Roast</i>	2016	8	3945	2499	5440	343
	<i>Roast, as consumed</i>	2016	8	118	7	166	20
	<i>Instant</i>	2016	6	414	135	555	65
	<i>Instant, as consumed</i>	2016	6	2	0	3	1
	<i>Other</i>	2016	6	130	0	424	64
	<i>Other, as consumed</i>	2016	6	1	0	4	1
8	<b>Baby foods, other than processed cereal based foods</b>	2016	22	31	2	108	5
10	<b>Other products, based on cereals, potatoes, cocoa and coffee</b>	2016	2	129	84	175	-
	<i>Popcorn</i>	2016	2	129	84	175	-
11	<b>Other products, not based on cereals, potatoes, cocoa and coffee</b>	2016	2	40	19	60	-
	<i>Canned prunes</i>	2016	2	9	8	9	-

<sup>a</sup> according to EFSA<sup>20,21</sup>; <sup>b</sup> Lower bound concentrations (values < LOD = 0)

<sup>20</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>21</sup> European Food Safety Authority, 2015; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2015: 2015:EN-833.

Table 4. Summary of 2-methyl furan concentrations (mean and range) as received / consumed by product category

Food category <sup>a</sup>	Description	Sampling date	n	2-methyl furan (µg/kg)			
				Mean <sup>b</sup>	min	max	SE
8	<b>Baby foods, other than processed cereal based foods</b>	2016	22	2	0	7	2
10	<b>Other products, based on cereals, potatoes, cocoa and coffee</b>	2016	2	138	72	204	-
	<i>Popcorn</i>	2016	2	138	72	204	-
11	<b>Other products, not based on cereals, potatoes, cocoa and coffee</b>	2016	2	0	0	0	-
	<i>Canned prunes</i>	2016	2	0	0	0	-

<sup>a</sup> according to EFSA<sup>22,23</sup>; <sup>b</sup> Lower bound concentrations (values < LOD = 0)

<sup>22</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>23</sup> European Food Safety Authority, 2015; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2015: 2015:EN-833.

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

Food category <sup>a</sup>	Description	Sampling date	n	3-methyl furan (µg/kg)			
				Mean <sup>b</sup>	min	max	SE
8	<b>Baby foods, other than processed cereal based foods</b>	2016	22	1	0	6	0.4
10	<b>Other products, based on cereals, potatoes, cocoa and coffee</b>	2016	2	28	27	30	-
	<i>Popcorn</i>	2016	2	28	27	30	-
11	<b>Other products, not based on cereals, potatoes, cocoa and coffee</b>	2016	2	0	0	0	-
	<i>Canned prunes</i>	2016	2	0	0	0	-

<sup>a</sup> according to EFSA<sup>24,25</sup>; <sup>b</sup> Lower bound concentrations (values < LOD = 0)

<sup>24</sup> European Food Safety Authority, 2014; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2014:EN-604. 25 pp.

<sup>25</sup> European Food Safety Authority, 2015; Specific requirements for chemical contaminants' data submission. EFSA supporting publication 2015: 2015:EN-833.

## 6. APPENDICES

### 6.1 SAMPLING PLAN

Table 6. Sampling plan Jan - Nov 2016

Category	Sample numbers in product category																												Total						
	1. French fries sold as ready to eat			2. Potato crisps and potato-based crackers			3. Pre-cooked French fries, potato products for home cooking			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	
Sub category	1.1	2.1	2.2	2.4	6	3.2	3.3	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-16								24	1																							25			
Feb										5		19																				24			
Mar	8 <sup>a</sup>	4 <sup>b</sup>	8 <sup>c</sup>	12			6	2	7																							47			
Apr																																			
May													6	3	11	4	6															30			
Jun																		8	6	4	2											20			
Jul																						22	4									26			
Aug																							6	15								21			
Sep																									6	2	3			4	8	15			
Oct				1	5																						1				19				
Nov	8 <sup>a</sup>	4 <sup>b</sup>	8 <sup>c</sup>	12			6	2	7																			1				48			
Dec																																			
TOTALS	16	8	16	24	1	5	12	4	14	24	1	5	19	6	3	11	4	6	8	6	4	2	22	4	6	15	6	2	4	1	4	12	275		
by category	40			30			30			25		24			30					20				26		21		17						12	275

<sup>a</sup> Restaurants; <sup>b</sup> Fast food outlets; <sup>c</sup> Chip Shops

## **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”<sup>26</sup>. Where practical, digital images (samples and packaging) were recorded and all packaging retained.

Potato products for home cooking from category 3 and popcorn (category 10) were cooked according to the manufacturers’ guidelines using domestic appliances e.g. oven, grill, microwave, deep fat fryer (see Table 7). The grill and oven were preheated for 5-10 minutes and a single layer of the product was applied to a baking tray (placed in middle of oven) or mesh grill pan respectively; samples were typically turned at half of the recommended cooking time. Pure sunflower oil was used for frying.

Coffee and coffee substitute samples were prepared according to the manufacturers guidelines given on the packaging: retail domestic coffee preparation equipment was used as required, e.g. a cafetiere or espresso coffee maker (see Table 8).

#### **6.2.1.1 Homogenisation**

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

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

- Potato products from Categories 1, 3 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 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.

An aliquot of the homogenised sample was taken for analysis while the remainder was divided into four 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. This was based on the assumption that both sodium and the analytes of interest

---

<sup>26</sup> Guidelines for undertaking surveys. Available at: <https://www.food.gov.uk/sites/default/files/multimedia/pdfs/fsasurveysguidance.pdf> [accessed June 2015]



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 Gorsuch<sup>27</sup>. Each batch was analysed with a blank and an in-house reference material.

Table 7. Details of the domestic cooking conditions

Category 3 – March 2016 samples

Sample code	Food sub-category code	Product description	Brand	Best before / use by date	Date of cooking	Cooking conditions
16C-01329	3.1	Straight cut oven chips	Sainsbury's Be Good to Yourself	JAN 2018	04/04/16	Oven200°C~23min
16C-01330	3.1	Thin & crispy oven chips	Tesco	01/2017	04/04/16	Oven200°C~14min
16C-01331	3.1	Crispy French fries	McCain	08 2017	04/04/16	Oven220°C~14min
16C-01332	3.2	Straight cut frying chips	Waitrose Essential	JUL2017	06/04/16	Fryer175°C~4min
16C-01333	3.1	Chunky chips	Tesco Finest	17 MAR	05/04/16	Oven170°C~30min
16C-01334	3.3	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	21MAR	05/04/16	Oven200°C~40min
16C-01335	3.1	Organic straight cut oven chips	Waitrose Duchy Organic	APR 2017	04/04/16	Oven200°C~20min
16C-01336	3.1	Homestyle chips	Aunt Bessie's	07/2017	04/04/16	Oven210°C~20min
16C-01337	3.2	Straight cut oven chips	Asda	01/01/2017	05/04/16	Oven200°C~20min
16C-01338	3.3	Crispy potatoes	Asda	18/12/2016	05/04/16	Oven200°C~25min
16C-01339	3.3	Potato waffles - 10	Birds Eye	07 2017	05/04/16	Grill_High~10min
16C-01340	3.3	Oven cook roast potatoes	Asda	19 FEB 2017	05/04/16	Oven200°C~30min
16C-01341	3.3	Smiles	McCain	08 2017	04/04/16	Oven200°C~15min
16C-01342	3.3	Micro chips	McCain	11 2016	05/04/16	Microwave1000W~3.20min
16C-01343	3.3	Ready baked jackets (4)	McCain	01 2017	05/04/16	Microwave1000W~15min

<sup>27</sup> Gorsuch, T., T., 1970. The Destruction of Organic Matter. Pergamon Press. p21

Table 7. Continued...

## Category 3 – November 2016 samples

Sample code	Food sub-category code	Product description	Brand	Best before / use by date	Date of cooking	Cooking conditions
16C-06935	3.1	Straight cut oven chips	Sainsbury's Be Good to Yourself	OCT 2018	14/11/16	Oven200°C~23min
16C-06936	3.1	Thin & crispy oven chips	Tesco	09/2017	14/11/16	Oven200°C~14min
16C-06937	3.1	Crispy French fries	McCain	04 2018	11/11/16	Oven220°C~14min
16C-06938	3.2	Straight cut frying chips	Waitrose Essential	FEB2018	17/11/16	Fryer175°C~5min
16C-06939	3.1	Chunky chips	Tesco Finest	11 NOV	14/11/16	Oven170°C~40min
16C-06940	3.3	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	10 NOV	14/11/16	Oven180°C~39min
16C-06941	3.1	Organic straight cut oven chips	Waitrose Duchy Organic	APR 2017	11/11/16	Oven200°C~21min
16C-06942	3.1	Homestyle chips	Aunt Bessie's	07/2018	11/11/16	Oven200°C~22min
16C-06943	3.2	Straight cut oven chips	Asda	01/09/2017	17/11/16	Fryer175°C~5min
16C-06944	3.3	Crispy potatoes	Asda	11/08/2017	11/11/16	Oven200°C~20min
16C-06945	3.3	Potato waffles - 10	Birds Eye	04 2018	11/11/16	Grill_High~8min
16C-06946	3.3	Oven cook roast potatoes	Asda	13 OCT 2017	14/11/16	Oven200°C~30min
16C-06947	3.3	Smiles	McCain	03 2018	11/11/16	Oven200°C~14min
16C-06948	3.3	Micro chips	McCain	07 2017	14/11/16	Microwave1000W~3.20min/200g
16C-06949	3.3	Ready baked jackets (4)	McCain	10 2017	11/11/16	Microwave1000W~7min

## Category 10 - 2016 samples

Sample code	Food sub-category code	Product description	Brand	Best before date	Date of cooking	Cooking conditions
16C-06876	10.4	Sweet microwave popcorn	Butterkist	06.2017	11/01/17	Microwave1000W~2min
16C-06877	10.4	Sweet & salty microwave popcorn	Popz	05.2018	11/01/17	Microwave1000W~2.2min

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

Category 7 - 2016 samples

Sample code	Product description	Brand	Best before date	Date of preparation	Preparation conditions
16C-06801	Coffee bags	Lyons	OCT 2017	11/07/2016	Freshly boiled water
16C-06802	Italian espresso roasted & ground coffee	Waitrose	MAR 18	12/07/2016	Espresso coffee maker
16C-06803	Guatemala Arabica ground coffee	Percol	09.2017	12/07/2016	Espresso coffee maker
16C-06804	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	12/07/2016	Espresso coffee maker
16C-06805	Java Sumatra roast & ground coffee	Tesco Finest	Apr 2017	12/07/2016	Cafetiere
16C-06806	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	Apr 2017	12/07/2016	Cafetiere
16C-06807	Colombian ground coffee	Marks & Spencer	06 2017	12/07/2016	Cafetiere
16C-06808	Monsoon Malabar Indian coffee beans	Whittard of Chelsea	09/07/2016	12/07/2016	Cafetiere
16C-06809	Freeze dried soluble coffee	Nescafé Gold Blend	04 2018	11/07/2016	Freshly boiled water
16C-06810	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	04 2018	11/07/2016	Freshly boiled water
16C-06811	Freeze dried instant coffee	Kenco Smooth	MAR 18	11/07/2016	Freshly boiled water
16C-06812	Freeze dried decaffeinated instant coffee	Kenco Decaff	APR 18	11/07/2016	Freshly boiled water
16C-06813	Freeze dried instant coffee	Carte Noire	04/18	11/07/2016	Freshly boiled water
16C-06814	Freeze dried decaffeinated instant coffee	Carte Noire Décaféiné	05/18	11/07/2016	Freshly boiled water
16C-06815	Chicory & coffee essence	Camp	08 03 18	12/07/2016	Freshly boiled water
16C-06816	Instant dandelion coffee compound	Symingtons	SEP 2017	11/07/2016	Freshly boiled water
16C-06817	Organic cereal coffee	Lima Yannoh Instant	30.11.2017	11/07/2016	Freshly boiled water
16C-06818	Instant blend of cereal and guarana-coffee alternative	Whole Earth Wake Up	OCTOBER 2017	11/07/2016	Freshly boiled water
16C-06819	Instant cereal drink	Barley Cup Original	18.11.2018	11/07/2016	Freshly boiled water
16C-06820	Organic instant cereal drink	Biona Organic Biomalt	01-19	12/07/2016	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 Sadd<sup>28</sup>.

*Method performance (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: ±14% at 49 µg/kg (expanded relative uncertainty with a coverage factor of 2). A summary of the method performance data from this survey can be found in Table 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 al*<sup>29</sup> with modifications according to Becalski *et al*<sup>30,31</sup> and Shen *et al*<sup>32</sup>. 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 over the concentration range 20-100 µg/kg furans was ±20% (expanded relative uncertainty with a coverage factor of 2). A summary of the method performance data from this survey can be found in Table 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 and an In-House Reference Material (IHRM) and / or spiked sample. Method performance was monitored by assessing the data from IHRMs and / or spiked reference

---

<sup>28</sup> 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.

<sup>29</sup> 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.

<sup>30</sup> 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.

<sup>31</sup> 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.

<sup>32</sup> 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.

materials in accordance with the rules governing Shewhart control charts<sup>33</sup> (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.

---

<sup>33</sup> BS 7785:1994, ISO 8258:1991, Shewhart control charts, British Standards Institution. Available at: <http://www.bsonline.bsi-global.com/server/index.jsp>

Table 9. Summary of data obtained from the analysis of IHRMs 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 <sup>a</sup>	SE	n	mean	range	SE
IHRM Jun 15 <sup>b</sup>	9	41.6	38.7-44.6	0.33	5	42.1	41.6-42.9	0.20
IHRM Mar 16 <sup>b</sup>	7	22.1	16.3-27.9	0.73	8	22.3	19.6-25.4	0.80

<sup>a</sup> upper and lower action limits; <sup>b</sup> dried cereal based materials

(B) Acrylamide spike recovery data

Nominal spike range ( $\mu\text{g}/\text{kg}$ )	Recovery (%) <sup>a</sup>			
	n	mean	range	SE
500-2500	11	104.9	96.8-114.8	2.0

<sup>a</sup> the acceptable recovery range was 80-120%

(C) Furan spiked recovery data

Nominal spike level ( $\mu\text{g}/\text{kg}$ )	Recovery (%) <sup>a</sup>			
	n	mean	range	SE
14-179 <sup>b</sup>	15	103	86-117	2.6
140-1873 <sup>c</sup>	15	98	90-103	1.3

<sup>a</sup> the acceptable recovery range was 80-120%; <sup>b</sup> low spike range (determined by sample type / preparation e.g. as received / as consumed); <sup>c</sup> high spike range (determined by sample type / preparation e.g. as received / as consumed)

(D) 2-methyl furan spiked recovery data

Nominal spike level ( $\mu\text{g}/\text{kg}$ )	Recovery (%) <sup>a</sup>			
	n	mean	range	SE
20 <sup>b</sup>	4	90	86-92	0.8
388-971 <sup>c</sup>	4	95	91-103	1.6

<sup>a</sup> the acceptable recovery range was 80-120%; <sup>b</sup> low spike range (determined by sample type / preparation e.g. as received / as consumed); <sup>c</sup> high spike range (determined by sample type / preparation e.g. as received / as consumed)

(E) 3-methyl furan spiked recovery data

Nominal spike level ( $\mu\text{g}/\text{kg}$ )	Recovery (%) <sup>a</sup>			
	n	mean	range	SE
20	4	88	85-93	1.0
380-951	4	93	87-99	1.6

<sup>a</sup> the acceptable recovery range was 80-120%; <sup>b</sup> low spike range (determined by sample type / preparation e.g. as received / as consumed); <sup>c</sup> high 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 <sup>a</sup>	30	3	0.2	-0.2 to 0.5
Furan <sup>b</sup>	30	1	0.0	1.0 to -1.3

<sup>a</sup> Jul 2016 – Jan 2017 ; <sup>b</sup> Sept 2007-Apr 2016



## 6.4 INDIVIDUAL SAMPLE TEST RESULTS

### 6.4.1 Acrylamide

#### Category 1 French fries from fresh potatoes – March 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-01297	Regular fries	Burger King	N/A	N/A	UK	Cardiff	435
16C-01298	Chips	Café Fresco	N/A	N/A	UK	Cardiff	143
16C-01299	Chips	Canton Fish Bar	N/A	N/A	UK	Cardiff	335
16C-01300	Chips	Zero Plus Fish Bar	N/A	N/A	UK	Edinburgh	72
16C-01301	Chips	City Restaurant	N/A	N/A	UK	Edinburgh	31
16C-01302	Chips	The Abbey	N/A	N/A	UK	Birmingham	160
16C-01303	Chips	Marco's Fish Bar	N/A	N/A	UK	Birmingham	184
16C-01304	Chips	Newton Fish Bar	N/A	N/A	UK	Wolverhampton	52
16C-01305	Chips	Moto The Kitchen	N/A	N/A	UK	London	85
16C-01306	Regular fries	KFC	N/A	N/A	UK	Congleton	228
16C-01307	Chips	21 Fish & Chips	N/A	N/A	UK	Congleton	382
16C-01308	Side chips	DV8	N/A	N/A	UK	London	572
16C-01309	Hand cut chips	The Trinity	N/A	N/A	UK	Cardiff	774
16C-01310	Large fries	McDonalds	N/A	N/A	UK	London	103
16C-01311	Chips	Perfect Fried Chicken	N/A	N/A	UK	Larne	198
16C-01312	Chips	Silver Lounge Café	N/A	N/A	UK	Larne	121
16C-01313	Chips	The Upper Crust	N/A	N/A	UK	Antrim	384
16C-01314	Chips	Arcade Chip Shop	N/A	N/A	UK	Cambridge	120
16C-01315	Chunky chips	Sainsbury's Café	N/A	N/A	UK	Cambridge	327
16C-01316	Chips	Khangs Fish & Chips	N/A	N/A	UK	Cambridge	126

Category 1 French fries from fresh potatoes – November 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06897	Regular fries	Burger King Ltd	N/A	N/A	UK	Newmarket	200
16C-06898	Chips	Café Fresco	N/A	N/A	UK	Cardiff	150
16C-06899	Chips	Canton Fish Bar	N/A	N/A	UK	Cardiff	158
16C-06900	Chips	Zero Plus Fish Bar	N/A	N/A	UK	Cardiff	106
16C-06901	Chips	City Restaurant	N/A	N/A	UK	Edinburgh	39
16C-06902	Chips	The Abbey	N/A	N/A	UK	Edinburgh	80
16C-06903	Chips	Marco's Fish Bar	N/A	N/A	UK	Birmingham	110
16C-06904	Chips	Newton Fish Bar	N/A	N/A	UK	Birmingham	59
16C-06905	Chips	Moto Hospitality Limited	N/A	N/A	UK	Wolverhampton	96
16C-06906	Regular fries	KFC	N/A	N/A	UK	Edinburgh	516
16C-06907	Chips	21 Fish & Chips	N/A	N/A	UK	Congleton	132
16C-06908	Side chips	DV8	N/A	N/A	UK	Congleton	336
16C-06909	Hand cut chips	The Trinity	N/A	N/A	UK	London	666
16C-06910	Large fries	McDonalds Restaurants Limited	N/A	N/A	UK	Cardiff	147
16C-06911	Chips	Perfect Fried Chicken	N/A	N/A	UK	London	74
16C-06912	Chips	Silver Lounge Café	N/A	N/A	UK	Larne	92
16C-06913	Chips	The Upper Crust	N/A	N/A	UK	Larne	204
16C-06914	Chips	Arcade Chip Shop	N/A	N/A	UK	Antrim	92
16C-06915	Chunky chips	J Sainsbury plc	N/A	N/A	UK	Cambridge	115
16C-06916	Chips	Khangs Fish & Chips	N/A	N/A	UK	Cambridge	104

Category 2 Potato crisp from fresh potatoes – March 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-01317	Sea salt & Balsamic vinegar hand cooked crisps	Marks & Spencer	21/06/2016	A 6054 Variety MARKIES	UK	Cambridge	461
16C-01318	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	10 06 16	16 036 Lady Jo T5	British potatoes Herefordshire, England	Birmingham	865
16C-01319	Ready salted crisps - 6 pack	Tesco	14 MAY 16	S 6047 7A	UK	Congleton	755
16C-01320	Sea salt & cyder vinegar crisps	JackPots	14 05 2016	LOT 1188 Field: Boarder Variety: L.Claire	East Anglia	Cambridge	453
16C-01321	Cheddar & onion flavour ridge cut potato crisps	McCoy's	21 05 16	T 6042 03800 FWE	None declared	Cambridge	578
16C-01322	Lightly salted hand cooked potato chips	Kettle Chips	09 JUL 16	M B6041	UK	Cambridge	515
16C-01323	Sea salted potato crisps - 6 pack	Seabrook	21 MAY 16	6029 R2	Yorkshire, England	London	1375
16C-01324	Simply salted potato crisps - 6 bags	Walkers Lights	14 05 16	GBL 187 054 5134	None declared	Cambridge	630
16C-01325	Hand cooked chips with sea salt	Burts	16 07 2016	Prod: 16 01 16 Field: West farm 4 Cooked by: Richard	Devon, England		852
16C-01326	Cheese & onion flavour potato crisps	Tayto	21 MAY 16	D5 16027	None declared	Antrim	1438
16C-01327	Ready salted potato crisps - 6 pack	Snackrite	04 JUN 16	S 6053 M12	British potatoes	Congleton	822
16C-01328	Ready salted potato crisps - 12 pack	Walkers	04-06-16	GBL2 97 063 5274	British potatoes	Congleton	1036

Category 2 Potato crisp from fresh potatoes – November 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06923	Sea salt & Balsamic vinegar hand cooked crisps	Marks & Spencer	14/02/2017	P 6291 Variety: MARKIES	UK	Cambridge	499
16C-06924	Sea salt & Chardonnay wine vinegar flavour crisps	Co-op Truly Irresistible	15 01 17	16 255 T6 Lady Rosetta	UK British potatoes Herefordshire, England	Birmingham	238
16C-06925	Ready salted crisps - 6 pack	Tesco	21 JAN 17	S 6296 18	UK	Cambridge	432
16C-06926	Sea salt & cyder vinegar crisps	JackPots	22 03 2017	LOT 1230 Field: Maslins Variety: Endeavour	UK East Anglia	Newmarket	401
16C-06927	Cheddar & onion flavour ridge cut potato crisps	McCoy's	28 01 17	T 6289 FW F 02281	None declared	Newmarket	237
16C-06928	Lightly salted chips	Kettle Chips	04 MAR 17	D A 6 284	UK	Newmarket	430
16C-06929	Sea salted potato crisps - 6 pack	Seabrook	28 JAN 17	6277 R2	Yorkshire, England	Newmarket	643
16C-06930	Simply salted potato crisps - 6 bags	Walkers Lights	07 01 17	GBL 183 291 5814	None declared	Newmarket	248
16C-06931	Hand cooked chips with sea salt	Burts	03 04 2017	Prod: 03 10 16 Field: Far Field 3 Cooked by: Felix	Devon, England	Roborough	939
16C-06932	Cheese & onion flavour potato crisps	Tayto	04 MAR 17	D4 16312	Northern Ireland	Tandragee	1065
16C-06933	Ready salted potato crisps - 6 bags	Snackrite	18 FEB 17	F3 K6 314	None declared	Birmingham	636
16C-06934	Ready salted potato crisps - 14 for the price of 12 pack	Walkers	21-01-17	GBL2 97 293 5155	British potatoes	Cambridge	193

Category 2 Potato crisp from potato dough and potato-based crackers – 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06917	Pringles original savoury snack	Kellogg Company	25/11/17	L 6239036620 2206	Poland	Cambridge	28
16C-06918	Teddy shaped potato snack	KP Snacks Ltd	01 04 17	6269 B T 02709	None declared	Cambridge	238
16C-06919	Original salted potato rings	KP Snacks Ltd	14 01 2017	YHFW1A 6255	None declared	Cambridge	272
16C-06920	Soured cream & onion flavour party snacks	Asda Stores Ltd	17 DEC 16	268 K 6 37	UK	Cambridge	367
16C-06921	Sea salt popped potato chips	Popchips Ltd	21/07/17	B S7 29	EU	Newmarket	739
16C-06922	Original pops	Walkers Snack Foods	07 01 17	GBS3R2236 5202	None declared	Cambridge	1133

Category 3 Pre-cooked French fries, potato products for home cooking – March 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-01329	Straight cut oven chips	Sainsbury's Be Good to Yourself	JAN 2018	B3 6026	Netherlands	Cambridge	74
16C-01330	Thin & crispy oven chips	Tesco	01/2017	C1 6 023	Netherlands	Congleton	17
16C-01331	Crispy French fries	McCain	08 2017	S 12022016 06	British potatoes	Birmingham	298
16C-01332	Straight cut frying chips	Waitrose Essential	JUL2017	L6015 04 01	None declared	Newmarket	9
16C-01333	Chunky chips	Tesco Finest	17 MAR	L5 A	UK	Congleton	334
16C-01334	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	21MAR	BU4L5	UK	Cambridge	2026
16C-01335	Organic straight cut oven chips	Waitrose Duchy Organic	APR 2017	C5277 7	None declared	Newmarket	31
16C-01336	Homestyle chips	Aunt Bessie's	07/2017	C 86017	None declared	Birmingham	233
16C-01337	Straight cut oven chips	Asda	01/01/2017	E4 6 028	Netherlands	London	68
16C-01338	Crispy potatoes	Asda	18/12/2016	B3 5 353	Netherlands	London	138
16C-01339	Potato waffles - 10	Birds Eye	07 2017	L6024XL124	Not declared	London	220
16C-01340	Oven cook roast potatoes	Asda	19 FEB 2017	EPM C6050 5	UK	London	55
16C-01341	Smiles	McCain	08 2017	W 25022016 01	Not declared	Congleton	62
16C-01342	Micro chips	McCain	11 2016	P 19 02 2016	Not declared	London	339
16C-01343	Ready baked jackets (4)	McCain	01 2017	W15012016	British potatoes	London	457

Category 3 Pre-cooked French fries, potato products for home cooking – November 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06935	Straight cut oven chips	Sainsbury's Be Good to Yourself	OCT 2018	B 3 6279	Netherlands	Cambridge	39
16C-06936	Thin & crispy oven chips	Tesco	09/2017	C6 6 276	Netherlands	Newmarket	16
16C-06937	Crispy French fries	McCain	04 2018	S 23102016 05	None declared	Newmarket	9
16C-06938	Straight cut frying chips	Waitrose Essential	FEB2018	L6220 03 20	None declared	Newmarket	3
16C-06939	Chunky chips	Tesco Finest	11 NOV	L6 B	UK	Cambridge	115
16C-06940	Crispy roast potatoes with goose fat	Sainsbury's Taste the Difference	10 NOV	BU4L6	UK	Cambridge	420
16C-06941	Organic straight cut oven chips	Waitrose Duchy Organic	APR 2017	C5278 9	None declared	Newmarket	49
16C-06942	Homestyle chips	Aunt Bessie's	07/2018	C 56 185	None declared	Cambridge	127
16C-06943	Straight cut oven chips	Asda	01/09/2017	E4 6 258	Netherlands	Cambridge	22
16C-06944	Crispy potatoes	Asda	11/08/2017	E46224	Netherlands	Cambridge	35
16C-06945	Potato waffles - 18	Birds Eye	04 2018	L6295ZL124	None declared	Newmarket	37
16C-06946	Ready to roast potatoes	Asda	13 OCT 2017	EPM C6286 5	UK	Cambridge	66
16C-06947	Smiles	McCain	03 2018	W 19092016 01	None declared	Newmarket	21
16C-06948	Quick microwaveable chips	McCain	07 2017	P 07 10 2016	British potatoes	Newmarket	320
16C-06949	Ready baked jackets (2)	McCain	10 2017	S16102016	British potatoes	Newmarket	74

Category 4 Soft bread - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-01248	Toastie thick sliced white bread	Warburtons	03 FEB	(2) 6 L XM W FJ A B 15	None declared	Cambridge	11
16C-01249	Demi baguettes - 3 pack	Co-op	02/02/2016	None declared	None declared	Cambridge	7
16C-01250	White bloomer (sliced in store)	Greggs	None declared	None declared	None declared	Newmarket	8
16C-01251	Tiger bloomer	Tesco Bakery	31 Jan	None declared	None declared	Cambridge	5
16C-01252	White finger roll - 6 pack	Tesco Bakery	1 FEB	None declared	None declared	Cambridge	6
16C-01253	Wholemeal sliced bread	Brace's	05 FEB	G 54 C 12	United Kingdom	Cardiff	25
16C-01254	Family pan white bread	Brennans	13 FEB 16	C 11	None declared	Templepatrick	17
16C-01255	Plain white bread	Sunblest	13FEB	BE 76 038 1642	Northern Ireland	Antrim	28
16C-01256	Harvest Pride white premium sliced bread	Linwoods	13FEB	11 8A H59	None declared	Antrim	6
16C-01257	Wholemeal sliced bread	Hovis Nimble	03 FEB	X123 EP	None declared	Cambridge	20
16C-01258	Soya & linseed bread	Burgen	03 FEB	ST01 6 0280804	UK	Cambridge	8
16C-01259	4 green olive ciabatta rolls	Marks & Spencer	18/02/2016	None declared	UK	Cambridge	27
16C-01260	Stoneground wholemeal medium sliced bread	Waitrose	05 FEB	FLBT13	None declared	Newmarket	20
16C-01261	Sunflower & barley bread	Vogel's	04 FEB	D	None declared	Newmarket	15
16C-01262	Thick sliced soft white bread	Hovis	05 FEB	X72 EFP	None declared	Cambridge	4
16C-01263	Wholemeal batch baked loaf	Allinson	05 FEB	WBD2 6 030 11 43	UK	Cambridge	25
16C-01264	Walnut cob	Sainsbury's Taste the Difference	01 Feb	Display until 31 Jan	UK	Cambridge	11
16C-01265	Thick sliced soft white bread	Roberts Bakery	03 FEB	FRS4 4 U 027 4316R	None declared	Cambridge	13
16C-01266	Burger buns	Asda	03-02-16	None declared	None declared	Cambridge	14
16C-01267	Soft white loaf - medium	Kingsmill	05 FEB	ST03 6 0292014	UK	Cambridge	6
16C-01268	Brown bread with added wheat flakes - thick sliced	Hovis Granary	03 FEB	HDS X72	None declared	Cambridge	85
16C-01269	Thick cut malted grain loaf	Morrisons Signature	04 FEB	RWF1 C E D 09	None declared	Cambridge	29
16C-01270	Brown Bloomer - brown multigrain bread	Jackson's	05 02 16	V CXNEKA B	Yorkshire, England	Cambridge	39
16C-01271	Seeded five seeds batch bread	Warburtons	17 FEB	NN YT W AL BB 14	None declared	Newmarket	13
16C-01272	Organic sunflower seed bread with rye and sunflower seeds	Schneider Brot	25.05.2016	D11401435	Germany	Newmarket	11



Category 5 Breakfast cereals (excluding porridge) - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-01273	Honey multigrain flakes of wholegrain corn, spelt & barley	Rude Health	23 10 16	L 296 M	None declared	London	53
16C-01274	Organic whole wheat cereal biscuits	Weetabix Organic	10/11/2016	15314	None declared	Cambridge	95
16C-01275	Grape-nuts - wheat & malted barley cereal	Post	27OCT16	P3	USA	Newmarket	72
16C-01276	Puffed wheat	The Good Grain Co.	31DEC16	341 A 5	None declared	London	426
16C-01277	Bran flakes	Tesco	09/2016	P4 B1 53360953	UK	Newmarket	268
16C-01278	Apricot wheats	Tesco	09/2016	L4 53540952	UK	Newmarket	34
16C-01279	Wholegrain bran flakes	Sainsbury's	11/2016	P3 B2 53090953	UK	Cambridge	345
16C-01280	Cornflakes	Kellogg's	01 09 16	03 MC	None declared	Cambridge	51
16C-01281	Shreddies - whole wheat malted cereal	Nestlé	09/2016	53470952 L3	None declared	Cambridge	79
16C-01282	Puffed wheat	Honey Monster Puffs	31DEC16	335 B 8	None declared	Cambridge	243
16C-01283	Whole wheat cereal biscuits	Morrisons	06/01/2017	6006 1	None declared	Cambridge	142
16C-01284	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	23 11 16	31 MC	None declared	Cambridge	98
16C-01285	Shredded wheat - wholegrain wheat cereal biscuits	Nestlé	10/2016	60070952 A	None declared	Cambridge	133
16C-01286	Wheat biscuits	Tesco Everyday Value	02/01/2017	None declared	UK	Newmarket	69
16C-01287	Golden puffs	Harvest Morn	07.01.2017	16014 AEF	None declared	Cambridge	372
16C-01288	Malted wheaties	Asda	27/01/2017	6027 A	UK	Cambridge	89
16C-01289	Crunchy bran - high fibre cereal	Weetabix	19/01/2017	6019 9	None declared	Newmarket	75
16C-01290	Organic bran flakes	Tree of Life	08/08/16	55511 AJ2	Produce of UK	London	109
16C-01291	Wheat & wheat bran flakes	Co-op	08/2016	53300953 P3 B3	UK using British wheat & wheat bran	Cambridge	296
16C-01292	Wholewheat biscuits	Waitrose Essential	13/01/2017	6013 1	None declared	Newmarket	153
16C-01293	Fig & cranberry granola	The Food Doctor	05 01 2017	6005	UK	Newmarket	51
16C-01294	3 seed & oat granola	Marks & Spencer	06/2016	5336	UK	Cambridge	145

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-01344	Biscuits, salty	Waitrose Essential	07 JAN 17	6 097 BC	None declared	Newmarket	76
16C-01345	Biscuits, sweet, wheat wholemeal	Doves Farm	04.DEC.16	6 087	Ingredients from more than one country. Baked in the UK	Newmarket	143
16C-01346	Crisp bread, rye wholemeal	Ryvita	20-12-2016	1 6081	Dorset	Cambridge	179
16C-01347	Biscuits, sweet, plain	Fox's Crinkle Crunch	21 01 17	D S	None declared	Cambridge	1383
16C-01348	Biscuits, sweet, plain	Asda	05 NOV 16	T2 6 120	UK	Soham	357
16C-01349	Biscuits, sweet, plain	McVitie's Ginger Nuts	29 10 16	C 6108 1	None declared	Cambridge	175
16C-01350	Biscuits, salty	TUC Original	08/10/16	6 070 1A	None declared	Cambridge	283
16C-01351	Biscuits, sweet, plain	Tesco	05 11 16	C 6117 2	UK	Cambridge	197
16C-01352	Biscuits, salty	Tesco	07 JAN 17	6 117 BB	UK	Cambridge	65
16C-01353	Biscuits, salty	Hovis	01 10 16	6021 A	None declared	Cambridge	304
16C-01354	Biscuits, salty	Sainsbury's	15 10 16	C 6093 1	UK	Cambridge	301
16C-01355	Biscuits, salty	Jacob's Krackawheat	05 NOV 16	T2 B	None declared	Cambridge	441
16C-01356	Biscuits, sweet, plain	Marks & Spencer	23/11/2016	6081 G8	UK	Cambridge	226
16C-01357	Crisp bread, rye wholemeal	Finn Crisp	03032017	Production date: 03032016	Finland	Newmarket	82
16C-01358	Unleavened bread, crisp bread and rusk	Jacob's	24 09 16	C7 6075 7	None declared	Newmarket	256
16C-01359	Biscuits, sweet, plain	Paterson's	APR 2017	L16117	None declared	Cambridge	38
16C-01360	Unleavened bread, crisp bread and rusk	GG Slimming World	10122018	None declared	Norway	Cambridge	282
16C-01361	Biscuits, salty	Jacob's	12.11.16	6 032 BB	None declared	Cambridge	71
16C-01362	Biscuits, sweet, plain	Jules Destrooper	30/05/2017	SL213460	Belgium	Cambridge	111
16C-01363	Biscuits, oat meal	Nairn's	05 OCT 2016	1446	Scotland	Cambridge	147
16C-01364	Biscuits, sweet, plain	Asda	28/07/16	6 120	UK	Cambridge	95
16C-01365	Biscuits, sweet, plain	Image on Food Ltd	Oct 2016	L16/441/ATu 2710147	UK	Newmarket	99
16C-01366	Biscuits, sweet, plain	Tesco	13/08/16	6 104	UK	Cambridge	100
16C-01367	Biscuits, sweet, plain	Marks & Spencer	21/09/2016	L6104 K	UK	Cambridge	219
16C-01368	Biscuits (cookies)	Belvita Breakfast Yogurt Crunch	28.10.2016	106	None declared	Cambridge	162
16C-01369	Biscuits (cookies)	McVitie's Go Ahead	31 DEC 2016	LZ6085 1	None declared	Cambridge	18
16C-01370	Biscuits, fruit filling	Marks & Spencer	10/08/2016	A	Scotland	Cambridge	1683
16C-01371	Biscuits, sweet, plain	Carousel	30 04 18	L6112	UK	Cambridge	253
16C-01372	Biscuits, sweet, plain	Asda	APR 17	6104G11Y	UK	Cambridge	98
16C-01373	Biscuits, sweet, plain	Askey's	DEC 17	6089 G10Z	UK	Cambridge	1324

Category 7 Coffee and coffee substitutes - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06801	Coffee bags	Lyons	OCT 2017	6116	None declared	Cambridge	384
16C-06802	Italian espresso roasted & ground coffee	Waitrose	MAR 18	16069	Italy	Cambridge	229
16C-06803	Guatemala Arabica ground coffee	Percol	09.2017	L33 6082	Guatemala	Newmarket	252
16C-06804	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Roasted & packed by hand 09 JUN 2016	Sumatra	London	259
16C-06805	Java Sumatra roast & ground coffee	Tesco Finest	Apr 2017	6125 A 2	Indonesia Packed in the UK	Cambridge	352
16C-06806	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	Apr 2017	6124 A 1	Columbia Packed in the UK	Cambridge	307
16C-06807	Colombian ground coffee	Marks & Spencer	06 2017	6123 42	Colombia Packed in the UK	Cambridge	227
16C-06808	Monsoon Malabar Indian coffee beans	Whittard of Chelsea	09/07/2016	11615	India	Cambridge	198
16C-06809	Freeze dried soluble coffee	Nescafé Gold Blend	04 2018	61111092D	None declared	Cambridge	673
16C-06810	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	04 2018	60971092E	None declared	Cambridge	703
16C-06811	Freeze dried instant coffee	Kenco Smooth	MAR 18	L6076	None declared	Cambridge	743
16C-06812	Freeze dried decaffeinated instant coffee	Kenco Decaff	APR 18	L6104	None declared	Cambridge	873
16C-06813	Freeze dried instant coffee	Carte Noire	04/18	L6096	UK	Cambridge	809
16C-06814	Freeze dried decaffeinated instant coffee	Carte Noire Décaféiné	05/18	L6137	UK	Cambridge	758
16C-06815	Chicory & coffee essence	Camp	08 03 18	L6068	UK	Cambridge	371
16C-06816	Instant dandelion coffee compound	Symingtons	SEP 2017	BN 113476	None declared	Cambridge	16
16C-06817	Organic cereal coffee	Lima Yannah Instant	30.11.2017	L015080	Switzerland	Cambridge	874
16C-06818	Instant blend of cereal and guarana-coffee alternative	Whole Earth Wake Up	OCTOBER 2017	L5296	Italy	Cambridge	333
16C-06819	Instant cereal drink	Barley Cup Original	18.11.2018	5473C	None declared	Cambridge	609
16C-06820	Organic instant cereal drink	Biona Organic Biomalt	01-19	L6035A	None declared	Brighton	1808

Category 8 Baby foods, other than processed cereal based foods - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06821	Organic tender carrots & potatoes	Hipp Organic	02/18	L192135 DE P01/16 079675 079683 079700 079821 079822	Germany	Cambridge	15
16C-06822	Organic carrot, sweet potato & swede	Boots Baby Organic	18/12/2016	G -	France	Newmarket	7
16C-06823	Carrot & sweet potato mash	Heinz Mum's Own	11/2017	6140 0441 A	None declared	Cambridge	3
16C-06824	Organic parsnip, potato & turkey casserole	Hipp Organic	10/17	L194679 DE P03/16 004711 004732 004841 004852	Germany	Cambridge	7
16C-06825	Cheesy tomato pasta stars	Heinz Mum's Own	07/2017	6015 0428 C	None declared	Cambridge	12
16C-06826	Organic carrots, apples & parsnips	Ella's Kitchen	05/17	509700084 509722383 509723183 509723343	EU	Newmarket	7
16C-06827	Organic pasta with cheesy vegetables	Boots Baby Organic	30.04.2017	L188411 DE Nr.024135 Nr.024147 Nr.024184 Nr.024884	Germany	Newmarket	5
16C-06828	Vegetable and chicken casserole puree	Heinz	09/03/17 06/01/17	J-6069 V 0570 G-5005	EU	Cambridge	8
16C-06830	Organic mixed vegetable medley	Hipp Organic	08/17	L193610 DE P02/16 261293 261345 261358 261372	Germany	Cambridge	14
16C-06831	Spaghetti bolognese	Heinz Little Kidz	23/03/2017	6083	EU	Cambridge	4
16C-06832	Spaghetti bolognese	Cow & Gate Little Steamed Meals	07/07//2017	AT	EU	Cambridge	39

Category 8 - 2016 samples, continued...

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06833	Organic lasagne	Hipp Organic	05.01.17	L196219	Austria	Cambridge	9
16C-06834	Organic tomato & leek pasta	Hipp Organic	01/03/2017	V J-	France	Cambridge	3
16C-06835	Organic vegetable + lentil bake	Ella's Kitchen	05/2017	03 J-6118 0561	EU	Cambridge	12
16C-06836	Creamed carrot & potato	Cow & Gate	30.03.2018	106975/ A/08989.02/	EU	Cambridge	22
16C-06837	Carrot and lamb hotpot	Cow & Gate	13.04.2018	106966/ C/08480.04/	EU	Cambridge	11
16C-06838	Organic beef stew with spuds	Ella's Kitchen	06/2107	6138 10 A FR28280028CE	EU	Newmarket	8
16C-06839	Organic carrot & potato	Boots Baby Organic	30.06.2017	L188278 DE Nr.013058 Nr.018181 Nr.018394 Nr.018407	Germany	Newmarket	17
16C-06840	Succulent pork casserole	Cow & Gate	14.04.2018	106929/ C/08990.05/	EU	Cambridge	51
16C-06841	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	02 02 2017	None declared	UK	St Ives	3
16C-06842	Organic butternut squash, carrots, apples & prunes	Ella's Kitchen	05/17	709600493 709601133 809600283 809601153	EU	Newmarket	11
16C-06844	Organic prunes	Ella's Kitchen	07/17	1315822391 1315822411 1315822431 1315822471 x 2 1315822491 1315822571	EU	Cambridge	4

Category 9 Processed cereal-based foods for infants and young children - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06847	My first muesli - fruit & nut mix with oats & cereal	Cow & Gate	27 06 17	SD	EU	Cambridge	6
16C-06848	Organic baby rice	Aptamil	17/09/2017	001846 001854 001862 017827 017835	EU	Cambridge	4
16C-06849	Creamy oat porridge	Heinz	1st MAY 2017	L16130KCA01	England	Newmarket	7
16C-06850	Pure baby rice	Cow & Gate	09.05.18	None declared	EU	Cambridge	4
16C-06851	Multigrain banana porridge	Cow & Gate Sunny Start	23.05.18	None declared	EU	Newmarket	15
16C-06852	Rusks - original	Farley's	01 11 2017	6 144	England	Cambridge	32
16C-06853	Organic fruit & porridge	Boots Baby Organic	11.07.17	L286	Switzerland	Newmarket	12
16C-06854	Organic creamy porridge	Hipp Organic	31.08.2017	6001877 196 A	Croatia	Cambridge	6
16C-06855	Organic baby rice	Hipp Organic	30.11.2017	6001785 182 A	Croatia	Newmarket	3
16C-06856	Organic banana & plum porridge	Organix	04.04.2017	HB	Austria	Newmarket	15
16C-06857	Organic raisin & oat cookies	Ella's Kitchen	21 01 2017	6210 SA	EU	Cambridge	27
16C-06858	Chocolate biscotti	Heinz Snack	30/06/17	6071 1A	Italy	Cambridge	47
16C-06859	Organic apple rice cakes	Organix Finger Foods	10/06/2017	H 16161 B	Belgium	Cambridge	40
16C-06860	Organic farm animal biscuits	Organix Goodies	06.06.2017	L158 C	Germany	Newmarket	56
16C-06861	Organic vanilla baby biscuits	Organix Finger Foods	10.02.2017	L131C & L132A	Germany	Cambridge	34
16C-06862	Organic gingerbread men	Organix Goodies	20.05.2017	L141 B	Germany	Cambridge	86
16C-06863	Multigrain fruit muesli	Aptamil	13.08.17	KF	EU	Cambridge	10
16C-06864	Banana & cinnamon muesli	Ella's Kitchen	MAR 2017	15516	EU	Cambridge	13
16C-06865	Apple flavour fruity bakes	Annabel Karmel	01-05-17	IM MA	Netherlands	Cambridge	6
16C-06866	Sunrise banana porridge	Heinz	1st MAY 2017	L16147KCA01	England	Newmarket	9
16C-06867	Organic apple and orange soft oaty bars	Organix Goodies	26/01/2017	4/152	Switzerland	Newmarket	4

Category 10 Other products, based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06868	Jamaica ginger cake	McVitie's	10 NOV 16	F3	UK	Cambridge	82
16C-06869	Ginger loaf cake	Sainsbury's	01 OCT 2016	None declared	UK	Cambridge	96
16C-06870	Stem ginger loaf cake	Waitrose	15 SEP	G16243	None declared	Newmarket	486
16C-06871	Ginger parkin	Elisabeth Botham's	24 JAN 2017	0236	None declared	Whitby	146
16C-06872	All-butter pastry case	Asda Extra Special	05/NOV/2016	ALT310	UK	Cambridge	5
16C-06873	Mini all butter sweet pastry tartlets	Marks & Spencer	16/02/17	2016235890	France	Cambridge	25
16C-06874	Cool original flavour corn chips	Doritos	17 12 16	GBC 110 235B 7523	None declared	Cambridge	39
16C-06875	Lightly salted tortilla chips	Tesco Everyday Value	16/02/2017	36229 0711	Belgium	Cambridge	108
16C-06876	Sweet microwave popcorn	Butterkist	06 2017	LW6 167	None declared	Cambridge	341
16C-06877	Sweet & salty microwave popcorn	Popz	05.2018	L146	None declared	St Ives	170
16C-06878	Crunchy granola bars - oats & honey	Nature Valley	17/07/2017	LB 2503326373	Spain	Cambridge	367
16C-06879	Wholegrain oat cereal bar - raisins and hazelnuts	Jordans Frusli	14 05 17	6256/4	UK	Cambridge	4
16C-06880	Organic cocoa	Green & Black's Organic	AUG 2018	L6222	None declared	Cambridge	134
16C-06881	Bournville cocoa	Cadbury	12.09.2018	OCI 0263711	None declared	Cambridge	406
16C-06882	Pure dark chocolate powder	Mortimer Chocolate Company	JUL 2017	6188	West Africa, made in the UK	Mortimer Common	23
16C-06883	70% dark chocolate	Divine	07.2018	L16272 a	Made in Germany using Ghanaian cocoa	Newmarket	77
16C-06884	Baked potato	Tesco Café	None declared	None declared	None declared	Cambridge	789

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Acrylamide (µg/kg)
16C-06885	Veg crisps	Tyrrell's	09 12 16	16218 3	England	Cambridge	1390
16C-06886	Sweet potato, parsnip and beetroot vegetable crisps	Marks & Spencer	29/11/16	16 228 2	UK	Cambridge	2957
16C-06887	Vegetable crisps	Waitrose	15 NOV 16	6 222 3	None declared	Newmarket	1406
16C-06888	Golden parsnip, sweet potato & beetroot chips	Kettle Vegetable Chips	25-12-2016	Y 3 6218	Netherlands	Cambridge	847
16C-06889	Prunes in syrup	Tesco	JUL 2018	6194 12.8 L - PRY V10	UK	Cambridge	194
16C-06890	Pitted prunes in fruit juice	Sainsbury's	AUG 2018	6222 DAS VS L 04	UK	Cambridge	85
16C-06891	Pitted black olives in brine	Tesco	JUN2018	6176	Spain	Cambridge	578
16C-06892	Pitted black olives in brine	Crespo	24.05.2019	L60379 12.41 II 014056 014123 014131	Spain	Cambridge	241
16C-06893	Organic partially rehydrated prunes	Waitrose LoveLife	AUG 2017	L6224H170	None declared	Newmarket	21
16C-06894	Blocked Sayer dates	Whitworths	OCT 2017	L6 174B	Produce of more than one country Packed in the UK	Cambridge	14
16C-06895	Natural original liquorice	Panda	090917	100616	Finland	Cambridge	430
16C-06896	Pontefract cakes soft liquorice	Haribo	11/2017	L441-22216 -01 010 01 1906	None declared	Cambridge	209

<sup>a</sup> drained weight basis



## 6.4.2 Furan

Category 5 Breakfast cereals (excluding porridge) - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Furan (µg/kg)	
							As received	As consumed
16C-01273	Honey multigrain flakes of wholegrain corn, spelt & barley	Rude Health	23 10 16	L 296 M	None declared	London	11	N/A
16C-01274	Organic whole wheat cereal biscuits	Weetabix Organic	10/11/2016	15314	None declared	Cambridge	<10	N/A
16C-01275	Grape-nuts - wheat & malted barley cereal	Post	27OCT16	P3	USA	Newmarket	30	N/A
16C-01276	Puffed wheat	The Good Grain Co.	31DEC16	341 A 5	None declared	London	202	N/A
16C-01277	Bran flakes	Tesco	09/2016	P4 B1 53360953	UK	Newmarket	36	N/A
16C-01278	Apricot wheats	Tesco	09/2016	L4 53540952	UK	Newmarket	<10	N/A
16C-01279	Wholegrain bran flakes	Sainsbury's	11/2016	P3 B2 53090953	UK	Cambridge	39	N/A
16C-01280	Cornflakes	Kellogg's	01 09 16	03 MC	None declared	Cambridge	36	N/A
16C-01281	Shreddies - whole wheat malted cereal	Nestlé	09/2016	53470952 L3	None declared	Cambridge	14	N/A
16C-01282	Puffed wheat	Honey Monster Puffs	31DEC16	335 B 8	None declared	Cambridge	155	N/A
16C-01283	Whole wheat cereal biscuits	Morrisons	06/01/2017	6006 1	None declared	Cambridge	12	N/A
16C-01284	Frosted wheats - shredded wholewheat with sugar topping	Kellogg's	23 11 16	31 MC	None declared	Cambridge	12	N/A
16C-01285	Shredded wheat - wholegrain wheat cereal biscuits	Nestlé	10/2016	60070952 A	None declared	Cambridge	12	N/A
16C-01286	Wheat biscuits	Tesco Everyday Value	02/01/2017	None declared	UK	Newmarket	<10	N/A
16C-01287	Golden puffs	Harvest Morn	07.01.2017	16014 AEF	None declared	Cambridge	122	N/A
16C-01288	Malted wheaties	Asda	27/01/2017	6027 A	UK	Cambridge	16	N/A
16C-01289	Crunchy bran - high fibre cereal	Weetabix	19/01/2017	6019 9	None declared	Newmarket	56	N/A
16C-01290	Organic bran flakes	Tree of Life	08/08/16	55511 AJ2	Produce of UK	London	19	N/A
16C-01291	Wheat & wheat bran flakes	Co-op	08/2016	53300953 P3 B3	UK using British wheat & wheat bran	Cambridge	44	N/A
16C-01292	Wholewheat biscuits	Waitrose Essential	13/01/2017	6013 1	None declared	Newmarket	15	N/A
16C-01293	Fig & cranberry granola	The Food Doctor	05 01 2017	6005	UK	Newmarket	<10	N/A

16C-01294	3 seed & oat granola	Marks & Spencer	06/2016	5336	UK	Cambridge	10	N/A
16C-01295	Rice krispies	Kellogg Company	21 12 16	03 MC	None declared	Cambridge	12	N/A
16C-01296	Rice snaps	Tesco Stores Ltd	10/2016	60060953	UK	Cambridge	27	N/A

Category 6 Biscuits, crackers, crisp bread and similar (excluding pastry and cake) - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-01344	Biscuits, salty	Waitrose Essential	07 JAN 17	6 097 BC	None declared	Newmarket	42	-
16C-01345	Biscuits, sweet, wheat wholemeal	Doves Farm	04.DEC.16	6 087	Ingredients from more than one country. Baked in the UK	Newmarket	11	-
16C-01346	Crisp bread, rye wholemeal	Ryvita	20-12-2016	1 6081	Dorset	Cambridge	138	-
16C-01347	Biscuits, sweet, plain	Fox's Crinkle Crunch	21 01 17	D S	None declared	Cambridge	<10	-
16C-01348	Biscuits, sweet, plain	Asda	05 NOV 16	T2 6 120	UK	Soham	14	-
16C-01349	Biscuits, sweet, plain	McVitie's Ginger Nuts	29 10 16	C 6108 1	None declared	Cambridge	42	-
16C-01350	Biscuits, salty	TUC Original	08/10/16	6 070 1A	None declared	Cambridge	29	-
16C-01351	Biscuits, sweet, plain	Tesco	05 11 16	C 6117 2	UK	Cambridge	60	-
16C-01352	Biscuits, salty	Tesco	07 JAN 17	6 117 BB	UK	Cambridge	40	-
16C-01353	Biscuits, salty	Hovis	01 10 16	6021 A	None declared	Cambridge	26	-
16C-01354	Biscuits, salty	Sainsbury's	15 10 16	C 6093 1	UK	Cambridge	84	-
16C-01355	Biscuits, salty	Jacob's Krackawheat	05 NOV 16	T2 B	None declared	Cambridge	63	-
16C-01356	Biscuits, sweet, plain	Marks & Spencer	23/11/2016	6081 G8	UK	Cambridge	<10	-
16C-01357	Crisp bread, rye wholemeal	Finn Crisp	03032017	Production date: 03032016	Finland	Newmarket	64	-
16C-01358	Unleavened bread, crisp bread and rusk	Jacob's	24 09 16	C7 6075 7	None declared	Newmarket	83	-
16C-01359	Biscuits, sweet, plain	Paterson's	APR 2017	L16117	None declared	Cambridge	<10	-
16C-01360	Unleavened bread, crisp bread and rusk	GG Slimming World	10122018	None declared	Norway	Cambridge	31	-
16C-01361	Biscuits, salty	Jacob's	12.11.16	6 032 BB	None declared	Cambridge	52	-
16C-01362	Biscuits, sweet, plain	Jules Destrooper	30/05/2017	SL213460	Belgium	Cambridge	<10	-
16C-01363	Biscuits, oat meal	Nairn's	05 OCT 2016	1446	Scotland	Cambridge	34	-
16C-01364	Biscuits, sweet, plain	Asda	28/07/16	6 120	UK	Cambridge	<10	-
16C-01365	Biscuits, sweet, plain	Image on Food Ltd	Oct 2016	L16/441/ATu 2710147	UK	Newmarket	<10	-
16C-01366	Biscuits, sweet, plain	Tesco	13/08/16	6 104	UK	Cambridge	<10	-
16C-01367	Biscuits, sweet, plain	Marks & Spencer	21/09/2016	L6104 K	UK	Cambridge	<10	-
16C-01368	Biscuits (cookies)	Belvita Breakfast Yogurt Crunch	28.10.2016	106	None declared	Cambridge	<10	-
16C-01369	Biscuits (cookies)	McVitie's Go Ahead	31 DEC 2016	LZ6085 1	None declared	Cambridge	10	-
16C-01370	Biscuits, fruit filling	Marks & Spencer	10/08/2016	A	Scotland	Cambridge	<10	-
16C-01371	Biscuits, sweet, plain	Carousel	30 04 18	L6112	UK	Cambridge	28	-
16C-01372	Biscuits, sweet, plain	Asda	APR 17	6104G11Y	UK	Cambridge	<10	-

16C-01373	Biscuits, sweet, plain	Askey's	DEC 17	6089 G10Z	UK	Cambridge	216	-
-----------	------------------------	---------	--------	-----------	----	-----------	-----	---

Category 7 Coffee and coffee substitutes - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Furan (µg/kg)	
							As received	As consumed
16C-06801	Coffee bags	Lyons	OCT 2017	6116	None declared	Cambridge	3363	77
16C-06802	Italian espresso roasted & ground coffee	Waitrose	MAR 18	16069	Italy	Cambridge	3244	7
16C-06803	Guatemala Arabica ground coffee	Percol	09.2017	L33 6082	Guatemala	Newmarket	2499	93
16C-06804	Gajah mountain, Sumatra cafetiere grind coffee	Union Hand-Roasted Coffee	None declared	Roasted & packed by hand 09 JUN 2016	Sumatra	London	4860	163
16C-06805	Java Sumatra roast & ground coffee	Tesco Finest	Apr 2017	6125 A 2	Indonesia Packed in the UK	Cambridge	3933	147
16C-06806	Colombian Fairtrade coffee beans	Sainsbury's Taste the Difference	Apr 2017	6124 A 1	Columbia Packed in the UK	Cambridge	5440	160
16C-06807	Colombian ground coffee	Marks & Spencer	06 2017	6123 42	Colombia Packed in the UK	Cambridge	3598	132
16C-06808	Monsoon Malabar Indian coffee beans	Whittard of Chelsea	09/07/2016	11615	India	Cambridge	4626	166
16C-06809	Freeze dried soluble coffee	Nescafé Gold Blend	04 2018	61111092D	None declared	Cambridge	555	2
16C-06810	Freeze dried decaffeinated soluble coffee	Nescafé Gold Blend Decaff	04 2018	60971092E	None declared	Cambridge	328	2
16C-06811	Freeze dried instant coffee	Kenco Smooth	MAR 18	L6076	None declared	Cambridge	135	<1
16C-06812	Freeze dried decaffeinated instant coffee	Kenco Decaff	APR 18	L6104	None declared	Cambridge	551	3
16C-06813	Freeze dried instant coffee	Carte Noire	04/18	L6096	UK	Cambridge	456	3
16C-06814	Freeze dried decaffeinated instant coffee	Carte Noire Décaféiné	05/18	L6137	UK	Cambridge	459	3
16C-06815	Chicory & coffee essence	Camp	08 03 18	L6068	UK	Cambridge	41	<1
16C-06816	Instant dandelion coffee compound	Symingtons	SEP 2017	BN 113476	None declared	Cambridge	<40	<1
16C-06817	Organic cereal coffee	Lima Yannoh Instant	30.11.2017	L015080	Switzerland	Cambridge	178	2
16C-06818	Instant blend of cereal and guarana-coffee alternative	Whole Earth Wake Up	OCTOBER 2017	L5296	Italy	Cambridge	424	4
16C-06819	Instant cereal drink	Barley Cup Original	18.11.2018	5473C	None declared	Cambridge	64	<1
16C-06820	Organic instant cereal drink	Biona Organic Biomalt	01-19	L6035A	None declared	Brighton	71	<1

Category 8 Baby foods, other than processed cereal based foods - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	Furan (µg/kg)	
							As received	As consumed
16C-06821	Organic tender carrots & potatoes	Hipp Organic	02/18	L192135 DE P01/16 079675 079683 079700 079821 079822	Germany	Cambridge	34	N/A
16C-06822	Organic carrot, sweet potato & swede	Boots Baby Organic	18/12/2016	G -	France	Newmarket	30	N/A
16C-06823	Carrot & sweet potato mash	Heinz Mum's Own	11/2017	6140 0441 A	None declared	Cambridge	20	N/A
16C-06824	Organic parsnip, potato & turkey casserole	Hipp Organic	10/17	L194679 DE P03/16 004711 004732 004841 004852	Germany	Cambridge	10	N/A
16C-06825	Cheesy tomato pasta stars	Heinz Mum's Own	07/2017	6015 0428 C	None declared	Cambridge	26	N/A
16C-06826	Organic carrots, apples & parsnips	Ella's Kitchen	05/17	509700084 509722383 509723183 509723343	EU	Newmarket	5	N/A
16C-06827	Organic pasta with cheesy vegetables	Boots Baby Organic	30.04.2017	L188411 DE Nr.024135 Nr.024147 Nr.024184 Nr.024884	Germany	Newmarket	11	N/A
16C-06828	Vegetable and chicken casserole puree	Heinz	09/03/17 06/01/17	J-6069 V 0570 G-5005	EU	Cambridge	65	N/A
16C-06830	Organic mixed vegetable medley	Hipp Organic	08/17	L193610 DE P02/16 261293 261345 261358 261372	Germany	Cambridge	33	N/A
16C-06831	Spaghetti bolognese	Heinz Little Kidz	23/03/2017	6083	EU	Cambridge	32	N/A
16C-06832	Spaghetti bolognese	Cow & Gate Little Steamed Meals	07/07//2017	AT	EU	Cambridge	38	N/A

Category 8 - 2016 samples, continued...

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	Furan (µg/kg)	
							As received	As consumed
16C-06833	Organic lasagne	Hipp Organic	05.01.17	L196219	Austria	Cambridge	15	N/A
16C-06834	Organic tomato & leek pasta	Hipp Organic	01/03/2017	V J-	France	Cambridge	15	N/A
16C-06835	Organic vegetable + lentil bake	Ella's Kitchen	05/2017	03 J-6118 0561	EU	Cambridge	62	N/A
16C-06836	Creamed carrot & potato	Cow & Gate	30.03.2018	106975/ A/08989.02/	EU	Cambridge	108	N/A
16C-06837	Carrot and lamb hotpot	Cow & Gate	13.04.2018	106966/ C/08480.04/	EU	Cambridge	20	N/A
16C-06838	Organic beef stew with spuds	Ella's Kitchen	06/2107	6138 10 A FR28280028CE	EU	Newmarket	24	N/A
16C-06839	Organic carrot & potato	Boots Baby Organic	30.06.2017	L188278 DE Nr.013058 Nr.018181 Nr.018394 Nr.018407	Germany	Newmarket	56	N/A
16C-06840	Succulent pork casserole	Cow & Gate	14.04.2018	106929/ C/08990.05/	EU	Cambridge	27	N/A
16C-06841	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	02 02 2017	None declared	UK	St Ives	30	N/A
16C-06842	Organic butternut squash, carrots, apples & prunes	Ella's Kitchen	05/17	709600493 709601133 809600283 809601153	EU	Newmarket	7	N/A
16C-06844	Organic prunes	Ella's Kitchen	07/17	1315822391 1315822411 1315822431 1315822471 x 2 1315822491 1315822571	EU	Cambridge	2	N/A

Category 10 Other products, based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Furan (µg/kg)	
							As received	As consumed
16C-06876	Sweet microwave popcorn	Butterkist	06 2017	LW6 167	None declared	Cambridge	N/A	175
16C-06877	Sweet & salty microwave popcorn	Popz	05.2018	L146	None declared	St Ives	N/A	84

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	Furan (µg/kg)	
							As received	As consumed
16C-06889	Prunes in syrup	Tesco	JUL 2018	6194 12.8 L - PRY V10	UK	Cambridge	9	N/A
16C-06890	Pitted prunes in fruit juice	Sainsbury's	AUG 2018	6222 DAS VS L 04	UK	Cambridge	8	N/A



### 6.4.3 2-methyl furan

#### Category 8 Baby foods, other than processed cereal based foods - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	2-methyl furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-06821	Organic tender carrots & potatoes	Hipp Organic	02/18	L192135 DE P01/16 079675 079683 079700 079821 079822	Germany	Cambridge	<2	N/A
16C-06822	Organic carrot, sweet potato & swede	Boots Baby Organic	18/12/2016	G -	France	Newmarket	3	N/A
16C-06823	Carrot & sweet potato mash	Heinz Mum's Own	11/2017	6140 0441 A	None declared	Cambridge	<2	N/A
16C-06824	Organic parsnip, potato & turkey casserole	Hipp Organic	10/17	L194679 DE P03/16 004711 004732 004841 004852	Germany	Cambridge	<2	N/A
16C-06825	Cheesy tomato pasta stars	Heinz Mum's Own	07/2017	6015 0428 C	None declared	Cambridge	4	N/A
16C-06826	Organic carrots, apples & parsnips	Ella's Kitchen	05/17	509700084 509722383 509723183 509723343	EU	Newmarket	<2	N/A
16C-06827	Organic pasta with cheesy vegetables	Boots Baby Organic	30.04.2017	L188411 DE Nr.024135 Nr.024147 Nr.024184 Nr.024884	Germany	Newmarket	<2	N/A
16C-06828	Vegetable and chicken casserole puree	Heinz	09/03/17 06/01/17	J-6069 V 0570 G-5005	EU	Cambridge	3	N/A
16C-06830	Organic mixed vegetable medley	Hipp Organic	08/17	L193610 DE P02/16 261293 261345 261358 261372	Germany	Cambridge	<2	N/A

Category 8 - 2016 samples, continued...

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	2-methyl furan (µg/kg)	
							As received	As consumed
16C-06831	Spaghetti bolognese	Heinz Little Kidz	23/03/2017	6083	EU	Cambridge	4	N/A
16C-06832	Spaghetti bolognese	Cow & Gate Little Steamed Meals	07/07//2017	AT	EU	Cambridge	5	N/A
16C-06833	Organic lasagne	Hipp Organic	05.01.17	L196219	Austria	Cambridge	3	N/A
16C-06834	Organic tomato & leek pasta	Hipp Organic	01/03/2017	V J-	France	Cambridge	<2	N/A
16C-06835	Organic vegetable + lentil bake	Ella's Kitchen	05/2017	03 J-6118 0561	EU	Cambridge	7	N/A
16C-06836	Creamed carrot & potato	Cow & Gate	30.03.2018	106975/ A/08989.02/	EU	Cambridge	4	N/A
16C-06837	Carrot and lamb hotpot	Cow & Gate	13.04.2018	106966/ C/08480.04/	EU	Cambridge	2	N/A
16C-06838	Organic beef stew with spuds	Ella's Kitchen	06/2107	6138 10 A FR28280028CE	EU	Newmarket	<2	N/A
16C-06839	Organic carrot & potato	Boots Baby Organic	30.06.2017	L188278 DE Nr.013058 Nr.018181 Nr.018394 Nr.018407	Germany	Newmarket	2	N/A
16C-06840	Succulent pork casserole	Cow & Gate	14.04.2018	106929/ C/08990.05/	EU	Cambridge	6	N/A
16C-06841	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	02 02 2017	None declared	UK	St Ives	<2	N/A
16C-06842	Organic butternut squash, carrots, apples & prunes	Ella's Kitchen	05/17	709600493 709601133 809600283 809601153	EU	Newmarket	<2	N/A
16C-06844	Organic prunes	Ella's Kitchen	07/17	1315822391 1315822411 1315822431 1315822471 x 2 1315822491 1315822571	EU	Cambridge	<2	N/A

Category 10 Other products, based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	2-methyl furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-06876	Sweet microwave popcorn	Butterkist	06 2017	LW6 167	None declared	Cambridge	N/A	204
16C-06877	Sweet & salty microwave popcorn	Popz	05.2018	L146	None declared	St Ives	N/A	72

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	2-methyl furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-06889	Prunes in syrup	Tesco	JUL 2018	6194 12.8 L - PRY V10	UK	Cambridge	<2	N/A
16C-06890	Pitted prunes in fruit juice	Sainsbury's	AUG 2018	6222 DAS VS L 04	UK	Cambridge	<2	N/A

## 6.4.4 3-methyl furan

### Category 8 Baby foods, other than processed cereal based foods - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	3-methyl furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-06821	Organic tender carrots & potatoes	Hipp Organic	02/18	L192135 DE P01/16 079675 079683 079700 079821 079822	Germany	Cambridge	<2	N/A
16C-06822	Organic carrot, sweet potato & swede	Boots Baby Organic	18/12/2016	G -	France	Newmarket	<2	N/A
16C-06823	Carrot & sweet potato mash	Heinz Mum's Own	11/2017	6140 0441 A	None declared	Cambridge	<2	N/A
16C-06824	Organic parsnip, potato & turkey casserole	Hipp Organic	10/17	L194679 DE P03/16 004711 004732 004841 004852	Germany	Cambridge	<2	N/A
16C-06825	Cheesy tomato pasta stars	Heinz Mum's Own	07/2017	6015 0428 C	None declared	Cambridge	<2	N/A
16C-06826	Organic carrots, apples & parsnips	Ella's Kitchen	05/17	509700084 509722383 509723183 509723343	EU	Newmarket	<2	N/A
16C-06827	Organic pasta with cheesy vegetables	Boots Baby Organic	30.04.2017	L188411 DE Nr.024135 Nr.024147 Nr.024184 Nr.024884	Germany	Newmarket	<2	N/A
16C-06828	Vegetable and chicken casserole puree	Heinz	09/03/17 06/01/17	J-6069 V 0570 G-5005	EU	Cambridge	<2	N/A
16C-06830	Organic mixed vegetable medley	Hipp Organic	08/17	L193610 DE P02/16 261293 261345 261358 261372	Germany	Cambridge	<2	N/A

Category 8 - 2016 samples, continued...

Sample code	Product description	Brand	Use by / best before date	Batch code(s)	Declared country of origin	UK town where purchased	3-methyl furan (µg/kg)	
							As received	As consumed
16C-06831	Spaghetti bolognese	Heinz Little Kidz	23/03/2017	6083	EU	Cambridge	<2	N/A
16C-06832	Spaghetti bolognese	Cow & Gate Little Steamed Meals	07/07//2017	AT	EU	Cambridge	<2	N/A
16C-06833	Organic lasagne	Hipp Organic	05.01.17	L196219	Austria	Cambridge	<2	N/A
16C-06834	Organic tomato & leek pasta	Hipp Organic	01/03/2017	V J-	France	Cambridge	<2	N/A
16C-06835	Organic vegetable + lentil bake	Ella's Kitchen	05/2017	03 J-6118 0561	EU	Cambridge	<2	N/A
16C-06836	Creamed carrot & potato	Cow & Gate	30.03.2018	106975/ A/08989.02/	EU	Cambridge	<2	N/A
16C-06837	Carrot and lamb hotpot	Cow & Gate	13.04.2018	106966/ C/08480.04/	EU	Cambridge	<2	N/A
16C-06838	Organic beef stew with spuds	Ella's Kitchen	06/2107	6138 10 A FR28280028CE	EU	Newmarket	<2	N/A
16C-06839	Organic carrot & potato	Boots Baby Organic	30.06.2017	L188278 DE Nr.013058 Nr.018181 Nr.018394 Nr.018407	Germany	Newmarket	<2	N/A
16C-06840	Succulent pork casserole	Cow & Gate	14.04.2018	106929/ C/08990.05/	EU	Cambridge	<2	N/A
16C-06841	Organic swede, parsnip, carrot & quinoa	Quinoa Mothergrain	02 02 2017	None declared	UK	St Ives	<2	N/A
16C-06842	Organic butternut squash, carrots, apples & prunes	Ella's Kitchen	05/17	709600493 709601133 809600283 809601153	EU	Newmarket	<2	N/A
16C-06844	Organic prunes	Ella's Kitchen	07/17	1315822391 1315822411 1315822431 1315822471 x 2 1315822491 1315822571	EU	Cambridge	<2	N/A

Category 10 Other products, based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	3-methyl furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-06876	Sweet microwave popcorn	Butterkist	06 2017	LW6 167	None declared	Cambridge	N/A	30
16C-06877	Sweet & salty microwave popcorn	Popz	05.2018	L146	None declared	St Ives	N/A	27

Category 11 Other products, not based on cereals, potatoes, cocoa and coffee - 2016 samples

Sample code	Product description	Brand	Use by / best before date	Batch code	Declared country of origin	UK town where purchased	3-methyl furan ( $\mu\text{g}/\text{kg}$ )	
							As received	As consumed
16C-06889	Prunes in syrup	Tesco	JUL 2018	6194 12.8 L - PRY V10	UK	Cambridge	<2	N/A
16C-06890	Pitted prunes in fruit juice	Sainsbury's	AUG 2018	6222 DAS VS L 04	UK	Cambridge	<2	N/A