

Code	Product	Unit
<b>New</b> ERM-BF429B	Genetically modified T304-40 Cotton seed (1%)	vial
	Certified value g/kg      Uncertainty g/kg	
	T304-40 cotton.....10 .....	1.3
<b>New</b> ERM-BF429C	Genetically modified T304-40 Cotton seed (10%)	vial
	Certified value g/kg      Uncertainty g/kg	
	T304-40 cotton.....100 .....	11

## Vegetable matter

Code	Product	Unit
<b>Fruit and vegetables</b>		
ERM-BC084	Tomato paste - Contaminant metals	50 g
	Certified values	
	Cd..... 0.112 mg/kg      Pb.....0.316 mg/kg      Sn ..... 225 mg/kg	
LGC7111	Potato powder - Sulfur dioxide	110 g
	Assessed value	
	Total sulfur dioxide.....212 ± 27 mg/kg	
<b>New</b> ERM-BC402	Potato powder - Iodine	110 g
	Certified value	
	Iodine..... 1.86 mg/kg	
LGC7162	Strawberry leaves - Trace elements	20 g
	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 60 mL bottles.	
	Certified Values	
	Ca..... 1.53 g/100 g      Ba..... 107 mg/kg      Mo..... 0.32 mg/kg	
	Mg..... 0.377 g/100 g      Cd.....0.17 mg/kg      Hg..... 0.027 mg/kg	
	N..... 2.01 g/100 g      Co..... 0.47 mg/kg      Ni..... 2.6 mg/kg	
	P..... 0.260 g/100 g      Cr..... 2.15 mg/kg      Sr..... 64 mg/kg	
	K..... 1.96 g/100 g      Fe..... 818 mg/kg      Zn..... 24 mg/kg	
	S..... 0.174 g/100 g      Pb..... 1.8 mg/kg	
	As..... 0.28 mg/kg      Mn..... 171 mg/kg	
ERM-BC516	Apple - Dietary fibre	25 g
	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	
<b>New</b> NIM-GBW10019	Apple - Trace elements	35 g
	Certified values	
	Ag..... 0.007 ± 0.001 %      I..... 0.12 ± 0.04 mg/kg      Pr..... 1.8 ± 0.3 µg/kg	
	As..... 0.020 ± 0.004 mg/kg      K..... 0.77 ± 0.04 %      Rb..... 5.0 ± 0.6 mg/kg	
	B..... 19 ± 3 mg/kg      La..... 0.014 ± 0.004 mg/kg      S..... 0.063 ± 0.004 %	
	Ba..... 2.5 ± 0.3 mg/kg      Li..... 0.115 ± 0.009 mg/kg      Si..... 0.0050 ± 0.0013 %	
	Ca..... 0.049 ± 0.001 %      Mg..... 0.039 ± 0.006 %      Sm..... 1.5 ± 0.5 µg/kg	
	Cd..... 5.8 ± 1.2 µg/kg      Mn..... 2.7 ± 0.2 mg/kg      Sr..... 6.9 ± 0.5 mg/kg	
	Ce..... 0.025 ± 0.005 mg/kg      Mo..... 0.08 ± 0.02 mg/kg      Th..... 4.0 ± 0.3 µg/kg	
	Co..... 0.026 ± 0.006 mg/kg      N..... 0.31 ± 0.03 %      U..... 8.2 ± 1.8 µg/kg	
	Cr..... 0.30 ± 0.06 mg/kg      Na..... 0.116 ± 0.009 mg/kg      Y..... 0.008 ± 0.002 mg/kg	
	Cu..... 2.5 ± 0.2 mg/kg      Ni..... 0.14 ± 0.05 mg/kg      Zn..... 2.1 ± 0.4 mg/kg	
	Fe..... 16 ± 2 mg/kg      P..... 0.066 ± 0.004 %	
	Gd..... 0.95 ± 0.11 µg/kg      Pb..... 0.084 ± 0.032 mg/kg	
	Indicative values for further elements	
BCR-431	Brussels sprout - Vitamins	20 g
	Certified values	
	Vitamin C (total ascorbate).....4830 mg/kg	
	Niacin..... 43 mg/kg	
IAEA-359	Cabbage - Trace elements	30 g
	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	

## Vegetable matter

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<b>New</b> NIM-GBW10014	Cabbage - Trace elements Certified values	35 g																																																									
	<table border="0"> <tr> <td>Ag ..... 0.0166 ± 0.0022 %</td> <td>Fe ..... 98 ± 10 mg/kg</td> <td>Pb ..... 0.19 ± 0.03 mg/kg</td> </tr> <tr> <td>As ..... 0.062 ± 0.014 mg/kg</td> <td>Gd ..... 3.1 ± 0.5 µg/kg</td> <td>Pr ..... 4.0 ± 0.6 µg/kg</td> </tr> <tr> <td>B ..... 19.6 ± 1.7 mg/kg</td> <td>Hg ..... 10.9 ± 1.6 µg/kg</td> <td>Rb ..... 19.6 ± 1.0 mg/kg</td> </tr> <tr> <td>Ba ..... 12 ± 2 mg/kg</td> <td>I ..... 0.24 ± 0.03 mg/kg</td> <td>S ..... 0.72 ± 0.05 %</td> </tr> <tr> <td>Bi ..... 2.8 ± 0.7 µg/kg</td> <td>K ..... 1.55 ± 0.06 %</td> <td>Se ..... 0.20 ± 0.03 mg/kg</td> </tr> <tr> <td>Br ..... 6.0 ± 1.3 mg/kg</td> <td>La ..... 0.024 ± 0.003 mg/kg</td> <td>Si ..... 0.024 ± 0.005 %</td> </tr> <tr> <td>Ca ..... 0.70 ± 0.02 %</td> <td>Li ..... 0.54 ± 0.08 mg/kg</td> <td>Sm ..... 3.2 ± 0.7 µg/kg</td> </tr> <tr> <td>Cd ..... 35 ± 6 µg/kg</td> <td>Mg ..... 0.241 ± 0.015 %</td> <td>Sr ..... 48 ± 3 mg/kg</td> </tr> <tr> <td>Ce ..... 0.044 ± 0.004 mg/kg</td> <td>Mn ..... 18.7 ± 0.8 mg/kg</td> <td>Th ..... 9 ± 3 µg/kg</td> </tr> <tr> <td>Cl ..... 0.64 ± 0.07 %</td> <td>Mo ..... 0.71 ± 0.07 mg/kg</td> <td>U ..... 20 ± 3 µg/kg</td> </tr> <tr> <td>Co ..... 0.089 ± 0.014 mg/kg</td> <td>N ..... 2.8 ± 0.2 %</td> <td>Y ..... 0.015 ± 0.002 mg/kg</td> </tr> <tr> <td>Cr ..... 1.8 ± 0.3 mg/kg</td> <td>Na ..... 1.09 ± 0.06(%) mg/kg</td> <td>Yb ..... 1.4 ± 0.4 µg/kg</td> </tr> <tr> <td>Cs ..... 0.082 ± 0.012 mg/kg</td> <td>Nd ..... 0.015 ± 0.002 mg/kg</td> <td>Zn ..... 26 ± 2 mg/kg</td> </tr> <tr> <td>Cu ..... 2.7 ± 0.2 mg/kg</td> <td>Ni ..... 0.93 ± 0.10 mg/kg</td> <td></td> </tr> <tr> <td>Dy ..... 2.6 ± 0.7 µg/kg</td> <td>P ..... 0.46 ± 0.03 %</td> <td></td> </tr> </table>	Ag ..... 0.0166 ± 0.0022 %	Fe ..... 98 ± 10 mg/kg	Pb ..... 0.19 ± 0.03 mg/kg	As ..... 0.062 ± 0.014 mg/kg	Gd ..... 3.1 ± 0.5 µg/kg	Pr ..... 4.0 ± 0.6 µg/kg	B ..... 19.6 ± 1.7 mg/kg	Hg ..... 10.9 ± 1.6 µg/kg	Rb ..... 19.6 ± 1.0 mg/kg	Ba ..... 12 ± 2 mg/kg	I ..... 0.24 ± 0.03 mg/kg	S ..... 0.72 ± 0.05 %	Bi ..... 2.8 ± 0.7 µg/kg	K ..... 1.55 ± 0.06 %	Se ..... 0.20 ± 0.03 mg/kg	Br ..... 6.0 ± 1.3 mg/kg	La ..... 0.024 ± 0.003 mg/kg	Si ..... 0.024 ± 0.005 %	Ca ..... 0.70 ± 0.02 %	Li ..... 0.54 ± 0.08 mg/kg	Sm ..... 3.2 ± 0.7 µg/kg	Cd ..... 35 ± 6 µg/kg	Mg ..... 0.241 ± 0.015 %	Sr ..... 48 ± 3 mg/kg	Ce ..... 0.044 ± 0.004 mg/kg	Mn ..... 18.7 ± 0.8 mg/kg	Th ..... 9 ± 3 µg/kg	Cl ..... 0.64 ± 0.07 %	Mo ..... 0.71 ± 0.07 mg/kg	U ..... 20 ± 3 µg/kg	Co ..... 0.089 ± 0.014 mg/kg	N ..... 2.8 ± 0.2 %	Y ..... 0.015 ± 0.002 mg/kg	Cr ..... 1.8 ± 0.3 mg/kg	Na ..... 1.09 ± 0.06(%) mg/kg	Yb ..... 1.4 ± 0.4 µg/kg	Cs ..... 0.082 ± 0.012 mg/kg	Nd ..... 0.015 ± 0.002 mg/kg	Zn ..... 26 ± 2 mg/kg	Cu ..... 2.7 ± 0.2 mg/kg	Ni ..... 0.93 ± 0.10 mg/kg		Dy ..... 2.6 ± 0.7 µg/kg	P ..... 0.46 ± 0.03 %														
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IC-CS-CR-2	Carrot root powder - Trace elements (control sample) Prepared from carrot roots collected in a non-contaminated rural area of central Poland. Reference values	20 g																																																									
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NIST-1570a	Spinach leaves - Trace elements Certified values	60 g																																																									
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Cr ..... 1.4 ± 0.2 mg/kg	Na ..... 1.50 ± 0.06 mg/kg	U ..... 89 ± 11 µg/kg																																																									
Cs ..... 0.13 ± 0.02 mg/kg	Nd ..... 0.28 ± 0.03 mg/kg	V ..... 0.87 ± 0.23 mg/kg																																																									
Cu ..... 8.9 ± 0.4 mg/kg	Ni ..... 0.92 ± 0.12 mg/kg	Y ..... 0.20 ± 0.04 mg/kg																																																									
Dy ..... 41 ± 8 µg/kg	P ..... 0.36 ± 0.02 %	Yb ..... 19 ± 4 µg/kg																																																									
Er ..... 17 ± 3 µg/kg	Pb ..... 11.1 ± 0.9 mg/kg	Zn ..... 35.3 ± 1.5 mg/kg																																																									
Eu ..... 11.1 ± 1.4 µg/kg	Pr ..... 75 ± 5 µg/kg																																																										
Fe ..... 540 ± 20 mg/kg	Rb ..... 30 ± 2 mg/kg																																																										
	Indicative values for further elements																																																										
IAEA-330	Spinach - Radionuclides Certified values (dry mass basis)	100 g																																																									
	<table border="0"> <tr> <td><sup>40</sup>K ..... 1188 ± 30 Bq/kg</td> <td><sup>137</sup>Cs ..... 1235 ± 35 Bq/kg</td> <td><sup>238</sup>U ..... 0.95 ± 0.05 Bq/kg</td> </tr> <tr> <td><sup>90</sup>Sr ..... 20.1 ± 2.1 Bq/kg</td> <td><sup>234</sup>U ..... 1.02 ± 0.07 Bq/kg</td> <td></td> </tr> </table>	<sup>40</sup> K ..... 1188 ± 30 Bq/kg	<sup>137</sup> Cs ..... 1235 ± 35 Bq/kg	<sup>238</sup> U ..... 0.95 ± 0.05 Bq/kg	<sup>90</sup> Sr ..... 20.1 ± 2.1 Bq/kg	<sup>234</sup> U ..... 1.02 ± 0.07 Bq/kg																																																					
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Code	Product	Unit
NIST-1573a	Tomato leaves - Trace elements Certified values Al..... 598 mg/kg      Cu.....4.70 mg/kg      P ..... 0.216 % As..... 0.112 mg/kg      Hg.....0.034 mg/kg      Rb ..... 14.89 mg/kg B ..... 33.3 mg/kg      K.....2.70 %      Sb ..... 0.063 mg/kg Cd..... 1.52 mg/kg      Mn .....246 mg/kg      Se ..... 0.054 mg/kg Ca..... 5.05 %      N.....3.03 %      V ..... 0.57 mg/kg Co ..... 0.57 mg/kg      Na.....136 mg/kg      Zn..... 82 mg/kg Cr..... 1.99 mg/kg      Ni..... 1.59 mg/kg Indicative values for Eu, Gd, Mg, Pb, S, Sc, Sm, Sr, Th, U	50 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.	unit
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 and sugars, dietary fibre (Englyst)	100 g
ERM-BC514	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-485	Mixed vegetables - Vitamins Certified values B <sub>1</sub> (thiamin)..... 3.07 mg/kg      trans- $\alpha$ -Carotene..... 10.5 mg/kg      total- $\beta$ -Carotene..... 25.6 mg/kg B <sub>6</sub> (total pyridoxine).... 4.8 mg/kg      trans- $\beta$ -Carotene ..... 23.7 mg/kg      Lutein ..... 12.5 mg/kg Folate (total)..... 3.15 mg/kg      total- $\alpha$ -Carotene ..... 9.8 mg/kg      Lutein+Zeaxanthin ... 22.3 mg/kg	25 g
ERM-BC517	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-162R	Soya-maize oil blend - Fatty acids Certified values Fatty acid      Relative Mass Fraction in g FAME / 100 g total FAME 16:0 (n-Hexadecanoic acid)..... 10.74 $\pm$ 0.16 18:0 (n-Octadecanoic acid)..... 2.82 $\pm$ 0.04 9c-18:1 (n-Octadecenoic acid)..... 25.4 $\pm$ 0.4 9c,12c-18:2 (n-Octadecadienoic acid)..... 54.13 $\pm$ 0.25 9c,12c,15c-18:3 (n-Octadecatrienoic acid)..... 3.35 $\pm$ 0.05	5.5 g
<b>New</b> NIM-GBW10013	Soya bean - Trace elements Certified values As..... 0,035 $\pm$ 0,012 mg/kg      Er..... 1,0 $\pm$ 0,2 $\mu$ g/kg      Ni ..... 4,0 $\pm$ 0,3mg/kg B ..... 15,8 $\pm$ 1,5 mg/kg      Eu..... 1,3 $\pm$ 0,5 $\mu$ g/kg      P ..... 0,66 $\pm$ 0,03% Ba ..... 3,3 $\pm$ 0,4 mg/kg      Fe ..... 139 $\pm$ 4 mg/kg      Pb ..... 0,07 $\pm$ 0,02 mg/kg Be ..... 3,5 $\pm$ 0,6 $\mu$ g/kg      Gd ..... 3,3 $\pm$ 0,9 $\mu$ g/kg      Pr ..... 4,5 $\pm$ 0,5 $\mu$ g/kg Ca..... 0,153 $\pm$ 0,008 %      K.....1,86 $\pm$ 0,09 %      Rb ..... 14,2 $\pm$ 0,7 mg/kg Ce ..... 0,040 $\pm$ 0,006 mg/kg      La ..... 0,023 $\pm$ 0,004 mg/kg      S ..... 0,364 $\pm$ 0,027 % Cl ..... 0,008 $\pm$ 0,002 %      Li ..... 0,062 $\pm$ 0,014 mg/kg      Sm ..... 3,1 $\pm$ 0,3 $\mu$ g/kg Co ..... 0,125 $\pm$ 0,012 mg/kg      Mg ..... 0,230 $\pm$ 0,014 %      Sr ..... 9,9 $\pm$ 0,6 mg/kg Cr ..... 0,28 $\pm$ 0,04 mg/kg      Mn ..... 28 $\pm$ 1 mg/kg      Th..... 6,8 $\pm$ 1,4 $\mu$ g/kg Cs ..... 0,043 $\pm$ 0,006 mg/kg      Mo ..... 0,71 $\pm$ 0,04 mg/kg      Y ..... 0,022 $\pm$ 0,004 mg/kg Cu ..... 10,2 $\pm$ 0,5 mg/kg      N.....6,7 $\pm$ 0,3 %      Yb ..... 1,2 $\pm$ 0,4 $\mu$ g/kg Dy ..... 2,4 $\pm$ 0,6 $\mu$ g/kg      Nd.....0,016 $\pm$ 0,003 mg/kg      Zn..... 38 $\pm$ 2 mg/kg Indicative values for further elements	35 g
IC-INCT-SBF-4	Soya bean flour - Trace elements Certified values Al..... 45,5 $\pm$ 3,7 mg/kg      Cu..... 14,30 $\pm$ 0,46 mg/kg      P ..... 6555 $\pm$ 335 mg/kg B ..... 39,3 $\pm$ 4,0 mg/kg      Fe.....90,8 $\pm$ 4,0 mg/kg      Rb ..... 31,7 $\pm$ 1,7 mg/kg Ba ..... 7,30 $\pm$ 0,23 mg/kg      K.....2,423 $\pm$ 0,083 wt%      S ..... 4245 $\pm$ 471 mg/kg Br ..... 2,40 $\pm$ 0,17 mg/kg      La ..... 19,1 $\pm$ 2,4 ng/kg      Sr ..... 9,32 $\pm$ 0,46 mg/kg Ca ..... 2467 $\pm$ 170 mg/kg      Mg ..... 3005 $\pm$ 82 mg/kg      Th..... 7,08 $\pm$ 0,82 ng/kg Cl ..... 64,5 $\pm$ 4,7 mg/kg      Mn ..... 32,3 $\pm$ 1,1 mg/kg      Zn..... 52,3 $\pm$ 1,3 mg/kg Indicative values for Cd, Cr, Hg, Na, Pb, Sc, SM, Ti, V	50 g

## Vegetable matter

Code	Product	Unit
ERM-AD413	Plasmid DNA fragments of MON 810 maize	vial
	Certified value	Uncertainty
	Fragment of 5' plant-P35S junction DNA / plasmid .....	1 ..... negligible
	Fragment of <i>hmg</i> DNA / plasmid .....	1 ..... negligible
BCR-679	White cabbage - Trace elements	15 g
	Certified values	
	Cd ..... 1.66 mg/kg	Hg ..... 6.3 µg/kg
	Cu ..... 2.89 mg/kg	Mo ..... 14.8 mg/kg
	Fe ..... 55.0 mg/kg	Ni ..... 27.0 mg/kg
	Mn ..... 13.3 mg/kg	Sb ..... 20.6 µg/kg
		Sr ..... 11.8 mg/kg
		Tl ..... 3.0 µg/kg
		Zn ..... 79.7 mg/kg
<b>New</b> BCR-401R	Peanut butter (blank) - Aflatoxins	100 g
	Certified values	
	Aflatoxin B1 ..... <0.2 µg/kg	Aflatoxin G1 ..... <0.2 µg/kg
	Aflatoxin B2 ..... <0.2 µg/kg	Aflatoxin G2 ..... <0.2 µg/kg
<b>New</b> BCR-385R	Peanut butter - Aflatoxins (low level)	100 g
	Certified values	
	Aflatoxin B1 ..... 1.77 ± 0.30 µg/kg	Aflatoxin G2 ..... 0.30 ± 0.12 µg/kg
	Aflatoxin B2 ..... 0.48 ± 0.08 µg/kg	Sum of Aflatoxin B1, B2, G1, G2 ..... 3.5 ± 0.5 µg/kg
	Aflatoxin G1 ..... 0.90 ± 0.4 µg/kg	
BCR-262R	Defatted peanut meal (blank) - Aflatoxin B1	100 g
	Certified value	
	Aflatoxin B1 ..... <3 µg/kg	
BCR-263R	Defatted peanut meal - Aflatoxin B1, B2 and G1	100 g
	Certified values	
	Aflatoxin B1 ..... 17.1 ± 2.4 µg/kg	Aflatoxin B2 ..... 3.0 ± 0.4 µg/kg
		Aflatoxin B3 ..... 3.0 ± 0.5 µg/kg
BCR-264	Defatted peanut meal (high level) - Aflatoxin B1	150 g
	Certified value	
	Aflatoxin B1 ..... 206 µg/kg	
IC-INCT-TL-1	Tea leaves - Trace elements	50 g
	The material was prepared from black tea, usually packed in tea bags.	
	Certified values	
	Al ..... 0.229 wt %	Eu ..... 0.050 mg/kg
	As ..... 0.106 mg/kg	Hg ..... 0.005 mg/kg
	Ba ..... 43.2 mg/kg	K ..... 1.70 wt %
	Br ..... 12.3 mg/kg	La ..... 1.00 mg/kg
	Ca ..... 0.582 wt %	Lu ..... 0.016 mg/kg
	Cd ..... 0.030 mg/kg	Mg ..... 0.224 wt %
	Cl ..... 573 mg/kg	Mn ..... 0.157 wt %
	Co ..... 0.387 mg/kg	Na ..... 24.7 mg/kg
	Cr ..... 1.91 mg/kg	Ni ..... 6.12 mg/kg
	Cs ..... 3.61 mg/kg	Pb ..... 1.78 mg/kg
	Cu ..... 20.4 mg/kg	Rb ..... 81.5 mg/kg
		Sc ..... 0.266 mg/kg
		Sm ..... 0.177 mg/kg
		Sr ..... 20.8 mg/kg
		Tb ..... 0.026 mg/kg
		Th ..... 0.034 mg/kg
		Tl ..... 0.063 mg/kg
		V ..... 1.97 mg/kg
		Yb ..... 0.118 mg/kg
		Zn ..... 34.7 mg/kg
	Indicative values for B, Fe, Hf, Nd, P, Sb, Se, Ta, Ti and Tm	
<b>New</b> NIM-GBW10016	Tea - Trace elements	35 g
	Certified values	
	Ag ..... 0.094 ± 0.009 %	F ..... 57 ± 15 mg/kg
	As ..... 0.09 ± 0.01 mg/kg	Fe ..... 242 ± 18 mg/kg
	B ..... 14 ± 1 mg/kg	Gd ..... 31 ± 5 µg/kg
	Ba ..... 9.6 ± 0.5 mg/kg	Hg ..... 3.8 ± 0.8 µg/kg
	Be ..... 10 ± 2 µg/kg	Ho ..... 5.4 ± 1.2 µg/kg
	Bi ..... 18 ± 2 µg/kg	K ..... 1.63 ± 0.07 %
	Br ..... 2.7 ± 0.5 mg/kg	La ..... 0.25 ± 0.02 mg/kg
	Ca ..... 0.326 ± 0.008 %	Li ..... 0.14 ± 0.02 mg/kg
	Cd ..... 62 ± 4 µg/kg	Lu ..... 3.0 ± 0.8 µg/kg
	Ce ..... 0.39 ± 0.05 mg/kg	Mg ..... 0.186 ± 0.011 %
	Cl ..... 0.044 ± 0.003 %	Mn ..... 500 ± 20 mg/kg
	Co ..... 0.22 ± 0.02 mg/kg	Mo ..... 0.040 ± 0.012 mg/kg
	Cr ..... 0.45 ± 0.10 mg/kg	N ..... 5.1 ± 0.3 %
	Cs ..... 0.32 ± 0.06 mg/kg	Na ..... 0.009 ± 0.001 mg/kg
	Cu ..... 18.6 ± 0.7 mg/kg	Nd ..... 0.15 ± 0.02 mg/kg
	Dy ..... 25 ± 6 µg/kg	Ni ..... 3.4 ± 0.3 mg/kg
	Er ..... 14 ± 4 µg/kg	P ..... 0.45 ± 0.03 %
	Eu ..... 6.7 ± 1.4 µg/kg	Pb ..... 1.5 ± 0.2 mg/kg
	Indicative values for further elements	
		Pr ..... 42 ± 4 µg/kg
		Rb ..... 117 ± 5 mg/kg
		S ..... 0.30 ± 0.03 %
		Sb ..... 0.022 ± 0.006 mg/kg
		Se ..... 0.098 ± 0.008 mg/kg
		Si ..... 0.099 ± 0.008 %
		Sm ..... 29 ± 3 µg/kg
		Sr ..... 9.1 ± 1.2 mg/kg
		Tb ..... 4.5 ± 0.7 µg/kg
		Th ..... 38 ± 12 µg/kg
		Tm ..... 2.6 ± 1.0 µg/kg
		U ..... 10 ± 2 µg/kg
		V ..... 0.17 ± 0.03 mg/kg
		Y ..... 0.23 ± 0.03 mg/kg
		Yb ..... 18 ± 4 µg/kg
		Zn ..... 51 ± 2 mg/kg

Code	Product	Unit
IC-INCT-MPH-2	Mixed Polish herbs - Trace elements Fresh herbs collected in a non contaminated rural area were collected, mixed and processed as for drug production by Herbapol S.A. Certified values Al..... 670 mg/kg As..... 0.191 mg/kg Ba..... 32.5 mg/kg Br..... 7.71 mg/kg Ca..... 1.08 wt % Cd..... 0.199 mg/kg Ce..... 1.12 mg/kg Cl..... 0.284 wt % Co..... 0.210 mg/kg Cr..... 1.69 mg/kg Cs..... 0.076 mg/kg Cu..... 7.77 mg/kg Eu..... 0.016 mg/kg Hf..... 0.236 mg/kg Hg..... 0.018 mg/kg K..... 1.91 wt % La..... 0.571 mg/kg Lu..... 0.009 mg/kg Mg..... 0.292 wt % Mn..... 191 mg/kg Nd..... 0.457 mg/kg Ni..... 1.57 mg/kg Pb..... 2.16 mg/kg Rb..... 10.7 mg/kg S..... 0.241 wt % Sb..... 0.066 mg/kg Sc..... 0.123 mg/kg Sm..... 0.094 mg/kg Sr..... 37.6 mg/kg Ta..... 0.019 mg/kg Tb..... 0.014 mg/kg Th..... 0.154 mg/kg V..... 0.952 mg/kg Yb..... 0.053 mg/kg Indicative values for P, Fe, Mo, Na, Ti, U and W	50 g
IC-INCT-CS-M-1	Mushrooms ( <i>Suillus bovinus</i> ) - Trace elements Reference values As..... 0.344 ± 0.033 mg/kg Cd..... 0.273 ± 0.093 mg/kg Cu..... 9.12 ± 0.83 mg/kg Hg..... 0.174 ± 0.018 mg/kg Pb..... 0.476 ± 0.041 mg/kg Se..... 1.37 ± 0.11 mg/kg Zn..... 60.94 ± 4.62 mg/kg	25 g
<b>New</b> NIST-3250	<i>Serenoa repens</i> (Fruit) - Phytosterols and fatty acids This Standard Reference Material (SRM) is intended primarily for use in validating analytical methods for the determination of phytosterols and fatty acids in the fruit of <i>Serenoa repens</i> (saw palmetto) and similar matrices. A unit of NIST-3250 consists of five packets, each containing approximately 6 g of ground saw palmetto fruit. Certified concentration values for selected phytosterols in NIST-3250 Phytosterols Mass Fraction (mg/g, dry-mass basis) Campesterol ..... 0.1175 ± 0.0025 β-Sitosterol ..... 0.454 ± 0.018 Stigmasterol..... 0.0477 ± 0.0020 Certified concentration values for selected fatty acids (as triglycerides) in NIST-3250 Fatty acids Mass Fraction (%, dry-mass basis) Octanoic acid (C8:0)..... 0.1072 ± 0.0027 (Caprylic acid) Decanoic acid (C10:0)..... 0.1175 ± 0.0055 (Capric acid) Dodecanoic acid (C12:0)..... 2.962 ± 0.062 (Lauric acid) Tetradecanoic acid (C14:0) ..... 1.103 ± 0.065 (Myristic acid) Hexadecanoic acid (C16:0) ..... 0.869 ± 0.027 (Palmitic acid) (Z)-9-Hexadecenoic acid (C16:1 n-7) ..... 0.0158 ± 0.0010 (Palmitoleic acid) Octadecanoic acid (C18:0)..... 0.1791 ± 0.0054 (Stearic acid) (Z)-9-Octadecenoic acid (C18:1 n-9) ..... 3.24 ± 0.15 (Oleic acid) (Z)-11-Octadecenoic acid (C18:1 n-7)..... 0.0547 ± 0.0030 (Vaccenic acid) (Z,Z)-9,12-Octadecadienoic acid (C18:2 n-6)..... 0.824 ± 0.055 (Linoleic acid) (Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3 n-3)..... 0.194 ± 0.025 (Linolenic acid) Eicosanoic acid (C20:0)..... 0.0097 ± 0.0002 (Arachidic acid) Docosanoic acid (C22:0) ..... 0.0066 ± 0.0002 (Behenic acid) Tetracosanoic acid (C24:0) ..... 0.0107 ± 0.0003 (Lignoceric acid) Reference concentration values for selected fatty acids (as triglycerides) and for free fatty acids	Each

# Vegetable matter

Code	Product	Unit																																																		
<b>New</b> NIST-3251	<p><b>Serenoa repens extract - Phytosterols, fatty acids, β-carotene, and gamma-tocopherol</b></p> <p>This Standard Reference Material (SRM) is intended primarily for use in validating analytical methods for the determination of phytosterols, fatty acids, β-carotene, and γ-tocopherol in extracts of <i>Serenoa repens</i> (saw palmetto) and similar matrices. This SRM can also be used for quality assurance when assigning values to in-house control materials. A unit of NIST-3251 consists of five ampoules, each containing approximately 1 mL of saw palmetto extract.</p> <p>Certified concentration values for selected phytosterols in NIST-3251</p> <table border="0"> <tr> <td>Phytosterols</td> <td>Mass Fraction (mg/g)</td> </tr> <tr> <td>Campesterol .....</td> <td>0.533 ± 0.031</td> </tr> <tr> <td>β-Sitosterol.....</td> <td>1.666 ± 0.064</td> </tr> <tr> <td>Stigmasterol.....</td> <td>0.247 ± 0.040</td> </tr> </table> <p>Certified concentration values for selected fatty acids (as triglycerides) in NIST-3251</p> <table border="0"> <tr> <td>Fatty acids</td> <td>Mass Fraction (%)</td> </tr> <tr> <td>Octanoic acid (C8:0).....</td> <td>2.677 ± 0.032 (Caprylic acid)</td> </tr> <tr> <td>Decanoic acid (C10:0).....</td> <td>2.690 ± 0.055 (Capric acid)</td> </tr> <tr> <td>Dodecanoic acid (C12:0).....</td> <td>26.51 ± 0.66 (Lauric acid)</td> </tr> <tr> <td>Tridecanoic acid (C13:0).....</td> <td>0.069 ± 0.002</td> </tr> <tr> <td>Tetradecanoic acid (C14:0).....</td> <td>10.68 ± 0.16 (Myristic acid)</td> </tr> <tr> <td>Pentadecanoic acid (C15:0).....</td> <td>0.0518 ± 0.0018</td> </tr> <tr> <td>Hexadecanoic acid (C16:0).....</td> <td>8.55 ± 0.20 (Palmitic acid)</td> </tr> <tr> <td>Heptadecanoic acid (C17:0).....</td> <td>0.0640 ± 0.0024</td> </tr> <tr> <td>Octadecanoic acid (C18:0).....</td> <td>1.757 ± 0.021 (Stearic acid)</td> </tr> <tr> <td>(Z)-9-Octadecenoic acid (C18:1 n-9).....</td> <td>34.73 ± 0.43 (Oleic acid)</td> </tr> <tr> <td>(Z)-11-Octadecenoic acid (C18:1 n-7).....</td> <td>0.834 ± 0.020 (Vaccenic acid)</td> </tr> <tr> <td>(Z,Z)-9,12-Octadecadienoic acid (C18:2 n-6).....</td> <td>6.018 ± 0.093 (Linoleic acid)</td> </tr> <tr> <td>(Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3 n-3).....</td> <td>1.248 ± 0.027 (Linolenic acid)</td> </tr> <tr> <td>Eicosanoic acid (C20:0).....</td> <td>0.0936 ± 0.0033 (Arachidic acid)</td> </tr> <tr> <td>(Z)-11-Eicosenoic acid (C20:1 n-9).....</td> <td>0.1939 ± 0.0031 (Gondoic acid)</td> </tr> <tr> <td>Docosanoic acid (C22:0).....</td> <td>0.0646 ± 0.0016 (Behenic acid)</td> </tr> <tr> <td>Tetracosanoic acid (C24:0).....</td> <td>0.0929 ± 0.0028</td> </tr> </table> <p>Certified concentration values for total β-carotene and γ-tocopherol in NIST-3251</p> <table border="0"> <tr> <td></td> <td>Mass Fraction (μg/g)</td> </tr> <tr> <td>Total β-carotene.....</td> <td>46.8 ± 4.6</td> </tr> <tr> <td>γ-Tocopherol.....</td> <td>280 ± 13</td> </tr> </table> <p>Reference concentration value for cycloartenol, selected fatty acids (as triglycerides), selected free fatty acids, for β-carotene isomers and δ-tocopherol, brassicasterol and lupeol</p>	Phytosterols	Mass Fraction (mg/g)	Campesterol .....	0.533 ± 0.031	β-Sitosterol.....	1.666 ± 0.064	Stigmasterol.....	0.247 ± 0.040	Fatty acids	Mass Fraction (%)	Octanoic acid (C8:0).....	2.677 ± 0.032 (Caprylic acid)	Decanoic acid (C10:0).....	2.690 ± 0.055 (Capric acid)	Dodecanoic acid (C12:0).....	26.51 ± 0.66 (Lauric acid)	Tridecanoic acid (C13:0).....	0.069 ± 0.002	Tetradecanoic acid (C14:0).....	10.68 ± 0.16 (Myristic acid)	Pentadecanoic acid (C15:0).....	0.0518 ± 0.0018	Hexadecanoic acid (C16:0).....	8.55 ± 0.20 (Palmitic acid)	Heptadecanoic acid (C17:0).....	0.0640 ± 0.0024	Octadecanoic acid (C18:0).....	1.757 ± 0.021 (Stearic acid)	(Z)-9-Octadecenoic acid (C18:1 n-9).....	34.73 ± 0.43 (Oleic acid)	(Z)-11-Octadecenoic acid (C18:1 n-7).....	0.834 ± 0.020 (Vaccenic acid)	(Z,Z)-9,12-Octadecadienoic acid (C18:2 n-6).....	6.018 ± 0.093 (Linoleic acid)	(Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3 n-3).....	1.248 ± 0.027 (Linolenic acid)	Eicosanoic acid (C20:0).....	0.0936 ± 0.0033 (Arachidic acid)	(Z)-11-Eicosenoic acid (C20:1 n-9).....	0.1939 ± 0.0031 (Gondoic acid)	Docosanoic acid (C22:0).....	0.0646 ± 0.0016 (Behenic acid)	Tetracosanoic acid (C24:0).....	0.0929 ± 0.0028		Mass Fraction (μg/g)	Total β-carotene.....	46.8 ± 4.6	γ-Tocopherol.....	280 ± 13	5 x 1 mL
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(Z)-11-Octadecenoic acid (C18:1 n-7).....	0.834 ± 0.020 (Vaccenic acid)																																																			
(Z,Z)-9,12-Octadecadienoic acid (C18:2 n-6).....	6.018 ± 0.093 (Linoleic acid)																																																			
(Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3 n-3).....	1.248 ± 0.027 (Linolenic acid)																																																			
Eicosanoic acid (C20:0).....	0.0936 ± 0.0033 (Arachidic acid)																																																			
(Z)-11-Eicosenoic acid (C20:1 n-9).....	0.1939 ± 0.0031 (Gondoic acid)																																																			
Docosanoic acid (C22:0).....	0.0646 ± 0.0016 (Behenic acid)																																																			
Tetracosanoic acid (C24:0).....	0.0929 ± 0.0028																																																			
	Mass Fraction (μg/g)																																																			
Total β-carotene.....	46.8 ± 4.6																																																			
γ-Tocopherol.....	280 ± 13																																																			
<b>New</b> NIST-3254	<p><b>Green tea (<i>Camellia sinensis</i>) leaves - Catechins and xanthines</b></p> <p>This Standard Reference Material (SRM<sup>®</sup>) is intended primarily for use in validating analytical methods for the determination of catechins and xanthines in the leaves of <i>Camellia sinensis</i> (green tea) and similar matrices. NIST-3254 can also be used for quality assurance when assigning values to in-house control materials. A unit of NIST-3254 consists of five packets, each containing approximately 3 g of leaf powder.</p> <p>Certified Mass Fraction Values for Selected Catechins and Xanthines in NIST-3254</p> <table border="0"> <tr> <td></td> <td>Mass Fraction (mg/g, dry-mass basis)</td> <td>Mass Fraction (mg/g, dry-mass basis)</td> </tr> <tr> <td>(-)-Epicatechin.....</td> <td>9.0 ± 1.6</td> <td>(-)-Gallocatechin gallate.....</td> <td>0.99 ± 0.21</td> </tr> <tr> <td>(-)-Epicatechin gallate.....</td> <td>12.7 ± 1.2</td> <td>Caffeine.....</td> <td>23.5 ± 1.8</td> </tr> <tr> <td>(-)-Epigallocatechin.....</td> <td>25.2 ± 4.5</td> <td>Theobromine.....</td> <td>0.463 ± 0.052</td> </tr> <tr> <td>(-)-Epigallocatechin gallate.....</td> <td>52.0 ± 2.2</td> <td></td> <td></td> </tr> </table> <p>Indicative values for (+)-Catechin, (-)-Gallocatechin, Gallic acid and L-theanine</p>		Mass Fraction (mg/g, dry-mass basis)	Mass Fraction (mg/g, dry-mass basis)	(-)-Epicatechin.....	9.0 ± 1.6	(-)-Gallocatechin gallate.....	0.99 ± 0.21	(-)-Epicatechin gallate.....	12.7 ± 1.2	Caffeine.....	23.5 ± 1.8	(-)-Epigallocatechin.....	25.2 ± 4.5	Theobromine.....	0.463 ± 0.052	(-)-Epigallocatechin gallate.....	52.0 ± 2.2			5 x 3 g																															
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<b>New</b> NIST-3255	<p><b>Green tea (<i>Camellia sinensis</i>) extract - Catechins and xanthines</b></p> <p>This Standard Reference Material (SRM<sup>®</sup>) is intended primarily for use in validating analytical methods for the determination of catechins and xanthines in extracts of <i>Camellia sinensis</i> (green tea) and similar matrices. NIST-3255 can also be used for quality assurance when assigning values to in-house control materials. A unit of NIST-3255 consists of five packets, each containing approximately 1 g of extract.</p> <p>Certified Mass Fraction Values for Selected Catechins and Xanthines in NIST-3255</p> <table border="0"> <tr> <td></td> <td>Mass Fraction (mg/g, dry-mass basis)</td> <td>Mass Fraction (mg/g, dry-mass basis)</td> </tr> <tr> <td>(+)-Catechin.....</td> <td>9.17 ± 0.93</td> <td>(-)-Gallocatechin.....</td> <td>22.0 ± 1.7</td> </tr> <tr> <td>(-)-Epicatechin.....</td> <td>47.3 ± 6.7</td> <td>(-)-Gallocatechin gallate.....</td> <td>39.0 ± 2.0</td> </tr> <tr> <td>(-)-Epicatechin gallate.....</td> <td>100.3 ± 7.8</td> <td>Caffeine.....</td> <td>36.9 ± 2.7</td> </tr> <tr> <td>(-)-Epigallocatechin.....</td> <td>81.8 ± 6.5</td> <td>Theobromine.....</td> <td>0.867 ± 0.076</td> </tr> <tr> <td>(-)-Epigallocatechin gallate.....</td> <td>422.0 ± 19.0</td> <td></td> <td></td> </tr> </table> <p>Indicative values for (-)-Epigallocatechin methylgallate, Gallic acid, L-theanine and Theophylline.</p>		Mass Fraction (mg/g, dry-mass basis)	Mass Fraction (mg/g, dry-mass basis)	(+)-Catechin.....	9.17 ± 0.93	(-)-Gallocatechin.....	22.0 ± 1.7	(-)-Epicatechin.....	47.3 ± 6.7	(-)-Gallocatechin gallate.....	39.0 ± 2.0	(-)-Epicatechin gallate.....	100.3 ± 7.8	Caffeine.....	36.9 ± 2.7	(-)-Epigallocatechin.....	81.8 ± 6.5	Theobromine.....	0.867 ± 0.076	(-)-Epigallocatechin gallate.....	422.0 ± 19.0			5 x 1 g																											
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Code	Product	Unit												
<b>New</b> NIST-3256	Green tea-containing solid oral dosage form - Catechins, xanthines and toxic elements This Standard Reference Material (SRM <sup>®</sup> ) is intended primarily for use in validating analytical methods for the determination of catechins, xanthines, and toxic elements in solid oral dosage forms containing green tea and in similar matrices. NIST-3256 can also be used for quality assurance when assigning values to in-house control materials. A unit of NIST-3256 consists of five packets, each containing approximately 2.5 g of powdered material. Certified Mass Fraction Values for Selected Catechins, Gallic Acid, and Xanthines in NIST-3256	5 x 2.5 g												
	<table border="0"> <thead> <tr> <th>Mass Fraction (mg/g, dry-mass basis)</th> <th>Mass Fraction (mg/g, dry-mass basis)</th> </tr> </thead> <tbody> <tr> <td>(+)-Catechin.....2.63 ± 0.18</td> <td>(-)-Gallocatechin..... 7.55 ± 0.28</td> </tr> <tr> <td>(-)-Epicatechin.....12.0 ± 2.6</td> <td>Gallic acid ..... 13.10 ± 0.49</td> </tr> <tr> <td>(-)-Epicatechin gallate.....17.1 ± 2.6</td> <td>Caffeine..... 70.0 ± 2.6</td> </tr> <tr> <td>(-)-Epigallocatechin.....30.7 ± 5.7</td> <td>Theobromine..... 1.04 ± 0.15</td> </tr> <tr> <td>(-)-Epigallocatechin gallate .....71.1 ± 6.6</td> <td></td> </tr> </tbody> </table>	Mass Fraction (mg/g, dry-mass basis)	Mass Fraction (mg/g, dry-mass basis)	(+)-Catechin.....2.63 ± 0.18	(-)-Gallocatechin..... 7.55 ± 0.28	(-)-Epicatechin.....12.0 ± 2.6	Gallic acid ..... 13.10 ± 0.49	(-)-Epicatechin gallate.....17.1 ± 2.6	Caffeine..... 70.0 ± 2.6	(-)-Epigallocatechin.....30.7 ± 5.7	Theobromine..... 1.04 ± 0.15	(-)-Epigallocatechin gallate .....71.1 ± 6.6		
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	Certified Mass Fraction Values for Toxic Elements in NIST-3256 <table border="0"> <thead> <tr> <th>Mass Fraction mg/kg, dry-mass basis)</th> <th>Mass Fraction mg/kg, dry-mass basis)</th> </tr> </thead> <tbody> <tr> <td>Arsenic (As).....0.269 ± 0.019</td> <td>Lead (Pb) ..... 0.316 ± 0.030</td> </tr> <tr> <td>Cadmium (Cd).....0.025 ± 0.002</td> <td>Mercury (Hg) ..... 0.014 ± 0.002</td> </tr> </tbody> </table> Indicative values for (-)-Gallocatechin gallate, L-Theanine and Theophylline.	Mass Fraction mg/kg, dry-mass basis)	Mass Fraction mg/kg, dry-mass basis)	Arsenic (As).....0.269 ± 0.019	Lead (Pb) ..... 0.316 ± 0.030	Cadmium (Cd).....0.025 ± 0.002	Mercury (Hg) ..... 0.014 ± 0.002							
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Cadmium (Cd).....0.025 ± 0.002	Mercury (Hg) ..... 0.014 ± 0.002													

**Vegetable oils**

BCR-459	Coconut oil - PAHs (blank) Compound	Certified value µg/kg	Compound	Certified value µg/kg	45 g
	Pyrene .....	<0.9	Benzo(a)pyrene.....	<0.3	
	Chrysene .....	<0.6	Benzo(ghi)perylene.....	<0.2	
	Benzo(k)fluoranthene .....	<0.2	Indeno(1,2,3-cd)pyrene.....	<0.2	
<b>New</b> CMI-CRM7007	Virgin olive oil - PAHs, Pesticides Certified values				2 x 50 mL
	Anthracene .....	3.72 ± 0.26 µg/kg	Dibenzo[a,h]anthracene.....	0.50 ± 0.06 µg/kg	
	Benzo[a]anthracene.....	4.78 ± 0.38 µg/kg	Fluoranthene.....	15.7 ± 1.2 µg/kg	
	Benzo[b]fluoranthene.....	3.18 ± 0.30 µg/kg	Indeno[1,2,3-cd]pyrene.....	2.44 ± 0.18 µg/kg	
	Benzo[k]fluoranthene.....	2.22 ± 0.19 µg/kg	Phenanthrene .....	42.3 ± 3.8 µg/kg	
	Benzo[ghi]perylene.....	2.19 ± 0.18 µg/kg	Pyrene.....	14.6 ± 1.2 µg/kg	
	Benzo[a]pyrene.....	2.47 ± 0.18 µg/kg	Chlorpyrifos-methyl.....	182 ± 13 µg/kg	
	Chrysene .....	6.21 ± 0.43 µg/kg	Endosulfan sulfate.....	186 ± 13 µg/kg	
	Indicative values for further PAHs				
<b>New</b> NIST-3278	Edible oils - Tocopherols This Standard Reference Material (SRM <sup>®</sup> ) is intended primarily for use in validating analytical methods for the determination of tocopherols in edible oils and similar matrices. This SRM can also be used for quality assurance when assigning values to in-house control materials. A unit of NIST-3278 consists of five ampoules of oil each containing approximately 1 mL of material under argon. Certified mass fraction values for tocopherols in NIST-3278				5 amps.
	alpha-Tocopherol.....	290.1 ± 6.5 µg/g	gamma-Tocopherol.....	111.5 ± 5.8 µg/g	
	beta-Tocopherol.....	11.38 ± 0.52 µg/g	delta-Tocopherol.....	28.8 ± 1.8 µg/g	

# Vegetable matter

Code	Product	Unit	
<b>New</b> NIST-3274	<b>Botanical oils - Omega-3 and omega-6 fatty acids</b> This Standard Reference Material <sup>®</sup> (SRM <sup>®</sup> ) is intended primarily for use in validating analytical methods for the determination of fatty acids in botanical oils and similar matrices. This SRM can also be used for quality assurance when assigning values to in-house control materials. A unit of SRM 3274 consists of a total of four ampoules, one each of four seed oils (3274-1 Borage [Borago officinalis], 3274-2 Evening Primrose [Oenothera biennis], 3274-3 Flax [Linum usitatissimum], and 3274-4 Perilla [Perilla frutescens]). Each ampoule contains approximately 1.2 mL of oil under argon.	4 x 1.2 mL	
	Mass fraction (mg/g)		
	3274-1                      3274-2                      3274-3                      3274-4 Borage Evening Primrose                      Flax                      Perilla		
Octanoic Acid (C8:0) (Caprylic Acid)	(0.053 ± 0.010) ..... (0.021 ± 0.002)		
Decanoic Acid (C10:0) (Capric Acid)	..... (0.020 ± 0.011)		
Dodecanoic Acid (C12:0) (Lauric Acid)	..... (0.016 ± 0.001).....		
Tetradecanoic Acid (C14:0) (Myristic Acid)	(0.62 ± 0.11).....	<b>0.363 ± 0.030</b> .....	<b>0.271 ± 0.008</b> .....
Pentadecanoic Acid (C15:0)	<b>0.074 ± 0.008</b> .....	<b>0.099 ± 0.011</b> .....	<b>0.151 ± 0.016</b> .....
Hexadecanoic Acid (C16:0) (Palmitic Acid)	<b>110 ± 12</b> .....	<b>58.2 ± 6.1</b> .....	<b>44.8 ± 5.0</b> .....
(Z)-9-Hexadecenoic Acid (C16:1 n-7) (Palmitoleic Acid)	<b>1.77 ± 0.14</b> .....	<b>0.402 ± 0.043</b> .....	<b>0.383 ± 0.031</b> .....
Heptadecanoic Acid (C17:0) (Margaric Acid)	(0.500 ± 0.086)..... (0.188 ± 0.008)..... (0.212 ± 0.011)..... (0.159 ± 0.040)		
Octadecanoic Acid (C18:0) (Stearic Acid)	(33.1 ± 4.0)..... <b>18.30 ± 0.838</b> ..... <b>30.4 ± 2.4</b> ..... <b>20.9 ± 1.1</b>		
(Z)-9-Octadecenoic Acid (C18:1 n-9) (Oleic Acid)	<b>148.7 ± 8.7</b> .....	<b>68.9 ± 3.7</b> .....	<b>165.7 ± 6.2</b> .....
(E)-9-Octadecenoic Acid (t-C18:1 n-9) (Elaidic Acid)	(0.117 ± 0.020).....		
(Z)-11-Octadecenoic Acid (C18:1 n-7) (Vaccenic Acid)	<b>5.76 ± 0.18</b> .....	<b>5.95 ± 0.37</b> .....	(5.61 ± 0.16)..... (7.89 ± 0.22)
(Z,Z)-9,12-Octadecadienoic Acid (C18:2 n-6) (Linoleic Acid)	<b>374 ± 35</b> .....	<b>742 ± 24</b> .....	<b>171 ± 11</b> .....
(Z,Z,Z)-9,12,15-Octadecatrienoic Acid (C18:3 n-3) (α-Linolenic Acid)	(3.45 ± 0.63)..... (2.72 ± 0.51)..... <b>579 ± 30</b> ..... <b>629 ± 28</b>		
(Z,Z,Z)-6,9,12-Octadecatrienoic Acid (C18:3 n-6) (γ-Linolenic Acid)	<b>251 ± 24</b> .....	<b>99.9 ± 4.1</b> .....	(1.55 ± 0.25)..... (2.08 ± 0.48)
Eicosanoic Acid (C20:0) (Arachidic Acid)	(2.13 ± 0.46)..... (2.71 ± 0.37)..... (1.04 ± 0.15)..... (1.21 ± 0.26)		
(Z)-11-Eicosenoic Acid (C20:1 n-9) (Gondoic Acid)	..... <b>1.84 ± 0.12</b> .....		
(Z,Z,Z,Z)-5,8,11,14-Eicosatetraenoic Acid (C20:4 n-6) (Arachidonic Acid)	(0.022 ± 0.002)..... <b>0.633 ± 0.029</b> .....		
Heicosanoic Acid (C21:0)	(2.36 ± 0.32)..... (0.132 ± 0.029)..... (0.083 ± 0.004)		
Docosanoic Acid (C22:0) (Behenic Acid)	<b>1.509 ± 0.070</b> ..... (0.91 ± 0.25)..... (0.62 ± 0.13)..... (0.118 ± 0.004)		
Tetracosanoic Acid (C24:0) (Lignoceric Acid)	(0.334 ± 0.074)..... (0.369 ± 0.060)..... (0.308 ± 0.059)..... (0.096 ± 0.022)		
(Z)-15-Tetracosenoic Acid (C24:1)	<b>7.80 ± 0.61</b> ..... <b>0.084 ± 0.003</b>		
( ) Indicative values			
Certified values in bold			

Code	Product	Unit	
<b>New</b> NIST-3275	<b>Fish oil - Omega-3 and omega-6 fatty acids</b> This Standard Reference Material (SRM <sup>®</sup> ) is intended primarily for validation of methods for determining fatty acids in fish oils and similar materials. This SRM can also be used for quality assurance when assigning values to in-house reference materials. SRM 3275 consists of three individual oils: NIST-3275-1, a concentrate high in docosahexaenoic acid (DHA); NIST-3275-2, an anchovy oil high in DHA and eicosapentaenoic acid (EPA); and NIST-3275-3, a concentrate containing 60 % long-chain omega-3 fatty acids. A unit of NIST-3275 consists of two ampoules of each of the three oils, each ampoule containing approximately 1.2 mL of material.	4 x 1.2 mL	
	Certified mass fraction values for fatty acids as fatty acid methyl esters (FAMES)		
	Mass fraction (mg/kg)		
	SRM 3275-1                      SRM 3275-2                      SRM 3275-3		
Dodecanoic acid (C12:0; Lauric acid)	..... 0.95 ± 0.12		
Tetradecanoic acid (C14:0; Myristic acid)	1.094 ± 0.053.....	3.45 ± 0.40.....	67.9 ± 1.5
Hexadecanoic acid (C16:0; Palmitic acid)	5.25 ± 0.35.....	8.01 ± 0.44.....	186.9 ± 9.4
(Z)-9-Hexadecenoic acid (C16:1 n-7) (Palmitoleic acid)	7.43 ± 0.24.....	5.83 ± 0.45.....	85.7 ± 3.1
Octadecanoic acid (C18:0; Stearic acid)	4.22 ± 0.13..... 12.94 ± 0.62..... 38.0 ± 5.7		
(Z)-9-Octadecenoic acid (C18:1 n-9) (Oleic acid)	11.25 ± 0.93..... 22.1 ± 1.6..... 112.3 ± 2.6		
(Z)-11-Octadecenoic acid (C18:1 n-7) (Vaccenic acid)	5.33 ± 0.35..... 9.24 ± 0.77..... 38.5 ± 2.2		
ω-6 (Z,Z)-9,12-Octadecadienoic acid (C18:2 n-6) (Linoleic acid)	2.31 ± 0.19..... 3.00 ± 0.42..... 13.49 ± 0.45		
ω-3 (Z,Z,Z)-9,12,15-Octadecatrienoic acid (C18:3 n-3) (α-Linolenic acid; ALA)	..... 14.99 ± 0.37..... 9.08 ± 0.22		
Eicosanoic acid (C20:0; Arachidic acid)	..... 0.357 ± 0.027..... 1.14 ± 0.26		
(Z)-11-Eicosenoic acid (C20:1 n-9) (Gondoic acid)	..... 6.66 ± 0.69..... 2.92 ± 0.14		
ω-3 (Z,Z,Z,Z)-5,8,11,14,17-Eicosapentaenoic acid (C20:5 n-3; EPA)	113 ± 12..... 460 ± 34..... 199.1 ± 7.8		
Docosanoic acid (C22:0; Behenic acid)	4.02 ± 0.24..... 1.396 ± 0.046..... 0.502 ± 0.047		
ω-3 (Z,Z,Z,Z,Z)-4,7,10,13,16,19-Docosahexaenoic acid (C22:6 n-3; DHA)	524 ± 42..... 267 ± 12..... 163.5 ± 7.2		
(Z)-13-Docosenoic acid (C22:1 n-9; Erucic acid)	..... 3.43 ± 0.32		
(Z,Z,Z,Z,Z)-7,10,13,16,19-Docosapentaenoic acid (C22:5; DPA)	87.2 ± 6.7..... 81.5 ± 4.4..... 37.9 ± 2.9		
Tetracosanoic acid (C24:0; Lignoceric acid)	..... 1.41 ± 0.13		
Indicative values for further fatty acids as fatty acid methyl esters.			

Code	Product	Unit
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/dm <sup>2</sup>	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/dm <sup>2</sup>	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/dm <sup>2</sup>	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

## 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, <sup>13</sup>C, <sup>18</sup>O, 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.

Code	Product	Unit
	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 C <sub>6</sub> F <sub>6</sub> lock substance have been added.	
BCR-123A	Ethanol - D/H isotopic determination	3 tubes
BCR-123B	Ethanol - D/H isotopic determination	3 tubes
BCR-656	Ethanol from wine (96 % vol.) - Isotope ratios Certified values Parameter Value Uncertainty (D/H) <sub>I</sub> by <sup>2</sup> H-NMR ..... 102.84 ppm ..... 0.20 ppm (D/H) <sub>II</sub> by <sup>2</sup> H-NMR ..... 132.07 ppm ..... 0.30 ppm R by <sup>2</sup> H-NMR ..... 2.570 ..... 0.005 δ <sup>13</sup> C <sub>V<sub>PDB</sub></sub> by IRMS ..... -2.691% ..... 0.007% Alcoholic grade t <sub>D</sub> ..... 4.61% ..... 0.05% <sup>(1)</sup> <sup>(1)</sup> in w/w volume	25 mL
BCR-657	Sugar (glucose) - Carbon-13 isotope ratio Certified value Parameter Value Uncertainty δ <sup>13</sup> C <sub>V<sub>PDB</sub></sub> by IRMS ..... 1.076 ‰ ..... 0.004‰	1 g
BCR-658	Wine (7% vol) - Oxygen-18 isotope ratio Certified values Parameter Value Uncertainty δ <sup>18</sup> O <sub>V<sub>SMOW</sub></sub> of water from wine by IRMS ..... - 0.719‰ ..... 0.004‰	25 mL
BCR-659	Wine (12% vol) - Oxygen-18 isotope ratio Certified values Parameter Value Uncertainty δ <sup>18</sup> O <sub>V<sub>SMOW</sub></sub> of water from wine by IRMS ..... - 0.718‰ ..... ± 0.002‰	25 mL

## Food and drink products

Code	Product	Unit
BCR-660	Wine ethanol - Isotope ratios Certified values	450 mL
	Parameter	Value
	(D/H) <sub>i</sub> by <sup>2</sup> H-NMR.....	102.90 ppm..... 0.16 ppm
	(D/H) <sub>l</sub> by <sup>2</sup> H-NMR.....	131.35 ppm..... 0.23 ppm
	R by <sup>2</sup> H-NMR.....	2.567..... 0.005
	δ <sup>13</sup> C <sub>V</sub> PDB by IRMS.....	-2.672%..... 0.009%
	(D/H) <sub>w</sub> of water (IRMS).....	148.68 ppm..... 0.14 ppm
	Alcoholic grade t <sub>D</sub> .....	11.96%..... 0.06% <sup>(1)</sup>
	<sup>(1)</sup> in v/v %	
STA-003k	Tetramethylurea (TMU) - Isotopic ratio (D/H) Used as internal standard for the determination of D/H isotope ratios of ethanol by 2H-NMR method (SNIF-NMR®) according to the formula 5-1 of Regulation EEC 2676/90.	500 mL
	(D/H) by NMR.....	Certified value 141.9 x 10 <sup>-6</sup> ..... Uncertainty 0.9 x 10 <sup>-6</sup>

## Food and drink products

Code	Product	Unit
<b>Processed food</b>		
LGC7107	Madeira cake - Proximates Lemon Madeira cakes were prepared by a UK food company. Each cake, weighing approx. 160 g, was sealed in a can. Assessed values	160 g
	Moisture..... 25.9 g/100 g	Total fat..... 13.4 g/100 g
	Nitrogen..... 0.66 g/100 g	Ash..... 1.76 g/100 g
		Sucrose..... 28.1 g/100 g
		Lactose..... 0.9 g/100 g
	Indicative value for starch content	
LGC7105	Rice pudding - Proximates and elements This reference material is a rice pudding dessert, sealed in retort pouches in 200g portions. Assessed values	200 g
	Moisture..... 71.3 g/100 g	Sucrose..... 7.2 g/100 g
	N..... 0.17 g/100 g	Ca..... 78 mg/kg
	Total fat..... 8.4 g/100 g	K..... 558 mg/kg
	Ash..... 0.22 g/100 g	Mg..... 30 mg/kg
		Mn..... 0.7 mg/kg
		Na..... 344 mg/kg
		P..... 346 mg/kg
		Zn..... 1.5 mg/kg
LGC7017	Sugar confectionery - Sugars A commercial supply of sugar confectionery, ground and supplied as 15g units contained in 30ml amber glass bottle with tamper evident caps. Assessed values	15 g
	Glucose..... 9.7 g/100 g	Sucrose..... 52.6 g/100 g
	Fructose..... 2.3 g/100 g	Maltose..... 4.2 g/100 g
LGC7103	Sweet digestive biscuit - Proximates and elements Assessed values	50 g
	Nitrogen..... 1.06 g/100 g	Sucrose..... 16.6 g/100 g
	Total fat..... 20.9 g/100 g	Chloride..... 0.55 g/100 g
	Ash..... 2.08 g/100 g	K..... 1530 mg/kg
	Fructose..... 0.24 g/100 g	Mn..... 5.9 mg/kg
	Indicative values for Moisture, Glucose, Starch, Ca and Mg	
BCR-644	Artificial foodstuff - Free sugars and starch/glucose Sugar	50 g
	Mass fraction on dry mass basis (g/100 g)	Certified value
	Fructose..... 16.2.....	Uncertainty (g/100 g)
	Sucrose..... 10.81.....	1.1
	Lactose..... 15.85.....	0.25
	Starch/glucose..... 35.1.....	0.29
		1.2
BCR-645	Artificial foodstuff - Free sugars and starch/glucose Sugar	50 g
	Mass fraction on dry mass basis (g/100 g)	Certified value
	Sucrose..... 26.2.....	Uncertainty (g/100 g)
	Lactose..... 27.8.....	0.8
	Starch/glucose..... 25.2.....	0.6
		0.9
ERM-BD518	Bran breakfast cereal - Dietary fibre Certified using five different methods of dietary fibre analysis Certified values	25 g
	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	