

Materiali Certificati di Riferimento per analisi di alimenti

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Latte e derivati

LGC7104 (RM) Sterilised cream - Proximates and nutrient elements

Assessed values

Ca 845 mg/kg P.....823 mg/kg Total fat..... 22.7 g/100 g
 K 1160 mg/kg Zn3.1 mg/kg Ash..... 0.58 g/100 g
 Mg..... 84 mg/kg Moisture.....70.2 g/100 g
 Na 505 mg/kg Nitrogen.....0.40 g/100 g

Indicative values for Cl, Lactose

5 x 170 g

LGC7106 (RM) Processed cheese - Proximates

Assessed values

Moisture 46.1 g/100 g Total fat27.0 g/100 g
 Nitrogen 2.98 g/100 g Ash5.3 g/100 g

5 x 220 g

BCR-063R Skim milk powder - Major and trace elements

Natural elemental levels in milk.

Certified values

Ca 13.49 g/kg I0.81m g/kg Na 4.37 g/kg
 Cl 9.94 g/kg K.....17.68 g/kg P 11.10 g/kg
 Cu 0.602m g/kg Mg1.263 g/kg Pb 18.5µg/kg
 Fe..... 2.32m g/kg N (total).....62.3 g/kg Zn..... 49.0m g/kg

Indicative values for Mo, N(Kjeldahl), Se

50 g

BCR-150 Spiked skim milk powder - Trace elements

Milk spiked with Cd, Cu, Fe and Hg.

Certified values

Cd 21.8 µg/kg Fe11.8 mg/kg I 1.29 mg/kg
 Cu 2.23 mg/kg Hg.....9.4 µg/kg Pb 1.00 mg/kg

Indicative values for Co, Mn, Ni, Se, Tl, Zn

23 g

BCR-151 Spiked skim milk powder - Trace elements

Milk spiked with Cd, Cu, Fe and Hg.

Certified values

Cd 101.0 µg/kg Fe50.1 mg/kg I 5.35 mg/kg
 Cu 5.23 mg/kg Hg.....101 µg/kg Pb 2002 mg/kg

Indicative values for Co, Mn, Ni, Se, Tl, Zn

23 g

BCR-421 Milk powder - Vitamins

Spiked spray-dried powder.

Certified values

B1 (thiamin) 6.51 mg/kg B120.034 mg/kg E (tocopherol) 99 mg/kg
 B2 (riboflavin)..... 14.5 mg/kg C (total ascorbate).....769 mg/kg Folate (total)..... 1.42 mg/kg
 B6 (total pyridoxine) .. 6.66 mg/kg D3 (cholecalciferol)..0.143 mg/kg Niacin..... 68 mg/kg

50 g

NIST-1549 Non-fat milk powder - Trace elements

Certified values

Ca1.30 % Fe1.78 mg/kg P1.06 %
 Cd 0.0005 mg/kg Hg.....0.0003 mg/kg Pb 0.019 mg/kg
 Cl1.09 % K..... 1.69 % S0.351 %
 Cr 0.0026 mg/kg Mg 0.120 % Se 0.11 mg/kg
 Cu 0.7 mg/kg Mn0.26 mg/kg Zn..... 46.1 mg/kg
 I 3.38 mg/kg Na..... 0.497 %

Indicative values for Ag, Al, As, Br, Co, F, Mo, Rb, Sb, Sn

100 g

NIST-RM 8435 Whole milk powder - Trace elements, proximates and nutrients

Reference values for major, minor and trace constituent elements, proximates, fatty acids, calories and selected vitamins.

Indicative values for additional elements, fatty acids and vitamins

40 g

NIST-1846 Whole milk powder - Trace elements, proximates and nutrients

Certified values

Vitamin A (as *trans*-retinol)5.84 mg/kg Vitamin B6 8.4 mg/kg
 Vitamin E (as α -tocopherol)271 mg/kg Niacin 63.3 mg/kg
 Vitamin C.....1146 mg/kg Iodine 1.11 mg/kg
 Vitamin B217.4 mg/kg

Indicative values for proximates, calories, additional vitamins, minerals and trace elements

10 x 30 g

ARC/CL1 Skim milk powder - Trace elements

A homogeneous spray-dried milk powder containing 2.0% fat.

Certified values

Ca 13.00 mg/g Hg.....<1 ng/g Pb 16 ng/g
 Cd <5 ng/g Mg1.23 mg/g Se 82 ng/g
 Cu 0.59 μ g/g Mn0.44 μ g/g Zn..... 41.68 μ g/g
 Fe..... 4.54 μ g/g Mo0.49 μ g/g

50 g

IAEA-153 Milk powder - Trace elements

Certified values

Br 12.3 mg/kg K.....17620 mg/kg P 10100 mg/kg
 Ca 12870 mg/kg Mg1060 mg/kg Rb 14 mg/kg
 Fe..... 2.53 mg/kg Na.....4180 mg/kg Zn..... 39.6 mg/kg

Indicative values for Cu, Mn, Mo, Sr

50 g

IAEA-155 Whey powder - Trace elements

Certified values

Br 39.1 mg/kg Hg.....0.0026 mg/kg Pb 0.104 mg/kg
 Cd 0.016 mg/kg Mg3190 mg/kg Rb 39.2 mg/kg
 Cl 69200 mg/kg Mn9.3 mg/kg Sc..... 0.028 mg/kg
 Co 0.0427 mg/kg Na.....15.8 mg/kg Se 0.064 mg/kg
 Cr 0.59 mg/kg Ni0.54 mg/kg Zn..... 34.3 mg/kg
 Cs 0.086 mg/kg P.....16210 mg/kg

Indicative values for Al, As, B, Ca, Cu, Fe, K, S, Sr

50 g

BCR-282 Whole milk powder - Aflatoxin M1 (very low level)

Certified value

Aflatoxin M1 <0.05 μ g/kg (probable content is in the range 0.01 to 0.02 μ g/kg)

25 g

BCR-283 Whole milk powder - Aflatoxin M1 (low level)

Certified value

Aflatoxin M1 0.09 μ g/kg

25 g

BCR-187 Natural milk powder - Pesticides

Compound	Certified value μ g/kg	Uncertainty μ g/kg
HCB	1.50.....	0.2
alpha-HCH.....	1.8.....	0.14
gamma-HCH.....	5.7.....	0.7
4,4'-DDE	6.6.....	0.6

20 g

BCR-188 Milk powder (spiked) - Pesticides

Compound	Certified value	Uncertainty
	µg/kg	µg/kg
HCB	37.4.....	2.7
alpha-HCH.....	20.0.....	0.9
beta-HCH.....	12.0.....	1.2
gamma-HCH.....	45.4.....	2.9
beta-Heptachlor epoxide.....	32.0.....	1.8
4,4'-DDE	51.3.....	3.5
Dieldrin.....	36.1.....	2.4
Endrin	6.2.....	0.9
4,4'-DDT	69.0.....	4.6

20 g

BCR-450 Natural milk powder - PCBs

Compound	Certified value	Uncertainty
	µg/kg	µg/kg
PCB 52	1.16.....	0.17
PCB 118	3.3.....	0.4
PCB 153	19.0.....	0.7
PCB 156	1.62.....	0.2
PCB 170	4.8.....	0.6
PCB 180	11.0.....	0.7

20 g

BCR-532 (RM) Unspiked milk powder - PCDDs and PCDFs (blank)

Non certified values

	ng/kg		ng/kg		ng/kg
2,3,7,8-TCDD.....	0.10	1,2,3,7,8,9-HxCDD.....	0.16	1,2,3,4,7,8-HxCDF.....	0.34
1,2,3,7,8-PeCDD	0.29	2,3,7,8-TCDF.....	0.16	1,2,3,6,7,8-HxCDF.....	0.34
1,2,3,4,7,8-HxCDD	0.17	1,2,3,7,8-PeCDF	0.1	2,3,4,6,7,8-HxCDF.....	0.39
1,2,3,6,7,8-HxCDD	0.43	2,3,4,7,8-PeCDF	0.67		

60 g

BCR-533 (RM) Spiked milk powder - PCDDs and PCDFs (lower level)

Non certified values

	ng/kg		ng/kg		ng/kg
2,3,7,8-TCDD.....	0.42	1,2,3,7,8,9-HxCDD.....	0.47	1,2,3,4,7,8-HxCDF.....	1.06
1,2,3,7,8-PeCDD	0.86	2,3,7,8-TCDF.....	0.39	1,2,3,6,7,8-HxCDF.....	1.03
1,2,3,4,7,8-HxCDD	0.56	1,2,3,7,8-PeCDF	0.1	2,3,4,6,7,8-HxCDF.....	1.22
1,2,3,6,7,8-HxCDD	1.27	2,3,4,7,8-PeCDF	1.96		

60 g

BCR-534 (RM) Spiked milk powder - PCDDs and PCDFs (higher level)

Non certified values

	ng/kg		ng/kg		ng/kg
2,3,7,8-TCDD.....	0.65	1,2,3,7,8,9-HxCDD.....	0.80	1,2,3,4,7,8-HxCDF.....	1.75
1,2,3,7,8-PeCDD	1.44	2,3,7,8-TCDF.....	0.65	1,2,3,6,7,8-HxCDF.....	1.55
1,2,3,4,7,8-HxCDD	0.80	1,2,3,7,8-PeCDF	0.15	2,3,4,6,7,8-HxCDF.....	1.90
1,2,3,6,7,8-HxCDD	1.92	2,3,4,7,8-PeCDF	3.16		

60 g

BCR-607 Natural spray dried milk powder - PCDDs and PCDFs

Compound	Certified value	Uncertainty
ng/kg ng/kg		
2,3,7,8-TCDD.....	0.25.....	0.03
1,2,3,7,8-PeCDD	0.79.....	0.04
1,2,3,4,7,8-HxCDD	0.42.....	0.07
1,2,3,6,7,8-HxCDD	0.98.....	0.11
1,2,3,7,8,9-HxCDD	0.34.....	0.05
2,3,7,8-TCDF.....	0.05.....	0.03
1,2,3,7,8-PeCDF.....	0.054.....	0.013
2,3,4,7,8-PeCDF.....	1.81.....	0.13
1,2,3,4,7,8-HxCDF.....	0.94.....	0.04

1,2,3,6,7,8-HxCDF.....	1.01.....	0.09
2,3,4,6,7,8-HxCDF.....	1.07.....	0.05
100 g		

IAEA-152 Milk powder - Radioactive isotopes

Certified values

134Cs.....	764 Bq/kg 40K	539 Bq/kg
137Cs.....	2129 Bq/kg 90Sr	7.7 Bq/kg
250 g		

IAEA-321 Milk powder - Radioactive isotopes

Certified values

134Cs.....	15.5 Bq/kg 40K	552 Bq/kg
137Cs.....	72.6 Bq/kg 90S	3.3 Bq/kg
250 g		

IAEA-154 Whey powder - Radioactive isotopes

Certified values

134Cs.....	1355 Bq/kg 40K	1575 Bq/kg
137Cs.....	3749 Bq/kg 90S	6.9 Bq/kg
250 g		

BCR-519 Anhydrous butter fat - Triglycerides

Triglyceride contents of an anhydrous butter fat with additional value for free cholesterol.

Compound

	Certified value mass fraction (%)	Uncertainty mass fraction (%)
Cholesterol.....	0.30.....	0.03
C24	0.05.....	0.02
C26	0.25.....	0.03
C28	0.59.....	0.04
C30	1.15.....	0.05
C32	2.43.....	0.12
C34	5.64.....	0.18
C36	10.47.....	0.19
C38	12.53.....	0.22
C40	10.03.....	0.16
C42	6.69.....	0.10
C44	6.11.....	0.08
C46	6.86.....	0.08
C48	8.69.....	0.15
C50	11.40.....	0.24
C52	10.96.....	0.25
C54	5.89.....	0.13

2 amp.

NIST-2387 Peanut butter - Fat, fatty acids, trace elements and tocopherols

This Standard Reference Material. (SRM.) is intended primarily for use in validating methods for determining proximates, fatty acids, calories, vitamins, elements, amino acids, and aflatoxins in peanut butter and similar matrices.

Certified concentrations for fat and selected fatty acids

	Mass fraction (%)
Fat (extractable) 51.6 ± 1.4	
Fat (sum of fatty acids)	49.8 ± 1.9
Saturated fat	10.4 ± 0.2
Monounsaturated fat	24.4 ± 0.9
Polyunsaturated fat	13.2 ± 0.4

	Mass fraction (%)	Mass fraction (%)
(as the triglyceride) (as the fatty acid)		
Tetradecanoic acid (C14:0)	0.025 ± 0.002	0.024 ± 0.002
(Myristic acid)		
Hexadecanoic acid (C16:0)	5.18 ± 0.15	4.94 ± 0.15
(Palmitic acid)		
(Z)-9-Hexadecenoic acid (C16:1 n-7)	0.046 ± 0.011	0.044 ± 0.010

(Palmitoleic acid)

Octadecanoic acid (C18:0) 2.23 ± 0.08 2.13 ± 0.08

(Stearic acid)

(Z)-9-Octadecenoic acid (C18:1 n-9) 24.43 ± 0.94 23.38 ± 0.90

(Oleic acid)

(Z)-11-Octadecenoic acid (C18:1 n-7) 0.266 ± 0.017 0.255 ± 0.016

(Vaccenic acid)

(Z,Z)-9,12-Octadecadienoic acid (C18:2 n-6) 13.75 ± 0.43 13.15 ± 0.41

(Linoleic acid)

(Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3 n-3)..... 0.031 ± 0.001 0.030 ± 0.001

(Linolenic acid)

Eicosanoic acid (C20:0)..... 0.739 ± 0.030 0.710 ± 0.029

(Arachidic acid)

(Z)-11-Eicosenoic acid (C20:1 n-9)..... 0.669 ± 0.032 0.643 ± 0.031

(Gondoic acid)

Docosanoic acid (C22:0) 1.88 ± 0.08 1.81 ± 0.08

(Behenic acid)

Tetracosanoic acid (C24:0)..... 0.808 ± 0.045 0.781 ± 0.044

Certified concentration values for elements and tocopherol

Mass fraction (mg/kg) Mass fraction (mg/kg)

Ca 411 ± 18 K..... 6070 ± 200

Cu 4.93 ± 0.15 Na..... 4890 ± 140

Fe..... 16.4 ± 0.8 Zn..... 26.3 ± 1.1

Mg..... 1680 ± 70 s -Tocopherol..... 10 ± 3

Mn..... 16.0 ± 0.6 ? - +βTocopherol..... 100 ± 19

P 3378 ± 92 α-Tocopherol..... 108 ± 11

Reference values for proximates, caloric content, fatty acids, amino acids, water-soluble vitamins and aflatoxins
3 x 170 g**BCR-599 Ewes'/Goats' curd - Adulteration with cow's milk**

Two freeze dried curd materials made from a mixture of ewes' and goats' milk intended to detect adulteration by cows' milk in cheeses made from ewes' milk, goats' milk and mixtures of the two.

Unadulterated material 0% cows' milk

Adulterated material 1% cows' milk

set (2)

BCR-122 Margarine - Vitamins

Certified values

D3 (cholecalciferol).....0.125 mg/kg

E (tocopherol)241 mg/kg

200 g

BCR-492-3 Lyophilized skimmed milk powder - Oxytetracycline

Set of BCR-492 and BCR-493

BCR-492

Certified value

Oxytetracycline 307 µg/kg

BCR-493

Certified value

Oxytetracycline <10 µg/kg

set

LGC7000 Beef/pork meat - Proximates and trace elements

Composed of 45% beef, 10% pork, 10% rusk, 4% fat, 0.5% emulsifier. Made up to 100% with water.

Certified values

Ca	253 mg/kg	Zn	14.2 mg/kg	Ash.....	0.78 g/100 g
K	1590 mg/kg	Moisture.....	66.5 g/100 g	Nitrogen	1.96 g/100 g
Na	1360 mg/kg	Fat	12.4 g/100 g		

200 g

LGC7001 Pork meat - Proximates and trace elements

Composed of 50% pork leg, 12% rusk, 4% chicken fat, 0.5% emulsifier. Made up to 100% with water.

Certified values

Ca	319 mg/kg	Zn	12.2 mg/kg	Ash.....	0.90 g/100 g
K	1860 mg/kg	Moisture.....	68.6 g/100 g	Nitrogen	1.97 g/100 g
Na	1510 mg/kg	Fat	7.8 g/100 g		

200 g

LGC7112 Pig liver paste - Trace elements

Composed of 99.5% pig's liver and 0.5% stabiliser.

Certified values

Ca	48.9 mg/kg	K.....	2770 mg/kg	P	3430 mg/kg
Cd	0.25 mg/kg	Mg	167 mg/kg	Se	0.19 mg/kg
Co	0.061 mg/kg	Mn	3.04 mg/kg	Zn.....	43.0 mg/kg
Cu	117 mg/kg	Na.....	822 mg/kg		

150 g

LGC7150 (RM) Processed meat - Proximates and hydroxyproline

A pork based processed meat.

Assessed values

Moisture	65.3 g/100 g	Total fat	15.0 g/100g	Hydroxyproline	0.17 g/100 g
Nitrogen	1.78 g/100 g	Ash	3.37 g/100 g		

5 x 250 g

LGC7151 (RM) Processed meat - Proximates, salt and nitrate

A pork-based processed meat.

Assessed values

Moisture	63.6 g/100 g	Ash.....	5.18 g/100 g
Nitrogen	1.93 g/100 g	Salt (calculated from chloride content)..	4.32 g/100 g
Total fat.....	14.6 g/100 g	Nitrate.....	185m g/kg

5 x 250 g

LGC7152 (RM) Processed meat - Proximates, soya and casein

Assessed values

Moisture	61.0 g/100 g	Total Fat	15.0 g/100 g
Nitrogen	2.38 g/100 g	Ash	4.67 g/100 g

5 x 250 g

LGC7200 (RM) Beef, raw - Meat species

Rump steak from Scottish Aberdeen Angus cattle, aged 20 months, purchased from an organic farm. The cattle had been fed grass rich in clover.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Beef - raw.....100 % Beef

Indicative value for moisture

30 g

LGC7201 (RM) Beef, cooked - Meat species

Rump steak from Scottish Aberdeen Angus cattle, aged 20 months, purchased from an organic farm. The cattle had been fed grass rich in clover.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Beef - cooked.....100 % Beef

Indicative value for moisture

30 g

LGC7202 (RM) Lamb, raw - Meat species

Suffolk-cross leg of lamb, aged 9 months, was purchased from an organic meat supplier.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Lamb - raw.....100 % Lamb

Indicative value for moisture

30 g

LGC7203 (RM) Lamb, cooked - Meat species

Suffolk-cross leg of lamb, aged 9 months, was purchased from an organic meat supplier.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Lamb - cooked.....100 % Lamb

Indicative value for moisture

30 g

LGC7204 (RM) Pork, raw - Meat species

'Free range' Land Race/Large White Cross pork leg steak, aged approximately 5 months at slaughter, was purchased from an organic meat supplier.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Pork - raw 100 % Pork

Indicative value for moisture

30 g

LGC7205 (RM) Pork, cooked - Meat species

'Free range' Land Race/Large White Cross pork leg steak, aged approximately 5 months at slaughter, was purchased from an organic meat supplier.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Pork - cooked..... 100 % Pork

Indicative value for moisture

30 g

LGC7206 (RM) Chicken, raw - Meat species

'Free range' Ross whole chickens, aged 42 to 45 days at slaughter, were purchased from an organic meat supplier.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Chicken - raw.....100 % Chicken

Indicative value for moisture

30 g

LGC7207 (RM) Chicken, cooked - Meat species

'Free range' Ross whole chickens, aged 42 to 45 days at slaughter, were purchased from an organic meat supplier.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Chicken - cooked..... 100 % Chicken

Indicative value for moisture

30 g

LGC7208 (RM) Turkey, raw - Meat species

Organic turkeys were purchased from a local butcher's shop.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Turkey - raw..... 100 % Turkey

Indicative value for moisture

30 g

LGC7209 (RM) Turkey, cooked - Meat species

Organic turkeys were purchased from a local butcher's shop.

This material is intended for use as a reference standard for species identification analytical methods.

The species content of the material was checked using both an immunoassay test and DNA analysis.

Assessed value

Turkey - cooked..... 100 % Turkey

Indicative value for moisture

30 g

BCR-185R Bovine liver - Trace elements

Certified values

As..... 33.0 µg/kg Mn11.07 mg/kg Zn..... 138.6 mg/kg

Cd 544 µg/kg Pb.....172 µg/kg

Cu 277 mg/kg Se.....1680 µg/kg

15 g

BCR-186 Pig kidney - Trace elements

Certified values

As..... 63 µg/kg Fe299 mg/kg Pb 306 µg/kg

Cd 2710 µg/kg Hg.....1970 µg/kg Se 10300 µg/kg

Cu 31.9 mg/kg Mn8.5 mg/kg Zn..... 128 mg/kg

Indicative values for Ca, Cl, Cr, I, K, Mg, Na, Ni, P

15 g

BCR-384 Pork muscle - Major nutrients

Certified values

K 15.5 g/kg Na.....2.8 g/100 g Fat..... 10.8 g/100 g

Mg..... 1.00 g/kg N (Kjeldahl).....13.7 g/100 g Ash at 550°C..... 4.6 g/100 g

Indicative values for Ca, Cl, P

50 g

BCR-487 Pig liver - Vitamins

Certified values

B1 (thiamin)8.6 mg/kg B12 1.12 mg/kg

B2 (riboflavin)106.8 mg/kg Folate (total) 13.3 mg/kg

B6 (total pyridoxine).....19.3 mg/kg

15 g

BCR-411 Bovine muscle - Diethylstilbestrol

Certified value

Diethylstilbestrol..... >0.5 µg/L

5 g

BCR-412 Bovine muscle - Diethylstilbestrol

Certified value

Diethylstilbestrol..... >0.1 µg/L

5 g

BCR-474/475 Bovine liver - Trenbolone

Set of 2 x 2.8 g lyophilised liver powder

Certified values

BCR-474

17alpha-Trenbolone.. <0.5 µg/kg

BCR-475

17alpha-Trenbolone.... 7.6 µg/kg
set

BCR-648-9 Bovine liver - Clenbuterol

Set of 2 x 10 g lyophilised bovine liver
Certified values

BCR-648

Clenbuterol <0.5 µg/kg

BCR-649

Clenbuterol 1.2 µg/kg
set

NIST-1577b Bovine liver - Trace elements

Certified values

Ag 0.039 mg/kg K..... 0.994 % Pb 0.129 mg/kg
Cd 0.50 mg/kg Mg601 mg/kg Rb 13.7 mg/kg
Ca 116 mg/kg Mn10.5 mg/kg S0.785 %
Cl0.278 % Mo3.5 mg/kg Se 0.73 mg/kg
Cu 160 mg/kg Na..... 0.242 % Sr 0.136 mg/kg
Fe..... 184 mg/kg P..... 1.10 % Zn..... 127 mg/kg

Indicative values for Al, As, Br, Co, Hg, Sb, V
50 g

NIST-RM 8414 Bovine muscle powder - Trace elements (not certified)

Reference values for Al, As, B, Br, Ca, Cd, Cl, Co, Cr, Cu, Fe, Hg, I, K, Mg, Mn, Mo, N, Na, Ni, P, Pb, Rb, S, Se, Sr, Zn

Indicative values for Ba, Cs, F, Sb, V
2 x 25 g

NIST-1546 Meat homogenate - Nutrients

Certified values

Ca323 mg/kg Hexadecanoic acid (C16:0)..... 45.6 g/kg
Fe.....11.4 mg/kg Octadecenoic acid (C18:1) 21.7 g/kg
Na9990 mg/kg (Z)-9-Octadecanoic acid (C18:0)..... 21.7 g/kg
Decanoic acid (C10:0)0.171 g/kg Eicosanoic acid..... 0.315 g/kg
Dodecanoic acid (C12:0)0.133 g/kg Cholesterol..... 0.750 g/kg
Tetradecanoic acid (C14:0)2.53 g/kg

Indicative values for additional fatty acids, proximates, calories, water-soluble vitamins, sucrose, minerals, trace elements

4 x 85 g

NRMGBW08551 Pork liver - Trace elements

Certified values

Al..... 0.044 µg/g K..... 1.15 % Na0.233 %
Cd 0.067 µg/g Mg747 µg/g Pb 0.54 µg/g
Ca 197 µg/g Mn8.32 µg/g Se 0.94 µg/g
Cu 17.2 µg/g Mo3.8 µg/g Zn..... 172 µg/g
Fe.....0.105 % N..... 10.86 %

Indicative values for Co, Cr, P

25 g

NRMGBW08552 Pork muscle - Trace elements

Certified values

Br 6.2 µg/g K..... 0.813 % P0.813 %
Ca 147 µg/g Mg988 µg/g Rb 42.7 µg/g
Cl0.187 % Mn0.48 µg/g Se 0.49 µg/g
Cu 3.88 µg/g N..... 12.27 % Zn..... 94.2 µg/g
Fe..... 43.6 µg/g Na..... 0.202 %

Indicative values for Ba, Co, Cr, Cs, Hg, Mo, Pb, Sr

20 g

SMRD 2000 Fresh meat - Proximates and trace elements

Certified values

Ash.....	2.65 g/100 g	Hydroxyproline.....	0.133 g/100 g	K	1859 mg/kg
Moisture	68.8 g/100 g	Starch	3.85 g/100 g	Ca	70.3 mg/kg
Fat.....	14.3 g/100 g	NaCl	2.19 g/100 g	Fe.....	6.33 mg/kg
Nitrogen	1.63 g/100 g	Na.....	8533 mg/kg	P	1075 mg/kg

190 g

SMRD 2000 Fresh Meat - Proximates and trace elements 6 x 190 g**BCR-430 Pork fat - Organochlorine pesticides**

The sample is a homogeneous pork fat obtained from pigs fed with organochlorine pesticides.

Compound Certified value Uncertainty

	µg/g	µg/g
HCB	0.392.....	0.026
alpha-HCH.....	0.140.....	0.012
beta-HCH.....	0.259.....	0.021
gamma-HCH.....	0.50.....	0.03
beta-Hepo	0.109.....	0.009
Dieldrin.....	0.124.....	0.011
Endrin	0.020.....	0.004

3 g

BCR-163 Beef/pork fat blend - Fatty acids

The entire fatty acid (methyl ester) profile was determined but certified values are only given for the major components (>2%) and indicative values are given for all minor components.

Methyl esters

(mass fraction fatty acid methyl ester/total fatty acid methyl ester)

Certified values

14:0 n-Tetradecanoic acids	2.29 g/100 g	18:1 n-Octadecenoic acids	38.34 g/100 g
16:0 n-Hexadecanoic acid	25.96 g/100 g	18:2 n-Octadecadienoic acids.....	7.05 g/100 g
16:1 n-Hexadecanoic acids	2.58 g/100 g	18:3 n-Octadecatrienoic acids	0.86 g/100g
18:0 n-Octadecenoic acids	18.29 g/100 g		

Sterols

(mass fraction in fat)

Certified value

Cholesterol..... 133.6 mg/100 g

Indicative values for additional methyl esters of fatty acids

2 amp.

IRMM-444 Pork fat - PCBs (blank)

Certified values

PCB 28	<2 µg/kg	PCB 118.....	<2 µg/kg	PCB 180	<2 µg/kg
PCB 52	<2 µg/kg	PCB 138.....	<2 µg/kg	PCB sum.....	<14 µg/kg
PCB 101	<2 µg/kg	PCB 153.....	<2 µg/kg		

5 g

IRMM-445 Pork fat - PCBs (low level)

Compound Certified value Uncertainty

µg/kg µg/kg

PCB 28	14.8.....	1.3
PCB 52	12.9.....	0.9
PCB 101	12.5.....	1.2
PCB 118	12.7.....	1.3
PCB 138	14.6.....	1.6
PCB 153	13.1.....	1.1
PCB 180	12.6.....	0.9
PCB sum.....	93.....	7

5 g

IRMM-446 Pork fat - PCB (high level)

Compound Certified value Uncertainty

	µg/kg	µg/kg
PCB 28	29.6.....	2.1

PCB 52	25.5.....	1.8
PCB 101	30.....	4
PCB 118	30.2.....	2.7
PCB 138	32.....	4
PCB 153	30.8.....	2.4
PCB 180	29.8.....	2.5
PCB sum.....	207.....	11

5 g

BCR-444 Porcine muscle - Chloramphenicol (blank)

Certified value

Chloramphenicol..... <0.2 µg/kg

7 g

BCR-445 Porcine muscle - Chloramphenicol (positive)

Certified value

Chloramphenicol..... 8.9 µg/kg

7 g

Pesci**Shellfish****LGC7160 Crab paste - Trace elements**

Prepared from frozen crab meat with 40% brown crab meat, 40% white crab meat, 0.5% stabiliser and water.

Certified values

As.....	11 mg/kg	Cu.....	10.4 mg/kg	Na	2170 mg/kg
Ca	2150 mg/kg	Hg.....	0.096 mg/kg	Ni	0.23 mg/kg
Cd	1.85 mg/kg	K.....	1980 mg/kg	P	2965 mg/kg
Co	0.059 mg/kg	Mg	348 mg/kg	V	0.084 mg/kg
Cr	0.29 mg/kg	Mn	1.77 mg/kg	Zn.....	53.6 mg/kg

Indicative values for Al, Mo, Pb, Se, Sr

200 g

BCR-278R Mussel tissue - Trace elements

Certified values

As.....	6.07 mg/kg	Cu.....	9.45 mg/kg	Pb	2,00 mg/kg
Cd	0.348 mg/kg	Hg.....	0.196 mg/kg	Se	1.84 mg/kg
Cr	0.78 mg/kg	Mn	7.69 mg/kg	Zn.....	83.1 mg/kg

8 g

BCR-668 Mussel tissue - Trace elements

Certified values

Ce	88.7 mg/kg	La	80.3 mg/kg	Tb.....	1.62 mg/kg
Dy.....	8.88 mg/kg	Lu	0.389 mg/kg	Th.....	10.7 mg/kg
Er	4.47 mg/kg	Nd.....	54.5 mg/kg	Tm.....	0.480 mg/kg
Eu	2.79 mg/kg	Pr.....	12.3 mg/kg	U	55.9 mg/kg
Gd.....	12.95 mg/kg	Sm.....	11.2 mg/kg	Y.....	58.9 mg/kg

Indicative values for : As, Cd, Co, Cr, Cr, Cs, Ho, Fe, Mo, Sc, Yb and Zn

10 g

BCR-682 Mussel tissue - PCBs

Certified values

PCB 28	0.30 µg/kg	PCB 138.....	4.6 µg/kg	PCB 170	0.17 µg/kg
PCB 52	0.78 µg/kg	PCB 149.....	5.7 µg/kg	PCB 180	0.77 µg/kg
PCB 118	2.6 µg/kg	PCB 153.....	9.2 µg/kg		

70 g

BCR-477 Mussel tissue - Butyltin compounds

Compound Certified value Uncertainty

mg/kg mg/kg

Tributyltin (TBT) 2.20..... 0.19

Dibutyltin (DBT) 1.54..... 0.12

Monobutyltin (MBT)..... 1.50..... 0.28
14 g

NIST-2976 Mussel tissue -Trace elements and methylmercury

Certified values

As.....13.3 mg/kg Pb..... 1.19 mg/kg
Cd0.82 mg/kg Se..... 1.80 mg/kg
Cu4.02 mg/kg Zn..... 137 mg/kg
Fe.....171 mg/kg Methylmercury (total)..... 61.0 ∞ g/kg

Indicative values for: Ag, Al, Br, Ca, Ce, Cl, Co, Cr, Cs, Eu, K, Mg, Mn, Na, Ni, P, Pb, Rb, S, Sc, Sn, Sr, Th, Tl
25 g

NRMGBW08571 Mussel - Trace elements

Certified values

As..... 6.1 μ g/g F221 μ g/g Ni 1.03 μ g/g
Ca0.111 % Hg.....0.067 μ g/g Pb 1.96 μ g/g
Cd 4.5 μ g/g K..... 0.424 % Se 3.65 μ g/g
Co 0.94 μ g/g Mg 0.197 % Sr 12.8 μ g/g
Cr 0.57 μ g/g Mn10.2 μ g/g Zn..... 138 ∞ g/g
Cu 7.7 μ g/g Na..... 0.582 %

Indicative values for Al, Au, Mo, P
12 g

NIST-2977 Mussel tissue - Organics and trace elements

Standard Reference Material® NIST-2744 is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, chlorinated pesticides, methylmercury, and inorganic constituents in marine bivalve mollusk tissue and similar matrices. All the constituents for which certified and reference values are provided are naturally present in the freeze-dried mussel tissue homogenate.

Certified concentrations for selected PAHs

Mass fraction Mass fraction

	μ g/kg (dry mass basis)		μ g/kg (dry mass basis)
Fluorene.....	10.24 \pm 0.43	Benzo(a)pyrene.....	8.35 \pm 0.72
Phenanthrene	35.1 \pm 3.8	Perylene.....	3.50 \pm 0.76
Fluoranthene.....	38.7 \pm 1.0	Benzo(ghi)perylene	9.53 \pm 0.43
Pyrene.....	78.9 \pm 3.5	Indeno(1,2,3-cd)pyrene.....	4.84 \pm 0.81
Benzo(a)anthracene	20.34 \pm 0.78	Dibenzo(a,h)anthracene.....	1.41 \pm 0.19
Benzo(b)fluoranthene	11.01 \pm 0.28	Benzo(b)chrysene	1.07 \pm 0.15
Benzo(e)pyrene	13.1 \pm 1.1	Picene	2.29 \pm 0.27

Certified concentrations for selected PCB congeners

Mass fraction

	μ g/kg (dry mass basis)
PCB 8.....2,4'-Dichlorobiphenyl	2.1 \pm 0.15
PCB 18.....2,2',5-Trichlorobiphenyl	2.65 \pm 0.30
PCB 28.....2,4,4'-Trichlorobiphenyl	5.37 \pm 0.44
PCB 31.....2,4',5-Trichlorobiphenyl	3.92 \pm 0.24
PCB 44.....2,2',3,5'-Tetrachlorobiphenyl	3.25 \pm 0.63
PCB 52.....2,2',5,5'-Tetrachlorobiphenyl	8.37 \pm 0.54
PCB 66.....2,3',4,4'-Tetrachlorobiphenyl	3.64 \pm 0.32
PCB 87.....2,2',3,4,5'-Pentachlorobiphenyl	2.15 \pm 0.10
PCB 95.....2,2',3,5,6'-Pentachlorobiphenyl	5.39 \pm 0.59
PCB 99.....2,2',4,4',5-Pentachlorobiphenyl	1.59 \pm 0.20
PCB 101.....2,2',4,5,5'-Pentachlorobiphenyl+	
PCB 90.....2,2',3,4',5-Pentachlorobiphenyl.....	11.2 \pm 1.21
PCB 105.....2,3,3',4,4-Pentachlorobiphenyl	3.76 \pm 0.49
PCB 110.....2,3,3',4,6-Pentachlorobiphenyl	4.03 \pm 0.20
PCB 118.....2,3',4,4',5-Pentachlorobiphenyl	10.5 \pm 1.0
PCB 128.....2,2',3,3,4,4'-Hexachlorobiphenyl	2.49 \pm 0.28
PCB 138.....2,2',3,4,5'-Hexachlorobiphenyl+	
PCB 163.....2,3,3',4',5,6-Hexachlorobiphenyl+	
PCB 164.....2,3,3',4',5,6-Hexachlorobiphenyl.....	16.6 \pm 1.6
PCB 149.....2,2',3,4',5,6-Hexachlorobiphenyl.....	9.23 \pm 0.12
PCB 151.....2,2',3,4,4',5-Hexachlorobiphenyl	3.07 \pm 0.18
PCB 153.....2,2',4,4',5,5'-Hexachlorobiphenyl.....	14.1 \pm 1.0

PCB 156.....	2,3,3',4,4',5-Hexachlorobiphenyl	0.960 ± 0.085
PCB 170.....	2,2',3,3',4,4',5-Heptachlorobiphenyl	2.95 ± 0.23
PCB 180.....	2,2',3,4,4',5,5'-Heptachlorobiphenyl	6.79 ± 0.67
PCB 183.....	2,2',3,4,4',5',6-Heptachlorobiphenyl	1.33 ± 0.10
PCB 187.....	2,2',3,4,5,5',6-Heptachlorobiphenyl+	
PCB 159.....	2,3,3',4,5,5'-Hexachlorobiphenyl+	
PCB 182.....	2,2',3',4,4',5,6'-Hexachlorobiphenyl	4.76 ± 0.38
PCB 194.....	2,2',3,3',4,4',5,5'-Octachlorobiphenyl.....	0.897 ± 0.042

Certified concentrations for selected chlorinated pesticides

Mass fraction Mass fraction

	µg/kg (dry mass basis)	µg/kg (dry mass basis)
cis-Chlordane (alpha-Chlordane).....	1.42 ± 0.13	2,4'-DDD
trans-Nonachlor	1.43 ± 0.10	4,4'-DDD
Dieldrin.....	6.04 ± 0.52	4,4'-DDT.....
4,4'-DDE	12.5 ± 1.6	

Certified concentration of methylmercury

Mass fraction

	µg/kg (dry mass basis)
Methylmercury.....	36.2 ± 1.7

Certified concentration for trace elements

Mass fraction Mass fraction Mass fraction

	mg/kg (dry mass basis)	mg/kg (dry mass basis)	mg/kg (dry mass basis)
Cd	0.179 ± 0.003	Pb.....	2.27 ± 0.13
Cu	9.42 ± 0.52	Mn	23.93 ± 0.29
		Sr	69.3 ± 4.2

Reference concentrations for PAHs.

Reference concentrations and informational values for inorganic constituents.

10 g

NIST-2978 Mussel tissue - Organics and trace elements

Standard Reference Material® NIST-2978 is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners and chlorinated pesticides in marine bivalve mollusk tissue and similar matrices. All the constituents for which certified and reference values are provided are naturally present in the freeze-dried mussel tissue.

Certified concentrations for selected PAHs

Mass fraction Mass fraction

	µg/kg (dry mass basis)	µg/kg (dry mass basis)
Fluoranthene.....	166 ± 12	Perylene.....
Pyrene.....	256 ± 21	Benzo(ghi)perylene
Benzo(k)fluoranthene	24.1 ± 3.4	Indeno(1,2,3-cd)pyrene.....
Benzo(e)pyrene	89.3 ± 6.3	

Certified concentrations for selected PCB congeners

	(µg/kg (dry mass basis))
PCB 28.....	2,4,4'-Trichlorobiphenyl
PCB 31.....	2,4',5-Trichlorobiphenyl
PCB 44.....	2,2',3,5'-Tetrachlorobiphenyl
PCB 49.....	2,2',4,5'-Tetrachlorobiphenyl
PCB 52.....	2,2',5,5'-Tetrachlorobiphenyl
PCB 66.....	2,3',4,4'-Tetrachlorobiphenyl
PCB 87.....	2,2',3,4,5'-Pentachlorobiphenyl
PCB 95.....	2,2',3,5,6'-Pentachlorobiphenyl
PCB 99.....	2,2',4,4',5-Pentachlorobiphenyl
PCB 101.....	2,2',4,5,5'-Pentachlorobiphenyl+
PCB 90.....	2,2',3,4',5-Pentachlorobiphenyl
PCB 105.....	2,3,3',4,4-Pentachlorobiphenyl
PCB 110.....	2,3,3',4',6-Pentachlorobiphenyl
PCB 118.....	2,3',4,4',5-Pentachlorobiphenyl
PCB 128.....	2,2',3,3,4,4'-Hexachlorobiphenyl
PCB 138.....	2,2',3,4,4',5'-Hexachlorobiphenyl+
PCB 163.....	2,3,3',4',5,6-Hexachlorobiphenyl+
PCB 164.....	2,3,3',4',5',6-Hexachlorobiphenyl.....
PCB 149.....	2,2',3,4',5',6-Hexachlorobiphenyl.....
PCB 151.....	2,2',3,4,4',5-Hexachlorobiphenyl
PCB 153.....	2,2',4,4',5,5'-Hexachlorobiphenyl.....
PCB 156.....	2,3,3',4,4',5-Hexachlorobiphenyl

PCB 180.....	2,2',3,4,4',5,5'-Heptachlorobiphenyl	7.81 ± 0.63
PCB 183.....	2,2',3,4,4',5',6-Heptachlorobiphenyl	5.25 ± 0.15
PCB 187.....	2,2',3,4,5,5',6-Heptachlorobiphenyl+	
PCB 159.....	2,3,3',4,5,5'-Hexachlorobiphenyl+	
PCB 182.....	2,2',3',4,4',5,6'-Heptachlorobiphenyl.....	16.7 ± 1.3

Certified concentrations for selected chlorinated pesticides

Mass fraction Mass fraction

	µg/kg (dry mass basis)	µg/kg (dry mass basis)
Oxychlordan.....	2.13 ± 0.27	2,4'-DDE 4.41 ± 0.56
cis-Chlordane (alpha-Chlordane).....	15.56 ± 0.83	4,4'-DDE 37.5 ± 1.5
trans-Chlordane (gamma-Chlordane)...	11.38 ± 0.56	2,4'-DDD 10.5 ± 1.0
cis-Nonachlor.....	8.23 ± 0.56	4,4'-DDD 38.8 ± 2.3
trans-Nonachlor	11.5 ± 1.0	2,4'-DDT..... 9.2 ± 1.6
Dieldrin.....	6.3 ± 0.67	4,4'-DDT..... 3.84 ± 0.28

Reference concentrations PAHs and PCBs

10 g

BCR-542 Mussel - dc-Saxitoxin

Compound Certified value Uncertainty

	(mg/kg)	(mg/kg)
Saxitotin-2HCl	<0.07	
DC-Saxitoxin-2HCl.....	1.59.....	0.20

These reference materials are "dual usage" materials and require special export/import documents under the authority of IRMM.

15 g

BCR-543 Mussel - dc-Saxitoxin

Mussel material BCR-543 is intended to serve as an analytical blank or as a material enriched with the saxitoxin enrichment solution (*BCR-663). As an analytical blank it may serve

- to establish recovery values for a method of analysis at various levels of contamination
- to check the specific background level of the laboratories methods.

BCR-543 enriched with saxitoxin enrichent solution (*BCR-663) may be used to validate the laboratory's own methods.

Compound Certified value Uncertainty

	(mg/kg)	(mg/kg)
Saxitoxin-2HCl	<0.07	
Saxitoxin-2HCl	0.48.....	0.06
DC-Saxitoxin-2HCl.....	<0.04	

These reference materials are "dual usage" materials and require special export/ import documents under the authority of IRMM.

***BCR-663** cannot yet be sold as it is restricted by the Chemical Weapon Convention.

15 g

NRCCRM-MUS-b Mussel tissue - Domoic acid (amnesic toxin)

A homogenized slurry of mussel tissue (*Mytilus edulis*).

Certified values

Domoic acid 36 ∞g/g

Epidomoic acid 3.0 ∞g/g

8 g

NRCCRM-MUS-b Mussel tissue - Domoic acid (amnesic toxin) 4 x 8 g

NRMGBW08572 Prawn - Trace elements

Certified values

Al.....	0.131 %	F	5.31 µg/g	Na	0.381 %
As.....	1.42 µg/g	Fe	19.8 µg/g	P	0.845 %
Ba	4.29 µg/g	Hg.....	0.201 µg/g	Pb	0.298 µg/g
Ca	0.304 %	K.....	0.597 %	Se	1.52 µg/g
Cd	0.023 µg/g	Mg	0.160 %	Sr	40.6 µg/g
Cr	0.24 µg/g	Mn	1.96 µg/g	Zn.....	60.8 µg/g
Cu	4.66 µg/g	N.....	14.3 %		

Indicative values for Br, Co, S, Ti

8 g

NIST-1566b Oyster Tissue - Trace elements and methyl mercury

This Standard Reference Material® (SRM®) is intended primarily for use in evaluating analytical methods and instruments used for the determination of the concentrations of selected elements and proximates, selected fatty acids, total dietary fiber, as well as the calorific content in marine bivalve tissue, foods, or similar materials. A unit

of NIST-1566b contains approximately 25 g of freeze-dried oyster tissue.

Certified values

Ca	0.0838 ± 0.0020 %	Pb.....	0.308 ± 0.009 mg/kg
Cl	0.514 ± 0.010 %	Mn	18.5 ± 0.2 mg/kg
Mg.....	0.1085 ± 0.0023 %	Hg (total)	0.0371 ± 0.0013 mg/kg
K	0.652 ± 0.009 %	Methylmercury (as Hg)	0.0132 ± 0.0007 mg/kg
Na	0.3297 ± 0.0053 %	Ni.....	1.04 ± 0.09 mg/kg
S	0.6887 ± 0.0140 %	Rb.....	3.262 ± 0.145 mg/kg
Al.....	197.2 ± 6.0 mg/kg	Se.....	2.06 ± 0.15 mg/kg
As.....	7.65 ± 0.65 mg/kg	Ag.....	0.666 ± 0.009 mg/kg
Cd	2.48 ± 0.08 mg/kg	Th.....	0.0367 ± 0.0043 mg/kg
Co	0.371 ± 0.009 mg/kg	V.....	0.577 ± 0.023 mg/kg
Cu	71.6 ± 1.6 mg/kg	Zn.....	1 424 ± 46 mg/kg
Fe.....	205.8 ± 6.8 mg/kg		

Indicative values for proximates, nitrogen, total dietary fiber, selected fatty acids (as triglycerides) and calories 25 g

NRCLUTS-1 Non-defatted Lobster Hepatopancreas - Trace elements and methyl mercury

Prepared from edible grade lobster tomalley. Except for the addition of some water and a small quantity of antioxidant the sample is natural biological material containing 55 % lipids on a dry weight basis.

Certified values (As bottled)

Ag	0.580 mg/kg	K.....	948 mg/kg
As.....	2.83 mg/kg	Mg	89.5 mg/kg
Ca	203 mg/kg	Mn	1.20 mg/kg
Cd	2.12 mg/kg	Ni.....	0.200 mg/kg
Co	0.051 mg/kg	Pb.....	0.010 mg/kg
Cr	0.079 mg/kg	Se.....	0.641 mg/kg
Cu	15.9 mg/kg	Sr.....	2.46 mg/kg
Fe.....	11.6 mg/kg	Zn.....	12.4 mg/kg
Hg	0.0167 mg/kg	Methylmercury (as Hg)	0.0094 mg/kg

Certified values (Dry weight)

Ag	3.89 mg/kg	K.....	6360 mg/kg
As.....	19.0 mg/kg	Mg	601 mg/kg
Ca	1360 mg/kg	Mn	8.02 mg/kg
Cd	14.2 mg/kg	Ni.....	1.34 mg/kg
Co	0.34 mg/kg	Pb.....	0.069 mg/kg
Cr	0.53 mg/kg	Se.....	4.30 mg/kg
Cu	107 mg/kg	Sr.....	16.5 mg/kg
Fe.....	77.8 mg/kg	Zn.....	82.9 mg/kg
Hg	0.112 mg/kg	Methylmercury (as Hg)	0.063 mg/kg

6 x 10 g

NRCTORT-2 Lobster hepatopancreas - Trace elements and methyl mercury

Partially defatted lobster (*Homarus americanus*) hepatopancreas prepared from edible grade lobster tomalley.

Certified values

As.....	21.6 mg/kg	Mo	0.95 mg/kg
Cd	26.7 mg/kg	Ni.....	2.50 mg/kg
Co	0.51 mg/kg	Pb.....	0.35 mg/kg
Cr	0.77 mg/kg	Se.....	5.63 mg/kg
Cu	106 mg/kg	Sr.....	45.2 mg/kg
Fe.....	105 mg/kg	V.....	1.64 mg/kg
Hg	0.27 mg/kg	Zn.....	180 mg/kg
Mn.....	13.6 mg/kg	Methylmercury (as Hg).....	0.152 mg/kg

Indicative values for Sn

35 g

Shellfish toxins

Not all hazardous substances found in foodstuffs are anthropogenic, and the shellfish toxins are a case in point. These toxins, which are produced by algae, accumulate in various seafoods, and are generally classified as follows:

Paralytic shellfish poisoning (PSP), has been known for centuries, and has caused many fatalities. The toxins, a mixture of tetrahydropurines are named Saxitoxins after the basic toxin first isolated in 1957. They cause respiratory paralysis.

The toxins Okadaic acid and Dinophysistoxin are less dangerous and are known as **Diarrehtic shellfish poisons or DSP toxins**.

In 1989 Quilliam and Wright reported on the difficulties of isolating and identifying the cause of the „Prince-Edward-Island-Disease“. In this case more than 100 people became violently ill after eating mussels. The survivors suffered from loss of memory. The toxin - Domoic acid - is known to be an

Amnesic shellfish poison (ASP). Diarrhetic shellfish poisons (DSP)

NRCCRM-OA-b Okadaic acid standard solution certified

Each ampoule contains approximately 0.5 mL of solution with 30.0 ± 0.9 $\mu\text{moles/L}$ (at 20 °C) of Okadaic acid in methanol.

0.5 mL

NRCCRM-OA-b Okadaic acid standard solution certified 4 x 0.5 mL

Paralytic shellfish poisons (PSP)

NRCCRM-STXdiAc Saxitoxin diacetate solution

Each ampoule contains approximately 0.2 mL of solution with 480 ± 20 $\mu\text{moles/L}$ of saxitoxin diacetate in filtered and aqueous 0.1M acetic acid.

0.2 mL

NRCCRM-STXdiAc Saxitoxin diacetate solution 4 x 0.2 mL

NRCCRM-STX-d Saxitoxin dihydrochloride solution

Each ampoule contains approximately 0.5 mL of solution with 65 ± 3 $\mu\text{moles/L}$ (at 20°C) of saxitoxin in filtered and

aqueous 0.003 M hydrochloric acid.

0.5 mL

NRCCRM-STX-d Saxitoxin dihydrochloride solution 4 x 0.5 mL

NRCCRM-dcSTX Decarbamoylsaxitoxin solution

Each ampoule contains approximately 0.5 mL of solution with 65 ± 2 $\mu\text{moles/L}$ (at 20°C) of decarbamoylsaxitoxin

in filtered and aqueous 0.003 M hydrochloric acid.

0.5 mL

NRCCRM-dcSTX Decarbamoylsaxitoxin solution 4 x 0.5 mL

NRCCRM-NEO-b Neosaxitoxin solution

Each ampoule contains approximately 0.5 mL of solution with 65 ± 2 $\mu\text{moles/L}$ (at 20°C) of neosaxitoxin in filtered

and aqueous 0.003 M hydrochloric acid.

0.5 mL

NRCCRM-NEO-b Neosaxitoxin solution 4 x 0.5 mL

NRCCRM-GTX14b Gonyautoxins-1 and -4 solution

Each ampoule contains approximately 0.5 mL of solution with 106 ± 5 $\mu\text{moles/L}$ (at 20°C) of GTX1 and 35 ± 2 $\mu\text{moles/L}$ (at 20°C) of GTX4 in filtered and aqueous 0.003 M hydrochloric acid plus 0.01 M acetic acid.

0.5 mL

NRCCRM-GTX14b Gonyautoxins-1 and -4 solution 4 x 0.5 mL

NRCCRM-GTX23b Gonyautoxins-2 and -3 solution

Each ampoule contains approximately 0.5 mL of solution with 118 ± 5 $\mu\text{moles/L}$ (at 20°C) of GTX2 and 39 ± 2 $\mu\text{moles/L}$ (at 20°C) of GTX3 in filtered and aqueous 0.003 M hydrochloric acid plus 0.01 M acetic acid.
0.5 mL

NRCCRM-GTX23b Gonyautoxins-2 and -3 solution 4 x 0.5 mL

NRCCRM-GTX5b Gonyautoxins-5 solution

Each ampoule contains approximately 0.5 mL of solution with 65 ± 3 $\mu\text{moles/L}$ (at 20°C) of GTX5 in filtered and aqueous acetic acid.
0.5 mL

NRCCRM-GTX5b Gonyautoxins-5 solution 4 x 0.5 mL

Amnesic shellfish poisons (ASP)

NRCCRM-DA-d Domoic acid solution

Solvent: Acetonitrile/Water (1:9, v/v)

Certified values

Domoic acid +..... 89 ± 0.9 $\mu\text{g/g}$ 87.7 ± 0.9 $\mu\text{g/mL}$ (at 22°C)..... $\mu\text{moles/L}$ (at 22°C)

Epidomoic acid

Pure domoic acid in solution has been found to gradually isomerize, especially to the C5'-diastereomer, epidomoic

acid; therefore, a mixture will inevitably result on long-term storage of any standard.

The density of the solution is 0.9853 at 22°C.

0.5 mL

NRCCRM-DA-d Domoic acid solution 4 x 0.5 mL

LGC7101 Mackerel paste - Proximates and nutrients

Prepared from whole mackerel fillets (including skin) mixed with water and 2% sodium caesinate.

Certified values

Cl 1500 mg/kg Moisture..... 64.5 g/100g Ash..... 0.83 g/100 g

K 1850 mg/kg Nitrogen..... 2.25 g/100g

Na 1320 mg/kg Total fat 20.4 g/100g

Indicative values for Ca, Mg, P, Zn

200 g

BCR-422 Cod muscle - Trace elements and methyl mercury

Certified values

As..... 21.1 mg/kg Hg..... 0.559 mg/kg Se 1.63 mg/kg

Cd 0.017 mg/kg I 4.95 mg/kg Zn..... 19.6 mg/kg

Cu 1.05 mg/kg Mn 0.543 mg/kg

Fe..... 5.46 mg/kg Pb..... 0.085 mg/kg

7 g

BCR-463 Tuna fish - Total mercury and methyl mercury

Certified values

Methylmercury..... 3.04 mg/kg

Total mercury..... 2.85 mg/kg

15 g

BCR-464 Tuna fish - Total mercury and methyl mercury

Certified values

Methylmercury..... 5.50 mg/kg

Total mercury..... 5.24 mg/kg

15 g

BCR-349 Cod liver oil - PCBs

Compound Certified value Uncertainty

$\mu\text{g/kg}$ $\mu\text{g/kg}$

PCB 28	68.....	7
PCB 52	149.....	20
PCB 101	370.....	17
PCB 118	454.....	31
PCB 153	938.....	40
PCB 180	280.....	22

Indicative values for PCB 44, PCB 128, PCB 138+PCB 163, PCB 194

2 g

BCR-598 Cod liver oil - Organochlorine pesticides

Compound Certified Value Uncertainty

µg/kg µg/kg

Hexachlorobenzene.....	55.7.....	2
alpha-HCH.....	42.....	3
beta-HCH.....	16.....	3
gamma-HCH.....	23.....	4
gamma-Chlordane.....	6.9.....	1.6
alpha-Chlordane	24.4.....	1.8
Oxychlordane.....	11.....	1.8
trans-Nonachlor	39.....	4
Dieldrin.....	59.....	4
4,4'-DDE	0.61 x 103.....	0.04 x 103
2,4'-DDD	30.....	4
4,4'-DDD	0.40 x 103.....	0.03 x 103
4,4'-DDT	0.179 x 103.....	0.018 x 103

5 g

BCR-350 Mackerel oil - PCBs

Compound Certified value Uncertainty

µg/kg µg/kg

PCB 28	22.5.....	4.0
PCB 52	62.....	9
PCB 101	164.....	9
PCB 118	142.....	20
PCB 153	317.....	20
PCB 180	73.....	13

Indicative values for PCB44, PCB128, PCB138+PCB163

2 g

BCR-719 Canned fresh chub - PCBs

The material consists of approx. 70 g of minced sterilised muscle of chub to which butylhydroxy toluene (BHT) was added as an antioxidant.

Certified values

PCB 77	0.196 x 103 ng/kg	PCB 126.....	20.0 ng/kg
PCB 81	13.6 ng/kg	PCB 169.....	1.80 ng/kg

70 g

BCR-718 Canned fresh herring - PCBs

The material consists of approx. 70 g of minced sterilised muscle of herring to which butylhydroxy toluene (BHT) was added as an antioxidant.

Certified values

PCB 28	0.41 µg/kg	PCB 118.....	1.78 µg/kg	PCB 153	4.62 µg/kg
PCB 52	1.00 µg/kg	PCB 128.....	0.62 µg/kg	PCB 156	0.19 µg/kg
PCB 101	2.12 µg/kg	PCB 138.....	2.97 µg/kg	PCB 170	0.35 µg/kg
PCB 105	0.63 µg/kg	PCB 149.....	2.58 µg/kg	PCB 180	0.80 µg/kg

70 g

BCR-627 Tuna fish tissue - As species

Certified values

Arsenobetaine.....	52 ∞mol/kg	total As	4.8 mg/kg
Dimethylarsinic acid.....	2 ∞mol/kg		

see also arsenobetaine standard solution (BCR-626)

10 g

MURST-ISS-A2 Antarctic krill - Trace elements

Prepared from three catches made by Italian, American and Japanese expeditions.

Certified values

As.....	5.02 mg/kg Fe	56.6 mg/kg Se	7.37 mg/kg
Cd	0.73 mg/kg Mn	4.12 mg/kg Zn.....	66.0 mg/kg
Co	0.110 mg/kg Ni	1.28 mg/kg	
Cu	65.2 mg/kg Pb.....	1.11 mg/kg	

Indicative values for Ag, Al, Br, Ca, Cl, Cr, Hg, I, K, Mg, Na, Rb, Sc, Sn, Sr, V
0.5 g

NIST-1588a Cod liver oil - Organics

Set of 5 x 1.2mL

This Standard Reference Material® (SRM®) is intended for use in developing and validating analytical methods for

the determination of chlorinated biphenyls and chlorinated pesticides in cod liver oil or in other similar lipophilic matrices. The certified values for the PCB congeners and the chlorinated pesticides are based on the agreement

of results from two or more independent analytical techniques. NIST-1588 was analysed for selected PCB congeners and chlorinated pesticides using gas chromatography with electron capture detector (GC-ECD) on two

columns with different selectivity and using GC with mass spectrometry (GC/MS). The concentration of alphatocopherol

was determined using two methods based on normal-phase and reversed phase liquid chromatography. Fluorescence detection was used for both methods.

Certified concentrations (mass fractions) for selected PCB congeners

	µg/kg	
PCB 28	2,4,4'-Trichlorobiphenyl	28.32 ± 0.55
PCB 31	2,4',5-Trichlorobiphenyl	8.33 ± 0.28
PCB 44	2,2',3,5'-Tetrachlorobiphenyl	35.1 ± 1.4
PCB 49	2,2',4,5'-Tetrachlorobiphenyl	29.90 ± 0.84
PCB 52	2,2',5,5'-Tetrachlorobiphenyl	83.3 ± 2.3
PCB 66	2,3',4,4'-Tetrachlorobiphenyl	54.7 ± 1.5
PCB 87	2,2',3,4,5'-Pentachlorobiphenyl	56.3 ± 1.1
PCB 95	2,2',3,5,6'-Pentachlorobiphenyl	36.5 ± 1.1
PCB 101	2,2',4,5,5'-Pentachlorobiphenyl	126.5 ± 4.3
PCB 105	2,3,3',4,4-Pentachlorobiphenyl	60.2 ± 2.3
PCB 110	2,3,3',4',6-Pentachlorobiphenyl	76.0 ± 2.0
PCB 118	2,3',4,4',5-Pentachlorobiphenyl	176.3 ± 3.8
PCB 128	2,2',3,3,4,4'-Hexachlorobiphenyl	47.0 ± 2.4
PCB 138	2,2',3,4',5'-Hexachlorobiphenyl+	
PCB 163	2,3,3',4',5,6-Hexachlorobiphenyl+	
PCB 164	2,3,3',4',5',6-Hexachlorobiphenyl.....	263.5±9.1
PCB 149	2,2',3,4',5',6-Hexachlorobiphenyl.....	105.7 ± 3.6
PCB 151	2,2',3,4,4',5-Hexachlorobiphenyl	54.8 ± 2.1
PCB 153	2,2',4,4',5,5'-Hexachlorobiphenyl.....	273.8 ± 7.7
PCB 156	2,3,3',4,4',5-Hexachlorobiphenyl	27.3 ± 1.8
PCB 170	2,2',3,3',4,4',5-Heptachlorobiphenyl	46.5 ± 1.1
PCB 180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	105.0 ± 5.2
PCB 183	2,2',3,4,4',5',6-Heptachlorobiphenyl	31.21 ± 0.62
PCB 187	2,2',3,4,5,5',6-Heptachlorobiphenyl+	
PCB 159	2,3,3',4,5,5'-Hexachlorobiphenyl+	
PCB 182	2,2',3',4,4',5,6'-Hexachlorobiphenyl	35.23 ± 0.83
PCB 194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl.....	15.37 ± 0.61
PCB 201	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl.....	12.18 ± 0.46

Certified concentrations (mass fractions) for selected chlorinated pesticides

	µg/kg	µg/kg
2,4'-DDE	22.0 ± 1.0 gamma-HCH.....	24.9 ± 1.7
4,4'-DDE	651 ± 11 alpha-HCH	85.3 ± 3.4
2,4'-DDD.....	36.3 ± 1.4 Heptachlor epoxide	31.6 ± 1.5
4,4'-DDD.....	254 ± 11 cis-Chlordane.....	167.0 ± 5.0
2,4'-DDT.....	156.0 ± 4.4 cis-Nonachlor	94.8 ± 2.8
4,4'-DDT.....	524 ± 12 trans-Nonachlor.....	214.6 ± 7.9
Hexachlorobenzene.....	157.8 ± 5.0 Dieldrin.....	155.9 ± 4.5

Reference concentration (mass fraction) for alpha-tocopherol and additional PCB congeners.

Information concentrations (mass fractions) for dibenzo-p-dioxins and octachlorodibenzofuran.
set (5)

NIST-1946 Lake Superior fish tissue - Organic contaminants

This Standard Reference Material. (SRM.) is a frozen fish tissue homogenate, which was prepared from lake trout (*Salvelinus namaycush namaycush*) collected from Lake Superior (U.S./Canada), and is intended primarily for use in evaluating analytical methods for the determination of polychlorinated biphenyl (PCB) congeners, chlorinated pesticides, fatty acids (including omega-3 fatty acids), extractable fat, methylmercury, total mercury and selected trace elements in fish tissue and similar matrices.

Certified concentrations for selected PCB congeners Mass fraction

	µg/kg (dry mass basis)
PCB 44.....2,2',3,5'-Tetrachlorobiphenyl	4.66 ± 0.86
PCB 49.....2,2',4,5'-Tetrachlorobiphenyl	3.80 ± 0.39
PCB 52.....2,2',5,5'-Tetrachlorobiphenyl	8.1 ± 1.0
PCB 66.....2,3',4,4'-Tetrachlorobiphenyl	10.8 ± 1.9
PCB 70.....2,3',4',5'-Tetrachlorobiphenyl	14.9 ± 0.6
PCB 74.....2,4,4',5-Tetrachlorobiphenyl	4.83 ± 0.51
PCB 77.....3,3',4,4'-Tetrachlorobiphenyl	0.327 ± 0.025
PCB 87.....2,2',3,4,5'-Pentachlorobiphenyl	9.4 ± 1.4
PCB 95.....2,2',3,5',6-Pentachlorobiphenyl	11.4 ± 1.3
PCB 99.....2,2',4,4',5-Pentachlorobiphenyl	25.6 ± 2.3
PCB 101.....2,2',4,5,5'-Pentachlorobiphenyl	34.6 ± 2.6
PCB 105.....2,3,3',4,4'-Pentachlorobiphenyl	19.9 ± 0.9
PCB 110.....2,3,3',4',6-Pentachlorobiphenyl	22.8 ± 2.0
PCB 118.....2,3',4,4',5-Pentachlorobiphenyl	52.1 ± 1.0
PCB 126.....3,3',4,4',5-Pentachlorobiphenyl	0.380 ± 0.017
PCB 128.....2,2',3,3',4,4'-Hexachlorobiphenyl.....	22.8 ± 1.9
PCB 138.....2,2',3,4,4',5'-Hexachlorobiphenyl.....	115 ± 13
PCB 146.....2,2',3,4',5,5'-Hexachlorobiphenyl.....	30.1 ± 3.5
PCB 149.....2,2',3,4',5',6-Hexachlorobiphenyl.....	26.3 ± 1.3
PCB 153.....2,2',4,4',5,5'-Hexachlorobiphenyl.....	170 ± 9
PCB 156.....2,3,3',4,4',5-Hexachlorobiphenyl	9.52 ± 0.51
PCB 169.....2,2',3,4,4',5'-Hexachlorobiphenyl.....	0.106 ± 0.014
PCB 170.....2,2',3,3',4,4',5-Heptachlorobiphenyl	25.2 ± 2.2
PCB 180.....2,2',3,4,4',5,5'-Heptachlorobiphenyl	74.4 ± 4.0
PCB 183.....2,2',3,4,4',5',6-Heptachlorobiphenyl	21.9 ± 2.5
PCB 187.....2,2',3,4',5,5',6-Heptachlorobiphenyl	55.2 ± 2.1
PCB 194.....2,2',3,3',4,4',5,5'-Octachlorobiphenyl.....	13.0 ± 1.3
PCB 195.....2,2',3,3',4,4',5,6-Octachlorobiphenyl	5.30 ± 0.45
PCB 206.....2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl.....	5.40 ± 0.43
PCB 209.....Decachlorobiphenyl.....	1.30 ± 0.21

Certified concentrations for selected chlorinated pesticides

Mass fraction Mass fraction

µg/kg (wet- mass basis) µg/kg (wet- mass basis)

Hexachlorobenzene.....	7.25 ± 0.83	trans-Nonachlor.....	99.6 ± 7.6
alpha-HCH.....	5.72 ± 0.65	Dieldrin.....	32.5 ± 3.5
gamma-HCH.....	1.14 ± 0.18	Mirex	6.47 ± 0.77
Heptachlor epoxide.....	5.50 ± 0.23	4,4'-DDE	373 ± 48
Oxychlordane.....	18.9 ± 1.5	2,4'-DDD	2.20 ± 0.25
cis-Chlordane (alpha-Chlordane).....	32.5 ± 1.8	4,4'-DDD	17.7 ± 2.8
trans-Chlordane	8.36 ± 0.91	4,4'-DDT.....	37.2 ± 3.5
cis-Nonachlor.....	59.1 ± 3.6		

Certified concentrations for fat and selected fatty acids Mass fraction (%)

(wet- mass basis)

Fat (Extractable)

10.17 ± 0.48

Fat (Sum of Fatty Acids)

8.76 ± 0.17

Mass fraction (%) (as the triglyceride) (wet- mass basis)

Tetradecanoic acid (C14:0)

0.316 ± 0.009

(Myristic acid)

Hexadecanoic acid (C16:0)

1.22 ± 0.04

(Palmitic acid)

(Z)-9-Hexadecenoic acid (C16:1).....

0.816 ± 0.026

(Palmitoleic acid)

wir sas

Octadecanoic acid (C18:0) 0.263 ± 0.011 (Stearic acid)	
(Z)-9-Octadecenoic acid (C18:1) 2.64 ± 0.08 (Oleic acid)c	
(Z,Z)-9,12-Octadecadienoic acid (C18:2) 0.348 ± 0.023 (Linoleic acid)	
(Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3)..... 0.221 ± 0.025 (Linolenic acid)	
Eicosanoic acid (C20:0)..... 0.0100 ± 0.0012 (Arachidic acid)	
(Z)-11-Eicosenoic acid (C20:1)..... 0.132 ± 0.012	
(Z,Z)-11,14-Eicosadienoic acid (C20:2)..... 0.0990 ± 0.0043	
(Z,Z,Z,Z,Z)-5,8,11,14,17-Eicosapentaenoic acid (C20:5) (EPA) 0.296 ± 0.019	
(Z,Z,Z,Z,Z)-7,10,13,16,19-Docosapentaenoic acid (C22:5) (DPA)..... 0.335 ± 0.026	
(Z,Z,Z,Z,Z,Z)-4,7,10,13,16,19-Docosahexaenoic acid (C22:6) (DHA)..... 0.92 ± 0.10	
Certified concentrations for methylmercury, total mercury, arsenic and iron	
Mass fraction	Mass fraction
mg/kg (wet- mass basis)	mg/kg (wet- mass basis)
Methylmercury..... 0.394 ± 0.015 As..... 0.277 ± 0.010	
Hg (Total)..... 0.433 ± 0.009 Fe..... 4.00 ± 0.32	
Reference concentrations for PCBs, pesticides, fatty acids, proximates and caloric content.	
5 x 10 g	

IAEA-352 Tuna fish - Radioactive isotopes

Certified values	
137Cs.....2.7 Bq/kg 210Pb..... 0.6 Bq/kg 90Sr.....0.2 Bq/kg	
40K.....391 Bq/kg 210Po..... 2.2 Bq/kg	
100 g	

IAEA-MA-B3/R Fish flesh - Radioactive isotopes

Certified values	
137Cs.....14.2 Bq/kg 40K 272 Bq/kg	
50 g	

NRCDOLT-3 Dogfish liver - Trace elements

Certified values	
Ag 1.20 ± 0.07 mg/kg Cu.....31.2 ± 1.0 mg/kg Pb 0.319 ± 0.045 mg/kg	
Al..... 24.7 ± 1.9 mg/kg Fe1484 ± 57 mg/kg Se 7.06 ± 0.48 mg/kg	
As..... 10.2 ± 0.5 mg/kg Hg.....3.37 ± 0.14 mg/kg Zn..... 86.6 ± 2.4 mg/kg	
Cd 19.4 ± 0.6 mg/kg Ni2.72 ± 0.35 mg/kg	
Indicative value for Cr, Sn, Methylmercury	
25 g	

NRCDORM-2 Dogfish muscle - Trace elements

Certified values	
Ag 0.041 mg/kg Cr.....34.7 mg/kg Ni 19.4 mg/kg	
Al..... 10.9 mg/kg Cu.....2.34 mg/kg Pb 0.065 mg/kg	
As..... 18.0 mg/kg Fe142 mg/kg Se 1.40 mg/kg	
Cd 0.043 mg/kg Hg.....4.64 mg/kg Zn..... 25.6 mg/kg	
Co 0.182 mg/kg Mn3.66 mg/kg Methylmercury..... 4.47 mg/kg	
Indicative values for Sn, TI	
40 g	

NRCCARP-2 Fish (common carp) - Dioxins, furans and PCBs

Prepared from common carp (Cyprinus carpio) collected near the warm water discharge of the Consumer's Power

Plant in Saginaw Bay, Lake Huron, Canada

Certified values	
PCB18 27.3 µg/kg PCB118.....148 µg/kg PCB194 10.9 µg/kg	
PCB28 34.0 µg/kg PCB128.....20.4 µg/kg PCB206 4.4 µg/kg	
PCB44 86.6 µg/kg PCB153.....105 µg/kg	
PCB52 138 µg/kg PCB180.....53.3 µg/kg	
Reference Values	
2,3,7,8-TCDF.....18.2 ng/kg 1,2,3,6,7,8-HxCDD..... 5.8 ng/kg	

1,2,3,7,8-PCDF.....	5.6 ng/kg	1,2,3,7,8,9-HxCDD.....	0.78 ng/kg
2,3,7,8-TCDD.....	7.4 ng/kg	1,2,3,4,6,7,8-HpCDD	6.4 ng/kg
1,2,3,7,8-PCDD	5.3 ng/kg	OCDD	9.4 ng/kg
1,2,3,4,7,8-HxCDD	1.6 ng/kg		

Other reference concentrations for selected PCB congeners and pesticides are given in the certificate.
6 x 10 g

Cereali e derivati

Wheat

LGC7003 White bread flour - Nutrients and trace elements

Certified values

Ash.....	0.84% Ca.....	1120 mg/kg Na	39 mg/kg
Fat.....	1.7% Fe	23 mg/kg Zn.....	12 mg/kg
N	2.43% K.....	1720 mg/kg	

25 g

BCR-189 Wholemeal flour - Trace elements

Certified values

Cd	71.3 µg/kg Mn	63.3 mg/kg Zn.....	56.5 mg/kg
Cu	6.4 mg/kg Pd.....	379 µg/kg	
Fe.....	68.3 mg/kg Se.....	132 µg/kg	

Indicative values for Ca, Cl, Cr, Hg, K, Mg, Na, Ni, P

25 g

NIST-1567a Wheat flour - Trace elements

Milled from a blend of Hard Red Spring and Hard Red Winter wheat.

Certified values

Al.....	5.7 µg/g K.....	0.133 % P	0.134 %
Ca	0.191 % Mg	0.040 % Rb	0.68 µg/g
Cd	0.026 µg/g Mn	9.4 µg/g S	0.165 %
Cu	2.1 µg/g Mo	0.48 µg/g Se	1.1 µg/g
Fe.....	14.1 µg/g Na.....	6.1 µg/g Zn.....	11.6 µg/g

Indicative values for As, Br, Cl, Co, Hg, I, Pb, Sn, U, V, W

80 g

NIST-RM 8437 Hard red spring wheat flour - Trace elements

Reference concentration values for major, minor and trace elements.

Indicative values for additional elements.

2 x 25 g

BCR-382 Wheat flour - Major nutrients

Certified values (percentage by dry mass)

Ash.....	0.9% N (Kjeldahl)	2.1%
Fat.....	1.3% Dietary fibre (AOAC 1985/1988)	3.3%

Indicative values for starch, starch & sugars and dietary fibre (Englyst)

100 g

BCR-121 Wholemeal flour - Vitamins

Certified values

B1 (thiamin)	4.63 mg/kg Folate (total)	0.5 mg/kg
B6 (total pyridoxine)	4.10 mg/kg	

50 g

BCR-563 Common wheat flour - Properties

Certified parameters determined according to ISO and ICC standard: Protein content, Ash content, Falling number / s, Zeleny sedimentation, Chopin Alveograph, Brabender Farinograph, Brabender Extensograph.

360 g

NIST-RM 8436 Durum wheat flour - Trace elements and nutritional properties

Reference concentration values for major, minor and trace elements, proximates, total dietary fibre and calories.

Indicative values for additional elements and one fatty acid.

50 g

NIST-RM 8437 Hard red spring wheat flour - Trace elementsReference concentration values for major, minor and trace elements.
Indicative values for additional elements.

2 x 25 g

NIST-RM 8438 Soft winter wheat flour - Trace elementsReference concentration values for major, minor and trace elements.
Indicative values for additional elements

2 x 50 g

NIST-RM 8418 Wheat gluten - Trace elements and nutritional propertiesReference concentration values for major, minor and trace elements, proximates, calories and fatty acid.
Indicative values for additional elements fatty acids and total dietary fibre.

50 g

NRMGBW08503 Wheat flour - Trace elements

Certified values

As.....	0.22 µg/g	Fe	39.8 µg/g	Pb	0.35 µg/g
Ca	441 µg/g	K.....	0.198 %	Zn.....	22.7 µg/g
Cd	0.031 µg/g	Mg	551 µg/g		
Cu	4.40 µg/g	Mn	19.6 µg/g		

Indicative values for N, P, Se, Na

20 g

BCR-396 Wheat flour - Deoxynivalenol (DON) blank

Certified value

DON..... < 0.05 mg/kg

150 g

BCR-471 Wheat - Ochratoxin A (blank)

Certified value

Ochratoxin A..... < 0.6 µg/kg

55 g

BCR-472 Wheat - Ochratoxin A (medium level)

Certified value

Ochratoxin A..... 8.2 µg/kg

55 g

NIST-RM 8441 Wheat - Hardness

Set of 50 x 20 g

Determination of hardness of bulk or single kernel wheat. Ten separate lots of wheat of varying hardness. Five samples of each wheat .

set (50)

Corn**BCR-377 Maize flour - Deoxynivalenol (blank)**

Certified value

DON..... <0.05 mg/kg

150 g

BCR-378 Maize flour - Deoxynivalenol (medium level)

Certified value

DON..... 0.43 mg/kg

150 g

NIST-RM 8432 Corn starch - Trace elements and nutritional propertiesReference concentration values for major, minor and trace elements, proximates, total dietary fibre and calories.
Indicative values for additional elements, ash and fatty acids.

50 g

NIST-RM 8433 Corn bran - Trace elements and nutritional properties

Reference concentration values for major, minor and trace elements, proximates, total dietary fibre and calories.
Indicative values for additional elements, fat and fatty acids.

50 g

NIST-RM 8412 Corn (Zea Mays) stalk - Trace elements

Reference concentration values for major, minor and trace elements. Indicative values for additional elements.

34 g

NIST-RM 8413 Corn (Zea Mays) kernel - Trace elements

Reference values for Al, Ca, Cl, Cu, F, I, K, Mg, Mn, N, Se, Zn

47 g

Rye**BCR-381 Rye flour - Major nutrients**

Certified values (percentage by dry mass)

Ash..... 0.9% N (Kjeldahl)1.3%
Fat..... 1.1% Dietary fibre (AOAC 1985/1988)8.2%

Indicative values for starch, starch & sugars, dietary fibre (Englyst)

100 g

IAEA-V-8 Rye flour - Trace elements

Certified values

Br 0.38 mg/kg Fe4.1 mg/kg P 592 mg/kg
Ca 149 mg/kg K.....1925 mg/kg Rb 0.48 mg/kg
Cl 570 mg/kg Mg121 mg/kg Zn..... 2.53 mg/kg
Cu 0.95 mg/kg Mn2.06 mg/kg

Indicative values for Cd, Co, Na

50 g

Rice**BCR-465 Rice flour - Amylose (low level)**

Certified value

Amylose 15.4 g/100 g

10 g

BCR-466 Rice flour - Amylose (medium level)

Certified value

Amylose 23.1 g/100 g

10 g

BCR-467 Rice flour - Amylose (high level)

Certified value

Amylose 27.7 g/100 g

10 g

NIST-1568a Rice Flour - Trace elements

Produced from 100% long grain rice from Arkansas.

Certified values

Al..... 4.4 µg/g Hg.....0.0058 P0.134 %
As..... 0.29 µg/g K..... 0.1280 % Rb 6.14 µg/g
Ca0.0118 % Mg 0.056 % S0.120 %
Cd 0.022 µg/g Mn20.0 µg/g Se 0.38 µg/g
Cu 2.4 µg/g Mo1.46 µg/g Zn..... 19.4 µg/g
Fe..... 7.4 µg/g Na.....6.1 µg/g

Indicative values for Br, Cl, Co, I, Pb, Sb, Sn, U, V, W

80 g

NRMGBW08508 Rice - Trace elements

Certified values

Cu 3.6 µg/g Fe43.2 µg/g Mg..... 28.4 µg/g

F..... 18.0 µg/g Hg.....0.038 µg/g
40 g

NRMGBW08510 Rice - Trace elements

Certified values

Cu 3.6 µg/g Fe43.2 µg/g Mg..... 28.4 µg/g

F..... 18.0 µg/g Hg.....0.038 µg/g

40 g

NRMGBW08511 Rice - Cadmium (medium level)

Certified value

Cd 0.504 µg/g

40 g

NRMGBW08512 Rice - Cadmium (low level)

Certified value

Cd 0.0069 µg/g

40 g

Rapeseed**BCR-190R Rapeseed (colza) - Total glucosinolate and sulphur**

Certified values

Total glucosinolate.....23 mmol/kg S..... 4.72 g/kg

20 g

BCR-366R Rapeseed (colza) - Total glucosinolate and sulphur

Certified values

Total glucosinolate.....11.9 mmol/kg S..... 3.31 g/kg

20 g

BCR-367R Rapeseed (colza) - Total glucosinolate and sulphur

Certified values

Total glucosinolate.....102 mmol/kg S..... 10.5 g/kg

Indicative values for individual glucosinolates

20 g

BCR-446 Rapeseed - Oil content (low)

Certified values

"As is" oil 39.49 g/100 g

Moisture and volatiles 7.01 g/100 g

Dry basis oil 42.48 g/100 g

153 g

BCR-447 Rapeseed - Oil content (medium)

Certified values

"As is" oil 41.99 g/100 g

Moisture and volatiles 7.42 g/100 g

Dry basis oil 45.36 g/100 g

153 g

BCR-448 Rapeseed - Oil content (high)

Certified values

"As is" oil 45.43 g/100 g

Moisture and volatiles 7.68 g/100 g

Dry basis oil 49.21 g/100 g

153 g

OGM**IRMM-410S0 - IRMM-410S5**

Dried soya bean powder with different mass fractions of genetically modified ("Roundup Ready™") soya beans, intended for validation of the polymerase chain reaction (PCR) screening method for the detection of GM food.

IRMM-410S0 Genetically modified soya beans (0%)

Certified mass fraction GMO < 0.03%

1 g

IRMM-410S1 Genetically modified soya beans (0.1%)

Certified mass fraction GMO: 0.1 %

1 g

IRMM-410S2 Genetically modified soya beans (0.5%)

Certified mass fraction GMO: 0.5%

1 g

IRMM-410S3 Genetically modified soya beans (1%)

Certified mass fraction GMO: 1%

1 g

IRMM-410S4 Genetically modified soya beans (2%)

Certified mass fraction GMO: 2%

1 g

IRMM-410S5 Genetically modified soya beans (5%)

Certified mass fraction GMO: 5%

1 g

IRMM-413-0 - IRMM-413-5

Dried maize powder with different mass fractions (<0.02, 0.1, 0.5, 1, 2, 5 %) of genetically modified maize (MON810), intended for the validation of methods for the detection of genetically modified food. As DNA and/or protein based GMO quantification may depend on varieties, one has to be careful to draw quantitative conclusions from measurements of unknown samples.

IRMM-413-0 Genetically modified MON-810 maize powder (0%)

Certified mass fraction GMO <0.02 %

1 g

IRMM-413-1 Genetically modified MON-810 maize powder (0.1%)

Certified mass fraction GMO: 0.1% ± 0.03

1 g

IRMM-413-2 Genetically modified MON-810 maize powder (0.5%)

Certified mass fraction GMO: 0.50 % ± 0.04

1 g

IRMM-413-3 Genetically modified MON-810 maize powder (1%)

Certified mass fraction GMO: 1 % ± 0.05

1 g

IRMM-413-4 Genetically modified MON-810 maize powder (2%)

Certified mass fraction GMO: 2% ± 0.1

1 g

IRMM-413-5 Genetically modified MON-810 maize powder (5%)

Certified mass fraction GMO: 5% ± 0.2

1 g

Prodotti vegetali

Fruit and vegetables

LGC7111 Potato powder - Sulphur dioxide

Certified value

SO₂ 357.5 mg/kg

200 g

LGC7162 Strawberry leaves - Trace elements

The raw material was collected from a private farm in the Czech Republic. The mixture was cut and jet milled to pass a 250 µm nylon sieve. The resulting powder was homogenised, separated in 20 g portions and placed in 60mL bottles.

Certified Values

Ca	1.53 g/100 g	As	0.28 mg/kg	Pb	1.8 mg/kg
Mg.....	0.377 g/100 g	Ba.....	107 mg/kg	Mn.....	171 mg/kg
N	2.01 g/100 g	Cd.....	0.17 mg/kg	Hg	0.027 mg/kg
P	0.260 g/100 g	Co.....	0.47 mg/kg	Ni	2.6 mg/kg
K	1.96 g/100 g	Cr.....	2.15 mg/kg	Sr	64 mg/kg
S	0.174 g/100 g	Fe	818 mg/kg	Zn.....	24 mg/kg

20 g

BCR-515 Carrot - Dietary fibre

Certified using five different methods of dietary fibre analysis

Certified values

AOAC 1990.....	31.1 g/100 g	AOAC 1992 MES-TRIS.....	29.5 g/100 g
Englyst (GC)	27.1 g/100 g	Englyst (colorimetry)	25.2 g/100 g
Uppsala.....	29.8 g/100 g		

25 g

ARC/CL4 Carrot powder - Total dietary fibre and trace elements

Prepared from normal commercially available carrot flakes used by the Finnish food industry.

Certified values

Total dietary fibre	10.93%	Fe	12.6 µg/g	Mo.....	49.5 ng/g
B	10.1 µg/g	K.....	10.2 mg/g	Na	485 µg/g
Ca	1700 µg/g	Mg	350 µg/g	Zn.....	6.9 ∞g/g
Cd	68.6 ng/g	Mn	4.90 µg/g		

60 g

BCR-383 Haricots verts (beans) - Major nutrients

Certified values

N(Kjeldahl)	1.1 g/100 g	Ca.....	2.9 g/100 g
Dietary fibre (AOAC 1985/1988).....	11.9 g/100 g	K.....	7.8 g/100 g
Ash at 550°C.....	2.4 g/100g	Na.....	0.08 g/100 g

Indicative values for glucose, fructose, sucrose, starch + sugars, dietary fibre (Englyst)

100 g

BCR-514 Haricots beans - Dietary fibre

Certified using five different methods of dietary fibre analysis

Certified values

AOAC 1990.....	25.6 g/100 g	AOAC 1992 MES-TRIS.....	25.9 g/100 g
Englyst (GC)	19.8 g/100 g	Englyst (colorimetry)	20.1 g/100 g
Uppsala.....	23.7 g/100 g		

25 g

BCR-431 Brussels sprout - Vitamins

Certified values

C (total ascorbate) .. 4830 mg/kg

Niacin..... 43 mg/kg

20 g

BCR-485 Mixed vegetables - Vitamins

Certified values

B1 (thiamin)	3.07 mg/kg	trans-(-carotene.....	10.5 mg/kg	total-®-carotene.....	25.6 mg/kg
B6 (total pyridoxine)....	4.8 mg/kg	trans-®-carotene.....	23.7 mg/kg	lutein	12.5 mg/kg
folate (total)	3.15 mg/kg	total-(-carotene.....	9.8 mg/kg	lutein+zeaxanthin.....	22.3 mg/kg

25 g

BCR-517 Full fat soya - Dietary fibre

Certified using five different methods of dietary fibre analysis

Certified values

AOAC 1990.....	12.6 g/100 g	AOAC 1992 MES-TRIS.....	12.4 g/100 g
Englyst (GC)	11.9 g/100 g	Englyst (colorimetry)	12.3 g/100 g
Uppsala.....	12.8 g/100 g		

25 g

BCR-516 Apple - Dietary fibre

Certified using five different methods of dietary fibre analysis

Certified values

AOAC 1990.....	16.46 g/100 g	AOAC 1992 MES-TRIS.....	14.9 g/100 g
Englyst (GC)	13.7 g/100 g	Englyst (colorimetry)	13.4 g/100 g
Uppsala.....	16.2 g/100g		

25 g

BCR-679 White cabbage - Trace elements

Certified values

As.....	7.0 µg/kg	Fe	55.0 µg/kg	Sr	11.8 mg/kg
B	27.7 mg/kg	Hg.....	6.3 µg/kg	Tl.....	2.98 µg/kg
Ba	10.3 mg/kg	Mo	14.8 mg/kg	Zn.....	79.7 mg/kg
Cd	1.66 mg/kg	Ni	27.0 mg/kg		
Cu	2.89 mg/kg	Sb.....	20.6 µg/kg		

15 g

BCR-401 Peanut butter (blank) - Aflatoxin B1

Certified values

Aflatoxin B1.....	<0.2 µg/kg	Aflatoxin G1.....	<0.1 µg/kg	Total Aflatoxins	<0.5 µg/kg
Aflatoxin B2.....	<0.1 µg/kg	Aflatoxin G2.....	<0.1 µg/kg		

50 g

BCR-262 Defatted peanut meal (blank) - Aflatoxin B1

Certified value

Aflatoxin B1.....	<3 µg/kg
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100 g

BCR-264 Defatted peanut meal (high level) - Aflatoxin B1

Certified value

Aflatoxin B1.....	206 µg/kg
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150 g

IC-INCT-TL-1 Tea leaves - Trace elements

The material was prepared from black tea, usually packed in tea bags.

Certified values

Al.....	0.229 wt %	Eu.....	0,050 mg/kg	Sc.....	0.266 mg/kg
As.....	0.106 mg/kg	Hg.....	0.005 mg/kg	Sm	0.177 mg/kg
Ba	43.2 mg/kg	K.....	1.70 wt %	Sr	20.8 mg/kg
Br	12.3 mg/kg	La	1.00 mg/kg	Tb.....	0.026 mg/kg
Ca	0.582 wt %	Lu	0.016 mg/kg	Th.....	0.034 mg/kg
Cd	0.030 mg/kg	Mg	0.224 wt %	Tl.....	0.063 mg/kg
Cl	573 mg/kg	Mn	0.157 wt %	V	1.97 mg/kg
Co	0.387 mg/kg	Na.....	24.7 mg/kg	Yb.....	0.118 mg/kg
Cr	1.91 mg/kg	Ni	6.12 mg/kg	Zn.....	34.7 mg/kg
Cs	3.61 mg/kg	Pb.....	1.78 mg/kg		
Cu	20.4 mg/kg	Rb.....	81.5 mg/kg		

Indicative values for B, Fe, Hf, Nd, P, Sb, Se, Ta, Ti and Tm

50 g

NRMGBW07605 Tea - Trace elements

Certified values

As.....	0.28 µg/g	Cu.....	17.3 µg/g	Pb	4.4 µg/g
B	15 µg/g	Eu.....	0.018 µg/g	Rb	74 µg/g
Ba	58 µg/g	F	320 µg/g	S	0.245 %
Be	0.034 µg/g	Fe	264 µg/g	Sb	0.056 µg/g
Bi.....	0.063 µg/g	K.....	1.66 %	Sc.....	0.085 µg/g
Br	3.4 µg/g	Mg	0.17 %	Sm	0.085 µg/g
Ca	0.43 %	Mn	1240 µg/g	Sr	15.2 µg/g
Cd	0.057 µg/g	Mo	0.038 µg/g	Th.....	0.061 µg/g
Ce	1.0 µg/g	N.....	3.32 %	Ti.....	24 µg/g
Co	0.18 µg/g	Na.....	44 µg/g	Y.....	0.36 µg/g
Cr	0.8 µg/g	Ni	4.6 µg/g	Yb.....	0.044 µg/g
Cs	0.29 µg/g	P.....	2840 µg/g	Zn.....	26.3 µg/g

Indicative values for Ag, Al, Dy, Gd, Hf, Hg, Ho, Li, Lu, Nd, Pr, Se, Si, Tb, V

35 g

SLV FUNGUS Edible fungus (C.tubaeformis) - Trace elements

Certified values

Cd	0.437 mg/kg	Cu.....	34.4 mg/kg	Ni	0.381 mg/kg
Co	0.073 mg/kg	Fe	101 mg/kg	Pb	1.43 mg/kg
Cr	0.223 mg/kg	Mn	49.9 mg/kg	Zn.....	55.0 mg/kg

IAEA-359 Cabbage - Trace elements

Certified values

Al.....	0.1 mg/kg	Fe	148 mg/kg	Ni	1.05 mg/kg
Ba	11 mg/kg	Hg.....	0.013 mg/kg	Se	0.12 mg/kg
Ca	18500 mg/kg	K.....	32500 mg/kg	Sr	49.2 mg/kg
Cd	0.12 mg/kg	Mg	2160 mg/kg	Zn.....	38.6 mg/kg
Cr	1.3 mg/kg	Mn	31.9 mg/kg		
Cu	5.67 mg/kg	Na.....	580 mg/kg		

30 g

BCR-400 Red ceramic tile (Tomato paste colour)

100 mm x 100 mm

A ceramic tile the colour of which is defined by Hunter L, a and b values. Each tile is individually certified. The tile

is intended for the purpose of calibration and does not represent a standard tomato paste colour.

Nominal Hunter values: L 26, a 33, b 14.5

tile

Oli vegetali**LGC7120 (RM) Corn oil - BHA and BHT**

Commercial corn oil with added BHA and BHT

Assesed values

BHA	49.4 mg/kg	BHT	49.7 mg/kg
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5 x 25 mL

LGC7122-23 Olive oil - Tocopherol

LGC7122

Certified value

alpha-tocopherol 72.1 mg/kg

LGC7123

Certified value

alpha-tocopherol 173.6 mg/kg

2 x 25 mL

BCR-458 Coconut oil - PAHs (doped)

Compound Certified value Uncertainty

	µg/kg	µg/kg
Pyrene.....	9.4.....	1.5
Chrysene.....	4.9.....	0.4
Benzo(k)fluoranthene	1.87.....	0.18
Benzo(a)pyrene	0.93.....	0.09
Benzo(ghi)perylene.....	0.97.....	0.07
Indeno(1,2,3-cd)pyrene.....	1.00.....	0.07

45 g

BCR-459 Coconut oil - PAHs (blank)

Compound Certified value Compound Certified value

µg/kg µg/kg

Pyrene..... <0.9 Benzo(a)pyrene..... <0.3

Chrysene..... <0.6 Benzo(ghi)perylene

Benzo(k)fluoranthene

<0.2 Indeno(1,2,3-cd)pyrene..... <0.2

45 g

NIST-1563 Coconut oil - Cholesterol and fat-soluble vitamins

This Standard Reference Material. (SRM.) is intended primarily for use in the development and validation of analytical methods for the determination of cholesterol, fat-soluble vitamins, fat, and fatty acids in a lipid matrix. NIST-1563 consists of ten ampoules per unit: five ampoules of natural coconut oil (1563-1) and five ampoules of fortified coconut oil (1563-2). Each ampoule contains approximately 4 mL of oil.

Mass fraction Concentration

(mg/kg) (mg/L)

Cholesterol.....	638 ± 8	585 ± 6
dl-alpha-Tocopheryl acetate	158 ± 6	145 ± 6

Reference values for fat and fatty acids, cholesterol and vitamins set (10)

BCR-537 Plastic film A - Overall migration in olive oil

Total immersion in olive oil for 10 days at 40°C
Certified value: 8.3 mg/dm²
film

BCR-538 Plastic film B - Overall migration in olive oil

Single sided cell in olive oil for 10 days at 40°C
Certified value: 5.7 mg/dm²
film

BCR-539 Plastic film C - Overall migration in olive oil

Pouch in olive oil for 10 days at 40°C
Certified value: 6.1 mg/dm²
film

BCR-593 Plastic film E

120 cm x 20 cm

Directive 90/128/EEC on plastic materials and articles intended for food contact regulates the limits of overall migration of specific substances into foodstuff. BCR-593 has been prepared to check the performance of the standard test procedure of film thickness, required for the evaluation of migration tendency.

Certified values

Fat soluble fluorescent additive (1,4-diphenyl-1,3-butadiene) 12.58 mg/kg
Film thickness..... 149.7 µm

film

Micotossine

Single compounds

B-MYC0340 3-Acetyl-deoxynivalenol (3-AcDON) 100 µg/mL in acetonitrile 5 mL
B-MYC0340-C 3-Acetyl-deoxynivalenol 5 mg
B-MYC0360 15-Acetyl-deoxynivalenol (15-AcDON) 100 µg/mL in acetonitrile 5 mL
B-MYC0360-C 15-Acetyl-deoxynivalenol 5 mg
CSIR-MYC 024 Acgroclavine 10 mg
CSIR-MYC 025 Acroclavine I 10 mg
B-MYC0200 Aflatoxin B1 2 µg/mL in acetonitrile 5 mL
B-MYC0220 Aflatoxin B2 0.5 µg/mL in acetonitrile 5 mL
B-MYC0240 Aflatoxin G1 2 µg/mL in acetonitrile 5 mL
B-MYC0260 Aflatoxin G2 0.5 µg/mL in acetonitrile 5 mL
B-MYC0280 Aflatoxin M2 0.5 µg/mL in acetonitrile 5 mL
BCR-423 (RM) Aflatoxin M1 standard solution
9.93 µg/mL in chloroform 2.5 mL
RH36976 Aflatoxin M1 0.5 µg/mL in methanol OEKANAL® 2 mL
CSIR-MYC 005 Austdiol 10 mg
CSIR-MYC 006 Austocystin A 10 mg
CSIR-MYC 026 Chanoclavine I 10 mg
CSIR-MYC 007 Cytochalasin B 10 mg
CSIR-MYC 008 Cytochalasin H 10 mg
CSIR-MYC 009 Cytochalasin J 10 mg
B-MYC0320 Deoxynivalenol (DON) 100 µg/mL in acetonitrile 5 mL
B-MYC0320-C Deoxynivalenol 5 mg
CSIR-MYC 027 Dimer epoxyagroclavine-I-tartrate 10 mg
CSIR-MYC 028 Elymoclavine 10 mg
CSIR-MYC 030 Epoxyagroclavine-I-tartrate 10 mg
B-MYC0400 Fumonisin B1 50 µg/mL in acetonitrile/water (1:1) 5 mL
B-MYC0400-C Fumonisin B1 5 mg

B-MYC0420 Fumonisin B2 50 µg/mL in acetonitrile/water (1:1) 5 mL
CSIR-MYC 013 Gliotoxin 10 mg
CSIR-MYC 029 Meleagrins 10 mg
B-MYC0480 Nivalenol 100 µg/mL in acetonitrile 5 mL
B-MYC0480-C Nivalenol 5 mg
B-MYC0490 Ochratoxin A 10 µg/mL in acetonitrile 5 mL
B-MYC0490-C Ochratoxin A 5 mg
CSIR-MYC 015 Ochratoxin B 10 mg
B-MYC0500 Patulin 100 µg/mL in acetonitrile 5 mL
CSIR-MYC 017 Secalonic acid D 10 mg
CSIR-MYC 019 Tenuazonic acid-Ca salt 10 mg
CSIR-MYC 020 Tenuazonic acid-Cu salt 10 mg
CSIR-MYC 021 Verruculogen 10 mg
B-MYC0600 Zearalenon 100 µg/mL in acetonitrile 5 mL
B-MYC0600-C Zearalenone 5 mg

Multicomponent standard solutions

B-MYC0300 Aflatoxin Mixture
Aflatoxin B1..... 2 µg/mL Aflatoxin G1.....2 µg/mL
Aflatoxin B2..... 0.5 µg/mL Aflatoxin G2.....0.5 µg/mL
5 mL
B-MYC0440 Fumonisin Mixture
50 mg/L of each analyte in acetonitrile/water (1:1)
Fumonisin B1 Fumonisin B2
5 mL
B-MYC0700 Trichothecene Mixture
100 µg/mL of each analyte in acetonitrile
3-Acetyl-deoxynivalenol (3-AcDON) Deoxynivalenol (DON)
15-Acetyl-deoxynivalenol (15-AcDON) Nivalenol
5 mL

Materiali di riferimento per Controllo Qualità

LGCQC1001 Meat paste 1

This material is a blend of beef and pork meat .

Reference values

Ash..... 0.78 g/100 g Ca.....253 mg/kg Na 1360 mg/kg
Moisture 66.5 g/100 g K.....1590 mg/kg Zn..... 14.2 mg/kg
Total Fat..... 12.4 g/100 g N.....1.96 g/100 g
10 x 200 g

LGCQC1002 Flour 1

This material is a commercially produced white bread flour.

Reference values

Ash..... 0.84 g/100 g Ca.....1120 mg/kg Fe..... 23 mg/kg
Fat..... 1.7 g/100 g K.....1720 mg/kg Zn..... 12 mg/kg
N 2.43 g/100 g Na.....39 mg/kg
10 x 25 g

LGCQC1003 Chocolate 1

This material comprises milk chocolate that has been ground and thoroughly mixed.

Reference values

Lactose 7.8 g/100 g N..... 1.25 g/100 g
Sucrose..... 44.8 g/100 g Butyric Acid in Fat 0.8 g/100 g
Total fat..... 29.5 g/100 g
10 x 15 g

LGCQC1004 Fish paste 1

This material comprises whole mackerel fillets that have been thoroughly blended, after addition of water and sodium.

Reference values

Ash..... 0.83 g/100 g N.....2.25 g/100 g Cl 1500 mg/kg
Moisture 64.5 g/100 g Na.....1320 mg/kg

Total Fat..... 20.4 g/100 g K.....1850 mg/kg
10 x 200 g

LGCQC1005 Fish paste 2

This material comprises a thoroughly mixed blend of white and brown crab meat.

Reference values

As..... 11.0 mg/kg Cu.....10.4 mg/kg Na 2170 mg/kg
Ca 2150 mg/kg Hg.....0.10 mg/kg Ni 0.23 mg/kg
Cd 1.9 mg/kg K.....1980 mg/kg P 2960 mg/kg
Co 0.06 mg/kg Mg348 mg/kg V 0.08 mg/kg
Cr 0.3 mg/kg Mn1.8 mg/kg Zn..... 53.6 mg/kg
10 x 200 g

LGCQC1050 Animal feed 1

This material comprises a commercially produced feeding stuff that has been ground to pass a 1mm sieve and thoroughly mixed.

Reference values

Ash..... 8.1 g/100 g Cl0.66 g/100 g Mn..... 128 mg/kg
Crude fibre 7.5 g/100 g Cu.....34 mg/kg Na 0.44 g/100 g
Moisture 5.8 g/100 g Fe248 mg/kg N 2.72 g/100 g
Oil 7.8 g/100 g K.....1.07 g/100 g P 0.72 g/100 g
Ca 1.05 g/100 g Mg0.60 g/100 g Zn..... 136 mg/kg
10 x 50 g

Food Authenticity

Isotopic analyses are now official or standard methods in Europe and beyond for routine use in food authenticity testing. Thus, the use of nuclear magnetic resonance (NMR) spectrometry based on the site-specific natural isotope fractionation (SNIF) is prescribed for instance by EC Regulation No. 2676/90 on analytical methods for wine quality control. These methods are based on the measurement of stable isotope content (deuterium, ¹³C, ¹⁸O, etc.) of the products or of a specific component such as an ingredient or target molecule of the product. The determinations, carried out using NMR and/or Isotopic Ratio Mass Spectrometry (IRMS), provide information on the botanical and geographical origin of the food product. In order to enable a clear comparison of results the following certified reference materials have been developed.

BCR-123A and BCR-123B

Quantitative analysis of deuterium in ethanol by NMR spectrometry based on the site-specific natural isotope fractionation (SNIF) is of considerable importance for the detection of wine enrichment. This technique is prescribed by EC regulation No. 2676/90 on analytical methods for wine quality control. BCR-123 consists of a set of 3 sealed NMR tubes containing forms of ethanol with a range of site specific isotopic ratios, to which tetramethylurea internal standard and the C6F6 lock substance have been added.

BCR-123A Ethanol - D/H isotopic determination 3 tubes

BCR-123B Ethanol - D/H isotopic determination 3 tubes

BCR-660 Alcoholic solution - Isotope ratios

Certified values

Parameter value uncertainty

(D/H)I by 2H-NMR..... 102.90 ppm..... ±0.16
(D/H)II by 2H-NMR..... 131.35 ppm..... ±0.23
R by 2H-NMR 2.567..... ±0.005
TM 13CVPDB by IRMS..... -2.672%..... ±0.009
(D/H) w of water (IRMS)..... 148.68ppm..... ±0,14
Alcoholic grade tD..... 11.96%..... ±0.06(1)
(1) in v/v %
450 mL

Lipid Standards

Code Product Unit

U-FLSA-098 Arachidonic acid (90%) 100 mg
U-FLSA-101 Arachidonic acid (99%) 100 mg
U-FLSA-107 Arachidonic acid methyl ester (90%) 100 mg
U-FLSA-110 Arachidonic acid methyl ester (99%) 100 mg
U-FLSA-115 Butanedioic acid (Succinic acid) 1 g
U-FLSA-132 Butanedioic acid dimethyl ester 1 g
U-FLSA-002 Butanoic acid (Butyric acid) 1 g
U-FLSA-017 Butanoic acid methyl ester 1 g
U-FLSA-121 Decanedioic acid (Sebacic acid) 500 mg
U-FLSA-138 Decanedioic acid dimethyl ester 500 mg
U-FLSA-005 Decanoic acid (Capric acid) 1 g
U-FLSA-020 Decanoic acid methyl ester 1 g
U-FLSA-100 Docosahexenoic acid 100 mg
U-FLSA-109 Docosahexenoic acid methyl ester 100 mg
U-FLSA-011 Docosanoic acid (Behenic acid) 1 g
U-FLSA-026 Docosanoic acid methyl ester 1 g
U-FLMS-018 1-Docosanol (Behenyl Alcohol) 100 mg
U-FLSA-006 Dodecanoic acid (Lauric acid) 1 g
U-FLSA-021 Dodecanoic acid methyl ester 1 g
U-FLSA-091 11,14-Eicosadienoic acid 100 mg
U-FLSA-094 11,14-Eicosadienoic acid methyl ester 100 mg
U-FLSA-010 Eicosanoic acid (Arachidic acid) 1 g
U-FLSA-025 Eicosanoic acid methyl ester 1 g
U-FLMS-016 1-Eicosanol (Arachidyl Alcohol) 500 mg
U-FLSA-097 11,14,17-Eicosatrienoic acid 100 mg
U-FLSA-106 11,14,17-Eicosatrienoic acid methyl ester 100 mg
U-FLSA-072 11-Eicosenoic acid 100 mg
U-FLSA-086 11-Eicosenoic acid methyl ester 100 mg
U-FLSA-066 Elaidic acid 100 mg
U-FLSA-080 Elaidic acid methyl ester 100 mg
U-FLSA-073 Erucic acid 100 mg
U-FLSA-087 Erucic acid methyl ester 100 mg
U-FLSA-113 Ethanedioic acid (Oxalic acid) 1 g
U-FLSA-130 Ethanedioic acid dimethyl ester 1 g
U-FLSA-001 Ethanoic acid (Acetic acid) 1 g
U-FLSA-016 Ethanoic acid methyl ester 1 g
U-FLSA-036 Hendecanoic acid (Undecylic acid) 100 mg
U-FLSA-051 Hendecanoic acid methyl ester 100 mg
U-FLSA-041 Heneicosanoic acid 100 mg
U-FLSA-056 Heneicosanoic acid methyl ester 100 mg
U-FLMS-017 1-Heneicosanol 100 mg
U-FLSA-059 Heptacosanoic acid methyl ester 50 mg
U-FLMS-023 1-Heptacosanol 50 mg
U-FLSA-039 Heptadecanoic acid (Margaric acid) 100 mg
U-FLSA-054 Heptadecanoic acid methyl ester 100 mg
U-FLMS-013 1-Heptadecanol 100 mg
U-FLSA-118 Heptanedioic acid (Pimelic acid) 1 g
U-FLSA-135 Heptanedioic acid dimethyl ester 1 g
U-FLSA-034 Heptanoic acid (Heptylic acid) 100 mg
U-FLSA-049 Heptanoic acid methyl ester 100 mg
U-FLSA-013 Hexacosanoic acid (Cerotic acid) 100 mg
U-FLSA-028 Hexacosanoic acid methyl ester 100 mg
U-FLMS-022 1-Hexacosanol (Cerotyl Alcohol) 50 mg
U-FLSA-008 Hexadecanoic acid (Palmitic acid) 1 g
U-FLSA-023 Hexadecanoic acid methyl ester 1 g
U-FLMS-012 1-Hexadecanol (Cetyl Alcohol) 1 g
U-FLSA-117 Hexanedioic acid (Adipic acid) 1 g
U-FLSA-134 Hexanedioic acid dimethyl ester 1 g

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U-FLSA-003 Hexanoic acid (Caproic acid) 1 g
U-FLSA-018 Hexanoic acid methyl ester 1 g
U-FLSA-147 homo gamma-Linolenic acid 100 mg
U-FLSA-148 homo gamma-Linolenic acid methyl ester 100 mg
U-FLSA-089 Linoleic acid 100 mg
U-FLSA-092 Linoleic acid methyl ester 100 mg
U-FLSA-090 Linolelaidic acid 100 mg
U-FLSA-093 Linolelaidic acid methyl ester 100 mg
U-FLSA-095 Linolenic acid 100 mg
U-FLSA-104 Linolenic acid methyl ester 100 mg
U-FLSA-096 gamma Linolenic acid 100 mg
U-FLSA-105 gamma-Linolenic acid methyl ester 100 mg
U-FLSA-031 Methanoic acid (Formic acid) 1 g
U-FLSA-046 Methanoic acid methyl ester 1 g
U-FLBA-021 2-Methylbutanoic acid (Anteisovaleric acid) 50 mg
U-FLBA-030 2-Methylbutanoic acid methyl ester 50 mg
U-FLBA-034 10-Methyldodecanoic acid methyl ester 50 mg
U-FLBA-038 18-Methyleicosanoic acid methyl ester 25 mg
U-FLBA-004 10-Methylhendecanoic acid (Isolauric acid) 50 mg
U-FLBA-014 10-Methylhendecanoic acid methyl ester 50 mg
U-FLBA-007 16-Methylheptadecanoic acid (Isostearic acid) 10 mg
U-FLBA-017 16-Methylheptadecanoic acid methyl ester 10 mg
U-FLBA-002 6-Methylheptanoic acid (Isocaprylic acid) 50 mg
U-FLBA-012 6-Methylheptanoic acid methyl ester 50 mg
U-FLBA-027 14-Methylhexadecanoic acid (Anteisomargaric acid) 10 mg
U-FLBA-036 14-Methylhexadecanoic acid methyl ester 10 mg
U-FLBA-022 4-Methylhexanoic acid (Anteisoheptylic acid) 50 mg
U-FLBA-031 4-Methylhexanoic acid methyl ester 50 mg
U-FLBA-008 18-Methylnonadecanoic acid (Isoarachidic acid) 25 mg
U-FLBA-018 18-Methylnonadecanoic acid methyl ester 25 mg
U-FLBA-003 8-Methylnonanoic acid (Isocapric acid) 50 mg
U-FLBA-013 8-Methylnonanoic acid methyl ester 50 mg
U-FLBA-028 16-Methyloctadecanoic acid (Anteisononadecylic acid) 25 mg
U-FLBA-037 16-Methyloctadecanoic acid methyl ester 25 mg
U-FLBA-032 6-Methyloctanoic acid methyl ester 50 mg
U-FLBA-006 14-Methylpentadecanoic acid (Isopalmitic acid) 10 mg
U-FLBA-016 14-Methylpentadecanoic acid methyl ester 10 mg
U-FLBA-001 4-Methylpentanoic acid (Isocaproic acid) 50 mg
U-FLBA-011 4-Methylpentanoic acid methyl ester 50 mg
U-FLBA-026 12-Methyltetradecanoic acid (Anteisopentadecylic acid) 10 mg
U-FLBA-035 12-Methyltetradecanoic acid methyl ester 10 mg
U-FLBA-015 12-Methyltridecanoic acid methyl ester 10 mg
U-FLSA-062 Myristoleic acid 100 mg
U-FLSA-076 Myristoleic acid methyl ester 100 mg
U-FLSA-074 Nervonic acid 100 mg
U-FLSA-088 Nervonic acid methyl ester 100 mg
U-FLSA-040 Nonadecanoic acid (Nonadecylic acid) 100 mg
U-FLSA-055 Nonadecanoic acid methyl ester 100 mg
U-FLMS-015 1-Nonadecanol 100 mg
U-FLSA-120 Nonanedioic acid (Azelaic acid) 500 mg
U-FLSA-137 Nonanedioic acid dimethyl ester 500 mg
U-FLSA-035 Nonanoic acid (Pelargonic acid) 100 mg
U-FLSA-050 Nonanoic acid methyl ester 100 mg
U-FLSA-014 Octacosanoic acid (Montanic acid) 100 mg
U-FLSA-029 Octacosanoic acid methyl ester 100 mg
U-FLMS-024 1-Octacosanol 50 mg
U-FLSA-127 Octadecanedioic acid 50 mg
U-FLSA-144 Octadecanedioic acid dimethyl ester 50 mg
U-FLSA-009 Octadecanoic acid (Stearic acid) 1 g
U-FLSA-024 Octadecanoic acid methyl ester 1 g
U-FLMS-014 1-Octadecanol (Stearyl Alcohol) 1 g
U-FLSA-067 cis-11-Octadecenoic acid 100 mg
U-FLSA-081 cis-11-Octadecenoic acid methyl ester 100 mg
U-FLSA-068 trans-11-Octadecenoic acid (Vaccenic acid) 100 mg

U-FLSA-082 trans-11-Octadecenoic acid methyl ester 100 mg
U-FLSA-119 Octanedioic acid (Suberic acid) 500 mg
U-FLSA-136 Octanedioic acid dimethyl ester 500 mg
U-FLSA-004 Octanoic acid (Caprylic acid) 1 g
U-FLSA-019 Octanoic acid methyl ester 1 g
U-FLSA-065 Oleic acid 100 mg
U-FLSA-079 Oleic acid methyl ester 100 mg
U-FLSA-064 Palmitelaidic acid 100 mg
U-FLSA-078 Palmitelaidic acid methyl ester 100 mg
U-FLSA-063 Palmitoleic acid 100 mg
U-FLSA-077 Palmitoleic acid methyl ester 100 mg
U-FLSA-058 Pentacosanoic acid methyl ester 50 mg
U-FLMS-021 1-Pentacosanol 50 mg
U-FLSA-038 Pentadecanoic acid (Pentadecylic acid) 100 mg
U-FLSA-053 Pentadecanoic acid methyl ester 100 mg
U-FLSA-033 Pentanoic acid (Valeric acid) 100 mg
U-FLSA-048 Pentanoic acid methyl ester 100 mg
U-FLSA-071 Petroselinic acid 100 mg
U-FLSA-085 Petroselinic acid methyl ester 100 mg
U-FLBA-042 Phytanic acid (3,7,11,15-Tetramethylhexadecanoic acid) 25 mg
U-FLBA-043 Phytanic acid methyl ester (Methyl-3,7,11,15-tetramethylhexadecanoate) 25 mg
U-FLMS-035 Phytol (tech) (3,7,11,15-Tetramethyl-2-hexadecen-1-ol) 1 g
U-FLSA-114 Propanedioic acid (Malonic acid) 1 g
U-FLSA-131 Propanedioic acid dimethyl ester 1 g
U-FLSA-032 Propanoic acid (Propionic acid) 1 g
U-FLSA-047 Propanoic acid methyl ester 1 g
U-FLSA-070 Ricinelaidic acid 100 mg
U-FLSA-084 Ricinelaidic acid methyl ester 100 mg
U-FLSA-069 Ricinoleic acid 100 mg
U-FLSA-083 Ricinoleic acid methyl ester 100 mg
U-FLSA-012 Tetracosanoic acid (Lignoceric acid) 100 mg
U-FLSA-027 Tetracosanoic acid methyl ester 100 mg
U-FLMS-020 1-Tetracosanol (Lignoceryl Alcohol) 50 mg
U-FLSA-125 Tetradecanedioic acid 100 mg
U-FLSA-142 Tetradecanedioic methyl ester 100 mg
U-FLSA-007 Tetradecanoic acid (Myristic acid) 1 g
U-FLSA-022 Tetradecanoic acid methyl ester 1 g
U-FLMS-010 1-Tetradecanol (Myristyl Alcohol) 1 g
U-FLSA-015 Triacontanoic acid (Mellissic acid) 100 mg
U-FLSA-030 Triacontanoic acid methyl ester 100 mg
U-FLMS-026 1-Triacontanol (Melissyl Alcohol) 50 mg
U-FLSA-057 Tricosanoic acid methyl ester 100 mg
U-FLMS-019 1-Tricosanol 100 mg
U-FLSA-037 Tridecanoic acid (Tridecylic acid) 100 mg
U-FLSA-052 Tridecanoic acid methyl ester 100 mg

U-FLPK-001 Unsaturated fatty acids & methyl esters Kit**Each kit contains 25 mg each of twenty compounds.**

cis-9-Tetradecenoic acid (Myristoleic acid)
cis-9-Hexadecenoic acid (Palmitoleic acid)
trans-9-Hexadecenoic acid (Palmitelaidic acid)
cis-9-Octadecenoic acid (Oleic acid)
trans-9-Octadecenoic acid (elaidic acid)
cis-9-cis-12-Octadecadienoic acid (Linoleic acid)
trans-9-trans-12-Octadecadienoic acid (Linolelaidic acid)
cis-9-cis-12-cis-15-Octadecenoate acid (Linolenic acid)
cis-11-Eicosenoic acid (Gondonic acid)
cis-13-Docosenoic acid (Erucic acid)
Methyl cis-9-Tetradecanoate (Methyl myristoleate)
Methyl cis-9-Hexadecenoate (Methyl palmitoleate)
Methyl trans-9-Hexadecenoate (Methyl palmitelaidate)
Methyl cis-9-Octadecenoate (Methyl oleate)
trans-9-Octadecenoate (Methyl eleidate)
Methyl cis-9-cis-12-Octadecadienoate (Methyl linoleate)

Methyl trans-9-cis-12-Octadecadienoate (Methyl linelaidate)
Methyl cis-9-cis-12-cis-15-Octadecatrienoate (Methyl linolenate)
Methyl cis-11-Eicosenoate (Methyl gondonate)
Methyl cis-13-Docosenoate (Methyl erucate)
kit

U-FLPK-003 Fatty acids and methyl esters kit

Each kit contains 25 mg each of sixteen compounds.

Nonanoic acid Methyl nonanoate
Undecanoic acid Methyl undecanoate
Tridecanoic acid Methyl tridecanoate
Pentadecanoic acid Methyl pentadecanoate
Heptadecanoic acid Heptadecanoic acid methyl ester
Nonadecanoic acid (Nonadecylic acid) Nonadecanoic acid methyl ester
Heneicosanoic acid Heneicosanoic acid methyl ester
Tricosanoic acid Tricosanoic acid methyl ester
kit

U-FLPK-004 Fatty acids and methyl esters kit

Each kit contains 100 mg each of twenty compounds.

Hexanoic acid (Caproic acid) Hexanoic acid methyl ester
Octanoic acid (Caprylic acid) Octanoic acid methyl ester
Decanoic acid (Capric acid) Decanoic acid methyl ester
Dodecanoic acid (Lauric acid) Dodecanoic acid methyl ester
Tetradecanoic acid (Myristic acid) Tetradecanoic acid methyl ester
Hexadecanoic acid (Palmitic acid) Hexadecanoic acid methyl ester
Stearic acid Octadecanoic acid methyl ester
Eicosanoic acid (Arachidic acid) Eicosanoic acid methyl ester
Docosanoic acid (Behenic acid) Docosanoic acid methyl ester
Tetracosanoic acid (Lignoceric acid) (25 mg) Tetracosanoic acid methyl ester (25 mg)
kit

U-FLPK-005 Volatile fatty acids

Each kit contains 1 gm each of ten compounds plus 5 mL of a mixture.

Methanoic acid (Formic acid) Isovaleric acid
Acetic acid Hexanoic acid (Caproic acid)
Propanoic acid (Propionic acid) Heptanoic acid
Butanoic acid (Butyric acid) Octanoic acid (Caprylic acid)
Isobutyric acid 0.1% C1-C5 Acids test solution in H₂O (5 mL)
Pentanoic acid (Valeric acid)
kit

Cibi lavorati

LGC7103 Sweet digestive biscuit - Proximates and elements

Assessed values

Moisture 2.8 g/100 g Fructose0.24 g/100 g Mn..... 5.9 mg/kg
Nitrogen 1.06 g/100 g Sucrose16.6 g/100 g Na 6300 mg/kg
Total fat..... 20.9 g/100 g Chloride0.55 mg/kg P 870 mg/kg
Ash..... 2.08 g/100g K.....1530 mg/kg Zn..... 5.8 mg/kg

Indicative values for glucose, starch, Ca and Mg
50 g

LGC7107 (RM) Madeira cake - Proximates

Lemon Madeira cake were prepared by a UK food company. Each cake, weighing approx. 160 g, was sealed in a can.

Assessed values

Moisture 25.9 g/100 g Total fat13.4 g/100 g Sucrose..... 28.1 g/100 g
Nitrogen 0.66 g/100 g Ash1.76 g/100 g Lactose 0.9 g/100 g
Indicative value for starch content

160 g

LGC7105 (RM) Rice pudding - Proximates and elements

Certified values

Moisture	71.3 g/100 g	Sucrose	7.2 g/100 g	Mn.....	0.7 mg/kg
N	0.17 g/100 g	Ca.....	78 mg/kg	Na	344 mg/kg
Total fat.....	8.4 g/100 g	K.....	558 mg/kg	P	346 mg/kg
Ash.....	0.22 g/100 g	Mg	30 mg/kg	Zn.....	1.5 mg/kg

5 x 200 g

LGC7016 Chocolate confectionery - Sugars, nitrogen and fats

Certified values

Lactose	7.8 g/100 g	Total fat	29.5 g/100 g	Nitrogen	1.25 g/100 g
Sucrose.....	44.8 g/100 g	Butyric acid in fat	0.8 g/100 g		

Indicative values for fructose and glucose

15 g

BCR-518 Bran breakfast cereal - Dietary fibre

Certified using five different methods of dietary fibre analysis

Certified values

AOAC 1990.....	30.2 g/100 g	AOAC 1992 MES-TRIS.....	30.5 g/100 g
Englyst (GC)	24.1 g/100 g	Englyst (colorimetry)	25.0 g/100 g
Uppsala.....	27.6 g/100 g		

25 g

BCR-191 Brown bread - Trace elements

Certified values

Cd	28.4 µg/kg	Fe	40.7 mg/kg	Pb	187 µg/kg
Cu	2.6 mg/kg	Mn	20.3 mg/kg	Zn.....	19.5 mg/kg

Indicative values for As, Ca, Cl, Cr, Hg, K, Mg, Na, Ni, P, Se

40 g

NIST-1845 Whole egg powder - Cholesterol

Certified value

Cholesterol..... 19.0 mg/g

35 g

NIST-RM 8415 Whole egg powder - Trace elements

Reference concentration values are given for major, minor and trace constituent elements, proximates, calories and fatty acids. Information concentration values are given for additional elements, fatty acids and water soluble vitamins

35 g

NIST-2383 Baby food composite - Carotenoids and vitamins

Certified values

trans-Retinol	0.80 mg/kg	α-Tocopherol.....	25.0 mg/kg	β-Cryptoxanthin.....	1.38 mg/kg
γ-Tocopherol.....	1.51 mg/kg	Lutein.....	1.16 mg/kg	Total α-carotene	0.83 mg/kg
β-Tocopherol	5.51 mg/kg	Zeaxanthin.....	0.86 mg/kg	Total β-carotene.....	3.12 mg/kg

Indicative values for other vitamins and carotenoids, proximates, cholesterol, calories, minerals and trace elements

4 x 70 g

NIST-1548a Typical diet - Trace elements

A unit of NIST-1548a consists of two bottles, each containing approximately 6.5 g of the freeze-dried homogenate

of mixed diet foods.

Certified values

Al.....	72.4 mg/kg	Cu.....	2.32 mg/kg	Ni	0.369 mg/kg
As.....	0.20 mg/kg	Fe	35.3 mg/kg	P	3486 mg/kg
Ca	1967 mg/kg	I	0.759 mg/kg	S	1928 mg/kg
Cd	0.035 mg/kg	Mg	580 mg/kg	Se	0.245 mg/kg
Cl	12078 mg/kg	Mn	5.75 mg/kg	Sn	17.2 mg/kg
Cs	0.0098 mg/kg	Na.....	8132 mg/kg	Zn.....	24.6 mg/kg

Indicative values for Ash, carbohydrate, fat, N, protein, dietary fibre, calories, B, Ba, Br, Co, Hg, Mo, Sb, Sc, Si, Sr, Ti

set (2)

NIST-1544 Diet composite - Fatty acids and cholesterol

Certified values

Cholesterol..... 0.1483 g/kg Palmitic acid.....5.77 g/kg Linoleic acid..... 6.56 g/kg
 Lauric acid 1.31 g/kg Stearic acid.....2.00 g/kg
 Myristic acid 1.01 g/kg Oleic acid.....11.64 g/kg

Indicative values for protein, moisture, total fat, ash, carbohydrate, calories, remaining fatty acids, Ca, K, Na
 4 x 15 g

ARC/CL2 Total diet - Trace elements

Certified values

Ca 2.86 mg/g K.....9.42 mg/g Ni 271 ng/g
 Cd 21 ng/g Mg785 µg/g Pb 43 ng/g
 Cu 3.18 µg/g Mn12.9 µg/g Se 181 ng/g
 Fe..... 30.4 µg/g Mo262 ng/g Zn..... 28.9 µg/g
 Hg 6.6 ng/g Na.....7.87 mg/g
 20 g

SLV DIET A Simulated diet A - Trace elements

A mixture of rye/wheat flour, potatoes, skim milk powder and lean beef.

Certified values

Ca 1576 mg/kg K.....11222 mg/kg Pb 0.041 mg/kg
 Cd 0.029 mg/kg Mg814 mg/kg Zn..... 95.0 mg/kg
 Cu 2.60 mg/kg Mn5.69 mg/kg
 Fe..... 81.2 mg/kg Na.....1613 mg/kg

Indicative values for Al, As, Co, Hg, Ni, Rb, S

10 g

SLV DIET B Simulated diet B - Trace elements

A mixture of rye/wheat flour, pig kidney, skim milk powder and lean beef.

Certified values

Ca 2018 mg/kg Fe111 mg/kg Na 2365 mg/kg
 Cd 0.099 mg/kg K.....9142 mg/kg Pb 0.059 mg/kg
 Cr 0.149 mg/kg Mg749 mg/kg Zn..... 91.9 mg/kg
 Cu 6.64 mg/kg Mn6.36 mg/kg

Indicative values for Al, As, Co, Hg, Ni, Rb, Se

10 g

SLV DIET C Simulated diet C - Trace elements

A mixture of reindeer liver, skim milk powder, lean beef and rye/wheat flour.

Certified values

Ca 1059 mg/kg Fe142 mg/kg Na 697 mg/kg
 Cd 0.205 mg/kg K.....4886 mg/kg Ni 0.108 mg/kg
 Cr 0.054 mg/kg Mg620 mg/kg Pb 0.114 mg/kg
 Cu 20.8 mg/kg Mn9.58 mg/kg Zn..... 40.6 mg/kg

Indicative values for Al, As, Co, Hg, Ni, Rb, Se

10 g

SLV DIET D Simulated diet D - Trace elements

A mixture of skim milk powder, reindeer liver, rye/wheat flour and potatoes.

Certified values

Ca 510 mg/kg Fe199 mg/kg Ni 0.100 mg/kg
 Cd 0.478 mg/kg K.....7088 mg/kg Pb 0.218 mg/kg
 Co 0.072 mg/kg Mg676 mg/kg Zn..... 37.2 mg/kg
 Cr 0.036 mg/kg Mn10.2 mg/kg
 Cu 40.8 mg/kg Na.....485 mg/kg

Indicative values for Al, As, Hg, Rb, Se

10 g

SLV DIET E Simulated diet E - Trace elements

A mixture of white wine, potatoes, reindeer liver and rye/wheat flour.

Certified values

Ca	268 mg/kg	Fe	216 mg/kg	Ni	0.124 mg/kg
Cd	0.536 mg/kg	K.....	5985 mg/kg	Pb	0.273 mg/kg
Co	0.083 mg/kg	Mg	649 mg/kg	Zn.....	39.5 mg/kg
Cr	0.061 mg/kg	Mn	11.0 mg/kg		
Cu	46.5 mg/kg	Na.....	436 mg/kg		

Indicative values for Al, As, Hg, Rb, Se
10 g

SLV DIET F Simulated diet F - Trace elements

A mixture of white wine, potatoes, rye/wheat flour and reindeer liver.

Certified values

Ca	262 mg/kg	Fe	349 mg/kg	Na	758 mg/kg
Cd	0.877 mg/kg	K.....	5966 mg/kg	Ni	0.102 mg/kg
Co	0.136 mg/kg	Mg	647 mg/kg	Pb	0.439 mg/kg
Cu	72.7 mg/kg	Mn	11.1 mg/kg	Zn.....	55.8 mg/kg

Indicative values for Al, As, Cr, Hg, Rb, Se

10 g

Bevande

LGC7130 Soft drink - Sweeteners

Known weights of saccharin and aspartame were added to a simulated soft drink.

Certified values

Saccharin..... 77 mg/L Aspartame.....620 mg/L

5 x 20 mL

LGC7131 Soft drink - Sweeteners

Known weights of saccharin and Acesulfame-K were added to a simulated soft drink.

Certified values

Saccharin..... 76 mg/L

Acesulfame-K 349 mg/L

5 x 20 mL

LGC7140 (RM) Soft drink - Colours

Known weights of three food colours were added to a diluted solution of commercial soft drink concentrate.

Certified values

Ponceau 4R (E124)18.7 mg/l Tartrazine (E102) 29.9 mg/L

Sunset yellow (E110)..... 19.6 mg/L

5 x 60 mL

LGC7011 Orange juice

Certified values

Degrees Brix 1.26 Refractive index.....1.3348

3 mL

LGC7012 Orange juice

Certified values

Degrees Brix 12.72 Refractive index.....1.3521

3 mL

LGC7013 Orange juice

Certified values

Degrees Brix 22.07 Refractive index.....1.3673

3 mL

LGC7014 Orange juice

Certified values

Degrees Brix 55.55 Refractive index.....1.4320

3 mL

LGC7015 Orange juice

Certified values

Degrees Brix 64.73 Refractive index.....1.4529

3 mL

For refractive index standards see our catalogue "Reference materials for physical properties"

LGC provides two proficiency testing schemes for the soft drinks industry; SODAS (analysis of soft drinks) and LGC-PCI (sugar analysis) – see section "About proficiency testing (PT)" of this catalog for further details.

Food additives

LGC7300 2,6-Di-tert-butyl-4-methylphenol (BHT)

Certified purity.....99.8%

500 mg

LGC7301 2-tertiary-butyl-4-methoxyphenol

Certified purity.....99.2%

500 mg

LGC7302 Saccharin

Certified purity.....99.6 %

500 mg

LGC7305 Potassium sorbate

Certified purity.....99.8 %

500 mg

IPO F 010 Benzoic acid 250 mg

IPO F 170 Sorbic acid 250 mg

U-FLPK-007 Antioxidant food additives kit

Each kit contains 1 g each of thirteen compounds.

Ascorbic acid

Ascorbyl palmitate

BHA (2 & 3-t-Butyl-4-methoxyphenol)

BHT (2,6-di-tert-Butyl-4-methylphenol)

t-Butylhydroquinone

Ethoxyquin (1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline)

Erythorbic acid (Isoascorbic acid)

Dilaurel thiodipropionate

4-Hydroxymethyl-2,6-di-t-butylphenol

L-Glycine

Propyl gallate

Thiodipropionic acid

THBP (2,4,5-Trihydroxybutyrophenone)

kit

U-FLPK-002 Antimicrobial food additives kit

Each kit contains 1 g each of thirteen compounds.

Acetic acid Propanoic acid (Propionic acid)

Benzoic acid Propyl paraben

Butyl paraben Sodium benzoate

Octanoic acid (Caprylic acid) Sodium nitrate

Ethyl paraben Sodium nitrite

Methyl paraben Sorbic acid

Potassium sorbate

kit

NRMGBW10001 Amaranth colour

Certified purity.....97.2 %

300 mg

NRMGBW10002 Ponceau 4R

Certified purity.....93.3 %
300 mg

NRMGBW10003 Tartrazine

Certified purity.....99.3 %
300 mg

NRMGBW10004 Brilliant Blue

Certified purity.....97.3%
300 mg

NRMGBW10005 Sunset Yellow

Certified purity.....97.3 %
300 mg

Dye standards

BPO010 - IBPO008

Dye standards from the Institute of Dyes and Organic Products (IBPO) Poland

The following standards of dyes, used in the food and pharmaceutical industry, are listed with common description, E code and colour index number (C.I.) for an easy assignment.

The IBPO is accredited by the Polish Centre for Testing and Certification according to the standard PN-EN 45001 and ISO/IEC Guide 25:1990.

Each colour reference standard is supplied with a detailed certificate of analysis which includes dye content value determined by spectrophotometry and values of impurities.

Black

IBPO010 Brilliant Black PN

C.I.28440 - E 151

1 g

Blue

IBPO015 Brilliant Blue FCF

C.I.42090 - E 133

1 g

IBPO002 Indigotine

C.I.73015 - E 132

1 g

IBPO012 Patent Blue V

C.I.42051 - E 131

1 g

Brown

IBPO017 Brown HT

C.I.20285 - E 155

1 g

Green

IBPO016 Brilliant Green BS

C.I.44090 - E 142

1 g

Red

IBPO014 Allura Red AC

C.I.16035 - E 129

1 g

IBPO005 Amaranth

C.I.16185 - E 123

1 g

IBPO003 Azorubin

C.I.14720 - E 122

1 g

IBPO011 Erythrosine

C.I.45430 - E 127

1 g

IBPO004 Ponceau 4R

C.I.16255 - E 124

1 g
IBPO013 Red 2 G
C.I.18050 - E 128

1 g
Yellow

IBPO007 Quinoline Yellow
C.I.47005 - E 104

1 g
IBPO009 Sunset Yellow FCF
C.I.15985 - E 110

1 g
IBPO008 Tartrazine
C.I.19140 - E 102
1 g

Alcoholic beverage

LGC5000 Brandy - Alcohol

Certified value.....39.98 mL/100 mL (at 20°C)
5 x 50 mL

LGC5100 Whisky - Congeners

Certified values

Methanol	8.2 g/100 L	2-Methylbutan-1-ol	19.6 g/100 L
Ethyl acetate	27.0 g/100 L	3-Methylbutan-1-ol	51.4 g/100 L
Propan-1-ol	67.4 g/100 L	2+3-Methylbutan-1-ol	70.1g/100 L
2-Methylpropan-1-ol	65.0 g/100 L		

Indicative values for acetaldehyde, butan-1-ol, furfural
5 x 10 mL

LGC5001 Wine - Alcohol (5%)

Certified value
Alcohol 5.04 ml/100 mL (at 20°C)
5 x 250 mL

LGC5002 Wine - Alcohol (10 %)

Certified value
Alcohol10.25 % (at 20°C)
5 x 250 mL

LGC5003 Wine - Alcohol (15 %)

Certified value
Alcohol14.66 % (at 20°C)
5 x 250 mL

LGC5004 Lager shandy - Alcohol

Certified value.....1.02 mL/100 mL (at 20°C)
5 x 330 mL

LGC5005 Lager - Alcohol

Certified value.....4.75 mL/100 mL (at 20°C)
5 x 440 mL

LGC provides three proficiency testing schemes for the alcoholic beverage industry; BAPS (analysis of beer), MAPS (analysis of malted and unmalted barley) and DAPS (analysis of alcoholic beverages other than beer) – see section “About proficiency testing (PT)” of this catalog for further details.

Low alcohol beverage

Related to the labelling of 'alcohol free' or 'de-alcoholised' and 'low alcohol' beverages according to Directive 90/496/EC.

BCR-651 Beer - Alcohol (low level)

Certified value
Ethanol..... 0.505 % (v/v)
10 mL

BCR-652 Beer - Alcohol (very low level)

Certified value
Ethanol..... 0.051 % (v/v)
10 mL

BCR-653 Wine - Alcohol (low level)

Certified value
Ethanol..... 0.539 % (v/v)
10 mL

Alcohol

LGC5404 Ethanol/water - 5% Ethanol

Certified value
Ethanol..... 5 mL/100 mL at 20°C
5 x 50 mL

LGC5405 Ethanol/water - 15% Ethanol

Certified value
Ethanol..... 15 mL/100 mL at 20°C
5 x 50 mL

LGC5406 Ethanol/water - 40% Ethanol

Certified value
Ethanol..... 40 mL/100 mL at 20°C
5 x 50 mL

Per qualsiasi ulteriore richiesta, contattare la WIR sas, oppure :

