



# **Nutrient analysis survey of biscuits, buns, cakes and pastries**

*Analytical report*

## Nutrient analysis survey of biscuits, buns, cakes and pastries

### DH INFORMATION READER BOX

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<b>Description</b>	This survey forms part of the Department of Health's rolling programme of nutrient analysis which provides up-to-date and reliable information on the nutrient content of foods. The results are incorporated into nutrient databanks which support the National Diet and Nutrition Survey and other national dietary surveys used to monitor the nations diet. Any data queries will be dealt with on a case by case basis.
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**Prepared by the Institute of Food Research**

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# Executive summary

The objective of this project was to provide up-to-date and reliable information on the nutrient composition of biscuits, buns, cakes and pastries for which the need for new data had been identified. The results from this survey will update and extend information on these foods that were last analysed over the last 20-30 years and provide information on products that have become more popular and widely available in recent years. The results of the analytical survey will be incorporated into the Food Standards Agency's<sup>1</sup> (FSA) nutrient databank that supports the National Diet and Nutrition Survey and will also be disseminated via the authoritative UK food composition tables, *McCance and Widdowson's The Composition of Foods*. This project reports analysis of 62 composite samples that were made up of between 5 and 12 sub-samples that were representative of products consumed in the UK. Detailed sampling information is contained in a separate sampling report. Results for individual fatty acids are reported separately in electronic format.

# Agreed milestones

- Prepare sampling plan, including final list of samples, and list of nutrients to be analysed, and agree with FSA
- Complete stakeholder consultation exercise
- Complete purchasing of sub-samples
- Complete preparation of composite samples for analysis
- Complete laboratory nutrient analysis of all composite food samples
- Complete sampling report
- Complete evaluation of analytical data, including quality assessment
- Complete final report, including final dataset

# Methods

## **Review of sample and nutrient analysis requirements**

An initial list of 89 composite samples for analysis was comprehensively reviewed and proposals for additions and deletions were discussed and agreed with FSA. Brand availability and market share was reviewed for each composite sample and a list of sub-samples to be included in each composite sample was prepared. A list of nutrients to be analysed for each composite sample was produced, based on product ingredients and availability of existing data, and agreed with FSA.

## **Purchasing of sub-samples**

Samples were purchased according to a sample protocol produced in agreement with FSA. Some samples were not available and were substituted according to the sample protocol. All samples were purchased between September and December 2008 and were stored at an appropriate temperature prior to composite sample preparation. Samples were purchased from the Norwich area, unless unavailable in which case they were purchased from the London area, online or were supplied direct from manufacturers. Photographs of all sub-sample products and package labelling were provided in electronic form.

## **Composite sample preparation**

Where necessary, samples were prepared following the manufacturer's instructions on the packaging to ensure that all foods were analysed in their edible form. Samples that required further preparation, e.g. cooked pastry were prepared in the Institute of Food Research Human Nutrition Unit. Equal weights of the sub-samples were mixed together and homogenized to create a composite sample. Samples were stored frozen (-20°C) and transported by overnight courier to the analytical laboratory as soon as possible after preparation.



# Composite sample list

Full details of sub-samples are contained in the project sampling report, available as a separate document. Table 1 lists the 62 composite samples prepared and analysed.

**Table 1.**

<b>Sample Number</b>	<b>Sample Name</b>	<b>Description</b>
1	Short, sweet biscuits	12 samples, 11 products, including malted milk, shortcake, nice
2	Semi-sweet biscuits	10 samples, 7 products, including rich tea, morning coffee
3	Ginger nut biscuits	10 samples, 8 products
4	Digestives, plain	10 samples, 7 products
5	Wafer, plain ice-cream wafer, not filled	10 samples, 9 products, inc wafers, cornets and cones
6	Reduced fat plain biscuits	10 samples, 5 products, including digestives and rich tea
7	Shortbread	10 samples, 7 products
8	Digestives with oats, plain	9 samples, 4 products
9	Jam filled biscuits	10 samples, 6 products
10	Fig rolls	10 samples, 5 products
11	Short or sweet biscuits, half coated in chocolate	10 samples, 6 products, including milk and plain chocolate
12	Digestives	10 samples, 6 products
13	Iced biscuits	5 samples, 2 products
14	Short or sweet biscuits, fully chocolate coated	10 samples, 6 products, including Breakaway, Rocky and chocolate fingers
15	Cream biscuits, fully chocolate coated	10 samples, 8 products, inc Penguin, Club, Classic, Puffin

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<b>Sample Number</b>	<b>Sample Name</b>	<b>Description</b>
16	Chocolate coated biscuits with marshmallow	10 samples, 7 products, including teacakes and Wagon Wheels
17	Chocolate wafer biscuits, fully coated	10 samples, 6 products, including Kit Kat, Blue Riband, Time Out, Taxi
18	Cream sandwich biscuits	12 samples, 12 products, including custard creams and bourbon
19	Flapjacks, retail	10 samples, 9 products
20	Chocolate chip cookies, standard	10 samples, 7 products
21	Chocolate chip cookies, American style	10 samples, 10 products
22	Fruit biscuits	10 samples, 8 products, including fruit shortcake and garibaldi
23	Cereal bars, with fruit and/or nuts, with chocolate, not fortified	5 samples, 4 products
24	Cereal bars, with fruit and/or nuts, without chocolate, not fortified	5 samples, 5 products
25	Cream crackers	10 samples, 6 products
26	Cheese flavoured biscuits	10 samples, 5 products
27	Crispbread, rye	5 samples, including Ryvita original and Ryvita dark
28	Oatcakes	10 samples, 7 products
29	Cheese straws/twists	10 samples, 7 products
30	Toasted minibreads	10 samples, 6 products, including pepite, focaccine, bruschettinne and crostini
31	Breadsticks	10 samples, 5 products
32	Scones, plain	10 samples, 7 products

**Nutrient analysis survey of biscuits, buns, cakes and pastries**

<b>Sample Number</b>	<b>Sample Name</b>	<b>Description</b>
33	Iced buns	10 samples, 7 products
34	Fruit cake	10 samples, 9 products
35	Chocolate cake with filling, iced	10 samples, 7 products
36	Sponge cake, with jam and buttercream	10 samples, 8 products, including sandwich and Swiss roll
37	Soft iced cake	10 samples, 8 products, including angel cake, Madeira and lemon drizzle
38	Loaf cakes	7 samples, 2 products, including Jamaica ginger and golden syrup
39	Swiss roll, chocolate covered and filled	10 samples, 5 products
40	Battenberg cake	10 samples, 4 products, including mini cakes
41	Carrot cake, iced	10 samples, 8 products
42	Caramel shortcake	10 samples, 7 products
43	Eccles cake	10 samples, 6 products
44	Fancy iced cakes	10 samples, 8 products, including French and fondant fancies, cup cakes, fairy cakes, angel and lemon slices
45	Cakes from 'healthy eating' ranges	10 samples, 7 products, including carrot, lemon and apple slices
46	Danish pastries	10 samples, 9 products
47	Greek pastries	7 samples, 7 products, assorted baklawa
48	Cream filled pastries	10 samples, 6 products
49	Chocolate éclairs, cream filled	10 samples, 7 products
50	Bakewell tarts, iced	10 samples, 7 products

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<b>Sample Number</b>	<b>Sample Name</b>	<b>Description</b>
51	Jam tarts, individual	10 samples, 6 products
52	Custard tarts, individual	10 samples, 6 products
53	Fruit pies, individual	10 samples, 7 products
54	Mince pies	10 samples, 8 products
55	Doughnuts, with jam	10 samples, supermarket brands and bakery
56	Doughnuts, ring, iced	10 samples, supermarket brands and bakery
57	Shortcrust pastry, uncooked	10 samples, 9 products; frozen and chilled, block and ready rolled
58	Flaky/puff pastry, uncooked	10 samples, 9 products; frozen and chilled, block and ready rolled
59	Shortcrust pastry, cooked	10 samples, 9 products; frozen and chilled, block and ready rolled
60	Flaky/puff pastry, cooked	10 samples, 9 products; frozen and chilled, block and ready rolled
61	Filo pastry, uncooked	6 samples, 4 products
62	Filo pastry, cooked	6 samples, 4 products

## Evaluation of data

Values provided by analytical laboratories were compiled in Excel spreadsheets for data evaluation. Where possible, analytical values were compared to other sources of comparable data. Sources used included UK Food Composition tables, other food composition tables and information from manufacturers and retailers. Ingredients lists were also evaluated to check that the values reported corresponded to the ingredients included in the samples. Where analytical values appeared incorrect or questionable, data was checked against original laboratory reports and re-analysed if necessary.

# Analysis and results

The following points relate to the results presented below.

- Available carbohydrate, starch, total sugars and individual sugars are reported as monosaccharide equivalents. The following factors were used to convert from carbohydrate weights to monosaccharide equivalents

Monosaccharides:	no conversion
Disaccharides:	x 1.05
Starch:	x 1.10

- Total carbohydrate was reported as 'available carbohydrate' calculated from the sum of free sugars (glucose, fructose, sucrose, maltose, lactose, galactose and oligosaccharides) and complex carbohydrates (dextrins, starch)
- Protein is calculated from total nitrogen using the nitrogen conversion factors shown.
- The values given for fat refer to total fat and not just triglycerides
- Metabolisable energy is given in kilocalories (kcal) and kilojoules (kJ). These values have been calculated from protein, fat and carbohydrate using the following energy conversion factors

	Kcal/g	kJ/g
Protein	4	17
Fat	9	37
Available carbohydrate	3.75	16

- Total vitamin A is calculated as retinol equivalents and is equal to all *trans* retinol + (beta-carotene/6)
- Saturated, cis-monounsaturated, cis-polyunsaturated, and *trans* fatty acids have been calculated from summations of individual fatty acids and are shown as g/100g food. A conversion factor has been used to allow for the non-triglyceride fraction of the lipid and calculate fatty acids g/100g food from g/100g fatty acid methyl esters. The conversion factors used depend on the main fat source of the food and are taken from the tables given in the 6<sup>th</sup> Summary edition of McCance and Widdowson's *The Composition of Foods*

Results for individual fatty acids are available separately in electronic format.

- Some values are reported as '<' meaning that the result was below the analytical limit of quantification (LOQ) or limit of detection (LOD). There is no distinction between '<' and 'not detected'
- The bulk of the sample analysis was performed by Eurofins laboratories between November 2008 and January 2009, however a second set of analyses on selected

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additional micronutrients was performed by Eurofins Laboratories in December 2009. Additional analysis of iodine on selected samples was performed by LGC during January 2010

- Additional analysis of micronutrients in 'Loaf cakes' was performed on a second composite sample that was prepared using additional sub-samples purchased in November 2009. The sub-samples were the same products (with the same ingredients and nutritional information) as listed in the sampling report and were purchased from the same retailers

The composite samples were analysed for a range of nutrients agreed with FSA.

Results for all composite samples are given on pages 16-77:

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 1: Short, sweet biscuits**

**PROXIMATES**

Water	2.9	g/100g
Total Nitrogen	0.98	g/100g
Nitrogen conversion factor	5.70	
Protein	5.6	g/100g
Fat	20.9	g/100g
Ash	1.5	g/100g
Energy (kcal)	479	
Energy (kJ)	2016	
Cholesterol	10	mg/100g

**CARBOHYDRATES**

Glucose	0.6	g/100g
Fructose	0.6	g/100g
Sucrose	22.0	g/100g
Maltose	0.6	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	48.0	g/100g
Total sugars	23.8	g/100g
Available carbohydrate	71.7	g/100g
Fibre (Englyst)	1.6	g/100g
Fibre (AOAC)	2.2	g/100g

**FATTY ACIDS**

Saturated	10.05	g/100g
cis-monounsaturated	7.46	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	2.09	g/100g
cis polyunsaturated	2.16	g/100g
Trans	0.05	g/100g

**INORGANICS**

Sodium (Na)	403	mg/100g
Potassium (K)	155	mg/100g
Calcium (Ca)	95	mg/100g
Magnesium (Mg)	20	mg/100g
Phosphorous (P)	106	mg/100g
Iron (Fe)	1.6	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	380	mg/100g
Manganese (Mn)	0.64	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.16	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.17	mg/100g
Riboflavin	0.02	mg/100g
Niacin	1.3	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	9	µg/100g
Pantothenic acid	0.37	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.68	mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 2: Semi-sweet biscuits**

**PROXIMATES**

Water	2.0	g/100g
Total Nitrogen	1.13	g/100g
Nitrogen conversion factor	5.70	
Protein	6.4	g/100g
Fat	15.1	g/100g
Ash	1.5	g/100g
Energy (kcal)	444	
Energy (kJ)	1874	
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose	0.6	g/100g
Fructose	<0.1	g/100g
Sucrose	19.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	55.1	g/100g
Total sugars	20.3	g/100g
Available carbohydrate	75.4	g/100g
Fibre (Englyst)	1.9	g/100g
Fibre (AOAC)	2.7	g/100g

**FATTY ACIDS**

Saturated	5.08	g/100g
cis-monounsaturated	7.42	g/100g
cis n-3 polyunsaturated	0.12	g/100g
cis n-6 polyunsaturated	1.76	g/100g
cis polyunsaturated	1.88	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	358	mg/100g
Potassium (K)	168	mg/100g
Calcium (Ca)	157	mg/100g
Magnesium (Mg)	23	mg/100g
Phosphorous (P)	99	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.09	mg/100g
Zinc (Zn)	1.0	mg/100g
Chloride (Cl)	290	mg/100g
Manganese (Mn)	0.77	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.26	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.12	mg/100g
Riboflavin	0.01	mg/100g
Niacin	1.4	mg/100g
Tryptophan/60	1.3	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	12	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.85	mg/100g

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**Sample 3: Ginger nut biscuits**

**PROXIMATES**

Water	3.3	g/100g
Total Nitrogen	0.84	g/100g
Nitrogen conversion factor	5.70	
Protein	4.8	g/100g
Fat	15.7	g/100g
Ash	1.4	g/100g
Energy (kcal)	443	
Energy (kJ)	1867	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	3.0	g/100g
Fructose	2.4	g/100g
Sucrose	22.6	g/100g
Maltose	3.3	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	44.0	g/100g
Total sugars	31.3	g/100g
Available carbohydrate	75.3	g/100g
Fibre (Englyst)	1.5	g/100g
Fibre (AOAC)	2.2	g/100g

**FATTY ACIDS**

Saturated	7.26	g/100g
cis-monounsaturated	5.92	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.68	g/100g
cis polyunsaturated	1.73	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	429	mg/100g
Potassium (K)	154	mg/100g
Calcium (Ca)	43	mg/100g
Magnesium (Mg)	18	mg/100g
Phosphorous (P)	68	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.10	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)	360	mg/100g
Manganese (Mn)	0.68	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.64	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.10	mg/100g

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**Sample 4: Plain digestives**

**PROXIMATES**

Water	2.8	g/100g
Total Nitrogen	1.09	g/100g
Nitrogen conversion factor	5.70	
Protein	6.2	g/100g
Fat	21.3	g/100g
Ash	1.9	g/100g
Energy (kcal)	463	
Energy (kJ)	1943	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	17.5	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	48.1	g/100g
Total sugars	17.5	g/100g
Available carbohydrate	65.6	g/100g
Fibre (Englyst)	2.7	g/100g
Fibre (AOAC)	3.8	g/100g

**FATTY ACIDS**

Saturated	7.71	g/100g
cis-monounsaturated	10.18	g/100g
cis n-3 polyunsaturated	0.08	g/100g
cis n-6 polyunsaturated	2.19	g/100g
cis polyunsaturated	2.28	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	561	mg/100g
Potassium (K)	215	mg/100g
Calcium (Ca)	95	mg/100g
Magnesium (Mg)	31	mg/100g
Phosphorous (P)	119	mg/100g
Iron (Fe)	1.8	mg/100g
Copper (Cu)	0.21	mg/100g
Zinc (Zn)	0.9	mg/100g
Chloride (Cl)	360	mg/100g
Manganese (Mn)	0.91	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.23	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.12	mg/100g
Riboflavin	0.02	mg/100g
Niacin	1.9	mg/100g
Tryptophan/60	1.2	mg/100g
Vitamin B <sub>6</sub>	0.07	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	11	µg/100g
Pantothenic acid	0.48	mg/100g
Biotin	4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	5.32	mg/100g

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**Sample 5: Wafers, plain ice cream wafers, not filled**

**PROXIMATES**

Water	5.7	g/100g
Total Nitrogen	1.84	g/100g
Nitrogen conversion factor	5.70	
Protein	10.5	g/100g
Fat	3.0	g/100g
Ash	1.1	g/100g
Energy (kcal)	368	
Energy (kJ)	1565	
Cholesterol	4	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	3.5	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	76.2	g/100g
Total sugars	3.5	g/100g
Available carbohydrate	79.7	g/100g
Fibre (Englyst)	2.1	g/100g
Fibre (AOAC)	3.4	g/100g

**FATTY ACIDS**

Saturated	0.59	g/100g
cis-monounsaturated	0.94	g/100g
cis n-3 polyunsaturated	0.16	g/100g
cis n-6 polyunsaturated	1.15	g/100g
cis polyunsaturated	1.31	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	192	mg/100g
Potassium (K)	195	mg/100g
Calcium (Ca)	89	mg/100g
Magnesium (Mg)	28	mg/100g
Phosphorous (P)	129	mg/100g
Iron (Fe)	2.3	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	1.2	mg/100g
Chloride (Cl)	160	mg/100g
Manganese (Mn)	0.92	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	7	µg/100g
Aluminium (Al)	0.44	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.02	mg/100g
Niacin	1.6	mg/100g
Tryptophan/60	2.0	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	14	µg/100g
Pantothenic acid	0.53	mg/100g
Biotin	9	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.42	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 6: Reduced fat plain biscuits**

**PROXIMATES**

Water	3.1	g/100g
Total Nitrogen	1.16	g/100g
Nitrogen conversion factor	5.70	
Protein	6.6	g/100g
Fat	13.5	g/100g
Ash	1.8	g/100g
Energy (kcal)	432	
Energy (kJ)	1823	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	0.9	g/100g
Fructose	<0.1	g/100g
Sucrose	20.3	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	54.5	g/100g
Total sugars	21.2	g/100g
Available carbohydrate	75.7	g/100g
Fibre (Englyst)	2.7	g/100g
Fibre (AOAC)	4.4	g/100g

**FATTY ACIDS**

Saturated	4.31	g/100g
cis-monounsaturated	6.63	g/100g
cis n-3 polyunsaturated	0.08	g/100g
cis n-6 polyunsaturated	1.77	g/100g
cis polyunsaturated	1.86	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	471	mg/100g
Potassium (K)	193	mg/100g
Calcium (Ca)	102	mg/100g
Magnesium (Mg)	30	mg/100g
Phosphorous (P)	124	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.18	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.91	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	0.23	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 7: Shortbread**

**PROXIMATES**

Water	3.5	g/100g
Total Nitrogen	0.94	g/100g
Nitrogen conversion factor	5.70	
Protein	5.3	g/100g
Fat	29.0	g/100g
Ash	1.3	g/100g
Energy (kcal)	515	
Energy (kJ)	2158	
Cholesterol	82	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	15.6	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	46.5	g/100g
Total sugars	15.6	g/100g
Available carbohydrate	62.2	g/100g
Fibre (Englyst)	1.3	g/100g
Fibre (AOAC)	2.2	g/100g

**FATTY ACIDS**

Saturated	17.45	g/100g
cis-monounsaturated	6.29	g/100g
cis n-3 polyunsaturated	0.28	g/100g
cis n-6 polyunsaturated	0.95	g/100g
cis polyunsaturated	1.23	g/100g
Trans	0.74	g/100g

**INORGANICS**

Sodium (Na)	321	mg/100g
Potassium (K)	133	mg/100g
Calcium (Ca)	138	mg/100g
Magnesium (Mg)	15	mg/100g
Phosphorous (P)	77	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.61	mg/100g
Iodine (I)	2.6	µg/100g
Selenium (Se)	6	µg/100g
Aluminium (Al)	0.32	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	281	µg/100g
Beta - carotene	96	µg/100g
Total vitamin A	297	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.30	mg/100g

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**Sample 8: Digestives with oats, plain**

**PROXIMATES**

Water	3.0	g/100g
Total Nitrogen	1.09	g/100g
Nitrogen conversion factor	5.70	
Protein	6.4	g/100g
Fat	22.9	g/100g
Ash	1.5	g/100g
Energy (kcal)	480	
Energy (kJ)	2017	
Cholesterol	10	mg/100g

**CARBOHYDRATES**

Glucose	1.2	g/100g
Fructose	0.9	g/100g
Sucrose	23.9	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	40.5	g/100g
Total sugars	25.9	g/100g
Available carbohydrate	66.4	g/100g
Fibre (Englyst)	4.4	g/100g
Fibre (AOAC)	7.2	g/100g

**FATTY ACIDS**

Saturated	5.94	g/100g
cis-monounsaturated	12.72	g/100g
cis n-3 polyunsaturated	0.12	g/100g
cis n-6 polyunsaturated	2.93	g/100g
cis polyunsaturated	3.05	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	328	mg/100g
Potassium (K)	248	mg/100g
Calcium (Ca)	34	mg/100g
Magnesium (Mg)	60	mg/100g
Phosphorous (P)	214	mg/100g
Iron (Fe)	2.2	mg/100g
Copper (Cu)	0.28	mg/100g
Zinc (Zn)	1.4	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	2.15	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	0.13	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 9: Jam filled biscuits**

**PROXIMATES**

Water	6.5	g/100g
Total Nitrogen	0.92	g/100g
Nitrogen conversion factor	5.70	
Protein	5.2	g/100g
Fat	14.4	g/100g
Ash	0.9	g/100g
Energy (kcal)	428	
Energy (kJ)	1807	
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose	6.1	g/100g
Fructose	2.1	g/100g
Sucrose	19.4	g/100g
Maltose	5.4	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	41.0	g/100g
Total sugars	33.0	g/100g
Available carbohydrate	74.0	g/100g
Fibre (Englyst)	2.1	g/100g
Fibre (AOAC)	1.2	g/100g

**FATTY ACIDS**

Saturated	6.75	g/100g
cis-monounsaturated	5.25	g/100g
cis n-3 polyunsaturated	0.04	g/100g
cis n-6 polyunsaturated	1.62	g/100g
cis polyunsaturated	1.66	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	164	mg/100g
Potassium (K)	135	mg/100g
Calcium (Ca)	121	mg/100g
Magnesium (Mg)	14	mg/100g
Phosphorous (P)	94	mg/100g
Iron (Fe)	1.1	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	190	mg/100g
Manganese (Mn)	0.44	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.28	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	<5	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.12	mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 10: Fig rolls**

**PROXIMATES**

Water	13.7	g/100g
Total Nitrogen	0.73	g/100g
Nitrogen conversion factor	5.70	
Protein	4.2	g/100g
Fat	10.6	g/100g
Ash	1.6	g/100g
Energy (kcal)	358	
Energy (kJ)	1532	
Cholesterol	1	mg/100g

**CARBOHYDRATES**

Glucose	11.5	g/100g
Fructose	8.4	g/100g
Sucrose	15.8	g/100g
Maltose	8.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	23.0	g/100g
Total sugars	43.8	g/100g
Available carbohydrate	66.8	g/100g
Fibre (Englyst)	3.3	g/100g
Fibre (AOAC)	3.9	g/100g

**FATTY ACIDS**

Saturated	4.76	g/100g
cis-monounsaturated	3.72	g/100g
cis n-3 polyunsaturated	0.23	g/100g
cis n-6 polyunsaturated	1.30	g/100g
cis polyunsaturated	1.53	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	273	mg/100g
Potassium (K)	299	mg/100g
Calcium (Ca)	125	mg/100g
Magnesium (Mg)	30	mg/100g
Phosphorous (P)	64	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	330	mg/100g
Manganese (Mn)	0.47	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	8	µg/100g
Aluminium (Al)	1.95	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.15	mg/100g
Riboflavin	0.02	mg/100g
Niacin	0.8	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.08	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	6	µg/100g
Pantothenic acid	0.40	mg/100g
Biotin	4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene	<10	µg/100g
Lutein	32	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	<10	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.59	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 11: Short or sweet biscuits, half coated in chocolate**

**PROXIMATES**

Water	2.2	g/100g
Total Nitrogen	1.06	g/100g
Nitrogen conversion factor	5.70	
Protein	6.0	g/100g
Fat	24.2	g/100g
Ash	1.4	g/100g
Energy (kcal)	506	
Energy (kJ)	2124	
Cholesterol	16	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	32.5	g/100g
Maltose	<0.1	g/100g
Lactose	3.0	g/100g
Galactose	<0.1	g/100g
Starch	34.9	g/100g
Total sugars	35.5	g/100g
Available carbohydrate	70.3	g/100g
Fibre (Englyst)	1.9	g/100g
Fibre (AOAC)	1.4	g/100g

**FATTY ACIDS**

Saturated	12.50	g/100g
cis-monounsaturated	8.19	g/100g
cis n-3 polyunsaturated	0.27	g/100g
cis n-6 polyunsaturated	1.89	g/100g
cis polyunsaturated	2.16	g/100g
Trans	0.08	g/100g

**INORGANICS**

Sodium (Na)	249	mg/100g
Potassium (K)	260	mg/100g
Calcium (Ca)	123	mg/100g
Magnesium (Mg)	35	mg/100g
Phosphorous (P)	123	mg/100g
Iron (Fe)	2.4	mg/100g
Copper (Cu)	0.27	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	190	mg/100g
Manganese (Mn)	0.56	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.51	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.10	mg/100g
Riboflavin	0.08	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	1.2	mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	8	µg/100g
Pantothenic acid	0.37	mg/100g
Biotin	3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	22	µg/100g
Beta - carotene	<10	µg/100g
Lutein	33	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	22	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.84	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 12: Digestives, half coated in chocolate**

**PROXIMATES**

Water	1.8	g/100g
Total Nitrogen	1.11	g/100g
Nitrogen conversion factor	5.70	
Protein	6.3	g/100g
Fat	25.7	g/100g
Ash	1.7	g/100g
Energy (kcal)	488	
Energy (kJ)	2047	
Cholesterol	6	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	24.3	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	37.5	g/100g
Total sugars	24.3	g/100g
Available carbohydrate	61.8	g/100g
Fibre (Englyst)	3.1	g/100g
Fibre (AOAC)	2.1	g/100g

**FATTY ACIDS**

Saturated	12.68	g/100g
cis-monounsaturated	8.83	g/100g
cis n-3 polyunsaturated	0.08	g/100g
cis n-6 polyunsaturated	2.27	g/100g
cis polyunsaturated	2.35	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	351	mg/100g
Potassium (K)	258	mg/100g
Calcium (Ca)	100	mg/100g
Magnesium (Mg)	37	mg/100g
Phosphorous (P)	124	mg/100g
Iron (Fe)	2.1	mg/100g
Copper (Cu)	0.32	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	280	mg/100g
Manganese (Mn)	0.66	mg/100g
Iodine (I)	8	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.28	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.11	mg/100g
Riboflavin	0.07	mg/100g
Niacin	2.2	mg/100g
Tryptophan/60	1.3	mg/100g
Vitamin B <sub>6</sub>	0.07	mg/100g
Vitamin B <sub>12</sub>	0.07	µg/100g
Folate	7	µg/100g
Pantothenic acid	0.59	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<21	µg/100g
Beta - carotene	<10	µg/100g
Lutein	51	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	<21	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.35	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 13: Iced biscuits**

**PROXIMATES**

Water	2.8	g/100g
Total Nitrogen	0.85	g/100g
Nitrogen conversion factor	5.70	
Protein	4.8	g/100g
Fat	10.8	g/100g
Ash	1.0	g/100g
Energy (kcal)	406	
Energy (kJ)	1715	
Cholesterol	7	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	44.6	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	32.5	g/100g
Total sugars	44.6	g/100g
Available carbohydrate	77.1	g/100g
Fibre (Englyst)	1.6	g/100g
Fibre (AOAC)	0.6	g/100g

**FATTY ACIDS**

Saturated	4.98	g/100g
cis-monounsaturated	3.89	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.35	g/100g
cis polyunsaturated	1.39	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	274	mg/100g
Potassium (K)	112	mg/100g
Calcium (Ca)	74	mg/100g
Magnesium (Mg)	13	mg/100g
Phosphorous (P)	90	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	230	mg/100g
Manganese (Mn)	0.40	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	5	µg/100g
Aluminium (Al)	0.26	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.12	mg/100g
Riboflavin	<0.01	mg/100g
Niacin	1.3	mg/100g
Tryptophan/60	0.8	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	7	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene	151	µg/100g
Lutein	40	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	25	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.21	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**  
**Sample 14: Short or sweet biscuits, fully chocolate coated**

**PROXIMATES**

Water	1.9	g/100g
Total Nitrogen	1.12	g/100g
Nitrogen conversion factor	5.70	
Protein	6.4	g/100g
Fat	27.2	g/100g
Ash	1.7	g/100g
Energy (kcal)	506	
Energy (kJ)	2120	
Cholesterol	17	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	33.3	g/100g
Maltose	<0.1	g/100g
Lactose	5.9	g/100g
Galactose	<0.1	g/100g
Starch	23.5	g/100g
Total sugars	39.3	g/100g
Available carbohydrate	62.8	g/100g
Fibre (Englyst)	2.2	g/100g
Fibre (AOAC)	1.7	g/100g

**FATTY ACIDS**

Saturated	15.06	g/100g
cis-monounsaturated	8.74	g/100g
cis n-3 polyunsaturated	0.09	g/100g
cis n-6 polyunsaturated	1.74	g/100g
cis polyunsaturated	1.83	g/100g
Trans	0.09	g/100g

**INORGANICS**

Sodium (Na)	229	mg/100g
Potassium (K)	344	mg/100g
Calcium (Ca)	163	mg/100g
Magnesium (Mg)	46	mg/100g
Phosphorous (P)	204	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.28	mg/100g
Zinc (Zn)	1.0	mg/100g
Chloride (Cl)	180	mg/100g
Manganese (Mn)	0.68	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.28	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.14	mg/100g
Riboflavin	0.19	mg/100g
Niacin	1.2	mg/100g
Tryptophan/60	1.3	mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	14	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	28	µg/100g
Beta - carotene	<10	µg/100g
Lutein	35	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	28	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.57	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 15: Cream biscuits, fully chocolate coated**

**PROXIMATES**

Water	1.6	g/100g
Total Nitrogen	0.90	g/100g
Nitrogen conversion factor	5.70	
Protein	5.2	g/100g
Fat	28.2	g/100g
Ash	1.4	g/100g
Energy (kcal)	496	
Energy (kJ)	2075	
Cholesterol	18	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	34.1	g/100g
Maltose	<0.1	g/100g
Lactose	3.3	g/100g
Galactose	<0.1	g/100g
Starch	21.6	g/100g
Total sugars	37.4	g/100g
Available carbohydrate	59.0	g/100g
Fibre (Englyst)	1.9	g/100g
Fibre (AOAC)	3.1	g/100g

**FATTY ACIDS**

Saturated	15.81	g/100g
cis-monounsaturated	8.90	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	1.89	g/100g
cis polyunsaturated	1.96	g/100g
Trans	0.07	g/100g

**INORGANICS**

Sodium (Na)	174	mg/100g
Potassium (K)	337	mg/100g
Calcium (Ca)	146	mg/100g
Magnesium (Mg)	42	mg/100g
Phosphorous (P)	156	mg/100g
Iron (Fe)	3.0	mg/100g
Copper (Cu)	0.35	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	160	mg/100g
Manganese (Mn)	0.53	mg/100g
Iodine (I)	14	µg/100g
Selenium (Se)	7	µg/100g
Aluminium (Al)	0.55	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.11	mg/100g
Riboflavin	0.13	mg/100g
Niacin	1.3	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>	0.10	µg/100g
Folate	9	µg/100g
Pantothenic acid	0.67	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<21	µg/100g
Beta - carotene	14	µg/100g
Lutein	30	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	2	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.78	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 16: Chocolate coated biscuits with marshmallow**

**PROXIMATES**

Water	9.8	g/100g
Total Nitrogen	0.78	g/100g
Nitrogen conversion factor	5.70	
Protein	4.5	g/100g
Fat	19.0	g/100g
Ash	1.0	g/100g
Energy (kcal)	413	
Energy (kJ)	1737	
Cholesterol	6	mg/100g

**CARBOHYDRATES**

Glucose	6.0	g/100g
Fructose	<0.1	g/100g
Sucrose	28.7	g/100g
Maltose	6.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	18.5	g/100g
Total sugars	41.4	g/100g
Available carbohydrate	59.9	g/100g
Fibre (Englyst)	1.6	g/100g
Fibre (AOAC)	2.7	g/100g

**FATTY ACIDS**

Saturated	10.64	g/100g
cis-monounsaturated	6.09	g/100g
cis n-3 polyunsaturated	0.13	g/100g
cis n-6 polyunsaturated	1.16	g/100g
cis polyunsaturated	1.28	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	132	mg/100g
Potassium (K)	259	mg/100g
Calcium (Ca)	102	mg/100g
Magnesium (Mg)	28	mg/100g
Phosphorous (P)	103	mg/100g
Iron (Fe)	1.7	mg/100g
Copper (Cu)	0.26	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.36	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.37	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.06	mg/100g
Riboflavin	0.13	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	0.8	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>	0.15	µg/100g
Folate	8	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Zeaxanthin		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.83	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 17: Chocolate wafer biscuits, fully coated**

**PROXIMATES**

Water	2.6	g/100g
Total Nitrogen	0.96	g/100g
Nitrogen conversion factor	5.70	
Protein	5.5	g/100g
Fat	28.6	g/100g
Ash	1.3	g/100g
Energy (kcal)	509	
Energy (kJ)	2130	
Cholesterol	16	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	38.2	g/100g
Maltose	<0.1	g/100g
Lactose	6.9	g/100g
Galactose	<0.1	g/100g
Starch	16.1	g/100g
Total sugars	45.1	g/100g
Available carbohydrate	61.1	g/100g
Fibre (Englyst)	1.4	g/100g
Fibre (AOAC)	2.7	g/100g

**FATTY ACIDS**

Saturated	17.50	g/100g
cis-monounsaturated	7.26	g/100g
cis n-3 polyunsaturated	0.10	g/100g
cis n-6 polyunsaturated	1.12	g/100g
cis polyunsaturated	1.22	g/100g
Trans	0.55	g/100g

**INORGANICS**

Sodium (Na)	90	mg/100g
Potassium (K)	340	mg/100g
Calcium (Ca)	167	mg/100g
Magnesium (Mg)	41	mg/100g
Phosphorous (P)	151	mg/100g
Iron (Fe)	2.4	mg/100g
Copper (Cu)	0.27	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.35	mg/100g
Iodine (I)	22	µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.44	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.20	mg/100g
Niacin	0.8	mg/100g
Tryptophan/60	1.2	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	11	µg/100g
Pantothenic acid	0.83	mg/100g
Biotin	14	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.83	mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 18: Cream sandwich biscuits**

**PROXIMATES**

Water	2.3	g/100g
Total Nitrogen	0.88	g/100g
Nitrogen conversion factor	5.70	
Protein	5.0	g/100g
Fat	23.3	g/100g
Ash	1.2	g/100g
Energy (kcal)	477	
Energy (kJ)	2001	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	1.6	g/100g
Fructose	<0.1	g/100g
Sucrose	27.2	g/100g
Maltose	<0.1	g/100g
Lactose	1.1	g/100g
Galactose	<0.1	g/100g
Starch	36.0	g/100g
Total sugars	29.9	g/100g
Available carbohydrate	65.8	g/100g
Fibre (Englyst)	2.3	g/100g
Fibre (AOAC)	3.1	g/100g

**FATTY ACIDS**

Saturated	13.31	g/100g
cis-monounsaturated	6.75	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	2.00	g/100g
cis polyunsaturated	2.06	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	188	mg/100g
Potassium (K)	253	mg/100g
Calcium (Ca)	118	mg/100g
Magnesium (Mg)	29	mg/100g
Phosphorous (P)	102	mg/100g
Iron (Fe)	2.2	mg/100g
Copper (Cu)	0.20	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	190	mg/100g
Manganese (Mn)	0.72	mg/100g
Iodine (I)	8	µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.48	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.16	mg/100g
Riboflavin	0.05	mg/100g
Niacin	1.6	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	11	µg/100g
Pantothenic acid	0.56	mg/100g
Biotin	3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene	14	µg/100g
Lutein	41	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	2	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.25	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 19: Flapjacks, retail**

**PROXIMATES**

Water	9.3	g/100g
Total Nitrogen	0.87	g/100g
Nitrogen conversion factor	5.70	
Protein	5.1	g/100g
Fat	22.8	g/100g
Ash	1.2	g/100g
Energy (kcal)	434	
Energy (kJ)	1821	
Cholesterol	25	mg/100g

**CARBOHYDRATES**

Glucose	4.3	g/100g
Fructose	4.2	g/100g
Sucrose	20.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	26.5	g/100g
Total sugars	29.2	g/100g
Available carbohydrate	55.7	g/100g
Fibre (Englyst)	2.2	g/100g
Fibre (AOAC)	5.2	g/100g

**FATTY ACIDS**

Saturated	10.25	g/100g
cis-monounsaturated	7.70	g/100g
cis n-3 polyunsaturated	0.42	g/100g
cis n-6 polyunsaturated	2.61	g/100g
cis polyunsaturated	3.03	g/100g
Trans	0.22	g/100g

**INORGANICS**

Sodium (Na)	194	mg/100g
Potassium (K)	207	mg/100g
Calcium (Ca)	52	mg/100g
Magnesium (Mg)	47	mg/100g
Phosphorous (P)	177	mg/100g
Iron (Fe)	1.9	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	1.1	mg/100g
Chloride (Cl)	300	mg/100g
Manganese (Mn)	1.79	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.12	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.15	mg/100g
Riboflavin	0.03	mg/100g
Niacin	0.5	mg/100g
Tryptophan/60	1.2	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	8	µg/100g
Pantothenic acid	0.42	mg/100g
Biotin	8	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	83	µg/100g
Beta - carotene	16	µg/100g
Lutein	29	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	86	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	2.18	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 20: Chocolate chip cookies, standard**

**PROXIMATES**

Water	3.6	g/100g
Total Nitrogen	0.94	g/100g
Nitrogen conversion factor	5.70	
Protein	5.4	g/100g
Fat	24.9	g/100g
Ash	1.4	g/100g
Energy (kcal)	471	
Energy (kJ)	1973	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	30.0	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	30.0	g/100g
Total sugars	30.0	g/100g
Available carbohydrate	60.0	g/100g
Fibre (Englyst)	2.2	g/100g
Fibre (AOAC)	3.0	g/100g

**FATTY ACIDS**

Saturated	12.15	g/100g
cis-monounsaturated	8.96	g/100g
cis n-3 polyunsaturated	0.12	g/100g
cis n-6 polyunsaturated	2.35	g/100g
cis polyunsaturated	2.47	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	298	mg/100g
Potassium (K)	217	mg/100g
Calcium (Ca)	117	mg/100g
Magnesium (Mg)	34	mg/100g
Phosphorous (P)	132	mg/100g
Iron (Fe)	2.3	mg/100g
Copper (Cu)	0.22	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.57	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	0.41	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.19	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 21: Chocolate chip cookies, American style**

**PROXIMATES**

Water	6.9	g/100g
Total Nitrogen	0.91	g/100g
Nitrogen conversion factor	5.70	
Protein	5.2	g/100g
Fat	21.3	g/100g
Ash	1.7	g/100g
Energy (kcal)	440	
Energy (kJ)	1845	
Cholesterol	36	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	40.5	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	20.0	g/100g
Total sugars	40.5	g/100g
Available carbohydrate	60.6	g/100g
Fibre (Englyst)	1.8	g/100g
Fibre (AOAC)	2.5	g/100g

**FATTY ACIDS**

Saturated	9.58	g/100g
cis-monounsaturated	7.91	g/100g
cis n-3 polyunsaturated	0.54	g/100g
cis n-6 polyunsaturated	2.01	g/100g
cis polyunsaturated	2.55	g/100g
Trans	0.08	g/100g

**INORGANICS**

Sodium (Na)	422	mg/100g
Potassium (K)	252	mg/100g
Calcium (Ca)	108	mg/100g
Magnesium (Mg)	36	mg/100g
Phosphorous (P)	155	mg/100g
Iron (Fe)	2.5	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	280	mg/100g
Manganese (Mn)	0.44	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	12	µg/100g
Aluminium (Al)	0.63	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.08	mg/100g
Niacin	0.8	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>	0.27	µg/100g
Folate	12	µg/100g
Pantothenic acid	0.49	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.39	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 22: Fruit biscuits**

**PROXIMATES**

Water	6.4	g/100g
Total Nitrogen	0.89	g/100g
Nitrogen conversion factor	5.70	
Protein	5.1	g/100g
Fat	16.3	g/100g
Ash	1.4	g/100g
Energy (kcal)	412	
Energy (kJ)	1735	
Cholesterol	6	mg/100g

**CARBOHYDRATES**

Glucose	6.4	g/100g
Fructose	7.0	g/100g
Sucrose	16.2	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	35.8	g/100g
Total sugars	29.6	g/100g
Available carbohydrate	65.3	g/100g
Fibre (Englyst)	2.3	g/100g
Fibre (AOAC)	3.7	g/100g

**FATTY ACIDS**

Saturated	7.51	g/100g
cis-monounsaturated	6.09	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.85	g/100g
cis polyunsaturated	1.90	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	279	mg/100g
Potassium (K)	295	mg/100g
Calcium (Ca)	74	mg/100g
Magnesium (Mg)	21	mg/100g
Phosphorous (P)	122	mg/100g
Iron (Fe)	1.3	mg/100g
Copper (Cu)	0.27	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.62	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	8	µg/100g
Aluminium (Al)	0.19	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 23: Cereal bars, with fruit and/or nuts, with chocolate, not fortified**

**PROXIMATES**

Water	6.6	g/100g
Total Nitrogen	1.03	g/100g
Nitrogen conversion factor	5.83	
Protein	6.0	g/100g
Fat	18.3	g/100g
Ash	1.4	g/100g
Energy (kcal)	436	
Energy (kJ)	1835	
Cholesterol	11	mg/100g

**CARBOHYDRATES**

Glucose	6.4	g/100g
Fructose	6.5	g/100g
Sucrose	25.9	g/100g
Maltose	<0.1	g/100g
Lactose	1.9	g/100g
Galactose	<0.1	g/100g
Starch	25.3	g/100g
Total sugars	40.7	g/100g
Available carbohydrate	66.0	g/100g
Fibre (Englyst)	3.0	g/100g
Fibre (AOAC)	5.1	g/100g

**FATTY ACIDS**

Saturated	8.43	g/100g
cis-monounsaturated	7.17	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.67	g/100g
cis polyunsaturated	1.72	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	221	mg/100g
Potassium (K)	309	mg/100g
Calcium (Ca)	73	mg/100g
Magnesium (Mg)	58	mg/100g
Phosphorous (P)	182	mg/100g
Iron (Fe)	1.9	mg/100g
Copper (Cu)	0.32	mg/100g
Zinc (Zn)	1.2	mg/100g
Chloride (Cl)	300	mg/100g
Manganese (Mn)	0.14	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.16	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.18	mg/100g
Riboflavin	0.08	mg/100g
Niacin	1.5	mg/100g
Tryptophan/60	1.3	mg/100g
Vitamin B <sub>6</sub>	0.07	mg/100g
Vitamin B <sub>12</sub>	0.11	µg/100g
Folate	10	µg/100g
Pantothenic acid	0.76	mg/100g
Biotin	6	µg/100g
Vitamin C	<1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene	<10	µg/100g
Lutein	27	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	<2	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.24	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 24: Cereal bars, with fruit and/or nuts, no chocolate, not fortified**

<b>PROXIMATES</b>			<b>INORGANICS</b>		
Water	8.9	g/100g	Sodium (Na)	65	mg/100g
Total Nitrogen	0.96	g/100g	Potassium (K)	308	mg/100g
Nitrogen conversion factor	5.83		Calcium (Ca)	51	mg/100g
Protein	5.6	g/100g	Magnesium (Mg)	50	mg/100g
Fat	10.7	g/100g	Phosphorous (P)	177	mg/100g
Ash	1.0	g/100g	Iron (Fe)	1.8	mg/100g
Energy (kcal)	354		Copper (Cu)	0.24	mg/100g
Energy (kJ)	1497		Zinc (Zn)	1.0	mg/100g
Cholesterol	6	mg/100g	Chloride (Cl)		mg/100g
			Manganese (Mn)	0.17	mg/100g
			Iodine (I)		µg/100g
			Selenium (Se)		µg/100g
			Aluminium (Al)	0.22	mg/100g
<b>CARBOHYDRATES</b>			<b>WATER SOLUBLE VITAMINS</b>		
Glucose	9.9	g/100g	Thiamin		mg/100g
Fructose	9.0	g/100g	Riboflavin		mg/100g
Sucrose	9.5	g/100g	Niacin		mg/100g
Maltose	4.8	g/100g	Tryptophan/60		mg/100g
Lactose	1.2	g/100g	Vitamin B <sub>6</sub>		mg/100g
Galactose	<0.1	g/100g	Vitamin B <sub>12</sub>		µg/100g
Starch	28.6	g/100g	Folate		µg/100g
Total sugars	34.3	g/100g	Pantothenic acid		mg/100g
Available carbohydrate	62.9	g/100g	Biotin		µg/100g
Fibre (Englyst)	3.7	g/100g	Vitamin C	1.5	mg/100g
Fibre (AOAC)	6.2	g/100g			
<b>FATTY ACIDS</b>			<b>FAT SOLUBLE VITAMINS</b>		
Saturated	3.85	g/100g	All-trans retinol		µg/100g
cis-monounsaturated	4.44	g/100g	Beta - carotene		µg/100g
cis n-3 polyunsaturated	0.24	g/100g	Total vitamin A		µg/100g
cis n-6 polyunsaturated	1.63	g/100g	Vitamin D <sub>3</sub>		µg/100g
cis polyunsaturated	1.87	g/100g	Vitamin E	1.74	mg/100g
Trans	0.01	g/100g			

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 25: Cream crackers**

**PROXIMATES**

Water	4.9	g/100g
Total Nitrogen	1.57	g/100g
Nitrogen conversion factor	5.70	
Protein	8.9	g/100g
Fat	16.4	g/100g
Ash	1.5	g/100g
Energy (kcal)	445	
Energy (kJ)	1874	
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	1.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	68.2	g/100g
Total sugars	1.5	g/100g
Available carbohydrate	69.7	g/100g
Fibre (Englyst)	3.3	g/100g
Fibre (AOAC)	3.9	g/100g

**FATTY ACIDS**

Saturated	7.38	g/100g
cis-monounsaturated	5.94	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	2.10	g/100g
cis polyunsaturated	2.17	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	384	mg/100g
Potassium (K)	215	mg/100g
Calcium (Ca)	93	mg/100g
Magnesium (Mg)	22	mg/100g
Phosphorous (P)	103	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	430	mg/100g
Manganese (Mn)	0.65	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.32	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.14	mg/100g
Riboflavin	0.02	mg/100g
Niacin	1.5	mg/100g
Tryptophan/60	1.7	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	19	µg/100g
Pantothenic acid	0.78	mg/100g
Biotin	4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.68	mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 26: Biscuits, cheese flavoured**

**PROXIMATES**

Water	3.1	g/100g
Total Nitrogen	1.84	g/100g
Nitrogen conversion factor	5.70	
Protein	10.5	g/100g
Fat	28.1	g/100g
Ash	3.1	g/100g
Energy (kcal)	494	
Energy (kJ)	2069	
Cholesterol	18	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	2.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	50.5	g/100g
Total sugars	2.7	g/100g
Available carbohydrate	53.2	g/100g
Fibre (Englyst)	2.4	g/100g
Fibre (AOAC)	4.5	g/100g

**FATTY ACIDS**

Saturated	11.67	g/100g
cis-monounsaturated	12.09	g/100g
cis n-3 polyunsaturated	0.10	g/100g
cis n-6 polyunsaturated	2.52	g/100g
cis polyunsaturated	2.62	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	882	mg/100g
Potassium (K)	247	mg/100g
Calcium (Ca)	263	mg/100g
Magnesium (Mg)	34	mg/100g
Phosphorous (P)	249	mg/100g
Iron (Fe)	2.1	mg/100g
Copper (Cu)	0.16	mg/100g
Zinc (Zn)	1.4	mg/100g
Chloride (Cl)	650	mg/100g
Manganese (Mn)	0.84	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	5	µg/100g
Aluminium (Al)	0.36	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.25	mg/100g
Riboflavin	0.10	mg/100g
Niacin	2.1	mg/100g
Tryptophan/60	2.1	mg/100g
Vitamin B <sub>6</sub>	0.07	mg/100g
Vitamin B <sub>12</sub>	0.19	µg/100g
Folate	35	µg/100g
Pantothenic acid	0.81	mg/100g
Biotin	6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	49	µg/100g
Beta - carotene	<10	µg/100g
Lutein	49	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	49	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	8.71	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 27: Rye crisp bread**

**PROXIMATES**

Water	7.7	g/100g
Total Nitrogen	1.47	g/100g
Nitrogen conversion factor	5.83	
Protein	8.6	g/100g
Fat	1.4	g/100g
Ash	2.1	g/100g
Energy (kcal)	284	
Energy (kJ)	1210	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	2.8	g/100g
Maltose	0.6	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	60.0	g/100g
Total sugars	3.4	g/100g
Available carbohydrate	63.4	g/100g
Fibre (Englyst)	14.2	g/100g
Fibre (AOAC)	20.0	g/100g

**FATTY ACIDS**

Saturated	0.16	g/100g
cis-monounsaturated	0.17	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	0.53	g/100g
cis polyunsaturated	0.60	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	264	mg/100g
Potassium (K)	511	mg/100g
Calcium (Ca)	38	mg/100g
Magnesium (Mg)	89	mg/100g
Phosphorous (P)	292	mg/100g
Iron (Fe)	2.5	mg/100g
Copper (Cu)	0.32	mg/100g
Zinc (Zn)	2.2	mg/100g
Chloride (Cl)	350	mg/100g
Manganese (Mn)	0.20	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	5	µg/100g
Aluminium (Al)	0.13	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.26	mg/100g
Riboflavin	0.04	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	1.7	mg/100g
Vitamin B <sub>6</sub>	0.10	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	29	µg/100g
Pantothenic acid	0.59	mg/100g
Biotin	8	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.40	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 28: Oatcakes**

**PROXIMATES**

Water	4.1	g/100g
Total Nitrogen	1.60	g/100g
Nitrogen conversion factor	5.83	
Protein	9.3	g/100g
Fat	20.0	g/100g
Ash	3.0	g/100g
Energy (kcal)	453	
Energy (kJ)	1904	
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	1.0	g/100g
Maltose	2.2	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	59.6	g/100g
Total sugars	3.2	g/100g
Available carbohydrate	62.8	g/100g
Fibre (Englyst)	8.8	g/100g
Fibre (AOAC)	9.4	g/100g

**FATTY ACIDS**

Saturated	5.67	g/100g
cis-monounsaturated	9.31	g/100g
cis n-3 polyunsaturated	0.23	g/100g
cis n-6 polyunsaturated	3.64	g/100g
cis polyunsaturated	3.87	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	796	mg/100g
Potassium (K)	359	mg/100g
Calcium (Ca)	57	mg/100g
Magnesium (Mg)	101	mg/100g
Phosphorous (P)	383	mg/100g
Iron (Fe)	3.8	mg/100g
Copper (Cu)	0.35	mg/100g
Zinc (Zn)	2.0	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	3.84	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	9	µg/100g
Aluminium (Al)	0.23	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 29: Cheese straws/twists**

**PROXIMATES**

Water	4.7	g/100g
Total Nitrogen	2.21	g/100g
Nitrogen conversion factor	6.38	
Protein	14.1	g/100g
Fat	30.3	g/100g
Ash	3.2	g/100g
Energy (kcal)	510	
Energy (kJ)	2133	
Cholesterol	71	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	1.6	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	46.6	g/100g
Total sugars	1.6	g/100g
Available carbohydrate	48.3	g/100g
Fibre (Englyst)	2.4	g/100g
Fibre (AOAC)	2.5	g/100g

**FATTY ACIDS**

Saturated	17.54	g/100g
cis-monounsaturated	6.89	g/100g
cis n-3 polyunsaturated	0.31	g/100g
cis n-6 polyunsaturated	1.40	g/100g
cis polyunsaturated	1.71	g/100g
Trans	0.78	g/100g

**INORGANICS**

Sodium (Na)	974	mg/100g
Potassium (K)	153	mg/100g
Calcium (Ca)	233	mg/100g
Magnesium (Mg)	24	mg/100g
Phosphorous (P)	215	mg/100g
Iron (Fe)	1.3	mg/100g
Copper (Cu)	0.14	mg/100g
Zinc (Zn)	1.4	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.45	mg/100g
Iodine (I)	9	µg/100g
Selenium (Se)	11	µg/100g
Aluminium (Al)	0.22	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin	0.10	mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>	0.24	µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	173	µg/100g
Beta - carotene	64	µg/100g
Lutein	33	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	184	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.28	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 30: Toasted minibreads**

**PROXIMATES**

Water	3.0	g/100g
Total Nitrogen	1.84	g/100g
Nitrogen conversion factor	5.70	
Protein	10.5	g/100g
Fat	13.6	g/100g
Ash	2.6	g/100g
Energy (kcal)	423	
Energy (kJ)	1784	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	3.3	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	65.6	g/100g
Total sugars	3.3	g/100g
Available carbohydrate	68.9	g/100g
Fibre (Englyst)	2.9	g/100g
Fibre (AOAC)	4.2	g/100g

**FATTY ACIDS**

Saturated	3.22	g/100g
cis-monounsaturated	7.79	g/100g
cis n-3 polyunsaturated	0.09	g/100g
cis n-6 polyunsaturated	1.77	g/100g
cis polyunsaturated	1.86	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	865	mg/100g
Potassium (K)	221	mg/100g
Calcium (Ca)	39	mg/100g
Magnesium (Mg)	26	mg/100g
Phosphorous (P)	114	mg/100g
Iron (Fe)	1.4	mg/100g
Copper (Cu)	0.18	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.59	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	0.54	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.93	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 31: Breadsticks**

**PROXIMATES**

Water	4.2	g/100g
Total Nitrogen	1.90	g/100g
Nitrogen conversion factor	5.70	
Protein	10.9	g/100g
Fat	8.1	g/100g
Ash	2.5	g/100g
Energy (kcal)	389	
Energy (kJ)	1650	
Cholesterol	6	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	3.3	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	69.6	g/100g
Total sugars	3.3	g/100g
Available carbohydrate	72.9	g/100g
Fibre (Englyst)	2.1	g/100g
Fibre (AOAC)	3.7	g/100g

**FATTY ACIDS**

Saturated	6.01	g/100g
cis-monounsaturated	0.81	g/100g
cis n-3 polyunsaturated	0.03	g/100g
cis n-6 polyunsaturated	0.71	g/100g
cis polyunsaturated	0.75	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	817	mg/100g
Potassium (K)	202	mg/100g
Calcium (Ca)	31	mg/100g
Magnesium (Mg)	30	mg/100g
Phosphorous (P)	120	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.21	mg/100g
Zinc (Zn)	0.9	mg/100g
Chloride (Cl)	1140	mg/100g
Manganese (Mn)	0.57	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	6	µg/100g
Aluminium (Al)	1.05	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.02	mg/100g
Niacin	1.5	mg/100g
Tryptophan/60	2.1	mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	21	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.18	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 32: Plain scones**

**PROXIMATES**

Water	23.2	g/100g
Total Nitrogen	1.25	g/100g
Nitrogen conversion factor	5.70	
Protein	7.2	g/100g
Fat	12.3	g/100g
Ash	2.6	g/100g
Energy (kcal)	346	
Energy (kJ)	1459	
Cholesterol	35	mg/100g

**CARBOHYDRATES**

Glucose	0.9	g/100g
Fructose	<0.1	g/100g
Sucrose	10.4	g/100g
Maltose	<0.1	g/100g
Lactose	1.5	g/100g
Galactose	<0.1	g/100g
Starch	42.5	g/100g
Total sugars	12.7	g/100g
Available carbohydrate	55.2	g/100g
Fibre (Englyst)	2.3	g/100g
Fibre (AOAC)	2.2	g/100g

**FATTY ACIDS**

Saturated	6.37	g/100g
cis-monounsaturated	3.33	g/100g
cis n-3 polyunsaturated	0.21	g/100g
cis n-6 polyunsaturated	0.98	g/100g
cis polyunsaturated	1.19	g/100g
Trans	0.21	g/100g

**INORGANICS**

Sodium (Na)	592	mg/100g
Potassium (K)	270	mg/100g
Calcium (Ca)	131	mg/100g
Magnesium (Mg)	20	mg/100g
Phosphorous (P)	476	mg/100g
Iron (Fe)	1.3	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	130	mg/100g
Manganese (Mn)	0.35	mg/100g
Iodine (I)	7	µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	35.01	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.11	mg/100g
Riboflavin	0.05	mg/100g
Niacin	1.9	mg/100g
Tryptophan/60	1.5	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>	0.14	µg/100g
Folate	6	µg/100g
Pantothenic acid	0.54	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	84	µg/100g
Beta - carotene	23	µg/100g
Lutein	42	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	88	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	0.92	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 33: Iced buns**

**PROXIMATES**

Water	24.4	g/100g
Total Nitrogen	1.05	g/100g
Nitrogen conversion factor	5.70	
Protein	6.0	g/100g
Fat	7.8	g/100g
Ash	1.5	g/100g
Energy (kcal)	322	
Energy (kJ)	1364	
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose	6.4	g/100g
Fructose	7.0	g/100g
Sucrose	11.4	g/100g
Maltose	1.0	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	35.0	g/100g
Total sugars	25.8	g/100g
Available carbohydrate	60.8	g/100g
Fibre (Englyst)	3.2	g/100g
Fibre (AOAC)	2.5	g/100g

**FATTY ACIDS**

Saturated	3.62	g/100g
cis-monounsaturated	2.49	g/100g
cis n-3 polyunsaturated	0.26	g/100g
cis n-6 polyunsaturated	1.03	g/100g
cis polyunsaturated	1.30	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	228	mg/100g
Potassium (K)	130	mg/100g
Calcium (Ca)	294	mg/100g
Magnesium (Mg)	18	mg/100g
Phosphorous (P)	96	mg/100g
Iron (Fe)	1.6	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.39	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	5	µg/100g
Aluminium (Al)	0.46	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.14	mg/100g
Riboflavin	0.03	mg/100g
Niacin	1.3	mg/100g
Tryptophan/60	1.2	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	22	µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.77	mg/100g



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**Sample 34: Fruit cake**

**PROXIMATES**

Water	21.8	g/100g
Total Nitrogen	0.80	g/100g
Nitrogen conversion factor	5.70	
Protein	4.5	g/100g
Fat	12.1	g/100g
Ash	1.3	g/100g
Energy (kcal)	334	
Energy (kJ)	1407	
Cholesterol	43	mg/100g

**CARBOHYDRATES**

Glucose	10.5	g/100g
Fructose	11.9	g/100g
Sucrose	14.0	g/100g
Maltose	3.2	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	15.6	g/100g
Total sugars	39.6	g/100g
Available carbohydrate	55.2	g/100g
Fibre (Englyst)	2.4	g/100g
Fibre (AOAC)	3.0	g/100g

**FATTY ACIDS**

Saturated	4.64	g/100g
cis-monounsaturated	4.61	g/100g
cis n-3 polyunsaturated	0.44	g/100g
cis n-6 polyunsaturated	1.45	g/100g
cis polyunsaturated	1.88	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	193	mg/100g
Potassium (K)	385	mg/100g
Calcium (Ca)	74	mg/100g
Magnesium (Mg)	20	mg/100g
Phosphorous (P)	113	mg/100g
Iron (Fe)	1.6	mg/100g
Copper (Cu)	0.21	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	200	mg/100g
Manganese (Mn)	0.34	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.71	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.06	mg/100g
Niacin	1.0	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	0.08	mg/100g
Vitamin B <sub>12</sub>	0.14	µg/100g
Folate	<5	µg/100g
Pantothenic acid	0.56	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	39	µg/100g
Beta - carotene	<10	µg/100g
Lutein	26	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	20	µg/100g
Total vitamin A	39	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.50	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 35: Chocolate cake with filling and icing**

**PROXIMATES**

Water	18.4	g/100g
Total Nitrogen	0.78	g/100g
Nitrogen conversion factor	5.70	
Protein	4.5	g/100g
Fat	23.7	g/100g
Ash	1.7	g/100g
Energy (kcal)	413	
Energy (kJ)	1730	
Cholesterol	55	mg/100g

**CARBOHYDRATES**

Glucose	1.4	g/100g
Fructose	<0.1	g/100g
Sucrose	33.2	g/100g
Maltose	<0.1	g/100g
Lactose	2.0	g/100g
Galactose	<0.1	g/100g
Starch	12.0	g/100g
Total sugars	36.6	g/100g
Available carbohydrate	48.6	g/100g
Fibre (Englyst)	1.8	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	9.46	g/100g
cis-monounsaturated	9.29	g/100g
cis n-3 polyunsaturated	0.88	g/100g
cis n-6 polyunsaturated	2.35	g/100g
cis polyunsaturated	3.23	g/100g
Trans	0.20	g/100g

**INORGANICS**

Sodium (Na)	259	mg/100g
Potassium (K)	340	mg/100g
Calcium (Ca)	144	mg/100g
Magnesium (Mg)	39	mg/100g
Phosphorous (P)	212	mg/100g
Iron (Fe)	3.1	mg/100g
Copper (Cu)	0.35	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.36	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	1.12	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 36: Cake with jam and butter cream**

**PROXIMATES**

Water	22.2	g/100g
Total Nitrogen	0.64	g/100g
Nitrogen conversion factor	5.70	
Protein	3.7	g/100g
Fat	14.8	g/100g
Ash	1.2	g/100g
Energy (kcal)	355	
Energy (kJ)	1493	
Cholesterol	76	mg/100g

**CARBOHYDRATES**

Glucose	3.5	g/100g
Fructose	1.0	g/100g
Sucrose	28.2	g/100g
Maltose	4.9	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	17.5	g/100g
Total sugars	37.6	g/100g
Available carbohydrate	55.1	g/100g
Fibre (Englyst)	1.4	g/100g
Fibre (AOAC)	1.2	g/100g

**FATTY ACIDS**

Saturated	6.96	g/100g
cis-monounsaturated	4.54	g/100g
cis n-3 polyunsaturated	0.36	g/100g
cis n-6 polyunsaturated	1.16	g/100g
cis polyunsaturated	1.52	g/100g
Trans	0.31	g/100g

**INORGANICS**

Sodium (Na)	344	mg/100g
Potassium (K)	132	mg/100g
Calcium (Ca)	72	mg/100g
Magnesium (Mg)	8	mg/100g
Phosphorous (P)	162	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	160	mg/100g
Manganese (Mn)	0.15	mg/100g
Iodine (I)	7	µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.37	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.05	mg/100g
Riboflavin	0.06	mg/100g
Niacin	0.5	mg/100g
Tryptophan/60	0.8	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>	0.40	µg/100g
Folate	<5	µg/100g
Pantothenic acid	0.52	mg/100g
Biotin	4	µg/100g
Vitamin C	<1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	107	µg/100g
Beta - carotene	55	µg/100g
Lutein	32	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	116	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.19	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 37: Soft iced cake**

**PROXIMATES**

Water	21.6	g/100g
Total Nitrogen	0.84	g/100g
Nitrogen conversion factor	5.70	
Protein	4.8	g/100g
Fat	15.8	g/100g
Ash	1.1	g/100g
Energy (kcal)	368	
Energy (kJ)	1544	
Cholesterol	36	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	35.5	g/100g
Maltose	3.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	16.0	g/100g
Total sugars	39.0	g/100g
Available carbohydrate	55.0	g/100g
Fibre (Englyst)	1.9	g/100g
Fibre (AOAC)	1.3	g/100g

**FATTY ACIDS**

Saturated	6.21	g/100g
cis-monounsaturated	5.54	g/100g
cis n-3 polyunsaturated	0.50	g/100g
cis n-6 polyunsaturated	2.57	g/100g
cis polyunsaturated	3.07	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	251	mg/100g
Potassium (K)	197	mg/100g
Calcium (Ca)	81	mg/100g
Magnesium (Mg)	14	mg/100g
Phosphorous (P)	144	mg/100g
Iron (Fe)	0.9	mg/100g
Copper (Cu)	0.11	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	270	mg/100g
Manganese (Mn)	0.27	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.44	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.06	mg/100g
Riboflavin	0.08	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.08	mg/100g
Vitamin B <sub>12</sub>	0.17	µg/100g
Folate	<5	µg/100g
Pantothenic acid	0.76	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	43	µg/100g
Beta - carotene	12	µg/100g
Lutein	23	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	45	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.80	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 38: Loaf cake**

**PROXIMATES**

Water	21.7	g/100g
Total Nitrogen	0.58	g/100g
Nitrogen conversion factor	5.70	
Protein	3.3	g/100g
Fat	11.0	g/100g
Ash	1.2	g/100g
Energy (kcal)	323	
Energy (kJ)	1362	
Cholesterol	8	mg/100g

**CARBOHYDRATES**

Glucose	10.2	g/100g
Fructose	6.8	g/100g
Sucrose	13.6	g/100g
Maltose	2.9	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	22.7	g/100g
Total sugars	33.5	g/100g
Available carbohydrate	56.2	g/100g
Fibre (Englyst)	1.5	g/100g
Fibre (AOAC)	1.4	g/100g

**FATTY ACIDS**

Saturated	3.16	g/100g
cis-monounsaturated	5.05	g/100g
cis n-3 polyunsaturated	0.41	g/100g
cis n-6 polyunsaturated	1.65	g/100g
cis polyunsaturated	2.05	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	366	mg/100g
Potassium (K)	154	mg/100g
Calcium (Ca)	34	mg/100g
Magnesium (Mg)	8	mg/100g
Phosphorous (P)	46	mg/100g
Iron (Fe)	0.5	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.17	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.14	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.06	mg/100g
Riboflavin	0.07	mg/100g
Niacin	0.4	mg/100g
Tryptophan/60	0.6	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	6	µg/100g
Pantothenic acid	0.26	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.69	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 39: Chocolate covered and filled Swiss rolls**

**PROXIMATES**

Water	13.4	g/100g
Total Nitrogen	0.79	g/100g
Nitrogen conversion factor	5.70	
Protein	4.5	g/100g
Fat	22.7	g/100g
Ash	1.5	g/100g
Energy (kcal)	414	
Energy (kJ)	1733	
Cholesterol	44	mg/100g

**CARBOHYDRATES**

Glucose	4.1	g/100g
Fructose	<0.1	g/100g
Sucrose	33.8	g/100g
Maltose	3.4	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	9.8	g/100g
Total sugars	41.2	g/100g
Available carbohydrate	51.0	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	3.1	g/100g

**FATTY ACIDS**

Saturated	11.68	g/100g
cis-monounsaturated	7.34	g/100g
cis n-3 polyunsaturated	0.35	g/100g
cis n-6 polyunsaturated	1.45	g/100g
cis polyunsaturated	1.79	g/100g
Trans	0.19	g/100g

**INORGANICS**

Sodium (Na)	259	mg/100g
Potassium (K)	331	mg/100g
Calcium (Ca)	85	mg/100g
Magnesium (Mg)	44	mg/100g
Phosphorous (P)	186	mg/100g
Iron (Fe)	2.7	mg/100g
Copper (Cu)	0.34	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	210	mg/100g
Manganese (Mn)	0.37	mg/100g
Iodine (I)	14	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.80	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.05	mg/100g
Riboflavin	0.12	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>	0.22	µg/100g
Folate	13	µg/100g
Pantothenic acid	0.56	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	45	µg/100g
Beta - carotene	21	µg/100g
Lutein	25	µg/100g
Lycopene	<10	µg/100g
Zeaxanthin	<10	µg/100g
Total vitamin A	49	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.14	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 40: Battenberg cake**

**PROXIMATES**

Water	16.7	g/100g
Total Nitrogen	0.70	g/100g
Nitrogen conversion factor	6.25	
Protein	4.4	g/100g
Fat	9.9	g/100g
Ash	1.0	g/100g
Energy (kcal)	354	
Energy (kJ)	1495	
Cholesterol	6	mg/100g

**CARBOHYDRATES**

Glucose	5.1	g/100g
Fructose	0.3	g/100g
Sucrose	46.7	g/100g
Maltose	4.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	9.1	g/100g
Total sugars	56.8	g/100g
Available carbohydrate	65.9	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	1.5	g/100g

**FATTY ACIDS**

Saturated	3.08	g/100g
cis-monounsaturated	4.06	g/100g
cis n-3 polyunsaturated	0.44	g/100g
cis n-6 polyunsaturated	1.73	g/100g
cis polyunsaturated	2.17	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	137	mg/100g
Potassium (K)	174	mg/100g
Calcium (Ca)	107	mg/100g
Magnesium (Mg)	18	mg/100g
Phosphorous (P)	134	mg/100g
Iron (Fe)	0.6	mg/100g
Copper (Cu)	0.13	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	270	mg/100g
Manganese (Mn)	0.21	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	11.64	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.03	mg/100g
Riboflavin	0.06	mg/100g
Niacin	0.4	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>	0.11	µg/100g
Folate	8	µg/100g
Pantothenic acid	0.21	mg/100g
Biotin	4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.14	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 41: Carrot cake, iced**

**PROXIMATES**

Water	20.4	g/100g
Total Nitrogen	0.74	g/100g
Nitrogen conversion factor	5.70	
Protein	4.2	g/100g
Fat	20.2	g/100g
Ash	1.3	g/100g
Energy (kcal)	374	
Energy (kJ)	1569	
Cholesterol	53	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	0.8	g/100g
Sucrose	31.8	g/100g
Maltose	1.9	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	12.3	g/100g
Total sugars	34.5	g/100g
Available carbohydrate	46.8	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	1.9	g/100g

**FATTY ACIDS**

Saturated	5.14	g/100g
cis-monounsaturated	8.03	g/100g
cis n-3 polyunsaturated	1.03	g/100g
cis n-6 polyunsaturated	4.55	g/100g
cis polyunsaturated	5.58	g/100g
Trans	0.16	g/100g

**INORGANICS**

Sodium (Na)	319	mg/100g
Potassium (K)	140	mg/100g
Calcium (Ca)	101	mg/100g
Magnesium (Mg)	14	mg/100g
Phosphorous (P)	169	mg/100g
Iron (Fe)	0.9	mg/100g
Copper (Cu)	0.16	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.45	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.73	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	70	µg/100g
Beta - carotene	547	µg/100g
Lutein	37	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	162	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E		mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 42: Caramel shortcake**

**PROXIMATES**

Water	8.5	g/100g
Total Nitrogen	0.83	g/100g
Nitrogen conversion factor	5.70	
Protein	4.7	g/100g
Fat	27.3	g/100g
Ash	1.4	g/100g
Energy (kcal)	466	
Energy (kJ)	1948	
Cholesterol	23	mg/100g

**CARBOHYDRATES**

Glucose	1.8	g/100g
Fructose	2.0	g/100g
Sucrose	27.8	g/100g
Maltose	3.1	g/100g
Lactose	1.6	g/100g
Galactose	<0.1	g/100g
Starch	17.4	g/100g
Total sugars	36.2	g/100g
Available carbohydrate	53.6	g/100g
Fibre (Englyst)	1.3	g/100g
Fibre (AOAC)	2.3	g/100g

**FATTY ACIDS**

Saturated	15.18	g/100g
cis-monounsaturated	8.15	g/100g
cis n-3 polyunsaturated	0.26	g/100g
cis n-6 polyunsaturated	1.74	g/100g
cis polyunsaturated	2.00	g/100g
Trans	0.24	g/100g

**INORGANICS**

Sodium (Na)	258	mg/100g
Potassium (K)	254	mg/100g
Calcium (Ca)	137	mg/100g
Magnesium (Mg)	26	mg/100g
Phosphorous (P)	125	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.13	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	280	mg/100g
Manganese (Mn)	0.36	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.31	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.14	mg/100g
Niacin	1.0	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>	0.15	µg/100g
Folate	9	µg/100g
Pantothenic acid	0.48	mg/100g
Biotin	3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	79	µg/100g
Beta - carotene	17	µg/100g
Lutein	37	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	82	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	2.25	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 43: Eccles cakes**

**PROXIMATES**

Water	17.6	g/100g
Total Nitrogen	0.77	g/100g
Nitrogen conversion factor	5.70	
Protein	4.4	g/100g
Fat	18.3	g/100g
Ash	1.6	g/100g
Energy (kcal)	365	
Energy (kJ)	1532	
Cholesterol	23	mg/100g

**CARBOHYDRATES**

Glucose	10.8	g/100g
Fructose	15.4	g/100g
Sucrose	3.3	g/100g
Maltose	4.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	14.7	g/100g
Total sugars	34.0	g/100g
Available carbohydrate	48.8	g/100g
Fibre (Englyst)	2.0	g/100g
Fibre (AOAC)	3.6	g/100g

**FATTY ACIDS**

Saturated	9.40	g/100g
cis-monounsaturated	5.79	g/100g
cis n-3 polyunsaturated	0.28	g/100g
cis n-6 polyunsaturated	1.46	g/100g
cis polyunsaturated	1.74	g/100g
Trans	0.17	g/100g

**INORGANICS**

Sodium (Na)	221	mg/100g
Potassium (K)	428	mg/100g
Calcium (Ca)	75	mg/100g
Magnesium (Mg)	22	mg/100g
Phosphorous (P)	77	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.22	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.37	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	0.48	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 44: Fancy iced cakes, individual**

**PROXIMATES**

Water	18.4	g/100g
Total Nitrogen	0.58	g/100g
Nitrogen conversion factor	5.70	
Protein	3.3	g/100g
Fat	16.8	g/100g
Ash	1.2	g/100g
Energy (kcal)	381	
Energy (kJ)	1600	
Cholesterol	31	mg/100g

**CARBOHYDRATES**

Glucose	1.5	g/100g
Fructose	<0.1	g/100g
Sucrose	40.5	g/100g
Maltose	2.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	13.5	g/100g
Total sugars	44.1	g/100g
Available carbohydrate	57.6	g/100g
Fibre (Englyst)	0.9	g/100g
Fibre (AOAC)	1.1	g/100g

**FATTY ACIDS**

Saturated	5.86	g/100g
cis-monounsaturated	6.65	g/100g
cis n-3 polyunsaturated	0.76	g/100g
cis n-6 polyunsaturated	2.55	g/100g
cis polyunsaturated	3.31	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	275	mg/100g
Potassium (K)	147	mg/100g
Calcium (Ca)	72	mg/100g
Magnesium (Mg)	10	mg/100g
Phosphorous (P)	148	mg/100g
Iron (Fe)	0.9	mg/100g
Copper (Cu)	0.06	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	180	mg/100g
Manganese (Mn)	0.13	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	4.24	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.06	mg/100g
Riboflavin	0.07	mg/100g
Niacin	0.5	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>	0.18	µg/100g
Folate	7	µg/100g
Pantothenic acid	0.24	mg/100g
Biotin	3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<20	µg/100g
Beta - carotene	<10	µg/100g
Lutein	75	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	<20	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.61	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 45: Cakes from 'healthy eating' ranges**

**PROXIMATES**

Water	24.0	g/100g
Total Nitrogen	0.57	g/100g
Nitrogen conversion factor	5.70	
Protein	3.3	g/100g
Fat	2.5	g/100g
Ash	1.3	g/100g
Energy (kcal)	256	
Energy (kJ)	1090	
Cholesterol	19	mg/100g

**CARBOHYDRATES**

Glucose	2.8	g/100g
Fructose	1.7	g/100g
Sucrose	41.9	g/100g
Maltose	1.0	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	11.4	g/100g
Total sugars	47.4	g/100g
Available carbohydrate	58.8	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	2.6	g/100g

**FATTY ACIDS**

Saturated	1.22	g/100g
cis-monounsaturated	0.71	g/100g
cis n-3 polyunsaturated	0.06	g/100g
cis n-6 polyunsaturated	0.38	g/100g
cis polyunsaturated	0.45	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	304	mg/100g
Potassium (K)	115	mg/100g
Calcium (Ca)	103	mg/100g
Magnesium (Mg)	9	mg/100g
Phosphorous (P)	186	mg/100g
Iron (Fe)	0.9	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.18	mg/100g
Iodine (I)		µg/100g
Selenium (Se)		µg/100g
Aluminium (Al)	0.73	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 46: Danish pastries**

**PROXIMATES**

Water	20.0	g/100g
Total Nitrogen	0.85	g/100g
Nitrogen conversion factor	5.70	
Protein	4.9	g/100g
Fat	29.2	g/100g
Ash	0.9	g/100g
Energy (kcal)	446	
Energy (kJ)	1861	
Cholesterol	19	mg/100g

**CARBOHYDRATES**

Glucose	3.3	g/100g
Fructose	2.7	g/100g
Sucrose	9.6	g/100g
Maltose	1.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	26.3	g/100g
Total sugars	17.3	g/100g
Available carbohydrate	43.6	g/100g
Fibre (Englyst)	1.5	g/100g
Fibre (AOAC)	2.1	g/100g

**FATTY ACIDS**

Saturated	11.83	g/100g
cis-monounsaturated	11.39	g/100g
cis n-3 polyunsaturated	0.67	g/100g
cis n-6 polyunsaturated	3.72	g/100g
cis polyunsaturated	4.39	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	233	mg/100g
Potassium (K)	136	mg/100g
Calcium (Ca)	52	mg/100g
Magnesium (Mg)	17	mg/100g
Phosphorous (P)	74	mg/100g
Iron (Fe)	0.8	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	310	mg/100g
Manganese (Mn)	0.44	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.26	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.03	mg/100g
Niacin	0.8	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>	0.12	µg/100g
Folate	21	µg/100g
Pantothenic acid	0.32	mg/100g
Biotin	4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	191	µg/100g
Beta - carotene	81	µg/100g
Lutein	30	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	205	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	3.98	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 47: Greek pastries**

**PROXIMATES**

Water	10.8	g/100g
Total Nitrogen	1.18	g/100g
Nitrogen conversion factor	5.70	
Protein	6.7	g/100g
Fat	25.1	g/100g
Ash	1.0	g/100g
Energy (kcal)	456	
Energy (kJ)	1909	
Cholesterol	20	mg/100g

**CARBOHYDRATES**

Glucose	9.7	g/100g
Fructose	8.6	g/100g
Sucrose	9.0	g/100g
Maltose	1.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	25.1	g/100g
Total sugars	29.0	g/100g
Available carbohydrate	54.1	g/100g
Fibre (Englyst)	1.6	g/100g
Fibre (AOAC)	2.0	g/100g

**FATTY ACIDS**

Saturated	9.65	g/100g
cis-monounsaturated	9.91	g/100g
cis n-3 polyunsaturated	0.20	g/100g
cis n-6 polyunsaturated	3.57	g/100g
cis polyunsaturated	3.77	g/100g
Trans	0.21	g/100g

**INORGANICS**

Sodium (Na)	163	mg/100g
Potassium (K)	180	mg/100g
Calcium (Ca)	48	mg/100g
Magnesium (Mg)	49	mg/100g
Phosphorous (P)	119	mg/100g
Iron (Fe)	1.6	mg/100g
Copper (Cu)	0.35	mg/100g
Zinc (Zn)	1.0	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.60	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	5	µg/100g
Aluminium (Al)	0.27	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	9	µg/100g
Pantothenic acid	0.20	mg/100g
Biotin	6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	3.03	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 48: Cream filled pastries**

**PROXIMATES**

Water	29.8	g/100g
Total Nitrogen	0.57	g/100g
Nitrogen conversion factor	5.70	
Protein	3.3	g/100g
Fat	27.4	g/100g
Ash	0.9	g/100g
Energy (kcal)	415	
Energy (kJ)	1731	
Cholesterol	52	mg/100g

**CARBOHYDRATES**

Glucose	2.7	g/100g
Fructose	1.0	g/100g
Sucrose	20.8	g/100g
Maltose	1.6	g/100g
Lactose	1.2	g/100g
Galactose	<0.1	g/100g
Starch	14.1	g/100g
Total sugars	27.3	g/100g
Available carbohydrate	41.4	g/100g
Fibre (Englyst)	0.9	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	16.05	g/100g
cis-monounsaturated	6.98	g/100g
cis n-3 polyunsaturated	0.25	g/100g
cis n-6 polyunsaturated	1.37	g/100g
cis polyunsaturated	1.62	g/100g
Trans	0.42	g/100g

**INORGANICS**

Sodium (Na)	205	mg/100g
Potassium (K)	94	mg/100g
Calcium (Ca)	68	mg/100g
Magnesium (Mg)	10	mg/100g
Phosphorous (P)	86	mg/100g
Iron (Fe)	0.5	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	250	mg/100g
Manganese (Mn)	0.20	mg/100g
Iodine (I)	10	µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.21	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.05	mg/100g
Riboflavin	0.05	mg/100g
Niacin	0.4	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>	0.15	µg/100g
Folate	6	µg/100g
Pantothenic acid	0.20	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	183	µg/100g
Beta - carotene	136	µg/100g
Lutein	16	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	206	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	1.66	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 49: Cream filled chocolate pastries**

**PROXIMATES**

Water	34.5	g/100g
Total Nitrogen	0.97	g/100g
Nitrogen conversion factor	6.25	
Protein	6.1	g/100g
Fat	28.5	g/100g
Ash	0.9	g/100g
Energy (kcal)	387	
Energy (kJ)	1609	
Cholesterol	136	mg/100g

**CARBOHYDRATES**

Glucose	2.7	g/100g
Fructose	<0.1	g/100g
Sucrose	18.4	g/100g
Maltose	<0.1	g/100g
Lactose	2.9	g/100g
Galactose	<0.1	g/100g
Starch	4.2	g/100g
Total sugars	24.0	g/100g
Available carbohydrate	28.2	g/100g
Fibre (Englyst)	1.0	g/100g
Fibre (AOAC)	1.4	g/100g

**FATTY ACIDS**

Saturated	13.59	g/100g
cis-monounsaturated	9.30	g/100g
cis n-3 polyunsaturated	0.74	g/100g
cis n-6 polyunsaturated	2.06	g/100g
cis polyunsaturated	2.80	g/100g
Trans	0.42	g/100g

**INORGANICS**

Sodium (Na)	125	mg/100g
Potassium (K)	161	mg/100g
Calcium (Ca)	83	mg/100g
Magnesium (Mg)	22	mg/100g
Phosphorous (P)	120	mg/100g
Iron (Fe)	1.8	mg/100g
Copper (Cu)	0.10	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.21	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	6	µg/100g
Aluminium (Al)	0.66	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E		mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 50: Bakewell tarts, iced**

**PROXIMATES**

Water	14.9	g/100g
Total Nitrogen	0.55	g/100g
Nitrogen conversion factor	5.70	
Protein	3.1	g/100g
Fat	16.8	g/100g
Ash	0.7	g/100g
Energy (kcal)	411	
Energy (kJ)	1729	
Cholesterol	4	mg/100g

**CARBOHYDRATES**

Glucose	3.5	g/100g
Fructose	1.1	g/100g
Sucrose	35.5	g/100g
Maltose	5.2	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	20.7	g/100g
Total sugars	45.2	g/100g
Available carbohydrate	65.9	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	1.1	g/100g

**FATTY ACIDS**

Saturated	6.94	g/100g
cis-monounsaturated	6.41	g/100g
cis n-3 polyunsaturated	0.54	g/100g
cis n-6 polyunsaturated	2.03	g/100g
cis polyunsaturated	2.58	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	132	mg/100g
Potassium (K)	117	mg/100g
Calcium (Ca)	69	mg/100g
Magnesium (Mg)	12	mg/100g
Phosphorous (P)	73	mg/100g
Iron (Fe)	0.6	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	180	mg/100g
Manganese (Mn)	0.24	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.56	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.06	mg/100g
Riboflavin	0.04	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>	0.12	µg/100g
Folate	6	µg/100g
Pantothenic acid	0.25	mg/100g
Biotin	3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<20	µg/100g
Beta - carotene	<10	µg/100g
Lutein	27	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	<20	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E	2.03	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 51: Jam tarts**

**PROXIMATES**

Water	16.9	g/100g
Total Nitrogen	0.56	g/100g
Nitrogen conversion factor	5.70	
Protein	3.2	g/100g
Fat	13.5	g/100g
Ash	0.4	g/100g
Energy (kcal)	353	
Energy (kJ)	1485	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	9.4	g/100g
Fructose	3.7	g/100g
Sucrose	10.9	g/100g
Maltose	8.2	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	26.2	g/100g
Total sugars	32.1	g/100g
Available carbohydrate	58.2	g/100g
Fibre (Englyst)	1.3	g/100g
Fibre (AOAC)	1.4	g/100g

**FATTY ACIDS**

Saturated	5.54	g/100g
cis-monounsaturated	5.42	g/100g
cis n-3 polyunsaturated	0.25	g/100g
cis n-6 polyunsaturated	1.60	g/100g
cis polyunsaturated	1.85	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	26	mg/100g
Potassium (K)	68	mg/100g
Calcium (Ca)	22	mg/100g
Magnesium (Mg)	6	mg/100g
Phosphorous (P)	27	mg/100g
Iron (Fe)	0.3	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	<0.2	mg/100g
Chloride (Cl)	100	mg/100g
Manganese (Mn)	0.25	mg/100g
Iodine (I)	<1	µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.33	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.06	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	0.6	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C	<1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<20	µg/100g
Beta - carotene	81	µg/100g
Lutein	31	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	14	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.32	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 52: Custard tarts, individual**

**PROXIMATES**

Water	49.5	g/100g
Total Nitrogen	1.07	g/100g
Nitrogen conversion factor	6.25	
Protein	6.7	g/100g
Fat	14.3	g/100g
Ash	0.8	g/100g
Energy (kcal)	263	
Energy (kJ)	1102	
Cholesterol	91	mg/100g

**CARBOHYDRATES**

Glucose	0.9	g/100g
Fructose	<0.1	g/100g
Sucrose	11.2	g/100g
Maltose	2.0	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	14.5	g/100g
Total sugars	14.2	g/100g
Available carbohydrate	28.7	g/100g
Fibre (Englyst)	1.0	g/100g
Fibre (AOAC)	1.1	g/100g

**FATTY ACIDS**

Saturated	5.87	g/100g
cis-monounsaturated	5.58	g/100g
cis n-3 polyunsaturated	0.35	g/100g
cis n-6 polyunsaturated	1.66	g/100g
cis polyunsaturated	2.01	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	114	mg/100g
Potassium (K)	138	mg/100g
Calcium (Ca)	92	mg/100g
Magnesium (Mg)	14	mg/100g
Phosphorous (P)	101	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.09	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.19	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	8	µg/100g
Aluminium (Al)	0.91	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate		µg/100g
Pantothenic acid	0.49	mg/100g
Biotin	6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	55	µg/100g
Beta - carotene	100	µg/100g
Lutein	40	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	72	µg/100g
Vitamin D <sub>3</sub>	<0.5	µg/100g
Vitamin E		mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 53: Small fruit pies**

**PROXIMATES**

Water	23.5	g/100g
Total Nitrogen	0.55	g/100g
Nitrogen conversion factor	5.70	
Protein	3.1	g/100g
Fat	13.7	g/100g
Ash	0.6	g/100g
Energy (kcal)	361	
Energy (kJ)	1520	
Cholesterol	<0.5	mg/100g

**CARBOHYDRATES**

Glucose	8.3	g/100g
Fructose	2.4	g/100g
Sucrose	17.1	g/100g
Maltose	2.6	g/100g
Lactose	0.7	g/100g
Galactose	<0.1	g/100g
Starch	28.9	g/100g
Total sugars	31.0	g/100g
Available carbohydrate	60.0	g/100g
Fibre (Englyst)	1.6	g/100g
Fibre (AOAC)	4.3	g/100g

**FATTY ACIDS**

Saturated	4.87	g/100g
cis-monounsaturated	5.85	g/100g
cis n-3 polyunsaturated	0.46	g/100g
cis n-6 polyunsaturated	1.84	g/100g
cis polyunsaturated	2.30	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	115	mg/100g
Potassium (K)	117	mg/100g
Calcium (Ca)	33	mg/100g
Magnesium (Mg)	11	mg/100g
Phosphorous (P)	53	mg/100g
Iron (Fe)	0.6	mg/100g
Copper (Cu)	0.07	mg/100g
Zinc (Zn)	0.2	mg/100g
Chloride (Cl)	180	mg/100g
Manganese (Mn)	0.27	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.25	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.7	mg/100g
Tryptophan/60	0.6	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	6	µg/100g
Pantothenic acid	0.23	mg/100g
Biotin	2	µg/100g
Vitamin C	8	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<20	µg/100g
Beta - carotene	<10	µg/100g
Lutein	56	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	<20	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.17	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 54: Mince pies**

**PROXIMATES**

Water	18.5	g/100g
Total Nitrogen	0.68	g/100g
Nitrogen conversion factor	5.70	
Protein	3.8	g/100g
Fat	14.9	g/100g
Ash	0.8	g/100g
Energy (kcal)	377	
Energy (kJ)	1588	
Cholesterol	12	mg/100g

**CARBOHYDRATES**

Glucose	16.6	g/100g
Fructose	11.9	g/100g
Sucrose	3.4	g/100g
Maltose	2.7	g/100g
Lactose	0.4	g/100g
Galactose	0.5	g/100g
Starch	25.2	g/100g
Total sugars	35.5	g/100g
Available carbohydrate	60.7	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	2.6	g/100g

**FATTY ACIDS**

Saturated	5.97	g/100g
cis-monounsaturated	5.70	g/100g
cis n-3 polyunsaturated	0.44	g/100g
cis n-6 polyunsaturated	1.79	g/100g
cis polyunsaturated	2.23	g/100g
Trans	0.08	g/100g

**INORGANICS**

Sodium (Na)	101	mg/100g
Potassium (K)	211	mg/100g
Calcium (Ca)	66	mg/100g
Magnesium (Mg)	16	mg/100g
Phosphorous (P)	65	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	140	mg/100g
Manganese (Mn)	0.36	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.33	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.11	mg/100g
Riboflavin	0.01	mg/100g
Niacin	1.0	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	14	µg/100g
Pantothenic acid	0.20	mg/100g
Biotin	2	µg/100g
Vitamin C	<1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	25	µg/100g
Beta - carotene	16	µg/100g
Lutein	32	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	28	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.06	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 55: Doughnuts, with jam**

**PROXIMATES**

Water	28.9	g/100g
Total Nitrogen	0.95	g/100g
Nitrogen conversion factor	5.70	
Protein	5.4	g/100g
Fat	13.1	g/100g
Ash	1.5	g/100g
Energy (kcal)	321	
Energy (kJ)	1352	
Cholesterol	7	mg/100g

**CARBOHYDRATES**

Glucose	11.4	g/100g
Fructose	5.5	g/100g
Sucrose	<0.1	g/100g
Maltose	3.4	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	28.2	g/100g
Total sugars	20.3	g/100g
Available carbohydrate	48.4	g/100g
Fibre (Englyst)	1.4	g/100g
Fibre (AOAC)	1.7	g/100g

**FATTY ACIDS**

Saturated	4.96	g/100g
cis-monounsaturated	5.01	g/100g
cis n-3 polyunsaturated	0.22	g/100g
cis n-6 polyunsaturated	2.01	g/100g
cis polyunsaturated	2.23	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	404	mg/100g
Potassium (K)	121	mg/100g
Calcium (Ca)	990 <sup>2</sup>	mg/100g
Magnesium (Mg)	15	mg/100g
Phosphorous (P)	135	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	320	mg/100g
Manganese (Mn)	0.39	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.33	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.03	mg/100g
Niacin	1.3	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>	0.08	µg/100g
Folate	21	µg/100g
Pantothenic acid	0.26	mg/100g
Biotin	5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<20	µg/100g
Beta - carotene	<10	µg/100g
Lutein	34	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	<20	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.75	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 56: Doughnuts ring, iced**

**PROXIMATES**

Water	21.3	g/100g
Total Nitrogen	1.03	g/100g
Nitrogen conversion factor	5.70	
Protein	5.8	g/100g
Fat	25.7	g/100g
Ash	1.4	g/100g
Energy (kcal)	413	
Energy (kJ)	1728	
Cholesterol	9	mg/100g

**CARBOHYDRATES**

Glucose	1.7	g/100g
Fructose	0.8	g/100g
Sucrose	13.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	26.2	g/100g
Total sugars	16.2	g/100g
Available carbohydrate	42.3	g/100g
Fibre (Englyst)	1.4	g/100g
Fibre (AOAC)	2.7	g/100g

**FATTY ACIDS**

Saturated	14.14	g/100g
cis-monounsaturated	7.83	g/100g
cis n-3 polyunsaturated	0.12	g/100g
cis n-6 polyunsaturated	2.15	g/100g
cis polyunsaturated	2.26	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	326	mg/100g
Potassium (K)	202	mg/100g
Calcium (Ca)	55	mg/100g
Magnesium (Mg)	22	mg/100g
Phosphorous (P)	154	mg/100g
Iron (Fe)	6.2 <sup>3</sup>	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	260	mg/100g
Manganese (Mn)	0.38	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	6	µg/100g
Aluminium (Al)	5.96	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.06	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	17	µg/100g
Pantothenic acid	0.35	mg/100g
Biotin	4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<20	µg/100g
Beta - carotene	<10	µg/100g
Lutein	44	µg/100g
Lycopene	<10	µg/100g
Total vitamin A	<20	µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.43	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 57: Short crust pastry, uncooked**

**PROXIMATES**

Water	21.8	g/100g
Total Nitrogen	1.00	g/100g
Nitrogen conversion factor	5.70	
Protein	5.7	g/100g
Fat	31.4	g/100g
Ash	0.9	g/100g
Energy (kcal)	453	
Energy (kJ)	1889	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	0.3	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	0.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	38.5	g/100g
Total sugars	0.9	g/100g
Available carbohydrate	39.4	g/100g
Fibre (Englyst)	1.8	g/100g
Fibre (AOAC)	3.4	g/100g

**FATTY ACIDS**

Saturated	11.68	g/100g
cis-monounsaturated	13.24	g/100g
cis n-3 polyunsaturated	1.04	g/100g
cis n-6 polyunsaturated	3.80	g/100g
cis polyunsaturated	4.84	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	224	mg/100g
Potassium (K)	97	mg/100g
Calcium (Ca)	80	mg/100g
Magnesium (Mg)	10	mg/100g
Phosphorous (P)	51	mg/100g
Iron (Fe)	1.0	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	330	mg/100g
Manganese (Mn)	0.29	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.22	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.8	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	6	µg/100g
Pantothenic acid	0.39	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	3.26	mg/100g



**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 58: Pastry flaky/puff pastry, uncooked**

**PROXIMATES**

Water	31.7	g/100g
Total Nitrogen	0.93	g/100g
Nitrogen conversion factor	5.70	
Protein	5.3	g/100g
Fat	26.2	g/100g
Ash	1.2	g/100g
Energy (kcal)	384	
Energy (kJ)	1600	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	1.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	32.2	g/100g
Total sugars	1.5	g/100g
Available carbohydrate	33.7	g/100g
Fibre (Englyst)	0.9	g/100g
Fibre (AOAC)	2.8	g/100g

**FATTY ACIDS**

Saturated	12.56	g/100g
cis-monounsaturated	9.43	g/100g
cis n-3 polyunsaturated	0.37	g/100g
cis n-6 polyunsaturated	2.47	g/100g
cis polyunsaturated	2.84	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	337	mg/100g
Potassium (K)	89	mg/100g
Calcium (Ca)	77	mg/100g
Magnesium (Mg)	10	mg/100g
Phosphorous (P)	49	mg/100g
Iron (Fe)	1.1	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	450	mg/100g
Manganese (Mn)	0.29	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g
Aluminium (Al)	0.24	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.7	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	<5	µg/100g
Pantothenic acid	0.22	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	1.99	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 59: Short crust pastry, cooked**

**PROXIMATES**

Water	5.6	g/100g
Total Nitrogen	1.21	g/100g
Nitrogen conversion factor	5.70	
Protein	6.9	g/100g
Fat	37.9	g/100g
Ash	1.1	g/100g
Energy (kcal)	547	
Energy (kJ)	2281	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	0.4	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	0.6	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	46.5	g/100g
Total sugars	1.0	g/100g
Available carbohydrate	47.5	g/100g
Fibre (Englyst)	2.2	g/100g
Fibre (AOAC)	4.1	g/100g

**FATTY ACIDS**

Saturated	14.10	g/100g
cis-monounsaturated	15.99	g/100g
cis n-3 polyunsaturated	1.25	g/100g
cis n-6 polyunsaturated	4.59	g/100g
cis polyunsaturated	5.84	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	271	mg/100g
Potassium (K)	118	mg/100g
Calcium (Ca)	97	mg/100g
Magnesium (Mg)	12	mg/100g
Phosphorous (P)	61	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	399	mg/100g
Manganese (Mn)	0.36	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/100g
Aluminium (Al)	0.26	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.10	mg/100g
Riboflavin	0.01	mg/100g
Niacin	1.0	mg/100g
Tryptophan/60	1.3	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	8	µg/100g
Pantothenic acid	0.47	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	3.94	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 60: Pastry flaky/puff pastry, cooked**

**PROXIMATES**

Water	13.4	g/100g
Total Nitrogen	1.18	g/100g
Nitrogen conversion factor	5.70	
Protein	6.7	g/100g
Fat	33.2	g/100g
Ash	1.5	g/100g
Energy (kcal)	486	
Energy (kJ)	2027	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	1.9	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	40.8	g/100g
Total sugars	1.9	g/100g
Available carbohydrate	42.8	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	3.5	g/100g

**FATTY ACIDS**

Saturated	15.92	g/100g
cis-monounsaturated	11.95	g/100g
cis n-3 polyunsaturated	0.46	g/100g
cis n-6 polyunsaturated	3.14	g/100g
cis polyunsaturated	3.60	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	427	mg/100g
Potassium (K)	112	mg/100g
Calcium (Ca)	98	mg/100g
Magnesium (Mg)	13	mg/100g
Phosphorous (P)	61	mg/100g
Iron (Fe)	1.4	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	570	mg/100g
Manganese (Mn)	0.37	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g
Aluminium (Al)	0.31	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	1.3	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	<5	µg/100g
Pantothenic acid	0.27	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	2.52	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 61: Filo pastry, uncooked**

**PROXIMATES**

Water	26.6	g/100g
Total Nitrogen	1.33	g/100g
Nitrogen conversion factor	5.70	
Protein	7.6	g/100g
Fat	2.9	g/100g
Ash	1.6	g/100g
Energy (kcal)	278	
Energy (kJ)	1180	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	2.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	56.5	g/100g
Total sugars	2.4	g/100g
Available carbohydrate	58.9	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	3.4	g/100g

**FATTY ACIDS**

Saturated	0.32	g/100g
cis-monounsaturated	1.22	g/100g
cis n-3 polyunsaturated	0.15	g/100g
cis n-6 polyunsaturated	1.06	g/100g
cis polyunsaturated	1.21	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	436	mg/100g
Potassium (K)	119	mg/100g
Calcium (Ca)	108	mg/100g
Magnesium (Mg)	17	mg/100g
Phosphorous (P)	78	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.50	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	5	µg/100g
Aluminium (Al)	0.37	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.20	mg/100g
Riboflavin	0.02	mg/100g
Niacin	1.0	mg/100g
Tryptophan/60	1.4	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	11	µg/100g
Pantothenic acid	0.40	mg/100g
Biotin	2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.30	mg/100g

**Biscuits, Buns, Cakes and Pastries Project: Analytical Results**

**Sample 62: Filo pastry, cooked**

**PROXIMATES**

Water	3.9	g/100g
Total Nitrogen	1.75	g/100g
Nitrogen conversion factor	5.70	
Protein	10.0	g/100g
Fat	3.8	g/100g
Ash	2.1	g/100g
Energy (kcal)	363	
Energy (kJ)	1544	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	2.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	74.0	g/100g
Total sugars	3.1	g/100g
Available carbohydrate	77.1	g/100g
Fibre (Englyst)	2.2	g/100g
Fibre (AOAC)	4.5	g/100g

**FATTY ACIDS**

Saturated	0.42	g/100g
cis-monounsaturated	1.60	g/100g
cis n-3 polyunsaturated	0.20	g/100g
cis n-6 polyunsaturated	1.38	g/100g
cis polyunsaturated	1.58	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	571	mg/100g
Potassium (K)	156	mg/100g
Calcium (Ca)	141	mg/100g
Magnesium (Mg)	23	mg/100g
Phosphorous (P)	102	mg/100g
Iron (Fe)	1.9	mg/100g
Copper (Cu)	<0.06	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)		mg/100g
Manganese (Mn)	0.65	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	6	µg/100g
Aluminium (Al)	0.49	mg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.26	mg/100g
Riboflavin	0.03	mg/100g
Niacin	1.2	mg/100g
Tryptophan/60	1.8	mg/100g
Vitamin B <sub>6</sub>	0.08	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	15	µg/100g
Pantothenic acid	0.52	mg/100g
Biotin	3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Beta - carotene		µg/100g
Total vitamin A		µg/100g
Vitamin D <sub>3</sub>		µg/100g
Vitamin E	0.39	mg/100g

# Analytical methods

A summary of analytical methods used is given in the table below. More details are available on pages 80-93 (Quality assurance).

Nutrient	Method	Reference Methods	Accredited
<b>Macronutrients</b>			
Water	Oven drying	Based on: BS4401-3 1997	Y
Ash	Muffle furnace	Validated against BS 4401-1 1980	Y
Nitrogen	Dumas	LECO - in house documented	Y
Protein	Calculated	Total Nitrogen x food specific nitrogen conversion factors	
Fat	Acid hydrolysis	Werner Schmidt validated against BS4401-4 1970	Y
Fatty acids (SFA, MUFA, PUFA, Trans fatty acids)	Methyl esters GC-FID	AOAC official methods 963.22 2000	Y
Individual sugars (glucose, fructose, sucrose, maltose, lactose, galactose)	Chromatography	In house documented	Y
Starch	Acid hydrolysis	99/79 EC OJ L209	Y
Dietary fibre	AOAC	AOAC 985.29	Y
Dietary fibre / NSP	Englyst method	Englyst and Cummings KIT instructions	Y
Cholesterol	GC	ISO 6799-1992	Y
<b>Minerals</b>			
Calcium	ICP OES	In-house documented	Y
Iron	ICP OES	In-house documented	Y
Zinc	ICP OES	In-house documented	Y
Sodium	ICP OES	In-house documented	Y
Potassium	ICP OES	In-house documented	Y
Selenium	ICPMS	In-house documented	Y
Copper	ICP OES	In-house documented	Y
Magnesium	ICP OES	In-house documented	Y
Manganese	ICP OES	In-house documented	Y
Chloride	Titration	Davie, W. L., Analyst (London), 1932, 57, 79	Y

## Nutrient analysis survey of biscuits, buns, cakes and pastries

Nutrient	Method	Reference Methods	Accredited
Iodine	ICPMS	In-house documented	Y
Aluminium	ICPMS	In-house documented	Y
<b>Vitamins</b>			
All-trans-retinol	HPLC (UV detection)	BS EN 12823-1:2000	Y
β-carotene	HPLC	BS EN 12823-2:2000	Y
Other carotenoids (lutein, lycopene & zeaxanthin)	HPLC	BS EN 12823-2:2000	Y
Vitamin B <sub>1</sub>	HPLC (florescence detection)	BS EN 14122:2003 modified	Y
Vitamin B <sub>2</sub>	HPLC (florescence detection)	BS EN 14152:2003 modified	Y
Vitamin B <sub>12</sub>	Bioassay	AOAC 950.20	Y
Vitamin B <sub>6</sub>	HPLC (florescence detection)	Food Chemistry 52 (1995) p81-86	Y
Total folate	Bioassay	AOAC 944.12 1990	Y
Niacin	Bioassay	In-house documented	Y
Tryptophan	HPLC	EN ISO 13904	Y
Biotin	Bioassay	LST AB 266.1 analog to FDA method	Y
Pantothenic acid	Bioassay	AOAC 945.74 / 45.2.05 (1990)	Y
Vitamin C	HPLC (florescence detection)	BS En 14130:2003	Y
Vitamin D <sub>3</sub>	HPLC (UV detection)	BS EN 12821:2000	Y
Vitamin E (α-tocopherol)	HPLC (florescence detection)	BS EN 12822	Y

# Quality assurance

Eurofins Laboratories followed standard operating procedures to assure quality of data reported. Procedures are described in the documents listed below.

Document No.	Edition	Title/content
AQC/001	7	Procedures for the establishment of internal quality control charts for AQC samples
AQC/005	5	Procedures for the conduct of external proficiency schemes
AQC/006	4	Storage of chemicals, stock solutions & standards and verification of 'critical reagents'
AQC/011	1	Analytical quality control charts for AQC samples, preparation, interpretation and action
SAMP/031	2	Procedure for managing repeat analyses
DATA/009	9	Manual recording of data and data verification
DATA/016	2	Approval of results in eLIMS

Listed below are details of the analytical methods used in the analysis of the samples and the quality control procedures used. Where any proficiency test results from FAPAS are quoted they are from the rounds near to the time at which analysis was carried out.

## **Q/005: The determination of moisture content of food products (UD006)**

A homogenised portion of the sample is mixed with sand and heated to 102°C. The moisture loss determined gravimetrically.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

Ref: BS 4401 pt3:1997

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Wet pet food is 76.33 g/100g +/- 1.4 g/100g.



## Nutrient analysis survey of biscuits, buns, cakes and pastries

### FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
1	56	1/08	Canned meat meal	Moisture	-1.4
1	59	9/08	Canned meat meal	Moisture	0.1
1	61	1/09	Canned meat meal	Moisture	1.9
1	62	5/09	Canned meat	Moisture	1.4
1	63	8/09	Canned meat	Moisture	-0.1
24	28	1/08	Breadcrumbs	Moisture	-1.1
24	29	5/08	Wheat flour	Moisture	-0.9
24	30	8/08	Porridge oats	Moisture	-1.9
24	32	1/09	Soya Flour	Moisture	-0.3
24	33	2/09	Breadcrumbs	Moisture	-0.1
24	34	5/09	Wheat flour	Moisture	0.2
24	35	8/09	Porridge oats	Moisture	-2.7
24	36	10/09	Cereal	Moisture	-0.8
25	54	1/08	Cheese & pasta meal	Moisture	0.3
25	56	4/08	Milk Powder	Moisture	0.8
25	58	4/08	Snack food	Moisture	-0.2
25	65	1/09	Butter	Moisture	0.0
25	67	4/09	Canned fish	Moisture	0.1
25	68	4/09	Milk powder	Moisture	0.6
25	69	6/09	Snack food	Moisture	0.4
25	70	5/09	Fish paste	Moisture	1.5
25	71	6/09	Condensed milk	Moisture	-1.4
25	74	8/09	Milk powder	Moisture	0.8

### H/007: The determination of moisture in dry materials (UD006)

Suitable for oil and samples with high sugar content. A homogenised portion of the sample is mixed with sand and heated to 70°C in a vacuum oven. The moisture loss is determined gravimetrically.

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Dry cat food is 8.82 g/100g +/- 0.44 g/100g.

**Q/002: The determination of the fat content (UD003)**

The sample is acid hydrolysed with hydrochloric acid, cooled, filtered and dried. The fat is extract from the residue with petroleum ether and the dried fat determined gravimetrically.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

Ref: BS 4401 pt4:1970

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Wet pet food is 7.34 g/100g +/- 0.36 g/100g.

Dry pet food is 7.34 g/100g +/- 0.22 g/100g.

FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
1	56	1/08	Canned meat meal	Total fat	0.1
1	59	9/08	Canned meat meal	Total fat	0.5
1	61	1/09	Canned meat meal	Total fat	-0.8
1	62	5/09	Canned meat	Total fat	-0.8
1	63	8/09	Canned meat	Total fat	0.4
14	67	1/08	Breakfast cereal	Total fat	-0.3
14	77	1/09	Breakfast cereal	Total fat	-2.5
14	81	5/09	Mixed fat spread	Total fat	0.5
24	35	8/09	Porridge oats	Total fat	0.3
25	54	1/08	Cheese & pasta meal	Total fat	-0.3
25	56	4/08	Milk Powder	Total fat	0.9
25	58	4/08	Snack food	Total fat	0.6
25	63	10/08	Milk powder	Total fat	0.6
25	65	1/09	Butter	Total fat	-2.1
25	66	2/09	Cheese & pasta meal	Total fat	0.4
25	67	4/09	Canned fish	Total fat	2.4
25	68	4/09	Milk powder	Total fat	0.5
25	69	6/09	Snack food	Total fat	-0.7
25	70	5/09	Fish paste	Total fat	2.5
25	71	6/09	Condensed milk	Total fat	3.0
25	74	8/09	Milk powder	Total fat	2.0

## Nutrient analysis survey of biscuits, buns, cakes and pastries

### Q/001: The determination of the ash content. (UD007)

A homogenised portion of the sample is ashed in a muffle furnace at 550°C. The ash is determined gravimetrically.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

Ref: BS 4401 pt11:1998

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Dry pet food is 7.18 g/100g +/- 0.18 g/100g.

### FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
1	56	1/08	Canned meat meal	Ash	-0.1
1	59	9/08	Canned meat meal	Ash	2.3
1	61	1/09	Canned meat meal	Ash	0.0
1	62	5/09	Canned meat	Ash	0.3
1	63	8/09	Canned meat	Ash	0.5
24	28	1/08	Breadcrumbs	Ash	0.4
24	29	5/08	Wheat flour	Ash	0.4
24	30	8/08	Porridge oats	Ash	-1.3
24	32	1/09	Soya Flour	Ash	-0.2
24	33	2/09	Breadcrumbs	Ash	0.4
24	34	5/09	Wheat flour	Ash	1.9
24	36	10/09	Cereal	Ash	-0.9
25	54	1/08	Cheese & pasta meal	Ash	0.5
25	56	4/08	Milk Powder	Ash	-0.3
25	58	4/08	Snack food	Ash	-0.6
25	63	10/08	Milk powder	Ash	0.3
25	66	2/09	Cheese & pasta meal	Ash	0.5
25	67	4/09	Canned fish	Ash	0.4
25	68	4/09	Milk powder	Ash	0.7
25	69	6/09	Snack food	Ash	-0.3
25	70	5/09	Fish paste	Ash	0.7
25	71	6/09	Condensed milk	Ash	-0.2
25	74	8/09	Milk powder	Ash	1.3

**Z/001: The determination of nitrogen and crude protein using Leco instrumentation (UD001)**

The sample is analysed by a Leco instrumentation following Dumas procedure: The sample is combusted in an oxygen atmosphere, the gaseous product is cleaned and nitrogen compounds converted to nitrogen which is measured by a thermal conductivity cell. The crude protein is calculated by multiplying by the appropriate conversion factor.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Wet pet food is 8.09 g/100g +/- 0.4 g/100g.

Feed is 2.72 g/100g +/- 0.06 g/100g.

**FAPAS Results**

Series	Round	Date	Sample Type	Determination	Z score
1	56	1/08	Canned meat meal	Nitrogen	1.8
1	59	9/08	Canned meat meal	Nitrogen	0.0
1	61	1/09	Canned meat meal	Nitrogen	1.0
1	62	5/09	Canned meat	Nitrogen	-0.6
1	63	8/09	Canned meat	Nitrogen	0.3
24	28	1/08	Breadcrumbs	Nitrogen	0.3
24	29	5/08	Wheat flour	Nitrogen	0.8
24	30	8/08	Porridge oats	Nitrogen	-0.6
24	32	1/09	Soya Flour	Nitrogen	0.0
24	33	2/09	Breadcrumbs	Nitrogen	-0.2
24	34	5/09	Wheat flour	Nitrogen	0.3
24	35	8/09	Porridge oats	Nitrogen	0.6
24	36	10/09	Cereal	Nitrogen	0.2
25	54	1/08	Cheese & pasta meal	Nitrogen	0.7
25	56	4/08	Milk Powder	Nitrogen	1.2
25	58	4/08	Snack food	Nitrogen	0.9
25	63	10/08	Milk powder	Nitrogen	0.6
25	66	2/09	Cheese & pasta meal	Nitrogen	0.4
25	67	4/09	Canned fish	Nitrogen	0.8
25	68	4/09	Milk powder	Nitrogen	0.7
25	69	6/09	Snack food	Nitrogen	0.1
25	70	5/09	Fish paste	Nitrogen	0.8
25	71	6/09	Condensed milk	Nitrogen	0.4
25	74	8/09	Milk powder	Nitrogen	0.9

**H/085: The determination of total dietary fibre by the AOAC method ((H/085)**

The sample is weighed and de-fatted if necessary. It is then gelatinised and treated with  $\alpha$ -amylase and further digested enzymatically with protease and amyloglucosidase to remove the starch and protein. The dietary fibre is precipitated with IMS, filtered, washed, dried and weighed. Total dietary fibre is then determined gravimetrically and corrected for protein and ash.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

Ref: AOAC 985.29/45.4.07 (2007)

LOQ 0.5 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Weetabix cereal is 10.72 g/100g +/- 1.07 g/100g.

**FAPAS Results**

Series	Round	Date	Sample Type	Determination	Z score
24	33	2/09	Breadcrumbs	AOAC fibre	0.3
24	34	5/09	Wheat flour	AOAC fibre	0.3
24	35	8/09	Porridge oats	AOAC fibre	0.6
24	36	10/09	Cereal	AOAC fibre	0.4

**CHROM/104: The determination of extractable sugars (UD296)**

The sugars are extracted with water, clarified and chromatographically separated on an amine column with an acetonitrile/water mobile phase. The sugars are detected using an evaporative light scattering detector and quantified with reference to calibration standards.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Sugar	Matrix	Level	Uncertainty $\pm$	Unit
Sugar (total)	Cornflakes	26.10	1.59	g/100g
Fructose	Cornflakes	5.22	0.58	g/100g
Glucose	Cornflakes	5.12	0.60	g/100g
Galactose	Cornflakes	4.00	0.58	g/100g
Sucrose	Cornflakes	4.01	0.68	g/100g
Maltose	Cornflakes	4.00	0.78	g/100g
Lactose	Cornflakes	3.75	0.64	g/100g

## Nutrient analysis survey of biscuits, buns, cakes and pastries

### FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
8	33	10/09	Orange juice	Fructose	-1.8
8	33	10/09	Orange juice	Glucose	-4.8
8	33	10/09	Orange juice	Sucrose	-2.6
8	33	10/09	Orange juice	Total sugars	-3.8
20	65	1/09	Chocolate cake mix	total sugars	-0.4
25	63	10/08	Milk powder	Lactose	-1.3
25	74	8/09	Milk powder	Lactose	-0.4

### H/050: The determination of Starch (UD012)

Determination of starch and high molecular weight degradation products of starch in feeding stuffs and milk powders. It is not applicable to feeding stuffs containing beet chips, beet pulp, dried beet tops or leaves, potato pulp, dried yeasts, products rich in inulin (e.g. dried or powdered Jerusalem artichokes) and products containing greaves.

The method consists of two separate determinations. The sample is treated with warm diluted hydrochloric acid, clarified and filtered; the optical rotation of the resulting solution is determined. In the second determination, the sample is extracted with 40% ethanol and filtered. The filtrate is acidified with hydrochloric acid, clarified and filtered again; the optical rotation of the resulting solution is determined at  $20 \pm 2^{\circ}\text{C}$ .

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

Ref: The Feeding Stuffs (Sampling and Analysis) Regulations 1982 Method 30a.

LOQ 2 g/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Wheat grain is 68.8 g/100g +/- 1.50 g/100g.

### FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
10	77	1/09	Poultry ration	Starch	0.4
24	28	1/08	Breadcrumbs	Starch	-0.3
8	33	10/09	Orange juice	Sucrose	-2.6
8	33	10/09	Orange juice	Total sugars	-3.8

**CHROM/215: The determination of fatty acids by GC (UD751)**

The lipid fractions of the sample are solvent extracted. The isolated fat is transesterified with methanolic sodium methoxide to form fatty acid methyl esters (FAMES). The FAME profile is determined using capillary gas chromatography (GC). Quantification and identification of individual FAMES in the test material is achieved with reference to calibration standards.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

LOQ 0.01 mg/100g

The method of uncertainty with a coverage factor of 2 (i.e. 95% confidence level)

Fatty Acid	Matrix	Level	Uncertainty ±	Unit
FAMES-saturates	Butter	63.6	1.60	%
FAMES-monunsaturates	Butter	26.2	1.00	%
FAMES-polyunsaturates	Butter	3.88	0.26	%
FAMES-trans fatty acids	Butter	2.95	0.20	%
alpha-linolenic acid (ALA)	Butter	0.524	0.046	%
Eicosapentenoic acid (EPA)	Butter	0.42	0.040	%
Docosapentaenoic acid (DPA)	Butter	0.12	0.014	%
Docosahexaenoic acid (DHA)	Butter	0.472	0.042	%

## Nutrient analysis survey of biscuits, buns, cakes and pastries

### FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
14	67	1/08	Breakfast cereal	Saturates	-1.8
14	67	1/08	Breakfast cereal	Monounsaturates	0.1
14	67	1/08	Breakfast cereal	Polyunsaturates	0.6
14	69	1/08	Oils, fats,	Saturates	0.4
14	69	1/08	Vegetable oil	Monounsaturates	0.2
14	69	1/08	Vegetable oil	Polyunsaturates	-0.9
14	71	4/08	Vegetable oil	Saturates	-0.3
14	71	4/08	Nutritionally Fortified oil	Monounsaturates	-0.1
14	71	4/08	Nutritionally Fortified oil	Polyunsaturates	0.5
14	73	6/08	Infant milk formula	Saturates	-2.0
14	73	6/08	Infant milk formula	Monounsaturates	-1.9
14	73	6/08	Infant milk formula	Polyunsaturates	-1.9
14	77	1/09	Breakfast cereal	Total TFA	0.0
14	77	1/09	Breakfast cereal	linoleic acid	-0.2
14	78	1/09	Vegetable oil	Saturates	0.5
14	78	1/09	Vegetable oil	Monounsaturates	-0.1
14	78	1/09	Vegetable oil	Polyunsaturates	0.0
14	77	1/09	Breakfast cereal	Total TFA	0.0
14	80	4/09	Fortified oil	Saturates	0.0
14	80	4/09	Fortified oil	Monounsaturates	-0.4
14	80	4/09	Fortified oil	Polyunsaturates	0.5
14	80	4/09	Fortified oil	Total TFA	-0.2
14	80	4/09	Fortified oil	linoleic acid	-0.1
14	81	5/09	Mixed fat spread	Saturates	0.0
14	81	5/09	Mixed fat spread	Monounsaturates	-0.1
14	81	5/09	Mixed fat spread	Polyunsaturates	-0.2

### A7335 Cholesterol

Method Lipid in sample is saponified at high temperature with ethanolic KOH solution. Unsaponifiable fraction containing cholesterol and other sterols is extracted with toluene. Sterols are derivatized to trimethylsilyl (TMS) ethers and then quantified by GC.

LOQ 0.7 mg/100 g

Reproducibility 20%

Reference Method ISO 6799: 1992



### Method Summaries for Elemental Analysis

For sodium, potassium, calcium, magnesium, phosphorous, iron, copper, zinc, manganese and selenium approximately 1g of homogenised sample is digested with concentrated nitric acid using microwave assisted accelerated digestion.

Selenium and aluminium are determined in the extract produced by ICP-MS (inductively coupled plasma mass spectrometry). Sodium, potassium, calcium, magnesium, phosphorous, iron, copper, zinc and manganese are determined by ICP-OES (inductively coupled plasma optical emission spectrometry).

For iodine analysis a strong solution of tetra methyl ammonium hydroxide (TMAH) is used to digest the samples in a closed container at elevated temperatures. This converts iodine into a soluble, stable form. Iodine in the alkaline extract produced is determined by ICP-MS (inductively coupled plasma mass spectrometry).

Limits of Quantification:

Selenium – 0.002 mg/kg

Iodine – 0.01 mg/kg

Calcium – 0.0005 g/100g

Sodium – 0.001 g/100g

Magnesium – 0.005 g/100g

Aluminium – 0.05 mg/kg

### Q/012: The determination of chloride or salt in foods

Organic matter in the sample is destroyed by wet digestion with a mixture of potassium permanganate and nitric acid. This method uses a back titration with potassium thiocyanate to determine the concentration of chloride ions in solution. In the presence of excess silver nitrate, chloride is precipitated as silver chloride. Urea is added to the decomposed nitrites and the excess silver nitrate is titrated with potassium thiocyanate in the presence of acetone, using ferric iron as the indicator.

Accredited to BS/EN ISO/IEC 17025:2005. UKAS 0680

Ref: Davie, W. L., Analyst (London), 1932, 57, 79

LOQ 0.1 g/100g

The method of uncertainty with a coverage factor of 2 (ie 95% confidence level)

AQC sample is 1.65 g/100g +/- 0.08 g/100g.

## Nutrient analysis survey of biscuits, buns, cakes and pastries

### FAPAS Results

Series	Round	Date	Sample Type	Determination	Z score
1	56	1/08	Canned meat meal	Chloride	0.0
1	59	9/08	Canned meat meal	Sodium	-2.0
1	59	9/08	Canned meat meal	Chloride	0.3
1	61	1/09	Canned meat meal	Sodium	-0.6
1	61	1/09	Canned meat meal	Chloride	-0.2
1	62	5/09	Canned meat	sodium	0.6
1	62	5/09	Canned meat	chloride	-1.6
1	63	8/09	Canned meat	Sodium	-0.8
1	63	8/09	Canned meat	Chloride	0.4
7	103	6/08	Tomato paste	Iron	1.0
7	113	1/09	Fruit Juice	Iron	2.0
7	122	6/09	Tomato paste	Iron	0.3
10	70	2/08	Pre-mix	Manganese	0.0
10	70	2/08	Pre-mix	Zinc	0.1
10	74	9/08	Sheep feed	Copper	0.8
10	77	1/09	Poultry ration	Calcium	0.7
10	77	1/09	Poultry ration	Phosphorus	-0.3
10	78	2/09	Feedingstuffs	Manganese	1.7
10	78	2/09	Feedingstuffs	Zinc	-0.7
10	80	5/09	Dairy ration	Iron	0.5
10	80	5/09	Dairy ration	Magnesium	-2.3
10	80	5/09	Dairy ration	Manganese	0.0
10	80	5/09	Dairy ration	Selenium	-0.2
10	81	9/09	Sheep feed	Copper	0.0
18	51	7/08	Breakfast cereal	Calcium	2.3
18	51	7/08	Breakfast cereal	Iron	0.5
18	51	7/08	Breakfast cereal	Zinc	0.0
18	52	9/08	Milk Powder	Calcium	1.8
18	52	9/08	Milk Powder	Iodine	-2.3
18	52	9/08	Milk Powder	Selenium	-0.1
18	54	4/09	Canned meat	Calcium	1.6
18	54	4/09	Canned meat	Phosphorus	-0.7
18	54	4/09	Canned meat	Zinc	0.0
18	55	7/09	Breakfast cereal	Calcium	-0.1
18	55	7/09	Breakfast cereal	Iron	0.6
18	55	7/09	Breakfast cereal	Zinc	-1.0
18	56	8/09	Milk powder	Calcium	0.4
18	56	8/09	Milk powder	Iodine	-0.2
18	56	8/09	Milk powder	Selenium	-1.2

## Nutrient analysis survey of biscuits, buns, cakes and pastries

Series	Round	Date	Sample Type	Determination	Z score
25	58	4/08	Snack food	Sodium	-0.3
25	65	1/09	Butter	Chloride	-3.5
25	66	2/09	Cheese & pasta meal	Sodium	-3.2
25	66	2/09	Cheese & pasta meal	Chloride	-0.2
25	69	6/09	Snack food	Sodium	1.4
25	69	6/09	Snack food	Chloride	-0.4
25	70	5/09	Fish paste	Sodium	-0.7
25	70	5/09	Fish paste	Chloride	2.3

### **A7272/DJA36 All-trans retinol**

Reverse phase HPLC with diode array detector.

LOQ 21 µg/100 g

Reproducibility 10%

Reference Method EN 12823-1

### **A7271/DJA57 Beta-carotene and other carotenoids**

Reverse phase HPLC with diode array detector

LOQ 10 µg/100 g

Reproducibility 14%

Reference Method EN 12823-2

### **A7273/DJA13/DJ070 Thiamin**

Reverse phase HPLC with fluorescence detector

LOQ 0.01 µg/100 g

Reproducibility 8%

Reference Method EN 14122, mod

### **A7274/DJA34/DJ071 Riboflavin**

Reverse phase HPLC with fluorescence detector

LOQ 0.01 µg/100 g

Reproducibility 8%

Reference Method EN 14152

**A7276/DJ082 Niacin**

Microbiological

LOQ 0.06 mg/100 g

Reproducibility 9%

Reference Method LST AB 228.1

**A7251/DJA55/DJ072 Vitamin B6**

Reverse phase HPLC with fluorescence detector

LOQ 0.01 mg/100 g

Reproducibility 7%

Reference Method EN 14164

**A7289 Vitamin B12**

Microbiological

LOQ 0.01 µg/100 g

Reproducibility 15%

Reference Method AOAC 952.20

**A7286/DJA41/DJ085 Folate**

Microbiological

LOQ 5 µg/100 g

Reproducibility 12%

Reference Method LST AB 265.1

**DJ009 Tryptophan**

HPLC

LOQ 10mg/100 g

Reproducibility 3.9%

Reference Method EN ISO 13904

**A7284/DJA39/DJ084 Biotin**

Microbiological

LOQ 1µg/100 g

Reproducibility 12%

Reference Method EN ISO 13904

**A7278/DJA48/DJ083 Pantothenic acid**

Microbiological

LOQ 0.007mg/100 g

Reproducibility 12%

Reference Method LST AB 267.1

**A7291 Vitamin C**

Reverse phase HPLC with fluorescence detector

LOQ 0.5mg/100 g

Reproducibility 5.5%

Reference Method BS En 14130:2003

**A7252/DJA35 Vitamin D**

Normal phase/Reverse phase HPLC with diode array detector/MS

LOQ 0.5µg/100 g

Reproducibility 13%

Reference Method EN 12821 mod

**A7296/DJA37 Vitamin E (alpha-tocopherol)**

Reverse phase HPLC with fluorescence detector

LOQ 0.08mg/100 g

Reproducibility 7.6%

Reference Method EN 12822

# References

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<sup>1</sup> Responsibility for nutrition policy in England transferred from the Food Standards Agency to the Department of Health (DH) on 1st October 2010. Management of the rolling programme of nutrient analysis also transferred to DH.

<sup>2</sup> Composite was analysed, and re-analysed to confirm data. The calcium value does not reflect that expected for doughnuts with jam. One sub-sample in particular contained various calcium salts, which had the effect of skewing the calcium value for the composite. The data is published here for completeness, but will not be incorporated into the Department of Health's nutrient databanks which support the National Diet and Nutrition Survey and other national dietary surveys

<sup>3</sup> Composite was analysed, and re-analysed to confirm data. The iron value does not reflect that expected for iced, ring doughnuts. One sub-sample in particular contained added iron, which had the effect of skewing the iron value for the composite. The data is published here for completeness, but will not be incorporated into the Department of Health's nutrient databanks which support the National Diet and Nutrition Survey and other national dietary surveys