



# Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

*Analytical report (revised version - macro and micro-nutrients)*

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

Prepared by the Institute of Food Research

Authors: Mark Roe\*  
Susan Church<sup>§</sup>  
Hannah Pinchen\*  
Paul Finglas\*

\*Institute of Food Research, Norwich Research Park, Colney, Norwich, NR4 7UA

<sup>§</sup> Independent Nutritionist, Surrey, UK

© Crown copyright 2013

First published March 2013

Published to DH website, in electronic PDF format only.

<http://www.dh.gov.uk/publications>

# Contents

Contents.....	4
Executive summary.....	6
Methods .....	7
Notes relating to analysis .....	13
Evaluation of data.....	15
Analytical Results.....	16
Sample 1: Cheese and tomato pizza, retail, all bases, not stuffed crust.....	16
Sample 2: Garlic and herb baguette, baked .....	17
Sample 3: Crunchy clusters type breakfast cereal without nuts .....	18
Sample 4: Crunchy / crispy muesli type cereal with nuts.....	19
Sample 5: Quiche Lorraine with shortcrust pastry, retail .....	20
Sample 6: Low fat spread (26-39%), not polyunsaturated (including dairy type).....	21
Sample 7: Low fat spread (26-39%), not polyunsaturated, with olive oil.....	22
Sample 8: Low fat spread (26-39%), polyunsaturated.....	23
Sample 9: Hard block margarine .....	24
Sample 10: Compound cooking fat, not polyunsaturated .....	25
Sample 11: Ghee made from vegetable oil .....	26
Sample 12: Reduced fat spread (41-62%), polyunsaturated.....	27
Sample 13: Reduced fat spread (41-62%), not polyunsaturated .....	28
Sample 14: Reduced fat spread (41-62%), not polyunsaturated, with olive oil.....	29
Sample 15: Reduced fat spread (62-75%), not polyunsaturated.....	30
Sample 16: Takeaway chicken pieces, coated, deep fried .....	31
Sample 17: Coated chicken pieces, takeaway .....	32
Sample 18: Chicken/turkey burger, coated, baked.....	33
Sample 19: Breaded/battered chicken/turkey pieces, cooked .....	34
Sample 20: Chicken breast/steak, coated, baked.....	35
Sample 21: Beef pie, purchased, puff or shortcrust pastry, family size .....	36
Sample 22: Beef pie, purchased, individual, puff or shortcrust pastry .....	37
Sample 23: Cornish pasty, purchased.....	38
Sample 24: Pork pie, individual .....	39
Sample 25: Sausage roll, purchased, ready to eat, flaky pastry .....	40
Sample 26: Chicken/turkey pasties/slices, puff pastry.....	41
Sample 27: Cod in batter, fried in commercial oil, from takeaway fish and chip shops.....	42
Sample 28: Cod in batter, frozen/chilled, baked .....	43
Sample 29: Cod in breadcrumbs, oven baked.....	44
Sample 30: Fish fingers, pollock, grilled .....	45
Sample 31: Coleslaw, purchased, not low calorie .....	46
Sample 32: Chips, fried in commercial oil, from takeaway fish and chip shops.....	47
Sample 33: Chips, fine cut, from fast food outlets .....	48
Sample 34: Potato chips, oven ready, baked .....	49
Sample 35: Potato chips, oven ready, with batter, baked.....	50
Sample 36: Potato crisps, fried in vegetable oil, not Walkers, not premium crisps, not fried in sunflower oil.....	51
Sample 37: Potato crisps fried in sunflower oil, including premium, not Walkers .....	52
Sample 38: Potato crisps fried in high oleic sunflower oil .....	53
Sample 39: Potato rings (e.g. Hula Hoops) .....	54
Sample 41: Tortilla chips in Sunseed or high oleic sunflower oil (e.g. Doritos).....	55

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

Sample 42: Corn snacks (e.g. Monster Munch, Wotsits).....	56
Sample 43: Mixed toffees (including liquorice toffees), not premium.....	57
Sample 44: Chew sweets (e.g. Starburst, Chewits, Blackjacks).....	58
Sample 45: Milk chocolate bar.....	59
Sample 46: Chocolate covered caramels (e.g. Cadburys caramel).....	60
Sample 47: Dark chocolate with crème or mint fondant centres.....	61
Sample 48: Mars bars (and own brand equivalents) .....	62
Sample 49: Maltesers (and similar products) .....	63
Sample 50: Milk chocolate covered caramel and biscuit fingers.....	64
Sample 51: Chocolate covered bar with caramel and cereal.....	65
Sample 52: Milky Way bars (and own brand equivalents) .....	66
Sample 53: Snickers bars (and own brand equivalents).....	67
Sample 54: Chocolate spread .....	68
Sample 55: Cream of tomato soup, canned .....	69
Sample 56: Instant soup, as purchased .....	70
Sample 57: Mayonnaise (retail), standard .....	71
Sample 58: Baby rusks.....	72
Sample 59: Ice cream, non dairy, vanilla, soft scoop.....	73
Sample 60: Ice cream, dairy, vanilla, soft scoop.....	74
Sample 61: Chocolate / choc mint and nut cone (e.g. Cornetto) .....	75
Sample 62: Ice cream, luxury, dairy, with chocolate / caramel .....	76
Sample 63: Luxury choc ices (e.g. Wall's Dream, Bounty, Magnum) .....	77
Sample 64: Butter, spreadable (75-80% fat) .....	78
Sample 65: Butter, spreadable, light (60% fat) .....	79
Sample 66: Coleslaw, purchased, economy products only .....	80
Analytical Methods .....	81
Quality Assurance .....	85
References.....	99

## Executive summary

**The Department of Health undertakes a rolling programme of nutrient analysis surveys to ensure that reliable, up-to-date information on the nutritional value of foods is available for use in conjunction with food consumption data collected in dietary surveys to monitor the nutritional value of the nation's diet. Therefore, these nutrient surveys need to provide a single, robust set of nutrient values that is indicative of the potentially broad choice available to the consumer when selecting any particular type of food. As a result, composite samples made up of a number of different brands have been analysed for this survey rather than samples made up of single brands, and a generic name is given to each composite.**

The aim of this particular survey was to provide up-to-date nutrient composition data for a range of foods to reflect recent product reformulations by the food industry to lower the *trans* fatty acid content of manufactured products. Artificial *trans* fats can be produced by the industrial hydrogenation of vegetable oils to produce the semi-solid and solid fats that are widely used in food manufacture (e.g. fat spreads, biscuits) and catering outlets. Natural *trans* fats occur at low levels in dairy products and meats from ruminant animals.

Results from the analysis of macronutrients and individual fatty acids were published in an earlier, similarly titled report. This revised report republishes this data and also includes:

- New data for micronutrients in all composites
- New data for macro and micro-nutrients in three confectionery samples (composites 48, 52 and 53).

In addition to the above:

- Individual fatty acid data is published alongside this analytical report to correct data previously published for composite 55 (Cream of tomato soup, canned)

The results from this analytical survey updates the information currently held by providing composition data on foods considered to be potential sources of *trans* fats in manufactured foods and also extend the range of data we hold (eg providing separate data for savoury snacks produced using different types of oils). The results will be incorporated into the Department of Health's<sup>1</sup> nutrient databank that supports dietary surveys and will be also disseminated via the authoritative UK food composition tables, *McCance and Widdowson's The Composition of Foods*. This project reports analysis of 65 composite samples that were made up of between 5 and 16 sub-samples that were representative of products consumed in the UK. Results for individual fatty acids are reported separately in electronic format.

## Methods

A list of composite samples to be analysed was determined by reviewing the contribution made to trans fat intakes by manufactured food products. Existing composition data held for these types of foods was reviewed, and frequency of consumption determined (using data from year 1 of the National Diet and Nutrition Survey rolling programme). Information obtained from the food industry on reformulation activity to reduce the levels of trans fats in manufactured foods was also considered. The composite list<sup>2</sup> was finalised following consultation with expert users of the data (including representatives of the food industry, academia, catering suppliers, nutritionists and dietitians). Market share information was then used (where available), and industry consulted, to determine which sub-samples were included within each composite sample.

Food samples were purchased and prepared for analysis between January and April 2010, with the exception of some confectionery products (composites 48, 52 and 53) which were purchased and prepared for analysis between January and February 2012. Purchase of these confectionery samples was delayed so that reformulation of some key products could be taken into account. The majority of food samples were purchased from retail outlets in the Norwich area. Regional sampling (within the Norwich area, Leeds, Manchester, Wolverhampton and Surrey) was carried out for samples from takeaway outlets. The retail outlets included supermarkets, independent retailers, catering suppliers and takeaway outlets. Food samples were combined into 65 composite samples for analysis. Each composite was made up of between 5 and 16 sub-samples, combined on an equal weight basis. This process allowed a single, robust set of nutrient values to be derived for each product type, covering an appropriate cross-section of products available. Samples requiring preparation/cooking were prepared in accordance with manufacturers' instructions and using normal domestic practices. A full list of the composite food samples analysed is given on page 8.

## Composite sample list

Full details of sub-samples are in the project sampling report, available as a separate document. This table lists the 65 composite samples<sup>2</sup> prepared and analysed.

Sample Number <sup>2</sup>	Sample Name	Description
1	Cheese and tomato pizza, retail, all bases, not stuffed crust	11 samples, 10 products, frozen and chilled
2	Garlic and herb baguette, baked	10 samples, 10 products, frozen and chilled
3	Crunchy clusters type breakfast cereal without nuts	7 samples, 6 products
4	Crunchy/crispy muesli type cereal with nuts	7 samples, 5 products
5	Quiche Lorraine with shortcrust pastry, retail	10 samples, 7 products
6	Low fat spread (26-39%), not polyunsaturated (including dairy type)	7 samples, 5 products
7	Low fat spread (26-39%), not polyunsaturated, with olive oil	8 samples, 4 products
8	Low fat spread (26-39%), polyunsaturated	10 samples, 5 products
9	Hard block margarine	10 samples, 4 products
10	Compound cooking fat, not polyunsaturated	6 samples, 3 products
11	Ghee made from vegetable oil	5 samples, 3 products
12	Reduced fat spread (41-62%), polyunsaturated	12 samples, 7 products



Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

13	Reduced fat spread (41-62%), not polyunsaturated	11 samples, 8 products
14	Reduced fat spread (41-62%), not polyunsaturated, with olive oil	10 samples, 6 products
15	Reduced fat spread (62-75%), not polyunsaturated	10 samples, 5 products
16	Takeaway chicken pieces, coated, deep fried	6 samples from fast food chains including KFC
17	Coated chicken pieces, takeaway	8 samples, 7 products
18	Chicken/turkey burger, coated, baked	10 samples, 7 products
19	Breaded/battered chicken/turkey pieces, cooked	9 samples, 9 products, includes battered and breaded
20	Chicken breast/steak, coated, baked	8 samples, 7 products, breaded and battered
21	Beef pie, purchased, puff or shortcrust pastry, family size	8 samples, 8 products, including steak and mushroom and steak and ale
22	Beef pie, purchased, individual, puff or shortcrust pastry	9 samples, 9 products, including beef and onion
23	Cornish pasty, purchased	11 samples, 10 products
24	Pork pie, individual	10 samples, 10 products
25	Sausage roll, purchased, ready-to-eat, flaky pastry	10 samples, 10 products, mini and large, ready to eat
26	Chicken/turkey pasties/slices, puff pastry	10 samples, 10 products, including chicken and mushroom and chicken and bacon

Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

27	Cod in batter, fried in commercial oil, from takeaway fish and chip shops	10 samples, vegetable oil, palm oil and beef dripping
28	Cod in batter, frozen/chilled, baked	10 samples, 8 products
29	Cod in breadcrumbs, oven baked	10 samples, 8 products
30	Fish fingers, pollock, grilled	10 samples, 6 products
31	Coleslaw, purchased, not low calorie	8 samples, 7 products
32	Chips, fried in commercial oil, from takeaway fish and chip shops	10 samples, vegetable oil, palm oil and beef dripping
33	Chips, fine cut, from fast food outlets	5 samples, 4 products, including McDonalds, Burger King, Wimpy, KFC
34	Potato chips, oven ready, baked	11 samples, 10 products, straight cut and crinkle cut
35	Potato chips, oven ready, with batter, baked	10 samples, 8 products
36	Potato crisps, fried in vegetable oil, not Walkers, not Premium crisps, not fried in sunflower oil	5 samples, 5 products, including Pringles
37	Potato crisps fried in sunflower oil, including premium, not Walkers	8 samples, 8 products, including premium and value
38	Potato crisps fried in high oleic sunflower oil	11 samples, 8 products, assorted flavours
39	Potato rings (e.g. Hula Hoops)	10 samples, 7 products, including Hula Hoops

Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

41	Tortilla chips in Sunseed or high oleic sunflower oil (e.g. Doritos)	7 samples, 6 products, including Doritos
42	Corn snacks (e.g. Monster Munch, Wotsits)	6 samples, 4 products, including Wotsits and Monster Munch
43	Mixed toffees (including liquorice toffees), not premium	8 samples, 8 products, including liquorice and mint
44	Chew sweets (e.g. Starburst, Chewits, Blackjacks)	9 samples, 8 products
45	Milk chocolate bar	11 samples, 11 products
46	Chocolate covered caramels (e.g. Cadburys caramel)	10 samples, 8 products
47	Dark chocolate with crème or mint fondant centre	10 samples, 8 products, including After Eights
48	Mars bars (and own brand equivalents)	16 samples, 3 brands, including standard, snack and fun size
49	Maltesers (and similar products)	9 samples, 3 products, including Maltesers
50	Milk chocolate covered caramel and biscuit fingers	9 samples, 7 products, including Twix
51	Chocolate-covered bar with caramel and cereal	6 samples, 6 products
52	Milky Way bars (and own brand equivalents)	16 samples, 3 brands, including standard and fun size
53	Snickers bars (and own brand equivalents)	16 samples, 3 brands, including standard, snack and fun size
54	Chocolate spread	7 samples, 5 products
55	Cream of tomato soup, canned	10 samples, 5 products
56	Instant soup, as purchased	11 samples, 11 products, powder only, not including croutons

Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

57	Mayonnaise, retail, standard	11 samples, 7 products
58	Baby Rusks	8 samples, 8 products
59	Ice cream, non dairy, vanilla, soft scoop	10 samples, 8 products
60	Ice cream, dairy, vanilla, soft scoop	10 samples, 7 products
61	Chocolate/choc mint and nut cone (e.g. Cornetto)	7 samples, 5 products
62	Ice cream, luxury, dairy, with chocolate/caramel	10 samples, 7 products
63	Luxury choc ices (e.g. Wall's Dream, Bounty, Magnum)	11 samples, 5 products
64	Butter, spreadable (75-80% fat)	9 samples, 7 products
65	Butter, spreadable, light (60% fat)	11 samples, 7 products
66	Coleslaw, purchased, economy products only	8 samples, 4 products

# Analysis and results

## Notes relating to analysis

- 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
○ Oligosaccharides	
Trisaccharides	x 1.07
Tetrasaccharides	x 1.08
Pentasaccharides	x 1.09
○ 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

- 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 6th Summary edition of McCance and Widdowson's *The Composition of Foods*.

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

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

- Total vitamin A is calculated as retinol equivalents and is equal to retinol + (beta-carotene equivalents/6)
- Retinol is calculated as all-trans retinol + (0.75 X 13-cis retinol)
- Total carotene is expressed as beta-carotene equivalents and is calculated as beta-carotene + (alpha-carotene + beta-cryptoxanthin)/2
- Beta-carotene is expressed as the sum of trans and cis-beta carotene
- Total vitamin D is calculated as vitamin D<sub>3</sub> + (25OH vitamin D<sub>3</sub> X 5)
- Total vitamin E is expressed as a-tocopherol equivalents and is calculated using the following conversion factors for vitamin E activity:
  - α-tocopherol x 1.00
  - β-tocopherol x 0.40
  - δ-tocopherol x 0.01
  - γ-tocopherol x 0.10
  - α-tocotrienol x 0.30
  - β-tocotrienol x 0.05
  - γ-tocotrienol x 0.01
- 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'
- Tr = Trace amount
- Proximate analysis and analysis of individual fatty acids was performed by Eurofins laboratories between March and April 2010. Analysis of inorganics and vitamins was performed by LGC between April and July 2010. Confectionery samples (48, 52 and 53) were analysed between March and September 2012

## 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.

Results for all composite samples are given below.

# Analytical Results

Sample 1: Cheese and tomato pizza, retail, all bases, not stuffed crust

## PROXIMATES

Water	38.1	g/100g
Total Nitrogen	1.95	g/100g
Nitrogen conversion factor	6.25	
Protein	12.2	g/100g
Fat	9.8	g/100g
Ash	2.0	g/100g
Energy (kcal)	272	
Energy (kJ)	1148	
Cholesterol	19	mg/100g

## CARBOHYDRATES

Glucose	0.8	g/100g
Fructose	0.9	g/100g
Sucrose	<0.1	g/100g
Maltose	2.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	32.2	g/100g
Total sugars	3.9	g/100g
Available carbohydrate	36.1	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	2.9	g/100g

## FATTY ACIDS

Saturated	4.12	g/100g
cis-monounsaturated	3.56	g/100g
cis n-3 polyunsaturated	0.33	g/100g
cis n-6 polyunsaturated	1.06	g/100g
cis polyunsaturated	1.39	g/100g
Trans	0.11	g/100g

## INORGANICS

Sodium (Na)	397	mg/100g
Potassium (K)	223	mg/100g
Calcium (Ca)	217	mg/100g
Magnesium (Mg)	24	mg/100g
Phosphorus (P)	179	mg/100g
Iron (Fe)	1.1	mg/100g
Copper (Cu)	0.10	mg/100g
Zinc (Zn)	1.3	mg/100g
Chloride (Cl)	630	mg/100g
Manganese (Mn)	0.4	mg/100g
Iodine (I)	17	µg/100g
Selenium (Se)	4	µg/100g

## WATER SOLUBLE VITAMINS

Thiamin	0.15	mg/100g
Riboflavin	0.15	mg/100g
Niacin	1.0	mg/100g
Tryptophan/60	2.8	mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>	0.4	µg/100g
Folate	4	µg/100g
Pantothenic acid	0.2	mg/100g
Biotin	4.1	µg/100g
Vitamin C	2	mg/100g

## FAT SOLUBLE VITAMINS

All-trans retinol	119	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	91	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	134	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.68	mg/100g

<sup>1</sup>Calculated from retinol and beta-carotene assuming no alpha-carotene or cryptoxanthins present.



Sample 2: Garlic and herb baguette, baked

**PROXIMATES**

Water	25.8	g/100g
Total Nitrogen	1.23	g/100g
Nitrogen conversion factor	5.70	
Protein	7.0	g/100g
Fat	16.7	g/100g
Ash	1.8	g/100g
Energy (kcal)	348	
Energy (kJ)	1459	
Cholesterol	31	mg/100g

**CARBOHYDRATES**

Glucose	0.1	g/100g
Fructose	0.2	g/100g
Sucrose	<0.1	g/100g
Maltose	2.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	42.2	g/100g
Total sugars	2.9	g/100g
Available carbohydrate	45.1	g/100g
Fibre (Englyst)	0.8	g/100g
Fibre (AOAC)	2.7	g/100g

**FATTY ACIDS**

Saturated	8.63	g/100g
cis-monounsaturated	5.09	g/100g
cis n-3 polyunsaturated	0.32	g/100g
cis n-6 polyunsaturated	1.24	g/100g
cis polyunsaturated	1.56	g/100g
Trans	0.31	g/100g

**INORGANICS**

Sodium (Na)	476	mg/100g
Potassium (K)	149	mg/100g
Calcium (Ca)	126	mg/100g
Magnesium (Mg)	21	mg/100g
Phosphorus (P)	88	mg/100g
Iron (Fe)	1.6	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	730	mg/100g
Manganese (Mn)	0.6	mg/100g
Iodine (I)	3	µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.23	mg/100g
Riboflavin	0.13	mg/100g
Niacin	1.1	mg/100g
Tryptophan/60	1.7	mg/100g
Vitamin B <sub>6</sub>	0.14	mg/100g
Vitamin B <sub>12</sub>	0.1	µg/100g
Folate	11	µg/100g
Pantothenic acid	0.20	mg/100g
Biotin	0.6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	179	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	53	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	188	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.79	mg/100g

<sup>1</sup>Calculated from retinol and beta-carotene assuming no alpha-carotene or cryptoxanthins present.

Sample 3: Crunchy clusters type breakfast cereal without nuts

**PROXIMATES**

Water	1.7	g/100g
Total Nitrogen	1.23	g/100g
Nitrogen conversion factor	5.83	
Protein	7.2	g/100g
Fat	11.6	g/100g
Ash	1.2	g/100g
Energy (kcal)	399	
Energy (kJ)	1687	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	3.6	g/100g
Fructose	3.8	g/100g
Sucrose	16.6	g/100g
Maltose	1.3	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	45.7	g/100g
Total sugars	25.3	g/100g
Available carbohydrate	71.0	g/100g
Fibre (Englyst)	4.3	g/100g
Fibre (AOAC)	7.2	g/100g

**FATTY ACIDS**

Saturated	4.15	g/100g
cis-monounsaturated	4.46	g/100g
cis n-3 polyunsaturated	0.19	g/100g
cis n-6 polyunsaturated	2.14	g/100g
cis polyunsaturated	2.33	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	41	mg/100g
Potassium (K)	310	mg/100g
Calcium (Ca)	40	mg/100g
Magnesium (Mg)	72	mg/100g
Phosphorus (P)	232	mg/100g
Iron (Fe)	2.7	mg/100g
Copper (Cu)	0.30	mg/100g
Zinc (Zn)	1.6	mg/100g
Chloride (Cl)	100	mg/100g
Manganese (Mn)	2.1	mg/100g
Iodine (I)	2	µg/100g
Selenium (Se)	6	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	1.02	mg/100g
Riboflavin	1.06	mg/100g
Niacin	4.0	mg/100g
Tryptophan/60	2.8	mg/100g
Vitamin B <sub>6</sub>	0.17	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	90	µg/100g
Pantothenic acid	0.32	mg/100g
Biotin	8.9	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene	<5	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	<5	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.38	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that retinol, alpha-carotene or cryptoxanthins are not present.

Sample 4: Crunchy / crispy muesli type cereal with nuts

**PROXIMATES**

Water	3.3	g/100g
Total Nitrogen	1.45	g/100g
Nitrogen conversion factor	5.83	
Protein	8.4	g/100g
Fat	20.5	g/100g
Ash	1.4	g/100g
Energy (kcal)	450	
Energy (kJ)	1892	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	1.4	g/100g
Fructose	1.6	g/100g
Sucrose	20.2	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	38.7	g/100g
Total sugars	23.1	g/100g
Available carbohydrate	61.9	g/100g
Fibre (Englyst)	4.4	g/100g
Fibre (AOAC)	7.9	g/100g

**FATTY ACIDS**

Saturated	4.61	g/100g
cis-monounsaturated	10.62	g/100g
cis n-3 polyunsaturated	0.31	g/100g
cis n-6 polyunsaturated	3.91	g/100g
cis polyunsaturated	4.22	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	138	mg/100g
Potassium (K)	290	mg/100g
Calcium (Ca)	46	mg/100g
Magnesium (Mg)	83	mg/100g
Phosphorus (P)	245	mg/100g
<sup>1</sup> Iron (Fe)	4.0	mg/100g
Copper (Cu)	0.34	mg/100g
Zinc (Zn)	1.8	mg/100g
Chloride (Cl)	240	mg/100g
Manganese (Mn)	2.3	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	19	µg/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	9.5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	3.26	mg/100g

<sup>1</sup>Two sub-samples within the composite sample were fortified with iron

Sample 5: Quiche Lorraine with shortcrust pastry, retail

**PROXIMATES**

Water	52.5	g/100g
Total Nitrogen	1.45	g/100g
Nitrogen conversion factor	6.25	
Protein	9.1	g/100g
Fat	17.6	g/100g
Ash	1.6	g/100g
Energy (kcal)	269	
Energy (kJ)	1121	
Cholesterol	80	mg/100g

**CARBOHYDRATES**

Glucose	0.4	g/100g
Fructose	0.3	g/100g
Sucrose	0.3	g/100g
Maltose	0.7	g/100g
Lactose	1.5	g/100g
Galactose	<0.1	g/100g
Starch	16.5	g/100g
Total sugars	3.2	g/100g
Available carbohydrate	19.7	g/100g
Fibre (Englyst)	0.9	g/100g
Fibre (AOAC)	1.3	g/100g

**FATTY ACIDS**

Saturated	8.31	g/100g
cis-monounsaturated	6.27	g/100g
cis n-3 polyunsaturated	0.30	g/100g
cis n-6 polyunsaturated	1.54	g/100g
cis polyunsaturated	1.84	g/100g
Trans	0.18	g/100g

**INORGANICS**

Sodium (Na)	339	mg/100g
Potassium (K)	155	mg/100g
Calcium (Ca)	147	mg/100g
Magnesium (Mg)	15	mg/100g
Phosphorus (P)	177	mg/100g
Iron (Fe)	0.6	mg/100g
Copper (Cu)	0.03	mg/100g
Zinc (Zn)	1.0	mg/100g
Chloride (Cl)	450	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	7	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g

Sample 6: Low fat spread (26-39%), not polyunsaturated (including dairy type)

**PROXIMATES**

Water	57.5	g/100g
Total Nitrogen	0.02	g/100g
Nitrogen conversion factor	6.25	
Protein	0.2	g/100g
Fat	39.0	g/100g
Ash	1.6	g/100g
<sup>1</sup> Energy (kcal)		
<sup>1</sup> Energy (kJ)		
Cholesterol	<0.7	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	9.76	g/100g
cis-monounsaturated	17.27	g/100g
cis n-3 polyunsaturated	1.61	g/100g
cis n-6 polyunsaturated	8.21	g/100g
cis polyunsaturated	9.82	g/100g
Trans	0.12	g/100g

**INORGANICS**

Sodium (Na)	692	mg/100g
Potassium (K)	61	mg/100g
Calcium (Ca)	12	mg/100g
Magnesium (Mg)	2	mg/100g
Phosphorus (P)	9	mg/100g
Iron (Fe)	0.02	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.02	mg/100g
Chloride (Cl)	970	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)	15	µg/100g
Selenium (Se)	<0.012	µg/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	750	µg/100g
Alpha - carotene	<0.1	µg/100g
Beta - carotene	859	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	893	Ret Equiv
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	3.0	µg/100g
Vitamin E	12.50	mg/100g

<sup>1</sup>Energy values have not been calculated because carbohydrate was not measured in this sample. Based on sub-sample ingredients and product information, small quantities of starch and sugars are likely to be present.

Sample 7: Low fat spread (26-39%), not polyunsaturated, with olive oil

**PROXIMATES**

Water	58.9	g/100g
Total Nitrogen	0.02	g/100g
Nitrogen conversion factor	6.25	
Protein	0.1	g/100g
Fat	38.9	g/100g
Ash	1.2	g/100g
Energy (kcal)	353	
Energy (kJ)	1450	
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	<0.1	g/100g
Lactose	0.5	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	0.5	g/100g
Available carbohydrate	0.5	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	8.90	g/100g
cis-monounsaturated	21.54	g/100g
cis n-3 polyunsaturated	1.43	g/100g
cis n-6 polyunsaturated	4.93	g/100g
cis polyunsaturated	6.36	g/100g
Trans	0.14	g/100g

**INORGANICS**

Sodium (Na)	488	mg/100g
Potassium (K)	48	mg/100g
Calcium (Ca)	9	mg/100g
Magnesium (Mg)	1	mg/100g
Phosphorus (P)	6	mg/100g
Iron (Fe)	0.04	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.03	mg/100g
Chloride (Cl)	690	mg/100g
Manganese (Mn)	0.01	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<1	µg/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	787	µg/100g
Alpha - carotene	19	µg/100g
Beta - carotene	620	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	892	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	21	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	4.5	µg/100g
Vitamin E	13.00	mg/100g

Sample 8: Low fat spread (26-39%), polyunsaturated

**PROXIMATES**

Water	52.5	g/100g
Total Nitrogen	<0.01	g/100g
Nitrogen conversion factor	6.25	
Protein	Tr	g/100g
Fat	36.9	g/100g
Ash	1.2	g/100g
<sup>1</sup> Energy (kcal)		
<sup>1</sup> Energy (kJ)		
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	8.55	g/100g
cis-monounsaturated	11.45	g/100g
cis n-3 polyunsaturated	2.02	g/100g
cis n-6 polyunsaturated	12.94	g/100g
cis polyunsaturated	14.96	g/100g
Trans	0.05	g/100g

**INORGANICS**

Sodium (Na)	482	mg/100g
Potassium (K)	31	mg/100g
Calcium (Ca)	4	mg/100g
Magnesium (Mg)	0.39	mg/100g
Phosphorus (P)	4	mg/100g
Iron (Fe)	0.01	mg/100g
Copper (Cu)	0.01	mg/100g
Zinc (Zn)	<0.001	mg/100g
Chloride (Cl)	770	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<0.012	µg/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	811	µg/100g
Alpha - carotene	15	µg/100g
Beta - carotene	895	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	962	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	8.4	µg/100g
Vitamin E	10.10	mg/100g

<sup>1</sup>Energy values have not been calculated because carbohydrate was not measured in this sample. Based on sub-sample ingredients and product information, small quantities of starch and sugars are likely to be present.



Sample 9: Hard block margarine

**PROXIMATES**

Water	22.2	g/100g
Total Nitrogen	<0.01	g/100g
Nitrogen conversion factor	6.25	
Protein	Tr	g/100g
Fat	76.4	g/100g
Ash	1.8	g/100g
<sup>1</sup> Energy (kcal)	688	
<sup>1</sup> Energy (kJ)	2827	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	26.41	g/100g
cis-monounsaturated	33.94	g/100g
cis n-3 polyunsaturated	2.96	g/100g
cis n-6 polyunsaturated	9.25	g/100g
cis polyunsaturated	12.21	g/100g
Trans	0.07	g/100g

**INORGANICS**

Sodium (Na)	878	mg/100g
Potassium (K)	<0.032	mg/100g
Calcium (Ca)	1	mg/100g
Magnesium (Mg)	0.04	mg/100g
Phosphorus (P)	<0.013	mg/100g
Iron (Fe)	0.1	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.04	mg/100g
Chloride (Cl)	1220	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<0.012	µg/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	796	µg/100g
Alpha - carotene	6	µg/100g
Beta - carotene	652	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	905	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	8.8	µg/100g
Vitamin E	12.2	mg/100g

<sup>1</sup>Energy values have been calculated on the assumption (based on sub-sample ingredients and product information) that carbohydrates are not present.



Sample 10: Compound cooking fat, not polyunsaturated

**PROXIMATES**

Water	0.2	g/100g
Total Nitrogen	<0.01	g/100g
Nitrogen conversion factor	6.25	
Protein	Tr	g/100g
Fat	100.0	g/100g
Ash	<0.1	g/100g
<sup>1</sup> Energy (kcal)	900	
<sup>1</sup> Energy (kJ)	3700	
Cholesterol	8	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	42.30	g/100g
cis-monounsaturated	40.01	g/100g
cis n-3 polyunsaturated	2.45	g/100g
cis n-6 polyunsaturated	10.38	g/100g
cis polyunsaturated	12.83	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	mg/100g
Potassium (K)	mg/100g
Calcium (Ca)	mg/100g
Magnesium (Mg)	mg/100g
Phosphorus (P)	mg/100g
Iron (Fe)	mg/100g
Copper (Cu)	mg/100g
Zinc (Zn)	mg/100g
Chloride (Cl)	mg/100g
Manganese (Mn)	mg/100g
Iodine (I)	µg/100g
Selenium (Se)	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g

<sup>1</sup>Energy values have been calculated on the assumption (based on sub-sample ingredients and product information) that carbohydrates are not present.

Sample 11: Ghee made from vegetable oil

**PROXIMATES**

Water	<0.1	g/100g
Total Nitrogen	0.02	g/100g
Nitrogen conversion factor	6.25	
Protein	0.1	g/100g
Fat	100.0	g/100g
Ash	<0.1	g/100g
<sup>1</sup> Energy (kcal)	900	
<sup>1</sup> Energy (kJ)	3702	
Cholesterol	<0.1	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	46.72	g/100g
cis-monounsaturated	38.84	g/100g
cis n-3 polyunsaturated	0.17	g/100g
cis n-6 polyunsaturated	9.31	g/100g
cis polyunsaturated	9.48	g/100g
Trans	0.08	g/100g

**INORGANICS**

Sodium (Na)	mg/100g
Potassium (K)	mg/100g
Calcium (Ca)	mg/100g
Magnesium (Mg)	mg/100g
Phosphorus (P)	mg/100g
Iron (Fe)	mg/100g
Copper (Cu)	mg/100g
Zinc (Zn)	mg/100g
Chloride (Cl)	mg/100g
Manganese (Mn)	mg/100g
Iodine (I)	µg/100g
Selenium (Se)	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	8.70 mg/100g

<sup>1</sup>Energy values have been calculated on the assumption (based on sub-sample ingredients and product information) that carbohydrates are not present.

Sample 12: Reduced fat spread (41-62%), polyunsaturated

**PROXIMATES**

Water	40.0	g/100g
Total Nitrogen	<0.01	g/100g
Nitrogen conversion factor	6.25	
Protein	Tr	g/100g
Fat	59.2	g/100g
Ash	1.2	g/100g
Energy (kcal)	533	
Energy (kJ)	2190	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch		g/100g
Total sugars	Tr	g/100g
<sup>1</sup> Available carbohydrate	Tr	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	13.21	g/100g
cis-monounsaturated	17.57	g/100g
cis n-3 polyunsaturated	2.80	g/100g
cis n-6 polyunsaturated	22.37	g/100g
cis polyunsaturated	25.17	g/100g
Trans	0.13	g/100g

**INORGANICS**

Sodium (Na)	600	mg/100g
Potassium (K)	21	mg/100g
Calcium (Ca)	3	mg/100g
Magnesium (Mg)	0.22	mg/100g
Phosphorus (P)	1	mg/100g
Iron (Fe)	0.02	mg/100g
Copper (Cu)	0.01	mg/100g
Zinc (Zn)	0.02	mg/100g
Chloride (Cl)	870	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	1	µg/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	606	µg/100g
Alpha - carotene	6	µg/100g
Beta - carotene	458	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	683	Ret Equiv
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	5.8	µg/100g
Vitamin E	26.3	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that no starch is present.

Sample 13: Reduced fat spread (41-62%), not polyunsaturated

**PROXIMATES**

Water	37.4	g/100g
Total Nitrogen	0.07	g/100g
Nitrogen conversion factor	6.25	
Protein	0.4	g/100g
Fat	60.6	g/100g
Ash	1.7	g/100g
<sup>1</sup> Energy (kcal)		
<sup>1</sup> Energy (kJ)		
Cholesterol	5	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	15.61	g/100g
cis-monounsaturated	29.80	g/100g
cis n-3 polyunsaturated	3.18	g/100g
cis n-6 polyunsaturated	8.72	g/100g
cis polyunsaturated	11.90	g/100g
Trans	0.15	g/100g

**INORGANICS**

Sodium (Na)	689	mg/100g
Potassium (K)	43	mg/100g
Calcium (Ca)	14	mg/100g
Magnesium (Mg)	2	mg/100g
Phosphorus (P)	12	mg/100g
Iron (Fe)	0.03	mg/100g
Copper (Cu)	0.01	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	990	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	0.22	µg/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	812	µg/100g
Alpha - carotene	12	µg/100g
Beta - carotene	760	µg/100g
Beta-cryptoxanthin	<0.1	µg/100g
Total vitamin A	940	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	9.9	µg/100g
Vitamin E	12.40	mg/100g

<sup>1</sup>Energy values have not been calculated because carbohydrate was not measured in this sample. Based on sub-sample ingredients and product information, small quantities of sugars are likely to be present.

Sample 14: Reduced fat spread (41-62%), not polyunsaturated, with olive oil

**PROXIMATES**

Water	38.8	g/100g
Total Nitrogen	0.03	g/100g
Nitrogen conversion factor	6.25	
Protein	0.2	g/100g
Fat	59.1	g/100g
Ash	1.4	g/100g
<sup>1</sup> Energy (kcal)		
<sup>1</sup> Energy (kJ)		
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch		g/100g
Total sugars		g/100g
Available carbohydrate		g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	13.22	g/100g
cis-monounsaturated	31.26	g/100g
cis n-3 polyunsaturated	2.12	g/100g
cis n-6 polyunsaturated	9.41	g/100g
cis polyunsaturated	11.53	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	551	mg/100g
Potassium (K)	46	mg/100g
Calcium (Ca)	7	mg/100g
Magnesium (Mg)	1	mg/100g
Phosphorus (P)	7	mg/100g
Iron (Fe)	0.04	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.01	mg/100g
Chloride (Cl)	800	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	0.19	µg/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	734	µg/100g
Alpha - carotene	14	µg/100g
Beta - carotene	488	µg/100g
Beta-cryptoxanthin	<0.1	µg/100g
Total vitamin A	817	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	4.2	µg/100g
Vitamin E	12.50	mg/100g

<sup>1</sup>Energy values have not been calculated because carbohydrate was not measured in this sample. Based on sub-sample ingredients and product information, small quantities of sugars are likely to be present.

Sample 15: Reduced fat spread (62-75%), not polyunsaturated

**PROXIMATES**

Water	24.6	g/100g
Total Nitrogen	0.04	g/100g
Nitrogen conversion factor	6.25	
Protein	0.3	g/100g
Fat	73.2	g/100g
Ash	1.8	g/100g
Energy (kcal)	660	
Energy (kJ)	2713	
Cholesterol	10	mg/100g

**CARBOHYDRATES**

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

**FATTY ACIDS**

Saturated	24.35	g/100g
cis-monounsaturated	33.24	g/100g
cis n-3 polyunsaturated	3.04	g/100g
cis n-6 polyunsaturated	8.76	g/100g
cis polyunsaturated	11.80	g/100g
Trans	0.14	g/100g

**INORGANICS**

Sodium (Na)	747	mg/100g
Potassium (K)	17	mg/100g
Calcium (Ca)	10	mg/100g
Magnesium (Mg)	1	mg/100g
Phosphorus (P)	9	mg/100g
Iron (Fe)	0.02	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.03	mg/100g
Chloride (Cl)	1070	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	0.43	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	<0.001	mg/100g
Riboflavin	0.07	mg/100g
Niacin	<0.1	mg/100g
Tryptophan/60	<0.1	mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>	0.1	µg/100g
Folate	1	µg/100g
Pantothenic acid	0.02	mg/100g
Biotin	0.3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	807	µg/100g
Alpha - carotene	7	µg/100g
Beta - carotene	676	µg/100g
Beta-cryptoxanthin	<0.1	µg/100g
Total vitamin A	920	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	8.4	µg/100g
Vitamin E	15.90	mg/100g

Sample 16: Takeaway chicken pieces, coated, deep fried

**PROXIMATES**

Water	54.5	g/100g
Total Nitrogen	3.97	g/100g
Nitrogen conversion factor	6.25	
Protein	24.8	g/100g
Fat	12.8	g/100g
Ash	2.0	g/100g
Energy (kcal)	233	
Energy (kJ)	972	
Cholesterol	90	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch	4.8	g/100g
Total sugars		g/100g
<sup>1</sup> Available carbohydrate	4.8	g/100g
Fibre (Englyst)	0.8	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	3.07	g/100g
cis-monounsaturated	6.48	g/100g
cis n-3 polyunsaturated	0.39	g/100g
cis n-6 polyunsaturated	1.98	g/100g
cis polyunsaturated	2.38	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	477	mg/100g
Potassium (K)	338	mg/100g
Calcium (Ca)	20	mg/100g
Magnesium (Mg)	28	mg/100g
Phosphorus (P)	204	mg/100g
Iron (Fe)	0.9	mg/100g
Copper (Cu)	0.06	mg/100g
Zinc (Zn)	1.4	mg/100g
Chloride (Cl)	660	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	3	µg/100g
Selenium (Se)	15	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.25	mg/100g
Niacin	8.4	mg/100g
Tryptophan/60	5.9	mg/100g
Vitamin B <sub>6</sub>	0.42	mg/100g
Vitamin B <sub>12</sub>	0.2	µg/100g
Folate	4	µg/100g
Pantothenic acid	1.25	mg/100g
Biotin	1.2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.65	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that sugars are not present.



Sample 17: Coated chicken pieces, takeaway

**PROXIMATES**

Water	44.5	g/100g
Total Nitrogen	2.96	g/100g
Nitrogen conversion factor	6.25	
Protein	18.5	g/100g
Fat	14.1	g/100g
Ash	2.3	g/100g
Energy (kcal)	267	
Energy (kJ)	1118	
Cholesterol	45	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch	17.6	g/100g
Total sugars		g/100g
<sup>1</sup> Available carbohydrate	17.6	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	1.3	g/100g

**FATTY ACIDS**

Saturated	2.32	g/100g
cis-monounsaturated	7.12	g/100g
cis n-3 polyunsaturated	0.47	g/100g
cis n-6 polyunsaturated	3.37	g/100g
cis polyunsaturated	3.84	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	535	mg/100g
Potassium (K)	350	mg/100g
Calcium (Ca)	28	mg/100g
Magnesium (Mg)	27	mg/100g
Phosphorus (P)	218	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.07	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	700	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	8	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.12	mg/100g
Niacin	7.4	mg/100g
Tryptophan/60	4.9	mg/100g
Vitamin B <sub>6</sub>	0.45	mg/100g
Vitamin B <sub>12</sub>	1.7	µg/100g
Folate	8	µg/100g
Pantothenic acid	1.15	mg/100g
Biotin	0.9	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<0.1	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	<0.1	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>2</sup> Total vitamin A	<0.1	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	2.70	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that sugars are present in trace amounts.

<sup>2</sup>Calculated from retinol and beta-carotene assuming no alpha-carotene or cryptoxanthins present.



Sample 18: Chicken/turkey burger, coated, baked

**PROXIMATES**

Water	48.3	g/100g
Total Nitrogen	2.27	g/100g
Nitrogen conversion factor	6.25	
Protein	14.2	g/100g
Fat	15.5	g/100g
Ash	1.8	g/100g
Energy (kcal)	266	
Energy (kJ)	1113	
Cholesterol	36	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	<0.1	g/100g
Sucrose	0.2	g/100g
Maltose	0.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	17.7	g/100g
Total sugars	0.9	g/100g
Available carbohydrate	18.7	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	2.63	g/100g
cis-monounsaturated	7.54	g/100g
cis n-3 polyunsaturated	0.76	g/100g
cis n-6 polyunsaturated	3.72	g/100g
cis polyunsaturated	4.48	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	383	mg/100g
Potassium (K)	337	mg/100g
Calcium (Ca)	41	mg/100g
Magnesium (Mg)	23	mg/100g
Phosphorus (P)	160	mg/100g
Iron (Fe)	1.0	mg/100g
Copper (Cu)	0.09	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	610	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	9	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g

Sample 19: Breaded/battered chicken/turkey pieces, cooked

**PROXIMATES**

Water	46.9	g/100g
Total Nitrogen	2.30	g/100g
Nitrogen conversion factor	6.25	
Protein	14.4	g/100g
Fat	13.9	g/100g
Ash	1.6	g/100g
Energy (kcal)	256	
Energy (kJ)	1073	
Cholesterol	4	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	<0.1	g/100g
Sucrose	0.4	g/100g
Maltose	0.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	18.5	g/100g
Total sugars	1.1	g/100g
Available carbohydrate	19.6	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	3.5	g/100g

**FATTY ACIDS**

Saturated	2.11	g/100g
cis-monounsaturated	7.16	g/100g
cis n-3 polyunsaturated	0.76	g/100g
cis n-6 polyunsaturated	3.14	g/100g
cis polyunsaturated	3.90	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	360	mg/100g
Potassium (K)	278	mg/100g
Calcium (Ca)	31	mg/100g
Magnesium (Mg)	24	mg/100g
Phosphorus (P)	169	mg/100g
Iron (Fe)	1.1	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	510	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	7	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.17	mg/100g
Niacin	7.1	mg/100g
Tryptophan/60	3.1	mg/100g
Vitamin B <sub>6</sub>	0.39	mg/100g
Vitamin B <sub>12</sub>	0.2	µg/100g
Folate	27	µg/100g
Pantothenic acid	0.61	mg/100g
Biotin	2.9	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	2.75	mg/100g

Sample 20: Chicken breast/steak, coated, baked

**PROXIMATES**

Water	51.6	g/100g
Total Nitrogen	2.83	g/100g
Nitrogen conversion factor	6.25	
Protein	17.7	g/100g
Fat	11.6	g/100g
Ash	2.0	g/100g
Energy (kcal)	234	
Energy (kJ)	982	
Cholesterol	48	mg/100g

**CARBOHYDRATES**

Glucose	0.3	g/100g
Fructose	<0.1	g/100g
Sucrose	0.3	g/100g
Maltose	0.6	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	14.6	g/100g
Total sugars	1.1	g/100g
Available carbohydrate	15.8	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	0.8	g/100g

**FATTY ACIDS**

Saturated	1.78	g/100g
cis-monounsaturated	6.31	g/100g
cis n-3 polyunsaturated	0.65	g/100g
cis n-6 polyunsaturated	2.25	g/100g
cis polyunsaturated	2.90	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	466	mg/100g
Potassium (K)	300	mg/100g
Calcium (Ca)	30	mg/100g
Magnesium (Mg)	26	mg/100g
Phosphorus (P)	203	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.07	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	580	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	7	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.10	mg/100g
Riboflavin	0.11	mg/100g
Niacin	7.2	mg/100g
Tryptophan/60	4.2	mg/100g
Vitamin B <sub>6</sub>	0.42	mg/100g
Vitamin B <sub>12</sub>	2.8	µg/100g
Folate	21	µg/100g
Pantothenic acid	1.23	mg/100g
Biotin	0.6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	2.47	mg/100g

Sample 21: Beef pie, purchased, puff or shortcrust pastry, family size

**PROXIMATES**

Water	58.1	g/100g
Total Nitrogen	1.42	g/100g
Nitrogen conversion factor	6.25	
Protein	8.9	g/100g
Fat	13.0	g/100g
Ash	1.3	g/100g
Energy (kcal)	220	
Energy (kJ)	921	
Cholesterol	16	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	0.2	g/100g
Sucrose	0.4	g/100g
Maltose	0.5	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	16.8	g/100g
Total sugars	1.2	g/100g
Available carbohydrate	18.1	g/100g
Fibre (Englyst)	2.0	g/100g
Fibre (AOAC)	2.0	g/100g

**FATTY ACIDS**

Saturated	5.53	g/100g
cis-monounsaturated	5.19	g/100g
cis n-3 polyunsaturated	0.24	g/100g
cis n-6 polyunsaturated	1.26	g/100g
cis polyunsaturated	1.50	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	332	mg/100g
Potassium (K)	150	mg/100g
Calcium (Ca)	41	mg/100g
Magnesium (Mg)	12	mg/100g
Phosphorus (P)	91	mg/100g
Iron (Fe)	1.1	mg/100g
Copper (Cu)	0.07	mg/100g
Zinc (Zn)	1.7	mg/100g
Chloride (Cl)	510	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.04	mg/100g
Riboflavin	0.14	mg/100g
Niacin	1.1	mg/100g
Tryptophan/60	1.5	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>	0.4	µg/100g
Folate	3	µg/100g
Pantothenic acid	0.15	mg/100g
Biotin	1.4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene	14	µg/100g
Beta - carotene	37	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
<sup>1</sup> Total vitamin A		Ret Equiv
Zeaxanthin	6	µg/100g
Lutein	46	µg/100g
Lycopene	217	µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	0.77	mg/100g

<sup>1</sup>Total vitamin A has not been calculated because retinol was not measured in this sample. Based on sub-sample ingredients and product information, small quantities of retinol may be present.

Sample 22: Beef pie, purchased, individual, puff or shortcrust pastry

**PROXIMATES**

Water	44.1	g/100g
Total Nitrogen	1.47	g/100g
Nitrogen conversion factor	6.25	
Protein	9.2	g/100g
Fat	17.7	g/100g
Ash	1.3	g/100g
Energy (kcal)	292	
Energy (kJ)	1220	
Cholesterol	24	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	0.1	g/100g
Sucrose	0.2	g/100g
Maltose	0.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	24.3	g/100g
Total sugars	1.2	g/100g
Available carbohydrate	25.5	g/100g
Fibre (Englyst)	1.3	g/100g
Fibre (AOAC)	2.1	g/100g

**FATTY ACIDS**

Saturated	7.90	g/100g
cis-monounsaturated	6.80	g/100g
cis n-3 polyunsaturated	0.21	g/100g
cis n-6 polyunsaturated	1.67	g/100g
cis polyunsaturated	1.88	g/100g
Trans	0.13	g/100g

**INORGANICS**

Sodium (Na)	346	mg/100g
Potassium (K)	163	mg/100g
Calcium (Ca)	49	mg/100g
Magnesium (Mg)	15	mg/100g
Phosphorus (P)	83	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	0.07	mg/100g
Zinc (Zn)	1.5	mg/100g
Chloride (Cl)	560	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.15	mg/100g
Niacin	2.1	mg/100g
Tryptophan/60	1.8	mg/100g
Vitamin B <sub>6</sub>	0.20	mg/100g
Vitamin B <sub>12</sub>	1.2	µg/100g
Folate	2	µg/100g
Pantothenic acid	0.16	mg/100g
Biotin	1.5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene	3	µg/100g
Beta - carotene	30	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
<sup>1</sup> Total vitamin A		Ret Equiv
Zeaxanthin	4	µg/100g
Lutein	44	µg/100g
Lycopene	48	µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.50	mg/100g

<sup>1</sup>Total vitamin A has not been calculated because retinol was not measured in this sample. Based on sub-sample ingredients and product information, small quantities of retinol may be present.

Sample 23: Cornish pasty, purchased

**PROXIMATES**

Water	47.3	g/100g
Total Nitrogen	1.12	g/100g
Nitrogen conversion factor	6.25	
Protein	7.0	g/100g
Fat	17.8	g/100g
Ash	1.7	g/100g
Energy (kcal)	278	
Energy (kJ)	1161	
Cholesterol	13	mg/100g

**CARBOHYDRATES**

Glucose	0.5	g/100g
Fructose	0.4	g/100g
Sucrose	0.4	g/100g
Maltose	0.9	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	21.9	g/100g
Total sugars	2.1	g/100g
Available carbohydrate	24.0	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	8.53	g/100g
cis-monounsaturated	6.65	g/100g
cis n-3 polyunsaturated	0.15	g/100g
cis n-6 polyunsaturated	1.37	g/100g
cis polyunsaturated	1.52	g/100g
Trans	0.14	g/100g

**INORGANICS**

Sodium (Na)	470	mg/100g
Potassium (K)	200	mg/100g
Calcium (Ca)	47	mg/100g
Magnesium (Mg)	16	mg/100g
Phosphorus (P)	69	mg/100g
Iron (Fe)	1.0	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	1.0	mg/100g
Chloride (Cl)	720	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	3	µg/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	<0.1	µg/100g
Alpha - carotene	<0.1	µg/100g
Beta - carotene	21	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	4	Ret Equiv
Zeaxanthin	<0.1	µg/100g
Lutein	38	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	0.85	mg/100g

Sample 24: Pork pie, individual

**PROXIMATES**

Water	32.1	g/100g
Total Nitrogen	1.58	g/100g
Nitrogen conversion factor	6.25	
Protein	9.9	g/100g
Fat	26.0	g/100g
Ash	1.8	g/100g
Energy (kcal)	370	
Energy (kJ)	1542	
Cholesterol	35	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	<0.1	g/100g
Sucrose	0.1	g/100g
Maltose	1.2	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	24.2	g/100g
Total sugars	1.5	g/100g
Available carbohydrate	25.7	g/100g
Fibre (Englyst)	1.2	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	10.12	g/100g
cis-monounsaturated	10.90	g/100g
cis n-3 polyunsaturated	0.34	g/100g
cis n-6 polyunsaturated	3.25	g/100g
cis polyunsaturated	3.59	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	542	mg/100g
Potassium (K)	153	mg/100g
Calcium (Ca)	53	mg/100g
Magnesium (Mg)	7	mg/100g
Phosphorus (P)	23	mg/100g
Iron (Fe)	2.9	mg/100g
Copper (Cu)	0.04	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)	830	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	2	µg/100g
Selenium (Se)	1	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g



Sample 25: Sausage roll, purchased, ready to eat, flaky pastry

**PROXIMATES**

Water	36.5	g/100g
Total Nitrogen	1.35	g/100g
Nitrogen conversion factor	6.25	
Protein	8.4	g/100g
Fat	24.1	g/100g
Ash	1.8	g/100g
Energy (kcal)	352	
Energy (kJ)	1467	
Cholesterol	2	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	<0.1	g/100g
Sucrose	0.2	g/100g
Maltose	1.0	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	25.6	g/100g
Total sugars	1.3	g/100g
Available carbohydrate	27.0	g/100g
Fibre (Englyst)	2.7	g/100g
Fibre (AOAC)	3.4	g/100g

**FATTY ACIDS**

Saturated	10.36	g/100g
cis-monounsaturated	9.39	g/100g
cis n-3 polyunsaturated	0.34	g/100g
cis n-6 polyunsaturated	2.73	g/100g
cis polyunsaturated	3.07	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	577	mg/100g
Potassium (K)	129	mg/100g
Calcium (Ca)	61	mg/100g
Magnesium (Mg)	14	mg/100g
Phosphorus (P)	89	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	880	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)	2	µg/100g
Selenium (Se)	5	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.11	mg/100g
Niacin	1.7	mg/100g
Tryptophan/60	1.7	mg/100g
Vitamin B <sub>6</sub>	0.18	mg/100g
Vitamin B <sub>12</sub>	0.2	µg/100g
Folate	2	µg/100g
Pantothenic acid	0.24	mg/100g
Biotin	0.7	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	2.11	mg/100g



Sample 26: Chicken/turkey pasties/slices, puff pastry

**PROXIMATES**

Water	48.4	g/100g
Total Nitrogen	1.29	g/100g
Nitrogen conversion factor	6.25	
Protein	8.1	g/100g
Fat	18.5	g/100g
Ash	1.4	g/100g
Energy (kcal)	289	
Energy (kJ)	1205	
Cholesterol	24	mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	0.1	g/100g
Sucrose	0.2	g/100g
Maltose	0.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	22.8	g/100g
Total sugars	1.2	g/100g
Available carbohydrate	23.9	g/100g
Fibre (Englyst)	1.0	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	9.17	g/100g
cis-monounsaturated	6.40	g/100g
cis n-3 polyunsaturated	0.18	g/100g
cis n-6 polyunsaturated	1.74	g/100g
cis polyunsaturated	1.92	g/100g
Trans	0.05	g/100g

**INORGANICS**

Sodium (Na)	360	mg/100g
Potassium (K)	169	mg/100g
Calcium (Ca)	36	mg/100g
Magnesium (Mg)	15	mg/100g
Phosphorus (P)	81	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.07	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)	570	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)	6	µg/100g
Selenium (Se)	4	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.15	mg/100g
Niacin	1.8	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	0.07	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	3	µg/100g
Pantothenic acid	0.34	mg/100g
Biotin	0.9	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.38	mg/100g

Sample 27: Cod in batter, fried in commercial oil, from takeaway fish and chip shops

**PROXIMATES**

Water	57.3	g/100g
Total Nitrogen	2.69	g/100g
Nitrogen conversion factor	6.25	
Protein	16.8	g/100g
Fat	14.7	g/100g
Ash	1.4	g/100g
Energy (kcal)	240	
Energy (kJ)	1001	
Cholesterol	60	mg/100g

**CARBOHYDRATES**

Glucose	0.1	g/100g
Fructose	0.2	g/100g
Sucrose	0.3	g/100g
Maltose	0.3	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	9.7	g/100g
Total sugars	1.0	g/100g
Available carbohydrate	10.7	g/100g
Fibre (Englyst)	0.5	g/100g
Fibre (AOAC)	0.5	g/100g

**FATTY ACIDS**

Saturated	7.58	g/100g
cis-monounsaturated	5.01	g/100g
cis n-3 polyunsaturated	0.13	g/100g
cis n-6 polyunsaturated	0.75	g/100g
cis polyunsaturated	0.87	g/100g
Trans	0.34	g/100g

**INORGANICS**

<sup>1</sup> Sodium (Na)	175	mg/100g
Potassium (K)	326	mg/100g
Calcium (Ca)	79	mg/100g
Magnesium (Mg)	26	mg/100g
Phosphorus (P)	208	mg/100g
Iron (Fe)	0.4	mg/100g
Copper (Cu)	0.04	mg/100g
Zinc (Zn)	0.5	mg/100g
<sup>1</sup> Chloride (Cl)	220	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	214	µg/100g
Selenium (Se)	22	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.12	mg/100g
Niacin	2.1	mg/100g
Tryptophan/60	3.6	mg/100g
Vitamin B <sub>6</sub>	0.24	mg/100g
Vitamin B <sub>12</sub>	2.1	µg/100g
Folate	16	µg/100g
Pantothenic acid	0.18	mg/100g
Biotin	1.4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<0.1	µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
<sup>2</sup> Total vitamin A	<0.1	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.48	mg/100g

<sup>1</sup>No salt or vinegar added at point of purchase.

<sup>2</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that carotenoids are not present.

Sample 28: Cod in batter, frozen/chilled, baked

**PROXIMATES**

Water	56.0	g/100g
Total Nitrogen	1.97	g/100g
Nitrogen conversion factor	6.25	
Protein	12.3	g/100g
Fat	11.8	g/100g
Ash	1.7	g/100g
<sup>1</sup> Energy (kcal)		
<sup>1</sup> Energy (kJ)		
Cholesterol	37	mg/100g

**CARBOHYDRATES**

Glucose		g/100g
Fructose		g/100g
Sucrose		g/100g
Maltose		g/100g
Lactose		g/100g
Galactose		g/100g
Starch	17.7	g/100g
Total sugars		g/100g
<sup>1</sup> Available carbohydrate		g/100g
Fibre (Englyst)	0.8	g/100g
Fibre (AOAC)	1.5	g/100g

**FATTY ACIDS**

Saturated	1.71	g/100g
cis-monounsaturated	6.63	g/100g
cis n-3 polyunsaturated	0.67	g/100g
cis n-6 polyunsaturated	2.08	g/100g
cis polyunsaturated	2.75	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	424	mg/100g
Potassium (K)	230	mg/100g
Calcium (Ca)	32	mg/100g
Magnesium (Mg)	21	mg/100g
Phosphorus (P)	158	mg/100g
Iron (Fe)	0.5	mg/100g
Copper (Cu)	0.04	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	530	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	99	µg/100g
Selenium (Se)	17	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.07	mg/100g
Niacin	0.9	mg/100g
Tryptophan/60	2.7	mg/100g
Vitamin B <sub>6</sub>	0.20	mg/100g
Vitamin B <sub>12</sub>	1.7	µg/100g
Folate	12	µg/100g
Pantothenic acid	0.09	mg/100g
Biotin	1.4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<0.1	µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
<sup>2</sup> Total vitamin A	<0.1	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	2.38	mg/100g

<sup>1</sup>Energy values and available carbohydrate have not been calculated because sugars were not measured in this sample. Based on sub-sample ingredients and product information, small quantities of sugars are likely to be present.

<sup>2</sup>Calculated assuming no carotenoids present.

Sample 29: Cod in breadcrumbs, oven baked

**PROXIMATES**

Water	55.5	g/100g
Total Nitrogen	2.19	g/100g
Nitrogen conversion factor	6.25	
Protein	13.7	g/100g
Fat	8.3	g/100g
Ash	1.5	g/100g
Energy (kcal)	204	
Energy (kJ)	858	
Cholesterol	36	mg/100g

**CARBOHYDRATES**

Glucose	0.2	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	18.9	g/100g
Total sugars	0.9	g/100g
Available carbohydrate	19.8	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	1.9	g/100g

**FATTY ACIDS**

Saturated	1.33	g/100g
cis-monounsaturated	4.62	g/100g
cis n-3 polyunsaturated	0.50	g/100g
cis n-6 polyunsaturated	1.39	g/100g
cis polyunsaturated	1.90	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	330	mg/100g
Potassium (K)	245	mg/100g
Calcium (Ca)	41	mg/100g
Magnesium (Mg)	22	mg/100g
Phosphorus (P)	137	mg/100g
Iron (Fe)	0.5	mg/100g
Copper (Cu)	0.05	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	480	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	21	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.08	mg/100g
Riboflavin	0.11	mg/100g
Niacin	1.6	mg/100g
Tryptophan/60	2.9	mg/100g
Vitamin B <sub>6</sub>	0.19	mg/100g
Vitamin B <sub>12</sub>	1.0	µg/100g
Folate	7	µg/100g
Pantothenic acid	0.17	mg/100g
Biotin	3.0	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.84	mg/100g

Sample 30: Fish fingers, pollock, grilled

**PROXIMATES**

Water	54.6	g/100g
Total Nitrogen	2.22	g/100g
Nitrogen conversion factor	6.25	
Protein	13.9	g/100g
Fat	9.2	g/100g
Ash	1.6	g/100g
Energy (kcal)	213	
Energy (kJ)	897	
Cholesterol	44	mg/100g

**CARBOHYDRATES**

Glucose	0.4	g/100g
Fructose	0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	0.8	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	18.7	g/100g
Total sugars	1.3	g/100g
Available carbohydrate	20.0	g/100g
Fibre (Englyst)	1.6	g/100g
Fibre (AOAC)	2.0	g/100g

**FATTY ACIDS**

Saturated	1.23	g/100g
cis-monounsaturated	4.29	g/100g
cis n-3 polyunsaturated	0.50	g/100g
cis n-6 polyunsaturated	2.68	g/100g
cis polyunsaturated	3.18	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	401	mg/100g
Potassium (K)	263	mg/100g
Calcium (Ca)	23	mg/100g
Magnesium (Mg)	26	mg/100g
Phosphorus (P)	143	mg/100g
Iron (Fe)	0.5	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)	580	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)	47	µg/100g
Selenium (Se)	15	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.12	mg/100g
Niacin	0.8	mg/100g
Tryptophan/60	3.3	mg/100g
Vitamin B <sub>6</sub>	0.18	mg/100g
Vitamin B <sub>12</sub>	0.3	µg/100g
Folate	32	µg/100g
Pantothenic acid	0.16	mg/100g
Biotin	0.4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	2.70	mg/100g

Sample 31: Coleslaw, purchased, not low calorie

**PROXIMATES**

Water	73.0	g/100g
Total Nitrogen	0.13	g/100g
Nitrogen conversion factor	6.25	
Protein	0.8	g/100g
Fat	16.3	g/100g
Ash	1.1	g/100g
Energy (kcal)	173	
Energy (kJ)	714	
Cholesterol	11	mg/100g

**CARBOHYDRATES**

Glucose	1.4	g/100g
Fructose	1.2	g/100g
Sucrose	3.5	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	6.0	g/100g
Available carbohydrate	6.0	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	1.2	g/100g

**FATTY ACIDS**

Saturated	1.65	g/100g
cis-monounsaturated	10.07	g/100g
cis n-3 polyunsaturated	1.10	g/100g
cis n-6 polyunsaturated	2.59	g/100g
cis polyunsaturated	3.69	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	296	mg/100g
Potassium (K)	156	mg/100g
Calcium (Ca)	36	mg/100g
Magnesium (Mg)	8	mg/100g
Phosphorus (P)	21	mg/100g
Iron (Fe)	0.3	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	450	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	3	µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.02	mg/100g
Riboflavin	0.42	mg/100g
Niacin	0.2	mg/100g
Tryptophan/60	0.3	mg/100g
Vitamin B <sub>6</sub>	0.13	mg/100g
Vitamin B <sub>12</sub>	0.1	µg/100g
Folate	56	µg/100g
Pantothenic acid	0.12	mg/100g
Biotin	0.6	µg/100g
Vitamin C	1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	37	µg/100g
Alpha - carotene	184	µg/100g
Beta - carotene	602	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	153	Ret Equiv
Zeaxanthin	6	µg/100g
Lutein	34	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	3.93	mg/100g

Sample 32: Chips, fried in commercial oil, from takeaway fish and chip shops

**PROXIMATES**

Water	51.0	g/100g
Total Nitrogen	0.56	g/100g
Nitrogen conversion factor	6.25	
Protein	3.5	g/100g
Fat	8.4	g/100g
Ash	1.7	g/100g
Energy (kcal)	214	
Energy (kJ)	902	
Cholesterol	1	mg/100g

**CARBOHYDRATES**

Glucose	0.1	g/100g
Fructose	0.1	g/100g
Sucrose	0.3	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	32.7	g/100g
Total sugars	0.6	g/100g
Available carbohydrate	33.2	g/100g
Fibre (Englyst)	3.7	g/100g
Fibre (AOAC)	3.2	g/100g

**FATTY ACIDS**

Saturated	4.29	g/100g
cis-monounsaturated	3.02	g/100g
cis n-3 polyunsaturated	0.02	g/100g
cis n-6 polyunsaturated	0.44	g/100g
cis polyunsaturated	0.47	g/100g
Trans	0.16	g/100g

**INORGANICS**

<sup>1</sup> Sodium (Na)	16	mg/100g
Potassium (K)	804	mg/100g
Calcium (Ca)	16	mg/100g
Magnesium (Mg)	32	mg/100g
Phosphorus (P)	63	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.14	mg/100g
Zinc (Zn)	0.4	mg/100g
<sup>1</sup> Chloride (Cl)	120	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<0.012	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.10	mg/100g
Riboflavin	0.10	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	0.5	mg/100g
Vitamin B <sub>6</sub>	0.05	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	46	µg/100g
Pantothenic acid	0.51	mg/100g
Biotin	0.3	µg/100g
Vitamin C	2	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	0.32	mg/100g

<sup>1</sup>No salt or vinegar added at point of purchase.



Sample 33: Chips, fine cut, from fast food outlets

**PROXIMATES**

Water	38.5	g/100g
Total Nitrogen	0.55	g/100g
Nitrogen conversion factor	6.25	
Protein	3.5	g/100g
Fat	14.2	g/100g
Ash	1.6	g/100g
Energy (kcal)	290	
Energy (kJ)	1219	
Cholesterol	<0.7	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	0.3	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	39.4	g/100g
Total sugars	0.3	g/100g
Available carbohydrate	39.7	g/100g
Fibre (Englyst)	3.2	g/100g
Fibre (AOAC)	3.8	g/100g

**FATTY ACIDS**

Saturated	2.50	g/100g
cis-monounsaturated	7.80	g/100g
cis n-3 polyunsaturated	0.42	g/100g
cis n-6 polyunsaturated	2.77	g/100g
cis polyunsaturated	3.19	g/100g
Trans	0.02	g/100g

**INORGANICS**

<sup>1</sup> Sodium (Na)	193	mg/100g
Potassium (K)	544	mg/100g
Calcium (Ca)	18	mg/100g
Magnesium (Mg)	29	mg/100g
Phosphorus (P)	143	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.08	mg/100g
Zinc (Zn)	0.4	mg/100g
<sup>1</sup> Chloride (Cl)	260	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<0.012	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.07	mg/100g
Riboflavin	0.09	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	0.4	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	38	µg/100g
Pantothenic acid	0.49	mg/100g
Biotin	0.2	µg/100g
Vitamin C	2	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	3.28	mg/100g

<sup>1</sup>Sample contains sub-samples with and without added salt



Sample 34: Potato chips, oven ready, baked

**PROXIMATES**

Water	54.2	g/100g
Total Nitrogen	0.51	g/100g
Nitrogen conversion factor	6.25	
Protein	3.2	g/100g
Fat	4.9	g/100g
Ash	1.5	g/100g
Energy (kcal)	189	
Energy (kJ)	800	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	0.4	g/100g
Fructose	0.3	g/100g
Sucrose	0.4	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	34.3	g/100g
Total sugars	1.0	g/100g
Available carbohydrate	35.3	g/100g
Fibre (Englyst)	2.7	g/100g
Fibre (AOAC)	3.5	g/100g

**FATTY ACIDS**

Saturated	0.78	g/100g
cis-monounsaturated	1.36	g/100g
cis n-3 polyunsaturated	0.02	g/100g
cis n-6 polyunsaturated	2.43	g/100g
cis polyunsaturated	2.45	g/100g
Trans	<0.01	g/100g

**INORGANICS**

Sodium (Na)	31	mg/100g
Potassium (K)	641	mg/100g
Calcium (Ca)	14	mg/100g
Magnesium (Mg)	31	mg/100g
Phosphorus (P)	95	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	100	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	0.10	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.05	mg/100g
Riboflavin	0.12	mg/100g
Niacin	1.4	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.20	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	22	µg/100g
Pantothenic acid	0.25	mg/100g
Biotin	0.3	µg/100g
Vitamin C	1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.37	mg/100g

Sample 35: Potato chips, oven ready, with batter, baked

**PROXIMATES**

Water	51.9	g/100g
Total Nitrogen	0.54	g/100g
Nitrogen conversion factor	6.25	
Protein	3.4	g/100g
Fat	6.1	g/100g
Ash	1.7	g/100g
Energy (kcal)	202	
Energy (kJ)	852	
Cholesterol	<0.7	mg/100g

**CARBOHYDRATES**

Glucose	0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	0.3	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	35.2	g/100g
Total sugars	0.4	g/100g
Available carbohydrate	35.6	g/100g
Fibre (Englyst)	2.9	g/100g
Fibre (AOAC)	3.3	g/100g

**FATTY ACIDS**

Saturated	1.30	g/100g
cis-monounsaturated	1.84	g/100g
cis n-3 polyunsaturated	0.02	g/100g
cis n-6 polyunsaturated	2.77	g/100g
cis polyunsaturated	2.80	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	193	mg/100g
Potassium (K)	602	mg/100g
Calcium (Ca)	17	mg/100g
Magnesium (Mg)	32	mg/100g
Phosphorus (P)	111	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.15	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	320	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<0.012	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.11	mg/100g
Niacin	3.2	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.20	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	13	µg/100g
Pantothenic acid	0.22	mg/100g
Biotin	0.5	µg/100g
Vitamin C	1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.84	mg/100g

Sample 36: Potato crisps, fried in vegetable oil, not Walkers, not premium crisps, not fried in sunflower oil

**PROXIMATES**

Water	1.9	g/100g
Total Nitrogen	0.69	g/100g
Nitrogen conversion factor	6.25	
Protein	4.3	g/100g
Fat	31.8	g/100g
Ash	3.0	g/100g
Energy (kcal)	519	
Energy (kJ)	2168	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	0.3	g/100g
Fructose	0.2	g/100g
Sucrose	1.1	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	55.9	g/100g
Total sugars	1.5	g/100g
Available carbohydrate	57.4	g/100g
Fibre (Englyst)	2.4	g/100g
Fibre (AOAC)	2.9	g/100g

**FATTY ACIDS**

Saturated	8.41	g/100g
cis-monounsaturated	19.70	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	2.80	g/100g
cis polyunsaturated	2.85	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	599	mg/100g
Potassium (K)	706	mg/100g
Calcium (Ca)	35	mg/100g
Magnesium (Mg)	40	mg/100g
Phosphorus (P)	103	mg/100g
Iron (Fe)	1.1	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	850	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	0.19	µg/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
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	10.80	mg/100g

Sample 37: Potato crisps fried in sunflower oil, including premium, not Walkers

**PROXIMATES**

Water	1.9	g/100g
Total Nitrogen	0.96	g/100g
Nitrogen conversion factor	6.25	
Protein	6.0	g/100g
Fat	29.8	g/100g
Ash	3.7	g/100g
Energy (kcal)	501	
Energy (kJ)	2096	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	0.5	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	55.2	g/100g
Total sugars	0.5	g/100g
Available carbohydrate	55.7	g/100g
Fibre (Englyst)	4.7	g/100g
Fibre (AOAC)	4.5	g/100g

**FATTY ACIDS<sup>1</sup>**

Saturated	2.96	g/100g
cis-monounsaturated	18.36	g/100g
cis n-3 polyunsaturated	0.09	g/100g
cis n-6 polyunsaturated	6.70	g/100g
cis polyunsaturated	6.78	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	451	mg/100g
Potassium (K)	1249	mg/100g
Calcium (Ca)	35	mg/100g
Magnesium (Mg)	65	mg/100g
Phosphorus (P)	128	mg/100g
Iron (Fe)	1.3	mg/100g
Copper (Cu)	0.20	mg/100g
Zinc (Zn)	0.9	mg/100g
Chloride (Cl)	820	mg/100g
Manganese (Mn)	0.4	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.09	mg/100g
Riboflavin	0.16	mg/100g
Niacin	3.9	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	0.31	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	62	µg/100g
Pantothenic acid	0.78	mg/100g
Biotin	0.6	µg/100g
Vitamin C	17	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	9.79	mg/100g

<sup>1</sup>Composite was re-analysed to confirm data. This data does not reflect that expected for potato crisps fried in sunflower oil (levels of polyunsaturated fatty acids are very low, levels of monounsaturated fatty acids are very high). 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.

Sample 38: Potato crisps fried in high oleic sunflower oil

**PROXIMATES**

Water	4.3	g/100g
Total Nitrogen	1.00	g/100g
Nitrogen conversion factor	6.25	
Protein	6.2	g/100g
Fat	28.8	g/100g
Ash	4.2	g/100g
Energy (kcal)	493	
Energy (kJ)	2064	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	0.9	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	54.9	g/100g
Total sugars	0.9	g/100g
Available carbohydrate	55.8	g/100g
Fibre (Englyst)	4.6	g/100g
Fibre (AOAC)	4.4	g/100g

**FATTY ACIDS**

Saturated	2.48	g/100g
cis-monounsaturated	22.41	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	2.44	g/100g
cis polyunsaturated	2.51	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	604	mg/100g
Potassium (K)	1328	mg/100g
Calcium (Ca)	48	mg/100g
Magnesium (Mg)	63	mg/100g
Phosphorus (P)	135	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.20	mg/100g
Zinc (Zn)	0.9	mg/100g
Chloride (Cl)	1000	mg/100g
Manganese (Mn)	0.4	mg/100g
Iodine (I)	2	µg/100g
Selenium (Se)	1	µg/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
Alpha - carotene		µg/100g
Beta - carotene	29	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	5	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	9.05	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that retinol, alpha-carotene and cryptoxanthins are not present.

Sample 39: Potato rings (e.g. Hula Hoops)

**PROXIMATES**

Water	2.0	g/100g
Total Nitrogen	0.57	g/100g
Nitrogen conversion factor	6.25	
Protein	3.6	g/100g
Fat	22.4	g/100g
Ash	3.6	g/100g
Energy (kcal)	480	
Energy (kJ)	2018	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	0.3	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	70.2	g/100g
Total sugars	0.3	g/100g
Available carbohydrate	70.5	g/100g
Fibre (Englyst)	1.7	g/100g
Fibre (AOAC)	2.6	g/100g

**FATTY ACIDS**

Saturated	1.92	g/100g
cis-monounsaturated	17.11	g/100g
cis n-3 polyunsaturated	0.26	g/100g
cis n-6 polyunsaturated	1.99	g/100g
cis polyunsaturated	2.25	g/100g
Trans	0.02	g/100g

**INORGANICS**

Sodium (Na)	845	mg/100g
Potassium (K)	781	mg/100g
Calcium (Ca)	26	mg/100g
Magnesium (Mg)	34	mg/100g
Phosphorus (P)	108	mg/100g
Iron (Fe)	0.8	mg/100g
Copper (Cu)	0.16	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	1490	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.05	mg/100g
Riboflavin	0.27	mg/100g
Niacin	1.1	mg/100g
Tryptophan/60	0.8	mg/100g
Vitamin B <sub>6</sub>	0.40	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	5	µg/100g
Pantothenic acid	0.28	mg/100g
Biotin	0.2	µg/100g
Vitamin C	3.0	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	7.64	mg/100g

Sample 41: Tortilla chips in Sunseed or high oleic sunflower oil (e.g. Doritos)

**PROXIMATES**

Water	1.3	g/100g
Total Nitrogen	1.16	g/100g
Nitrogen conversion factor	6.25	
Protein	7.2	g/100g
Fat	27.4	g/100g
Ash	2.6	g/100g
Energy (kcal)	504	
Energy (kJ)	2110	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	0.2	g/100g
Fructose	0.2	g/100g
Sucrose	1.1	g/100g
Maltose	<0.1	g/100g
Lactose	1.0	g/100g
Galactose	<0.1	g/100g
Starch	58.3	g/100g
Total sugars	2.5	g/100g
Available carbohydrate	60.8	g/100g
Fibre (Englyst)	5.7	g/100g
Fibre (AOAC)	5.9	g/100g

**FATTY ACIDS**

Saturated	2.89	g/100g
cis-monounsaturated	20.01	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	3.02	g/100g
cis polyunsaturated	3.09	g/100g
Trans	0.08	g/100g

**INORGANICS**

Sodium (Na)	636	mg/100g
Potassium (K)	285	mg/100g
Calcium (Ca)	103	mg/100g
Magnesium (Mg)	78	mg/100g
Phosphorus (P)	234	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.10	mg/100g
Zinc (Zn)	1.2	mg/100g
Chloride (Cl)	900	mg/100g
Manganese (Mn)	0.4	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	5	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.11	mg/100g
Riboflavin	0.18	mg/100g
Niacin	0.5	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	0.15	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	10	µg/100g
Pantothenic acid	0.28	mg/100g
Biotin	0.8	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene	30	µg/100g
Beta - carotene	141	µg/100g
Beta - cryptoxanthin	103	µg/100g
<sup>1</sup> Total vitamin A	35	µg/100g
Zeaxanthin	173	µg/100g
Lutein	479	µg/100g
Lycopene	152	µg/100g
Vitamin D		µg/100g
Vitamin E	7.11	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that retinol is not present.



Sample 42: Corn snacks (e.g. Monster Munch, Wotsits)

**PROXIMATES**

Water	1.3	g/100g
Total Nitrogen	0.95	g/100g
Nitrogen conversion factor	6.25	
Protein	6.0	g/100g
Fat	30.4	g/100g
Ash	3.0	g/100g
Energy (kcal)	526	
Energy (kJ)	2199	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	0.6	g/100g
Maltose	<0.1	g/100g
Lactose	4.9	g/100g
Galactose	<0.1	g/100g
Starch	55.3	g/100g
Total sugars	5.5	g/100g
Available carbohydrate	60.8	g/100g
Fibre (Englyst)	1.4	g/100g
Fibre (AOAC)	1.3	g/100g

**FATTY ACIDS**

Saturated	2.76	g/100g
cis-monounsaturated	18.35	g/100g
cis n-3 polyunsaturated	2.21	g/100g
cis n-6 polyunsaturated	5.24	g/100g
cis polyunsaturated	7.45	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	909	mg/100g
Potassium (K)	329	mg/100g
Calcium (Ca)	71	mg/100g
Magnesium (Mg)	20	mg/100g
Phosphorus (P)	96	mg/100g
Iron (Fe)	0.3	mg/100g
Copper (Cu)	0.05	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	1120	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	9	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.23	mg/100g
Riboflavin	0.31	mg/100g
Niacin	0.3	mg/100g
Tryptophan/60	0.5	mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	5	µg/100g
Pantothenic acid	0.30	mg/100g
Biotin	1.3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene	7	µg/100g
Beta - carotene	174	µg/100g
Beta - cryptoxanthin	109	µg/100g
<sup>1</sup> Total vitamin A	39	µg/100g
Zeaxanthin	214	µg/100g
Lutein	310	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D		µg/100g
Vitamin E	8.43	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that retinol is not present.



Sample 43: Mixed toffees (including liquorice toffees), not premium

**PROXIMATES**

Water	4.0	g/100g
Total Nitrogen	0.34	g/100g
Nitrogen conversion factor	6.25	
Protein	2.1	g/100g
Fat	15.9	g/100g
Ash	1.2	g/100g
Energy (kcal)	387	
Energy (kJ)	1630	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	5.9	g/100g
Fructose	<0.1	g/100g
Sucrose	29.9	g/100g
Maltose	3.3	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	39.1	g/100g
Available carbohydrate	62.9	g/100g
Oligosaccharides	23.8	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	8.60	g/100g
cis-monounsaturated	5.26	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.05	g/100g
cis polyunsaturated	1.10	g/100g
Trans	0.07	g/100g

**INORGANICS**

Sodium (Na)	312	mg/100g
Potassium (K)	132	mg/100g
Calcium (Ca)	85	mg/100g
Magnesium (Mg)	11	mg/100g
Phosphorus (P)	65	mg/100g
Iron (Fe)	0.3	mg/100g
Copper (Cu)	0.04	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	460	mg/100g
Manganese (Mn)	0.03	mg/100g
Iodine (I)	20	µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin	<0.01	mg/100g
Niacin		mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>		mg/100g
Vitamin B <sub>12</sub>	0.2	µg/100g
Folate	1	µg/100g
Pantothenic acid	0.21	mg/100g
Biotin	0.2	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	<0.01	mg/100g

Sample 44: Chew sweets (e.g. Starburst, Chewits, Blackjacks)

**PROXIMATES**

Water	3.8	g/100g
Total Nitrogen	0.15	g/100g
Nitrogen conversion factor	6.25	
Protein	0.9	g/100g
Fat	6.0	g/100g
Ash	<0.1	g/100g
Energy (kcal)	377	
Energy (kJ)	1599	
Cholesterol		mg/100g

**CARBOHYDRATES**

Glucose	6.3	g/100g
Fructose	<0.1	g/100g
Sucrose	40.5	g/100g
Maltose	7.7	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	54.5	g/100g
Available carbohydrate	85.1	g/100g
Oligosaccharides	30.6	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	3.57	g/100g
cis-monounsaturated	1.72	g/100g
cis n-3 polyunsaturated	0.01	g/100g
cis n-6 polyunsaturated	0.38	g/100g
cis polyunsaturated	0.39	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	30	mg/100g
Potassium (K)	10	mg/100g
Calcium (Ca)	3	mg/100g
Magnesium (Mg)	2	mg/100g
Phosphorus (P)	4	mg/100g
Iron (Fe)	0.1	mg/100g
Copper (Cu)	<0.01	mg/100g
Zinc (Zn)	0.02	mg/100g
Chloride (Cl)	30	mg/100g
Manganese (Mn)	0.01	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	<0.012	µg/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
Alpha - carotene	<0.1	µg/100g
Beta - carotene	144	µg/100g
Beta-cryptoxanthin	16	µg/100g
<sup>1</sup> Total vitamin A	25	µg/100g
Zeaxanthin	11	µg/100g
Lutein	51	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D		µg/100g
Vitamin E	1.20	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that retinol is not present.

Sample 45: Milk chocolate bar

**PROXIMATES**

Water	1.6	g/100g
Total Nitrogen	1.15	g/100g
Nitrogen conversion factor	6.38	
Protein	7.3	g/100g
Fat	31.1	g/100g
Ash	1.7	g/100g
Energy (kcal)	519	
Energy (kJ)	2171	
Cholesterol	22	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	46.8	g/100g
Maltose	<0.1	g/100g
Lactose	9.2	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	56.0	g/100g
Available carbohydrate	56.0	g/100g
Fibre (Englyst)	1.3	g/100g
Fibre (AOAC)	2.3	g/100g

**FATTY ACIDS**

Saturated	18.71	g/100g
cis-monounsaturated	9.44	g/100g
cis n-3 polyunsaturated	0.10	g/100g
cis n-6 polyunsaturated	1.03	g/100g
cis polyunsaturated	1.13	g/100g
Trans	0.16	g/100g

**INORGANICS**

Sodium (Na)	89	mg/100g
Potassium (K)	451	mg/100g
Calcium (Ca)	226	mg/100g
Magnesium (Mg)	57	mg/100g
Phosphorus (P)	224	mg/100g
Iron (Fe)	2.1	mg/100g
Copper (Cu)	0.31	mg/100g
Zinc (Zn)	1.1	mg/100g
Chloride (Cl)	190	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)	51	µg/100g
Selenium (Se)	3	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.12	mg/100g
Riboflavin	0.53	mg/100g
Niacin	0.3	mg/100g
Tryptophan/60	2.4	mg/100g
Vitamin B <sub>6</sub>	0.21	mg/100g
Vitamin B <sub>12</sub>	2.1	µg/100g
Folate	9	µg/100g
Pantothenic acid	0.73	mg/100g
Biotin	2.4	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	66	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	22	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	70	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	0.40	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.

Sample 46: Chocolate covered caramels (e.g. Cadburys caramel)

**PROXIMATES**

Water	4.8	g/100g
Total Nitrogen	0.66	g/100g
Nitrogen conversion factor	6.38	
Protein	4.2	g/100g
Fat	23.6	g/100g
Ash	1.4	g/100g
Energy (kcal)	493	
Energy (kJ)	2068	
Cholesterol	13	mg/100g

**CARBOHYDRATES**

Glucose	4.7	g/100g
Fructose	<0.1	g/100g
Sucrose	39.6	g/100g
Maltose	4.2	g/100g
Lactose	7.5	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	56.0	g/100g
Available carbohydrate	70.2	g/100g
Oligosaccharides	14.3	g/100g
Fibre (Englyst)	0.3	g/100g
Fibre (AOAC)	1.6	g/100g

**FATTY ACIDS**

Saturated	13.78	g/100g
cis-monounsaturated	7.42	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	1.01	g/100g
cis polyunsaturated	1.08	g/100g
Trans	0.10	g/100g

**INORGANICS**

Sodium (Na)	160	mg/100g
Potassium (K)	297	mg/100g
Calcium (Ca)	154	mg/100g
Magnesium (Mg)	37	mg/100g
Phosphorus (P)	156	mg/100g
Iron (Fe)	1.3	mg/100g
Copper (Cu)	0.17	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	280	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)	40	µg/100g
Selenium (Se)	2	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.02	mg/100g
Riboflavin	0.30	mg/100g
Niacin	0.2	mg/100g
Tryptophan/60	1.1	mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	4	µg/100g
Pantothenic acid	0.55	mg/100g
Biotin	1.7	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	90	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	15	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	93	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.46	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.

Sample 47: Dark chocolate with crème or mint fondant centres

**PROXIMATES**

Water	5.4	g/100g
Total Nitrogen	0.58	g/100g
Nitrogen conversion factor	6.38	
Protein	3.7	g/100g
Fat	16.3	g/100g
Ash	0.9	g/100g
Energy (kcal)	431	
Energy (kJ)	1816	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	4.0	g/100g
Fructose	2.4	g/100g
Sucrose	56.5	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	62.9	g/100g
Available carbohydrate	71.9	g/100g
Oligosaccharides	9.0	g/100g
Fibre (Englyst)	1.9	g/100g
Fibre (AOAC)	4.7	g/100g

**FATTY ACIDS**

Saturated	9.80	g/100g
cis-monounsaturated	5.10	g/100g
cis n-3 polyunsaturated	0.04	g/100g
cis n-6 polyunsaturated	0.50	g/100g
cis polyunsaturated	0.54	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	6	mg/100g
Potassium (K)	389	mg/100g
Calcium (Ca)	49	mg/100g
Magnesium (Mg)	13	mg/100g
Phosphorus (P)	104	mg/100g
Iron (Fe)	0.7	mg/100g
Copper (Cu)	0.06	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	30	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	8	µg/100g
Selenium (Se)	3	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.16	mg/100g
Riboflavin	0.01	mg/100g
Niacin	0.5	mg/100g
Tryptophan/60	0.6	mg/100g
Vitamin B <sub>6</sub>	0.35	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	1	µg/100g
Pantothenic acid	0.04	mg/100g
Biotin	1.6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	74	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	15	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	77	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	1.52	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.

Sample 48: Mars bars (and own brand equivalents)

**PROXIMATES**

Water	7.1	g/100g
Total Nitrogen	0.65	g/100g
Nitrogen conversion factor	6.38	
Protein	4.1	g/100g
Fat	15.3	g/100g
Ash	1.3	g/100g
Energy (kcal)	404	
Energy (kJ)	1703	
Cholesterol	10	mg/100g

**CARBOHYDRATES**

Glucose	7.8	g/100g
Fructose	0.3	g/100g
Sucrose	38.7	g/100g
Maltose	7.8	g/100g
Lactose	8.7	g/100g
Galactose	<0.1	g/100g
Starch	3.3	g/100g
Total sugars	63.3	g/100g
Available carbohydrate	66.6	g/100g
Fibre (Englyst)	0.8	g/100g
Fibre (AOAC)	1.5	g/100g

**FATTY ACIDS**

Saturated	7.31	g/100g
cis-monounsaturated	6.35	g/100g
cis n-3 polyunsaturated	0.04	g/100g
cis n-6 polyunsaturated	0.77	g/100g
cis polyunsaturated	0.81	g/100g
Trans	0.05	g/100g

**INORGANICS**

Sodium (Na)	174	mg/100g
Potassium (K)	269	mg/100g
Calcium (Ca)	118	mg/100g
Magnesium (Mg)	35	mg/100g
Phosphorus (P)	125	mg/100g
Iron (Fe)	1.66	mg/100g
Copper (Cu)	0.18	mg/100g
Zinc (Zn)	0.64	mg/100g
Chloride (Cl)	346	mg/100g
Manganese (Mn)	0.22	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.17	mg/100g
Riboflavin	0.20	mg/100g
Niacin	0.40	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	5	µg/100g
Pantothenic acid	0.54	mg/100g
Biotin	1.5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	33	µg/100g
Alpha - carotene	3	µg/100g
Beta - carotene	13	µg/100g
Beta - cryptoxanthin	<1	µg/100g
Total vitamin A	35	Ret Equiv
Zeaxanthin	<1	µg/100g
Lutein	4	µg/100g
Lycopene	<1	µg/100g
Vitamin D	0.1	µg/100g
Vitamin E	2.00	mg/100g

Sample 49: Maltesers (and similar products)

**PROXIMATES**

Water	1.8	g/100g
Total Nitrogen	1.19	g/100g
Nitrogen conversion factor	6.38	
Protein	7.6	g/100g
Fat	23.3	g/100g
Ash	2.1	g/100g
Energy (kcal)	476	
Energy (kJ)	1998	
Cholesterol	12	mg/100g

**CARBOHYDRATES**

Glucose	2.3	g/100g
Fructose	<0.1	g/100g
Sucrose	36.9	g/100g
Maltose	2.1	g/100g
Lactose	14.2	g/100g
Galactose	<0.1	g/100g
Starch	7.5	g/100g
Total sugars	55.5	g/100g
Available carbohydrate	63.0	g/100g
Fibre (Englyst)	0.4	g/100g
Fibre (AOAC)	1.7	g/100g

**FATTY ACIDS**

Saturated	14.16	g/100g
cis-monounsaturated	6.94	g/100g
cis n-3 polyunsaturated	0.06	g/100g
cis n-6 polyunsaturated	0.90	g/100g
cis polyunsaturated	0.96	g/100g
Trans	0.07	g/100g

**INORGANICS**

Sodium (Na)	156	mg/100g
Potassium (K)	565	mg/100g
Calcium (Ca)	266	mg/100g
Magnesium (Mg)	50	mg/100g
Phosphorus (P)	269	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.20	mg/100g
Zinc (Zn)	1.0	mg/100g
Chloride (Cl)	270	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)	53	µg/100g
Selenium (Se)	5	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.04	mg/100g
Riboflavin	0.47	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	1.4	mg/100g
Vitamin B <sub>6</sub>	0.02	mg/100g
Vitamin B <sub>12</sub>	1.3	µg/100g
Folate	14	µg/100g
Pantothenic acid	0.78	mg/100g
Biotin	4.6	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	48	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	<5	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	48	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	0.84	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.



Sample 50: Milk chocolate covered caramel and biscuit fingers

**PROXIMATES**

Water	3.6	g/100g
Total Nitrogen	0.79	g/100g
Nitrogen conversion factor	6.38	
Protein	5.0	g/100g
Fat	23.6	g/100g
Ash	1.2	g/100g
Energy (kcal)	495	
Energy (kJ)	2079	
Cholesterol	10	mg/100g

**CARBOHYDRATES**

Glucose	4.5	g/100g
Fructose	<0.1	g/100g
Sucrose	31.6	g/100g
Maltose	3.5	g/100g
Lactose	5.8	g/100g
Galactose	<0.1	g/100g
Starch	12.2	g/100g
Total sugars	45.4	g/100g
Available carbohydrate	70.0	g/100g
Oligosaccharides	12.4	g/100g
Fibre (Englyst)	1.5	g/100g
Fibre (AOAC)	2.5	

**FATTY ACIDS**

Saturated	13.52	g/100g
cis-monounsaturated	7.49	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.27	g/100g
cis polyunsaturated	1.32	g/100g
Trans	0.05	g/100g

**INORGANICS**

Sodium (Na)	191	mg/100g
Potassium (K)	242	mg/100g
Calcium (Ca)	100	mg/100g
Magnesium (Mg)	30	mg/100g
Phosphorus (P)	118	mg/100g
Iron (Fe)	1.6	mg/100g
Copper (Cu)	0.13	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	310	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)	16	µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.03	mg/100g
Riboflavin	0.23	mg/100g
Niacin	0.2	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>	0.5	µg/100g
Folate	4	µg/100g
Pantothenic acid	0.40	mg/100g
Biotin	1.8	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	33	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	12	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	35	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.28	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.



Sample 51: Chocolate covered bar with caramel and cereal

**PROXIMATES**

Water	5.0	g/100g
Total Nitrogen	0.81	g/100g
Nitrogen conversion factor	6.38	
Protein	5.2	g/100g
Fat	25.8	g/100g
Ash	1.4	g/100g
Energy (kcal)	501	
Energy (kJ)	2102	
Cholesterol	9	mg/100g

**CARBOHYDRATES**

Glucose	2.1	g/100g
Fructose	<0.1	g/100g
Sucrose	32.9	g/100g
Maltose	2.0	g/100g
Lactose	9.4	g/100g
Galactose	<0.1	g/100g
Starch	11.6	g/100g
Total sugars	46.4	g/100g
Available carbohydrate	66.2	g/100g
Oligosaccharides	8.2	g/100g
Fibre (Englyst)	0.8	g/100g
Fibre (AOAC)	1.9	g/100g <sup>□</sup>

**FATTY ACIDS**

Saturated	16.26	g/100g
cis-monounsaturated	7.05	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	1.05	g/100g
cis polyunsaturated	1.10	g/100g
Trans	0.09	g/100g

**INORGANICS**

Sodium (Na)	161	mg/100g
Potassium (K)	329	mg/100g
Calcium (Ca)	140	mg/100g
Magnesium (Mg)	40	mg/100g
Phosphorus (P)	158	mg/100g
<sup>1</sup> Iron (Fe)	4.6	mg/100g
Copper (Cu)	0.24	mg/100g
Zinc (Zn)	0.8	mg/100g
Chloride (Cl)	230	mg/100g
Manganese (Mn)	0.4	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	4	µg/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	1.31	mg/100g
Biotin	1.8	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	0.94	mg/100g

<sup>1</sup>Composite contains some sub-samples that were fortified with iron

Sample 52: Milky Way bars (and own brand equivalents)

**PROXIMATES**

Water	5.8	g/100g
Total Nitrogen	0.60	g/100g
Nitrogen conversion factor	6.38	
Protein	3.8	g/100g
Fat	15.7	g/100g
Ash	1.4	g/100g
Energy (kcal)	444	
Energy (kJ)	1872	
Cholesterol	9	mg/100g

**CARBOHYDRATES**

Glucose	6.5	g/100g
Fructose	0.3	g/100g
Sucrose	47.1	g/100g
Maltose	7.5	g/100g
Lactose	8.3	g/100g
Galactose	<0.1	g/100g
Starch	6.9	g/100g
Total sugars	69.7	g/100g
Available carbohydrate	76.6	g/100g
Fibre (Englyst)	0.6	g/100g
Fibre (AOAC)	1.0	g/100g

**FATTY ACIDS**

Saturated	7.73	g/100g
cis-monounsaturated	6.37	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	0.69	g/100g
cis polyunsaturated	0.74	g/100g
Trans	0.06	g/100g

**INORGANICS**

Sodium (Na)	220	mg/100g
Potassium (K)	240	mg/100g
Calcium (Ca)	117	mg/100g
Magnesium (Mg)	25	mg/100g
Phosphorus (P)	114	mg/100g
Iron (Fe)	2.0	mg/100g
Copper (Cu)	0.13	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)	354	mg/100g
Manganese (Mn)	0.13	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.18	mg/100g
Riboflavin	0.21	mg/100g
Niacin	0.4	mg/100g
Tryptophan/60	1.0	mg/100g
Vitamin B <sub>6</sub>	0.03	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	5	µg/100g
Pantothenic acid	0.56	mg/100g
Biotin	1.7	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	24	µg/100g
Alpha - carotene	<1	µg/100g
Beta - carotene	<1	µg/100g
Beta - cryptoxanthin	<1	µg/100g
Total vitamin A	24	Ret Equiv
Zeaxanthin	<1	µg/100g
Lutein	<1	µg/100g
Lycopene	<1	µg/100g
Vitamin D	0.20	µg/100g
Vitamin E	1.96	mg/100g

Sample 53: Snickers bars (and own brand equivalents)

**PROXIMATES**

Water	5.4	g/100g
Total Nitrogen	1.39	g/100g
Nitrogen conversion factor	5.41	
Protein	7.5	g/100g
Fat	28.2	g/100g
Ash	1.6	g/100g
Energy (kcal)	479	
Energy (kJ)	2005	
Cholesterol	4	mg/100g

**CARBOHYDRATES**

Glucose	4.8	g/100g
Fructose	0.1	g/100g
Sucrose	31.0	g/100g
Maltose	4.4	g/100g
Lactose	5.8	g/100g
Galactose	<0.1	g/100g
Starch	6.1	g/100g
Total sugars	46.1	g/100g
Available carbohydrate	52.2	g/100g
Fibre (Englyst)	2.4	g/100g
Fibre (AOAC)	2.8	g/100g

**FATTY ACIDS**

Saturated	9.15	g/100g
cis-monounsaturated	15.58	g/100g
cis n-3 polyunsaturated	0.05	g/100g
cis n-6 polyunsaturated	2.03	g/100g
cis polyunsaturated	2.08	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	187	mg/100g
Potassium (K)	388	mg/100g
Calcium (Ca)	101	mg/100g
Magnesium (Mg)	80	mg/100g
Phosphorus (P)	210	mg/100g
Iron (Fe)	1.9	mg/100g
Copper (Cu)	0.35	mg/100g
Zinc (Zn)	1.4	mg/100g
Chloride (Cl)	385	mg/100g
Manganese (Mn)	0.60	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	6	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.12	mg/100g
Riboflavin	0.16	mg/100g
Niacin	2.1	mg/100g
Tryptophan/60	1.7	mg/100g
Vitamin B <sub>6</sub>	0.04	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	11	µg/100g
Pantothenic acid	0.69	mg/100g
Biotin	1.7	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	10	µg/100g
Alpha - carotene	2	µg/100g
Beta - carotene	6	µg/100g
Beta - cryptoxanthin	<1	µg/100g
Total vitamin A	11	Ret Equiv
Zeaxanthin	<1	µg/100g
Lutein	5	µg/100g
Lycopene	<1	µg/100g
Vitamin D	1.5	µg/100g
Vitamin E	4.28	mg/100g

Sample 54: Chocolate spread

**PROXIMATES**

Water	1.0	g/100g
Total Nitrogen	0.52	g/100g
Nitrogen conversion factor	6.25	
Protein	3.3	g/100g
Fat	37.7	g/100g
Ash	1.2	g/100g
Energy (kcal)	575	
Energy (kJ)	2402	
Cholesterol	9	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	49.5	g/100g
Maltose	<0.1	g/100g
Lactose	10.0	g/100g
Galactose	<0.1	g/100g
Starch		g/100g
Total sugars	59.4	g/100g
<sup>1</sup> Available carbohydrate	59.4	g/100g
Fibre (Englyst)	1.0	g/100g
Fibre (AOAC)	2.0	g/100g

**FATTY ACIDS**

Saturated	8.13	g/100g
cis-monounsaturated	19.90	g/100g
cis n-3 polyunsaturated	1.92	g/100g
cis n-6 polyunsaturated	5.71	g/100g
cis polyunsaturated	7.63	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	58	mg/100g
Potassium (K)	362	mg/100g
Calcium (Ca)	91	mg/100g
Magnesium (Mg)	51	mg/100g
Phosphorus (P)	128	mg/100g
Iron (Fe)	4.9	mg/100g
Copper (Cu)	0.32	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	160	mg/100g
Manganese (Mn)	0.4	mg/100g
Iodine (I)	15	µg/100g
Selenium (Se)	1	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.17	mg/100g
Riboflavin	<0.05	mg/100g
Niacin	0.3	mg/100g
Tryptophan/60	0.6	mg/100g
Vitamin B <sub>6</sub>	0.19	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	10	µg/100g
Pantothenic acid	0.26	mg/100g
Biotin	0.8	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	7.70	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that no starch is present.

Sample 55: Cream of tomato soup, canned

**PROXIMATES**

Water	89.0	g/100g
Total Nitrogen	0.14	g/100g
Nitrogen conversion factor	6.38	
Protein	0.9	g/100g
Fat	2.0	g/100g
Ash	1.0	g/100g
Energy (kcal)	51	
Energy (kJ)	215	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	1.3	g/100g
Fructose	1.5	g/100g
Sucrose	2.2	g/100g
Maltose	<0.1	g/100g
Lactose	0.5	g/100g
Galactose	<0.1	g/100g
Starch	2.2	g/100g
Total sugars	5.5	g/100g
Available carbohydrate	7.8	g/100g
Fibre (Englyst)	0.5	g/100g
Fibre (AOAC)	0.6	g/100g

**FATTY ACIDS**

Saturated	0.27	g/100g
cis-monounsaturated	1.15	g/100g
cis n-3 polyunsaturated	0.15	g/100g
cis n-6 polyunsaturated	0.34	g/100g
cis polyunsaturated	0.50	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	245	mg/100g
Potassium (K)	179	mg/100g
Calcium (Ca)	14	mg/100g
Magnesium (Mg)	8	mg/100g
Phosphorus (P)	19	mg/100g
Iron (Fe)	0.2	mg/100g
Copper (Cu)	0.04	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	420	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	2	µg/100g
Selenium (Se)	0.33	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	<0.001	mg/100g
Riboflavin	0.11	mg/100g
Niacin	0.6	mg/100g
Tryptophan/60	0.1	mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	14	µg/100g
Pantothenic acid	0.04	mg/100g
Biotin	1.2	µg/100g
Vitamin C	1	mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	<0.1	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	147	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	25	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.42	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.

Sample 56: Instant soup, as purchased

**PROXIMATES**

Water	4.3	g/100g
Total Nitrogen	0.94	g/100g
Nitrogen conversion factor	6.25	
Protein	5.9	g/100g
Fat	13.4	g/100g
Ash	7.5	g/100g
Energy (kcal)	384	
Energy (kJ)	1621	
Cholesterol	9	mg/100g

**CARBOHYDRATES**

Glucose	2.1	g/100g
Fructose	1.7	g/100g
Sucrose	6.7	g/100g
Maltose	6.3	g/100g
Lactose	0.6	g/100g
Galactose	<0.1	g/100g
Starch	29.2	g/100g
Total sugars	17.4	g/100g
Available carbohydrate	64.1	g/100g
Oligosaccharides	17.5	g/100g
Fibre (Englyst)	2.5	g/100g
Fibre (AOAC)	5.6	g/100g

**FATTY ACIDS**

Saturated	8.70	g/100g
cis-monounsaturated	3.08	g/100g
cis n-3 polyunsaturated	0.03	g/100g
cis n-6 polyunsaturated	0.97	g/100g
cis polyunsaturated	1.00	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	2376	mg/100g
Potassium (K)	782	mg/100g
Calcium (Ca)	99	mg/100g
Magnesium (Mg)	28	mg/100g
Phosphorus (P)	211	mg/100g
Iron (Fe)	1.3	mg/100g
Copper (Cu)	0.12	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	3570	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	2	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin		mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>	0.06	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	6	µg/100g
Pantothenic acid	0.29	mg/100g
Biotin	2.5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene	190	µg/100g
Beta - carotene	594	µg/100g
Beta - cryptoxanthin	39	µg/100g
<sup>1</sup> Total vitamin A	118	µg/100g
Zeaxanthin	32	µg/100g
Lutein	115	µg/100g
Lycopene	1227	µg/100g
Vitamin D		µg/100g
Vitamin E	1.79	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that retinol is not present.

Sample 57: Mayonnaise (retail), standard

**PROXIMATES**

Water	19.3	g/100g
Total Nitrogen	0.17	g/100g
Nitrogen conversion factor	6.25	
Protein	1.1	g/100g
Fat	74.8	g/100g
Ash	1.6	g/100g
Energy (kcal)	686	
Energy (kJ)	2824	
Cholesterol	57	mg/100g

**CARBOHYDRATES**

Glucose	0.3	g/100g
Fructose	0.4	g/100g
Sucrose	1.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	2.4	g/100g
Available carbohydrate	2.4	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	5.65	g/100g
cis-monounsaturated	45.51	g/100g
cis n-3 polyunsaturated	5.83	g/100g
cis n-6 polyunsaturated	14.10	g/100g
cis polyunsaturated	19.93	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	131	mg/100g
Potassium (K)	4	mg/100g
Calcium (Ca)	2	mg/100g
Magnesium (Mg)	0.3	mg/100g
Phosphorus (P)	5	mg/100g
Iron (Fe)	0.2	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	330	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)	7	µg/100g
Selenium (Se)	0.41	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	<0.001	mg/100g
Riboflavin	0.1	mg/100g
Niacin	<0.1	mg/100g
Tryptophan/60	0.1	mg/100g
Vitamin B <sub>6</sub>	0.09	mg/100g
Vitamin B <sub>12</sub>	0.3	µg/100g
Folate	9	µg/100g
Pantothenic acid	0.15	mg/100g
Biotin	0.7	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	78	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	<5	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>1</sup> Total vitamin A	78	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	22.10	mg/100g

<sup>1</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.



Sample 58: Baby rusks

**PROXIMATES**

Water	5.7	g/100g
Total Nitrogen	1.14	g/100g
Nitrogen conversion factor	5.70	
Protein	6.5	g/100g
Fat	10.7	g/100g
Ash	1.5	g/100g
Energy (kcal)	396	
Energy (kJ)	1674	
Cholesterol	3	mg/100g

**CARBOHYDRATES**

Glucose	2.3	g/100g
Fructose	1.4	g/100g
Sucrose	19.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	49.6	g/100g
Total sugars	23.4	g/100g
Available carbohydrate	73.0	g/100g
Fibre (Englyst)	2.1	g/100g
Fibre (AOAC)	2.4	g/100g

**FATTY ACIDS**

Saturated	4.59	g/100g
cis-monounsaturated	3.82	g/100g
cis n-3 polyunsaturated	0.07	g/100g
cis n-6 polyunsaturated	1.70	g/100g
cis polyunsaturated	1.77	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	88	mg/100g
Potassium (K)	240	mg/100g
<sup>1</sup> Calcium (Ca)	336	mg/100g
Magnesium (Mg)	29	mg/100g
Phosphorus (P)	108	mg/100g
<sup>1</sup> Iron (Fe)	6.5	mg/100g
Copper (Cu)	0.11	mg/100g
Zinc (Zn)	0.7	mg/100g
Chloride (Cl)	150	mg/100g
Manganese (Mn)	0.6	mg/100g
Iodine (I)	2	µg/100g
Selenium (Se)	6	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin		mg/100g
Riboflavin		mg/100g
Niacin	7.4	mg/100g
Tryptophan/60		mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>		µg/100g
Folate	22	µg/100g
Pantothenic acid	0.24	mg/100g
Biotin	0.5	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol		µg/100g
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.38	mg/100g

<sup>1</sup>Sub-samples within composite fortified with calcium and iron



Sample 59: Ice cream, non dairy, vanilla, soft scoop

**PROXIMATES**

Water	65.6	g/100g
Total Nitrogen	0.41	g/100g
Nitrogen conversion factor	6.38	
Protein	2.6	g/100g
Fat	7.7	g/100g
Ash	0.7	g/100g
Energy (kcal)	192	
Energy (kJ)	807	
Cholesterol	13	mg/100g

**CARBOHYDRATES**

Glucose	5.0	g/100g
Fructose	0.8	g/100g
Sucrose	11.4	g/100g
Maltose	1.1	g/100g
Lactose	5.3	g/100g
Galactose	<0.1	g/100g
Starch		g/100g
Total sugars	23.5	g/100g
<sup>1</sup> Available carbohydrate	29.8	g/100g
Oligosaccharides	6.3	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	5.01	g/100g
cis-monounsaturated	1.89	g/100g
cis n-3 polyunsaturated	0.01	g/100g
cis n-6 polyunsaturated	0.41	g/100g
cis polyunsaturated	0.42	g/100g
Trans	0.04	g/100g

**INORGANICS**

Sodium (Na)	76	mg/100g
Potassium (K)	178	mg/100g
Calcium (Ca)	80	mg/100g
Magnesium (Mg)	12	mg/100g
Phosphorus (P)	68	mg/100g
Iron (Fe)	0.4	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.2	mg/100g
Chloride (Cl)	130	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)	22	µg/100g
Selenium (Se)	1	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that no starch is present.

Sample 60: Ice cream, dairy, vanilla, soft scoop

**PROXIMATES**

Water	64.9	g/100g
Total Nitrogen	0.51	g/100g
Nitrogen conversion factor	6.38	
Protein	3.2	g/100g
Fat	8.2	g/100g
Ash	0.7	g/100g
Energy (kcal)	169	
Energy (kJ)	711	
Cholesterol	29	mg/100g

**CARBOHYDRATES**

Glucose	2.7	g/100g
Fructose	0.9	g/100g
Sucrose	11.9	g/100g
Maltose	1.5	g/100g
Lactose	5.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	22.0	g/100g
Available carbohydrate	22.0	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	5.19	g/100g
cis-monounsaturated	1.95	g/100g
cis n-3 polyunsaturated	0.08	g/100g
cis n-6 polyunsaturated	0.24	g/100g
cis polyunsaturated	0.32	g/100g
Trans	0.18	g/100g

**INORGANICS**

Sodium (Na)	63	mg/100g
Potassium (K)	163	mg/100g
Calcium (Ca)	104	mg/100g
Magnesium (Mg)	13	mg/100g
Phosphorus (P)	85	mg/100g
Iron (Fe)	0.1	mg/100g
Copper (Cu)	0.02	mg/100g
Zinc (Zn)	0.3	mg/100g
Chloride (Cl)	110	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)	30	µg/100g
Selenium (Se)	1	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g

Sample 61: Chocolate / choc mint and nut cone (e.g. Cornetto)

**PROXIMATES**

Water	41.9	g/100g
Total Nitrogen	0.56	g/100g
Nitrogen conversion factor	6.25	
Protein	3.5	g/100g
Fat	14.4	g/100g
Ash	0.8	g/100g
Energy (kcal)	292	
Energy (kJ)	1225	
Cholesterol	6	mg/100g

**CARBOHYDRATES**

Glucose	2.0	g/100g
Fructose	1.5	g/100g
Sucrose	19.1	g/100g
Maltose	2.0	g/100g
Lactose	3.3	g/100g
Galactose	<0.1	g/100g
Starch	11.7	g/100g
Total sugars	27.9	g/100g
Available carbohydrate	39.6	g/100g
Fibre (Englyst)	1.1	g/100g
Fibre (AOAC)	1.2	g/100g

**FATTY ACIDS**

Saturated	11.04	g/100g
cis-monounsaturated	2.01	g/100g
cis n-3 polyunsaturated	0.02	g/100g
cis n-6 polyunsaturated	0.62	g/100g
cis polyunsaturated	0.64	g/100g
Trans	0.03	g/100g

**INORGANICS**

Sodium (Na)	90	mg/100g
Potassium (K)	212	mg/100g
Calcium (Ca)	62	mg/100g
Magnesium (Mg)	33	mg/100g
Phosphorus (P)	88	mg/100g
Iron (Fe)	1.5	mg/100g
Copper (Cu)	0.13	mg/100g
Zinc (Zn)	0.4	mg/100g
Chloride (Cl)	140	mg/100g
Manganese (Mn)	0.3	mg/100g
Iodine (I)	17	µg/100g
Selenium (Se)	1	µg/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
Alpha - carotene	µg/100g
Beta - carotene	µg/100g
Beta - cryptoxanthin	µg/100g
Total vitamin A	Ret Equiv
Zeaxanthin	µg/100g
Lutein	µg/100g
Lycopene	µg/100g
Vitamin D	µg/100g
Vitamin E	mg/100g

Sample 62: Ice cream, luxury, dairy, with chocolate / caramel

**PROXIMATES**

Water	48.4	g/100g
Total Nitrogen	0.66	g/100g
Nitrogen conversion factor	6.38	
Protein	4.2	g/100g
Fat	13.9	g/100g
Ash	0.9	g/100g
Energy (kcal)	262	
Energy (kJ)	1100	
Cholesterol	58	mg/100g

**CARBOHYDRATES**

Glucose	1.2	g/100g
Fructose	1.2	g/100g
Sucrose	22.2	g/100g
Maltose	<0.1	g/100g
Lactose	3.8	g/100g
Galactose	<0.1	g/100g
Starch	2.9	g/100g
Total sugars	28.4	g/100g
Available carbohydrate	32.2	g/100g
Oligosaccharides	0.9	g/100g
Fibre (Englyst)	0.9	g/100g
Fibre (AOAC)	1.3	g/100g

**FATTY ACIDS**

Saturated	8.97	g/100g
cis-monounsaturated	3.12	g/100g
cis n-3 polyunsaturated	0.10	g/100g
cis n-6 polyunsaturated	0.49	g/100g
cis polyunsaturated	0.59	g/100g
Trans	0.23	g/100g

**INORGANICS**

Sodium (Na)	75	mg/100g
Potassium (K)	249	mg/100g
Calcium (Ca)	108	mg/100g
Magnesium (Mg)	27	mg/100g
Phosphorus (P)	110	mg/100g
Iron (Fe)	1.4	mg/100g
Copper (Cu)	0.15	mg/100g
Zinc (Zn)	0.6	mg/100g
Chloride (Cl)	160	mg/100g
Manganese (Mn)	0.2	mg/100g
Iodine (I)	17	µg/100g
Selenium (Se)	3	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.02	mg/100g
Riboflavin	0.8	mg/100g
Niacin	0.3	mg/100g
Tryptophan/60	0.9	mg/100g
Vitamin B <sub>6</sub>	<0.02	mg/100g
Vitamin B <sub>12</sub>	0.2	µg/100g
Folate	4	µg/100g
Pantothenic acid	0.36	mg/100g
Biotin	1.3	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	139	µg/100g
Alpha - carotene	<0.1	µg/100g
Beta - carotene	52	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	148	Ret Equiv
Zeaxanthin	5	µg/100g
Lutein	25	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	0.49	mg/100g

Sample 63: Luxury choc ices (e.g. Wall's Dream, Bounty, Magnum)

**PROXIMATES**

Water	40.4	g/100g
Total Nitrogen	0.60	g/100g
Nitrogen conversion factor	6.38	
Protein	3.9	g/100g
Fat	21.1	g/100g
Ash	1.0	g/100g
Energy (kcal)	336	
Energy (kJ)	1405	
Cholesterol	19	mg/100g

**CARBOHYDRATES**

Glucose	1.4	g/100g
Fructose	1.5	g/100g
Sucrose	23.9	g/100g
Maltose	<0.1	g/100g
Lactose	6.2	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	32.9	g/100g
Available carbohydrate	34.9	g/100g
Oligosaccharides	1.9	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	14.21	g/100g
cis-monounsaturated	5.00	g/100g
cis n-3 polyunsaturated	0.06	g/100g
cis n-6 polyunsaturated	0.56	g/100g
cis polyunsaturated	0.62	g/100g
Trans	0.11	g/100g

**INORGANICS**

Sodium (Na)	64	mg/100g
Potassium (K)	250	mg/100g
Calcium (Ca)	121	mg/100g
Magnesium (Mg)	27	mg/100g
Phosphorus (P)	119	mg/100g
Iron (Fe)	1.2	mg/100g
Copper (Cu)	0.15	mg/100g
Zinc (Zn)	0.5	mg/100g
Chloride (Cl)	140	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)	23	µg/100g
Selenium (Se)	3	µg/100g

**WATER SOLUBLE VITAMINS**

Thiamin	0.10	mg/100g
Riboflavin	0.17	mg/100g
Niacin	0.1	mg/100g
Tryptophan/60	0.7	mg/100g
Vitamin B <sub>6</sub>	0.13	mg/100g
Vitamin B <sub>12</sub>	0.3	µg/100g
Folate	7	µg/100g
Pantothenic acid	0.5	mg/100g
Biotin	1.9	µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	470	µg/100g
Alpha - carotene	30	µg/100g
Beta - carotene	174	µg/100g
Beta - cryptoxanthin	<0.1	µg/100g
Total vitamin A	502	µg/100g
Zeaxanthin	<0.1	µg/100g
Lutein	<0.1	µg/100g
Lycopene	<0.1	µg/100g
Vitamin D	<0.1	µg/100g
Vitamin E	0.71	mg/100g

Sample 64: Butter, spreadable (75-80% fat)

**PROXIMATES**

Water	18.7	g/100g
Total Nitrogen	0.06	g/100g
Nitrogen conversion factor	6.38	
Protein	0.4	g/100g
Fat	79.1	g/100g
Ash	1.2	g/100g
Energy (kcal)	715	
Energy (kJ)	2941	
Cholesterol	153	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	<0.1	g/100g
Lactose	0.5	g/100g
Galactose	<0.1	g/100g
Starch		g/100g
Total sugars	0.5	g/100g
<sup>1</sup> Available carbohydrate	0.5	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	34.15	g/100g
cis-monounsaturated	28.17	g/100g
cis n-3 polyunsaturated	2.55	g/100g
cis n-6 polyunsaturated	7.45	g/100g
cis polyunsaturated	10.00	g/100g
Trans	1.38	g/100g

**INORGANICS**

Sodium (Na)	484	mg/100g
Potassium (K)	16	mg/100g
Calcium (Ca)	11	mg/100g
Magnesium (Mg)	1	mg/100g
Phosphorus (P)	12	mg/100g
Iron (Fe)	0.04	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	720	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)	4	µg/100g
Selenium (Se)	<0.012	µg/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>	0.1	µg/100g
Folate		µg/100g
Pantothenic acid		mg/100g
Biotin		µg/100g
Vitamin C		mg/100g

**FAT SOLUBLE VITAMINS**

All-trans retinol	521	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	243	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>2</sup> Total vitamin A	562	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	10.5	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that no starch is present.

<sup>2</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.

Sample 65: Butter, spreadable, light (60% fat)

**PROXIMATES**

Water	37.3	g/100g
Total Nitrogen	0.08	g/100g
Nitrogen conversion factor	6.38	
Protein	0.5	g/100g
Fat	60.2	g/100g
Ash	1.2	g/100g
Energy (kcal)	547	
Energy (kJ)	2248	
Cholesterol	111	mg/100g

**CARBOHYDRATES**

Glucose	<0.1	g/100g
Fructose	<0.1	g/100g
Sucrose	<0.1	g/100g
Maltose	<0.1	g/100g
Lactose	0.8	g/100g
Galactose	<0.1	g/100g
Starch		g/100g
Total sugars	0.8	g/100g
<sup>1</sup> Available carbohydrate	0.8	g/100g
Fibre (Englyst)		g/100g
Fibre (AOAC)		g/100g

**FATTY ACIDS**

Saturated	25.70	g/100g
cis-monounsaturated	21.67	g/100g
cis n-3 polyunsaturated	1.93	g/100g
cis n-6 polyunsaturated	5.83	g/100g
cis polyunsaturated	7.75	g/100g
Trans	1.01	g/100g

**INORGANICS**

Sodium (Na)	467	mg/100g
Potassium (K)	26	mg/100g
Calcium (Ca)	17	mg/100g
Magnesium (Mg)	0.06	mg/100g
Phosphorus (P)	15	mg/100g
Iron (Fe)	0.3	mg/100g
Copper (Cu)	<0.001	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	680	mg/100g
Manganese (Mn)	<0.0001	mg/100g
Iodine (I)	8	µg/100g
Selenium (Se)	1	µg/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	380	µg/100g
Alpha - carotene		µg/100g
Beta - carotene	342	µg/100g
Beta - cryptoxanthin		µg/100g
<sup>2</sup> Total vitamin A	437	Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	8.27	mg/100g

<sup>1</sup>Available carbohydrate calculated on the assumption (based on sub-sample ingredients and product information) that no starch is present.

<sup>2</sup>Total vitamin A calculated assuming (based on sub-sample ingredients and product information) that alpha-carotene and cryptoxanthins are not present.



Sample 66: Coleslaw, purchased, economy products only

**PROXIMATES**

Water	80.8	g/100g
Total Nitrogen	0.14	g/100g
Nitrogen conversion factor	6.25	
Protein	0.9	g/100g
Fat	9.1	g/100g
Ash	0.9	g/100g
Energy (kcal)	110	
Energy (kJ)	456	
Cholesterol	12	mg/100g

**CARBOHYDRATES**

Glucose	1.6	g/100g
Fructose	1.3	g/100g
Sucrose	3.7	g/100g
Maltose	<0.1	g/100g
Lactose	<0.1	g/100g
Galactose	<0.1	g/100g
Starch	<0.1	g/100g
Total sugars	6.5	g/100g
Available carbohydrate	6.5	g/100g
Fibre (Englyst)	1.8	g/100g
Fibre (AOAC)	1.6	g/100g

**FATTY ACIDS**

Saturated	0.73	g/100g
cis-monounsaturated	5.51	g/100g
cis n-3 polyunsaturated	0.73	g/100g
cis n-6 polyunsaturated	1.63	g/100g
cis polyunsaturated	2.36	g/100g
Trans	0.01	g/100g

**INORGANICS**

Sodium (Na)	197	mg/100g
Potassium (K)	175	mg/100g
Calcium (Ca)	40	mg/100g
Magnesium (Mg)	8	mg/100g
Phosphorus (P)	20	mg/100g
Iron (Fe)	0.2	mg/100g
Copper (Cu)	0.02	mg/100g
Zinc (Zn)	0.1	mg/100g
Chloride (Cl)	320	mg/100g
Manganese (Mn)	0.1	mg/100g
Iodine (I)		µg/100g
Selenium (Se)	1	µg/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
Alpha - carotene		µg/100g
Beta - carotene		µg/100g
Beta - cryptoxanthin		µg/100g
Total vitamin A		Ret Equiv
Zeaxanthin		µg/100g
Lutein		µg/100g
Lycopene		µg/100g
Vitamin D		µg/100g
Vitamin E	1.41	mg/100g



# Analytical Methods

## **Moisture:**

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

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

Ref: BS 4401 pt3:1997

LOQ 0.1 g/100g

## **Ash:**

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

## **Protein:**

The sample is analysed using Leco instrumentation following the 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

## **Fat:**

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 (Weibull Stoldt)

LOQ 0.1 g/100g

## **Fatty acids:**

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

## **Sugars:**

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

**Starch:**

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 ±2°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

**Oligosaccharides:**

Malto-oligosaccharides (DP1-7) are determined individually by High Performance Anion Exchange Chromatography with Pulsed Amperometric Detection. In-house method

LOQ 0.1 g/100g

**Dietary Fibre:**

**AOAC**

The sample is weighed and de-fatted if necessary. It is then gelatinised and treated with α-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

**Englyst (Non-starch polysaccharides)**

Englyst Fibrezym kit with colorimetric end point

LOQ 0.2 g/100g

**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

**Inorganics:**

**Sodium, Potassium, Calcium, Magnesium, Copper, Iron, Manganese, Zinc, Phosphorus, Selenium**

Samples are digested in acid under oxidising conditions, using sealed 'bombs' in automated microwave digestors, to prevent losses of volatile metals/inorganics, Metals (and some inorganics) are then determined by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) or by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). These techniques allow the sensitive and accurate (true and precise) determination of metals in foods and allow matrix interferences to be overcome.

In house methods - UKAS accredited.

**Iodide:**

Concentrations are determined by high resolution ICP-MS after extraction with tetra methyl ammonium hydroxide.

UKAS accredited.

**Chloride:**

Concentrations are determined using a Corning Chloride Analyser after extraction with nitric acid.

In house method FFF/B1-2104 - UKAS accredited.

**Vitamins – Water Soluble:**

**Thiamin, Riboflavin & Vitamin B6**

Thiamin, riboflavin and Vitamin B6 are determined by HPLC after appropriate and controlled acid and enzymatic hydrolysis. The methods are based on published CEN Standards. The selected method enables determination of total B6 as pyridoxine and is most appropriate to samples of this type where pyridoxine or its phosphate will form the major vitamin B6 component.

UKAS accredited.

**Niacin, Total Folate, Biotin, Pantothenic acid**

Determined using microbiological assay (MBA) procedures with detection carried out using VitaFast® MBA test kits.

UKAS accredited.

**Tryptophan**

Determined by HPLC using fluorescence detection after alkaline hydrolysis. Tryptophan contributes to the available Niacin on the basis that Niacin = Tryptophan/60.

**Vitamin B12**

Vitamin B12 is extracted from food by autoclaving in acetate buffer in the presence of cyanide. Vitamin B12 is determined by microbiological assay using *L.Delbrueckii.Lactis*.

UKAS accredited.

The B-vitamin results are expressed as follows:

Thiamin:	thiamin chloride hydrochloride
Riboflavin:	free riboflavin
Niacin:	nicotinic acid
Vitamin B6:	pyridoxine hydrochloride
Pantothenate:	pantothenic acid
Biotin:	d-biotin
B12:	cyanocobalamin
Total folate:	pteroylglutamic acid

**Vitamin C**

Vitamin C is determined by HPLC using fluorescence detection.

**Oil Soluble Vitamins:**

Vitamins A, D, E and the carotenoids are determined using an in house procedure involving saponification of the sample, solvent extraction and HPLC determination - UKAS accredited methods based on:

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

- Vitamin A – Retinol: BS EN 12823-1:2000. Foodstuffs-Determination of Vitamin A by High Performance Liquid Chromatography-Part 1: Measurement of Retinol.
- Vitamin A –  $\beta$ -Carotene: BS EN 12823-2:2000. Foodstuffs-Determination of Vitamin A by High Performance Liquid Chromatography-Part 2: Measurement of  $\beta$ -Carotene.
- Vitamin D: BS EN 12821:2000. Foodstuffs-Determination of Vitamin D by High Performance Liquid Chromatography-Measurement of Cholecalciferol (D3) and Ergocalciferol (D2).
- Vitamin E: BS EN 12822:2000. Foodstuffs-Determination of Vitamin E by High Performance Liquid Chromatography-Measurement of  $\alpha$ -,  $\beta$ -,  $\gamma$ - and  $\delta$ -tocopherols.

The total vitamin E figure takes into account the relative biological activities of the different isomers. Vitamin E is given as mg/100g of  $\alpha$  - tocopherol equivalent. The activities used for these calculations are as shown below:

$\alpha$ - tocopherol	1.0
$\beta$ - tocopherol	0.4
$\gamma$ - tocopherol	0.1
$\delta$ - tocopherol	0.01

Total vitamin A is expressed as ug/100g all-trans retinol equivalent (ATRE) and is calculated as follows:

All-trans retinol + (0.75\*13-cis retinol) +(  $\beta$ -carotene/6) +(other active carotenoids/12)

UKAS accredited.

# 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 proximates and fatty acids 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 (ie 95% confidence level)

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

## 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

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

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 (ie 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

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

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

### **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 (ie 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



## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

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 (ie 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



## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

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 (ie 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 (ie 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

#### 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

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

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 °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 (ie 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 (ie 95% confidence level)

Fatty Acid	Matrix	Level	Uncertainty ±	Unit
FAMES-saturates	Butter	63.6	1.60	%
FAMES-monounsaturates	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	%
Eicosapentaenoic 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 of a range of processed foods with particular reference to *trans* fatty acids

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
14	87	11/09	Mixed fat spread	Total TFA	-0.5
14	93	07/10	Cereal product	Total TFA	0.5
14	95	08/10	Mixed fat spread	Total TFA	0.1

### 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

Listed below are details of the analytical methods used in the analysis of inorganics and vitamins and the quality control procedures used with results from reference material measurements during sample analysis.

### Inorganics:

#### Sodium, Potassium, Calcium, Magnesium, Copper, Iron, Manganese, Zinc, Phosphorus, Selenium

Samples are digested in acid under oxidising conditions, using sealed 'bombs' in automated microwave digestors, to prevent losses of volatile metals/inorganics, Metals (and some inorganics) are then determined by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) or by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). These techniques allow the sensitive and accurate (true and precise) determination of metals in foods and allow matrix interferences to be overcome.

In house methods - UKAS accredited.

#### Sodium

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
LGC7160	Crab paste	2170±150	2303.6
LGC7160	Crab paste	2170±150	2307.8
LGC7160	Crab paste	2170±150	2300.1

#### Potassium

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
LGC7160	Crab paste	1980±82.5	1973.7
LGC7160	Crab paste	1980±82.5	2055.7
LGC7160	Crab paste	1980±82.5	2047.1
LGC7160	Crab paste	1980±82.5	2065.5
LGC7160	Crab paste	1980±82.5	1990.3
LGC7160	Crab paste	1980±82.5	2041.1

#### Calcium

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
LGC7160	Crab paste	2150±412.5	2190.4
LGC7160	Crab paste	2150±412.5	2260.1
LGC7160	Crab paste	2150±412.5	2146.4
LGC7160	Crab paste	2150±412.5	2323.5
LGC7160	Crab paste	2150±412.5	2360.6
LGC7160	Crab paste	2150±412.5	2361.7

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

### Magnesium

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
LGC7160	Crab paste	348±33	364.4
LGC7160	Crab paste	348±33	352.0
LGC7160	Crab paste	348±33	346.7
LGC7160	Crab paste	348±33	352.8
LGC7160	Crab paste	348±33	375.1
LGC7160	Crab paste	348±33	321.9

### Copper

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
TORT-2	Lobster	106±15	91.42
TORT-2	Lobster	106±15	91.07
TORT-2	Lobster	106±15	93.66
TORT-2	Lobster	106±15	94.31
TORT-2	Lobster	106±15	91.61
TORT-2	Lobster	106±15	93.72
TORT-2	Lobster	106±15	95.19

### Iron

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
TORT-2	Lobster	105±19.5	98.70
TORT-2	Lobster	105±19.5	95.60
TORT-2	Lobster	105±19.5	94.50
TORT-2	Lobster	105±19.5	97.04
TORT-2	Lobster	105±19.5	93.58
TORT-2	Lobster	105±19.5	96.51
TORT-2	Lobster	105±19.5	95.19

### Manganese

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
TORT-2	Lobster	13.6±1.8	12.27
TORT-2	Lobster	13.6±1.8	12.13
TORT-2	Lobster	13.6±1.8	12.99
TORT-2	Lobster	13.6±1.8	12.37
TORT-2	Lobster	13.6±1.8	11.81
TORT-2	Lobster	13.6±1.8	12.23
TORT-2	Lobster	13.6±1.8	12.34

### Zinc

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
LGC7160	Crab paste	53.6±6.9	55.77
LGC7160	Crab paste	53.6±6.9	55.27
LGC7160	Crab paste	53.6±6.9	56.23

### Phosphorus

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
LGC7160	Crab paste	2965±397	2682.5
LGC7160	Crab paste	2965±397	2671.8
LGC7160	Crab paste	2965±397	2688.9

### Selenium

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
TORT-2	Lobster	5.63±1.005	5.49
TORT-2	Lobster	5.63±1.005	5.44
TORT-2	Lobster	5.63±1.005	5.34
TORT-2	Lobster	5.63±1.005	5.61
TORT-2	Lobster	5.63±1.005	5.58
TORT-2	Lobster	5.63±1.005	6.33

### Iodide:

Concentrations are determined by high resolution ICP-MS after extraction with tetra methyl ammonium hydroxide.

UKAS accredited.

Reference Material	Matrix	Expected Level (µg/g)	Spike Level (µg/g)	Recovery (%)	Iodide (µg/g)
BCR 063R	Milk powder	0.81±0.05	0.81	102.6	0.84
BCR 063R	Milk powder	0.81±0.05	0.81	92.4	0.83
BCR 063R	Milk powder	0.81±0.05	0.81	95.6	0.84

### Chloride:

Concentrations are determined using a Corning Chloride Analyser after extraction with nitric acid.

In house method FFF/B1-2104 - UKAS accredited.

### Sodium Chloride

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
SMRD 2000	Swedish meat	2.19±0.13	2.17

### Vitamins – Water Soluble:

The B-vitamin results are expressed as follows:

Thiamin: thiamin chloride hydrochloride

Riboflavin: free riboflavin

Niacin: nicotinic acid

Vitamin B6: pyridoxine hydrochloride

Pantothenate: pantothenic acid

Biotin: d-biotin

B12: cyanocobalamin

Total folate: pteroylglutamic acid

### Thiamin, Riboflavin & Vitamin B6

Thiamin, riboflavin and Vitamin B6 are determined by HPLC after appropriate and controlled acid and enzymatic hydrolysis. The methods are based on published CEN Standards. The selected method enables determination of total B6 as pyridoxine and is most appropriate to samples of this type where pyridoxine or its phosphate will form the major vitamin B6 component.

UKAS accredited.

## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

### Thiamin

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Thiamin (mg/kg)
NIST 1849	Infant formula	15.800±1.95	15	88	15.26
NIST 1849	Infant formula	15.800±1.95	15	94	16.86
NIST 1849	Infant formula	15.800±1.95	15	90	15.55
NIST 1849	Infant formula	15.800±1.95	15	97	16.78

### Riboflavin

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Riboflavin (mg/kg)
NIST 1849	Infant formula	17.400±1.50	20	95	17.910
NIST 1849	Infant formula	17.400±1.50	20	101	17.855
NIST 1849	Infant formula	17.400±1.50	20	92	16.450
NIST 1849	Infant formula	17.400±1.50	20	94	16.460

### Vitamin B6

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Vitamin B6 (mg/kg)
NIST 1849	Infant formula	14.2±2.25	10	89	15.680
NIST 1849	Infant formula	14.2±2.25	10	95	15.870
NIST 1849	Infant formula	14.2±2.25	-	-	15.330
NIST 1849	Infant formula	14.2±2.25	-	-	14.447

### Niacin, Total Folate, Biotin, Pantothenic acid

Determined using microbiological assay (MBA) procedures with detection carried out using VitaFast® MBA test kits.

UKAS accredited.

### Niacin

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Niacin (mg/kg)
NIST 1849	Infant formula	97.5±11.7	50	100	95.400
NIST 1849	Infant formula	97.5±11.7	50	110	92.000
NIST 1849	Infant formula	97.5±11.7	50	112	109.300
NIST 1849	Infant formula	97.5±11.7	50	95	72.000
NIST 1849	Infant formula	97.5±11.7	50	99	92.000
NIST 1849	Infant formula	97.5±11.7	50	104	95.090
NIST 1849	Infant formula	97.5±11.7	50	104	104.600

### Folate

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Folate (mg/kg)
BCR-485	Mixed Vegetables	3.150±0.84	3	150	3.010
BCR-485	Mixed Vegetables	3.150±0.84	3	100	3.200
BCR-485	Mixed Vegetables	3.150±0.84	3	120	2.950
BCR-485	Mixed Vegetables	3.150±0.84	3	80	2.480
BCR-485	Mixed Vegetables	3.150±0.84	3	70	3.650
BCR-485	Mixed Vegetables	3.150±0.84	3	120	3.990
NIST 1849	Infant formula	2.11±0.195	3	110	2.188



## Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

NIST 1849	Infant formula	2.11±0.195	3	130	2.023
NIST 1849	Infant formula	2.11±0.195	3	100	1.985
NIST 1849	Infant formula	2.11±0.195	3	90	2.222

### Biotin

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Biotin (mg/kg)
NIST 1849	Infant formula	1.920±0.375	1.00	95	1.180
NIST 1849	Infant formula	1.920±0.375	1.00	120	1.640

### Pantothenate

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Pantothenate (mg/kg)
NIST 1849	Infant formula	64.8±3.3	50	85	62.600
NIST 1849	Infant formula	64.8±3.3	50	110	65.800
NIST 1849	Infant formula	64.8±3.3	50	94	67.126

### Tryptophan

Determined by HPLC using fluorescence detection after alkaline hydrolysis. Tryptophan contributes to the available Niacin on the basis that Niacin = Tryptophan/60.

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Tryptophan (mg/kg)
NIST 1849	Infant formula	1880±15	1990	110	1780
NIST 1849	Infant formula	1880±15	1990	105	1820
NIST 1849	Infant formula	1880±15	1990	90	1800
NIST 1849	Infant formula	1880±15	1990	95	1920

### Vitamin B12

Vitamin B12 is extracted from food by autoclaving in acetate buffer in the presence of cyanide. Vitamin B12 is determined by microbiological assay using *L.Delbrueckii.Lactis*. UKAS accredited.

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Vitamin B12 (mg/kg)
NIST 1849	Infant formula	0.041±0.012	0.010	100	0.041
NIST 1849	Infant formula	0.041±0.012	0.010	101	0.035
NIST 1849	Infant formula	0.041±0.012	0.010	100	0.045
NIST 1849	Infant formula	0.041±0.012	0.010	99	0.032
NIST 1849	Infant formula	0.041±0.012	0.010	105	0.042
NIST 1849	Infant formula	0.041±0.012	0.010	97	0.043

### Vitamin C

Vitamin C is determined by HPLC using fluorescence detection.

Reference Material	Matrix	Expected Level (mg/kg)	Spike Level (mg/kg)	Recovery (%)	Vitamin C (mg/kg)
BCR 431	Brussel Sprouts	4830±360	3000	90	4780



### Oil Soluble Vitamins:

Vitamins A, D, E and the carotenoids are determined using an in house procedure involving saponification of the sample, solvent extraction and HPLC determination - UKAS accredited methods based on:

- Vitamin A – Retinol: BS EN 12823-1:2000. Foodstuffs-Determination of Vitamin A by High Performance Liquid Chromatography-Part 1: Measurement of Retinol.
- Vitamin A –  $\beta$ -Carotene: BS EN 12823-2:2000. Foodstuffs-Determination of Vitamin A by High Performance Liquid Chromatography-Part 2: Measurement of  $\beta$ -Carotene.
- Vitamin D: BS EN 12821:2000. Foodstuffs-Determination of Vitamin D by High Performance Liquid Chromatography-Measurement of Cholecalciferol (D3) and Ergocalciferol (D2).
- Vitamin E: BS EN 12822:2000. Foodstuffs-Determination of Vitamin E by High Performance Liquid Chromatography-Measurement of  $\alpha$ -,  $\beta$ -,  $\gamma$ - and  $\delta$ -tocopherols.

UKAS accredited.

### Vitamin A

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
BCR-122	Margarine	7.660±1.650	8.321
BCR-122	Margarine	7.660±1.650	7.880
BCR-122	Margarine	7.660±1.650	7.220
BCR-122	Margarine	7.660±1.650	8.320
BCR-122	Margarine	7.660±1.650	8.120
BCR-122	Margarine	7.660±1.650	7.160
BCR-122	Margarine	7.660±1.650	7.460
BCR-122	Margarine	7.660±1.650	8.520

### Beta-carotene

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
BCR-485	Mixed vegetables	25.6±1.8	24.9
BCR-485	Mixed vegetables	25.6±1.8	26.5
BCR-485	Mixed vegetables	25.6±1.8	25.9
BCR-485	Mixed vegetables	25.6±1.8	24.0

### Alpha-carotene

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
BCR-485	Mixed vegetables	9.8±1.05	9.0

### Lutein

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
BCR-485	Mixed vegetables	12.5±1.2	11.7

### Vitamin D

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
BCR-122	Margarine	0.125±0.036	0.126
BCR-122	Margarine	0.125±0.036	0.142
BCR-122	Margarine	0.125±0.036	0.127
BCR-122	Margarine	0.125±0.036	0.117
BCR-122	Margarine	0.125±0.036	0.119

Nutrient analysis of a range of processed foods with particular reference to *trans* fatty acids

BCR-122	Margarine	0.125±0.036	0.117
BCR-122	Margarine	0.125±0.036	0.153
BCR-122	Margarine	0.125±0.036	0.117
BCR-122	Margarine	0.125±0.036	0.113
BCR-122	Margarine	0.125±0.036	0.116
BCR-122	Margarine	0.125±0.036	0.101

**Vitamin E**

Reference Material	Matrix	Expected Level (mg/kg)	Measured Level (mg/kg)
BCR-122	Margarine	241±54	255.52
BCR-122	Margarine	241±54	242.94
BCR-122	Margarine	241±54	206.18
BCR-122	Margarine	241±54	207.69
BCR-122	Margarine	241±54	251.08
BCR-122	Margarine	241±54	191.09
BCR-122	Margarine	241±54	214.93
BCR-122	Margarine	241±54	217.83

# References

<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 sample number 40 was withdrawn at the initial planning stage and was not analysed due to lack of products on the market.