

# Schedule of Accreditation



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|---|---|
| Organisation Name                             | Public Analyst's Laboratory Dublin  |
| Trading As                                    | Health Service Executive - Public Analyst's Laboratory, Dublin                    |
| INAB Reg No                                   | 99T   |
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| Website                                       | <a href="http://www.publicanalystdublin.ie">http://www.publicanalystdublin.ie</a> |
| Accreditation Standard                        | EN ISO/IEC 17025 T  |
| Standard Version                              | 2017  |
| Date of award of accreditation                | 23/09/1998  |
| Scope Classification                          | Biological and veterinary testing   |
| Scope Classification                          | Chemical testing  |
| Services available to the public <sup>1</sup> |   |

<sup>1</sup> Refer to document on interpreting INAB Scopes of Accreditation

| Sites from which accredited services are delivered   |             |   |
|--|-------------|---|
| (the detail of the accredited services delivered at each site are on the Scope of Accreditation) |             |   |
|  |             |   |
|  | Name        | Address   |
| 1  | Head Office | Sir Patrick Dun's, Lr. Grand Canal Street, Dublin, D2 |

# Scope of Accreditation

## Head Office

### Biological and Veterinary Testing

Category: A

| Biology/veterinary field - Tests   | Test name                                     | Technique  | Matrix   | Equipment                               | Std. reference   |  |
|--|---|--|--|---|--|--|
| 801 Macroscopic examination and description  | SOP PALM 0029                                 | Determination of water activity in food<br>Dew point technique   | Food   | AQUALAB Water Activity Meter Series 4TE | ISO 18787:2017   |  |
| 803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth - .01 Culture of bacteria | SOP PALM 0001 **3<br>SOP PALM 0001 (S)<br>**3 | Aerobic colony count (pour plate) at 30°C for 72 hours.<br><br>Aerobic colony count (spiral plate) at 30°C for 72 hours. | Dairy products<br>Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Fruit and vegetables<br>Prepared dishes<br>Surfaces<br>Stick swabs |   | Based on I.S. EN ISO 4833-1:2013<br><br>Based on I.S. EN ISO 4833-2:2013 & AC:2014 |  |
|  | SOP PALM 0003(S)<br>**3                       | Enumeration of presumptive Bacillus cereus using Bacillus cereus agar.   | Dairy products<br>Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Cereals and bakery products  |   | Based on ISO 7932:2004   |  |

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|                   |  |  | Fruit and vegetables<br>Prepared dishes |   |  |
| SOP PALM 0004 **3 | Detection of salmonella spp  | Cereals and bakery products<br>Fruit and vegetables<br>Herbs and spices<br>Alcoholic beverages (other than wine) –<br>Cream Liguers<br>Ices and desserts<br>Confectionery<br>Nuts and nut products<br>Prepared dishes<br>Dairy products<br>Eggs and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Soups, broths and sauces<br>Surfaces<br>Stick swabs<br>Foodstuffs intended for particular nutritional uses |   | I.S. EN ISO 6579:2017                     |  |
| SOP PALM 0005 **3 | Enumeration of Escherichia coli in food products using TEMPO EC(E coli) test | Eggs and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Soups, broths and sauces<br>Confectionery<br>Cereals and bakery products<br>Prepared dishes<br>Surfaces<br>Stick swabs  |   | TEMPO EC AFNOR validation BIO 12/13-02/05 |  |
| SOP PALM 0006 **3 | Enumeration of Clostridium   | Dairy products<br>Egg and egg  |   | I.S. EN ISO 7937:2004                     |  |

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|                   |   | perfingens | products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Fruit and vegetables<br>Prepared dishes<br>Soups, broths and sauces   |  |  |  |
| SOP PALM 0009 **3 | Enumeration of Enterobacteriaceae                             |            | Dairy products<br>Eggs and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Soups broths and sauces<br>Fruits and vegetables<br>Confectionery<br>Prepared dishes<br>Alcoholic beverages (other than wine) –<br>Cream liqueurs<br>Surfaces<br>Stick swabs |  | Based on ISO 21528-2:2004                  |  |
| SOP PALM 0011 **3 | Enumeration of viable aerobic mesophilic flora using TEMPO AC |            | Dairy Products<br>Egg & egg products<br>Meat & meat products, game and poultry<br>Fish, shellfish & molluscs<br>Cereals and bakery products<br>Fruit & vegetables<br>Prepared dishes<br>Surfaces<br>Stick swabs   |  | TEMPO AC® AFNOR validation BIO 12/35-05/13 |  |
| SOP PALM 0017 **3 | Detection of Listeria monocytogenes and Listeria spp          |            | Dairy products<br>Egg and egg products<br>Meat and meat products, game and  |  | I.S. EN ISO 11290-1:2017                   |  |

|                         |  |   |  |                                       |  |
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|                         |  | poultry<br>Fish, shellfish and molluscs<br>Cereals and bakery products<br>Fruit and vegetables<br>Prepared dishes   |  |                                       |  |
| SOP PALM 0018(S)<br>**3 | Enumeration of <i>Listeria</i> spp and <i>L. monocytogenes</i>                                 | Dairy products<br>Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Fruit and vegetables<br>Prepared dishes   |  | I.S. EN ISO 11290-2:2017              |  |
| SOP PALM 0023 **3       | Detection of <i>Campylobacter</i> spp  | Dairy Products,<br>Egg and egg products,<br>Meat and meat products, game and poultry,<br>Fish, shellfish and molluscs,<br>Fruit and vegetables,<br>Prepared dishes,<br>Surfaces,<br>Stick Swabs   |  | I.S. EN ISO 10272-1:2017, Procedure A |  |
| SOP PALM 0026 **3       | Enumeration of $\beta$ -glucuronidase positive <i>E.coli</i> by colony count at 44°C using TBX | Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Cereals and bakery products<br>Cocoa and cocoa preparations, coffee and tea<br>Prepared dishes<br>Dairy products<br>Soups, Broths and Sauces<br>Confectionery |  | ISO 16649-2:2001                      |  |

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|                   |  | Surfaces<br>Stick Swabs Fruit<br>and vegetables  |  |   |  |
| SOP PALM 0028 **3 | Detection and enumeration of <i>Vibrio parahaemolyticus</i> (Surface – spread/spiral)                            | Fish, shellfish and molluscs   |  | Based on ISO 21872-1:2017                       |  |
| SOP PALM 0061 **3 | Enumeration of coagulase-positive staphylococci by RPF technique   | Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Fruit and vegetables<br>Prepared dishes<br>Cereals and bakery products<br>Soups, broths and sauces                   |  | I.S. EN ISO 6888-2:1999 Amd.1 2003              |  |
| SOP PALM 0062     | Detection and Enumeration of thermotolerant <i>Campylobacter</i> spp. in water by the membrane filtration method | Potable waters,<br>Swimming pools and spas,<br>Environmental waters  |  | ISO 17995:2019                                  |  |
| SOP PALM 0079     | Enumeration of viable aerobic mesophilic flora using Tempo TVC. (excluding .08 Fruit and vegetables)             | Dairy products<br>Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and nmolluscs<br>Cereals and bakery products<br>Fruit and vegetables<br>Prepared dishes<br>Surfaces<br>Stick Swabs |  | Based on AFNOR TEMPO Validation BIO 12/15-09/05 |  |
| SOP PALM 0100     | Detection and enumeration of   | Potable waters,<br>Environmental waters  |  | SCA Microbiology of Drinking Water 2016,        |  |

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|---------------|--|---|--|--|--|
|               | coliforms bacteria and E.coli in water by membrane filtration  |   |  | Part 4A  |  |
| SOP PALM 0102 | Detection and enumeration of Enterococci in water by membrane filtration   | Potable waters, Swimming pools and spas, Environmental waters   |  | Based on I.S. EN ISO 7899-2:2000                             |  |
| SOP PALM 0103 | Detection of Salmonella spp in water   | Potable waters<br>Swimming pools and spas<br>Environmental waters   |  | ISO 19250:2010. Water Quality - Detection of Salmonella spp. |  |
| SOP PALM 0104 | Detection and enumeration of sulphite reducing clostridia and Cl. perfringens in water by membrane filtration.                     | Potable waters<br>Swimming pools and spas<br>Environmental waters   |  | Microbiology of Drinking Water 2015, Part 6                  |  |
| SOP PALM 0106 | Detection and enumeration of Ps. aeruginosa in water by membrane filtration  | Swimming pools and spas<br>Potable Waters   |  | Microbiology of Drinking Water 2015, Part 8                  |  |
| SOP PALM 0107 | Enumeration of heterotrophic bacteria colony count technique at 22°C or 37°C   | Potable waters, Swimming pools and spas   |  | Based on I.S. EN ISO 6222:1999                               |  |
| SOP PALM 0108 | Enumeration of coliform and E. coli using Colilert Quanti-Tray MPN.  | Environmental waters<br>Potable waters<br>Swimming pools and spas   |  | ISO 9308-2:2012  |  |
| SOP PALM 0110 | Detection and quantification of Legionella spp and Legionella pneumophila by concentration and genic amplification by quantitative | Potable waters<br>Sanitary waters (waters originating from bathroom hot and cold water taps and storage tank water) |  | Based on the ISO/TS 12869:2012                               |  |

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|                   | polymerase chain reaction (qPCR)   |  |   |   |  |
| SOP PALM 0111     | Coliforms and E.coli by membrane filtration  | Potable waters   | ISO 9308-1 (2016)                                     | ISO 9308-1:2014 /AMD.1:2016   |  |
| SOP PALM 0112     | Enumeration of Legionella in water by membrane filtration  | Potable waters   | Membrane filtration manifold and associated equipment | ISO 11731:2017, Membrane filtration on plate: procedures 5 and 7. Filtration with washing procedures 8, 9 and 10                    |  |
| SOP PALM 0113     | Detection and Enumeration of Staphylococcus aureus in swimming and spa pool water by membrane filtration | Swimming pool and spa pool water   | Membrane filtration manifold and associated equipment | SCA The Microbiology of Recreational and Environmental Waters 2015, Part 6  |  |
| SOP PALM 3000     | Enumeration of aerobic mesophilic bacteria   | Cosmetics  |   | ISO 21149:2017  |  |
| SOP PALM 3001     | Detection of Ps. Aeruginosa  | Cosmetics  |   | ISO 22717:2015  |  |
| SOP PALM 3002     | Detection of Staphylococcus aureus   | Cosmetics  |   | ISO 22718:2015  |  |
| SOP PALM 3006     | Detection of Escherichia coli by standard plating methods  | Cosmetics  |   | ISO 21150:2015  |  |
| SOP PALM 4001 **3 | Elfa Detection of Salmonellaspp using VIDAS SLM Kit.   | Dairy Products<br>Egg and egg products<br>Meat and meat products, game and poultry<br>Fish, shellfish and molluscs<br>Soups, broths and sauces<br>Cereals and bakery products<br>Fruit and vegetables<br>Herbs and spices<br>Alcoholic beverages other than wine |   | AFNOR VIDAS Salmonella (VIDAS SLM) method BIO 12/1-04/94 Screening method. Cultural and confirmation aspects - I.S. EN ISO6579:2017 |  |



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|   |                   |   | (Cream liqueur)<br>Ices and desserts<br>Confectionary<br>Nuts and nut products<br>Prepared dishes<br>Surfaces<br>Stick swabs<br>Foodstuffs intended for particular nutritional uses |                                    |  |  |
|   | SOP PALM 4011     | ELFA Detection of Salmonella spp using VIDAS SLM kit.                                       | Potable waters, Swimming pools and spas, Environmental waters   |                                    | Based on AFNOR VIDAS Salmonella method BIO 12/1-04/94. Confirmation ISO 19250:2010 |  |
| 803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth - .02 Culture of fungi | SOP PALM 0025 **3 | Enumeration of yeasts and moulds in products with water activity greater than 0.95          | Cereals and bakery products, Fruit and vegetables, Non-alcoholic beverages, Soups, broths and sauces, Alcoholic beverages (other than wine)   |                                    | ISO 21527-1:2008   |  |
|   | SOP PALM 0080 **3 | Enumeration of yeasts and moulds in products with water activity less than or equal to 0.95 | Cereals and bakery products   |                                    | ISO 21527-2:2008   |  |
|   | SOP PALM 3003     | Enumeration of yeasts and moulds  | Cosmetics   |                                    | ISO 16212:2017   |  |
|   | SOP PALM 3007     | Detection of Candida albicans in cosmetic products  | Cosmetics   | Standard Microbiological equipment | ISO 18416:2015   |  |
| 803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for                               | SOP PALM 0025 **3 | Enumeration of yeasts and moulds in products with water activity greater than               | Cereals and bakery products, Fruit and vegetables, Non alcoholic  |                                    | ISO 21527-1:2008   |  |

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| growth - .04 Culture of yeasts |                   | 0.95 by standard plating  | beverages, Soups, broths and sauces, Alcoholic beverages (other than wine) |  |                  |  |
|                                | SOP PALM 0080 **3 | Enumeration of yeasts and moulds in products with water activity less than or equal to 0.95 | Cereals and bakery products  |  | ISO 21527-2:2008 |  |
|                                | SOP PALM 3003     | Enumeration of yeasts and moulds  | Cosmetic products  |  | ISO 16212:2017   |  |

Category: A

| Chemistry Field - Tests                       | Test name  | Analyte                       | Range of measurement   | Matrix                 | Equipment/technique   | Standard reference/SOP   |
|---|--|-------------------------------|--|------------------------|---|--|
| 710 Materials testing - .03 Chemical analysis | SOP PALC 0117 -<br>The determination of the specific migration of formaldehyde from kitchenware by UV/Vis spectrophotometry<br>**1 2 3 4     | Residual formaldehyde         | Food simulant (analysed as 3% acetic acid solution, results obtained must be corrected for the surface area of the individual article under analysis): 3.0 to 30.0 mg/kg | Melamine kitchenware   | UV/Vis spectrophotometry  | Based on the determination of formaldehyde in food simulants I.S. CEN/TS 13130-23:2005             |
|   | SOP PALC 0039 -<br>The determination of Epoxidised Soybean Oil in Food, Food simulant and PVC Gasket<br>**1 2 3 4                            | Epoxidised soybean oil (ESBO) | 3.0 % to 50 % w/w  | PVC Gasket             | GC-MS   | In-house procedure based on Castle, L., Sharman, M., and Gilbert, J. A.O.A.C. No.6., 71, 1183-1186 |
|   | SOP PALC 0089  | Bisphenol A **1               | 1-1000 µg/kg (analysed in 50% aqueous ethanol food simulant, results obtained must be corrected for the surface area of the individual article under analysis)           | Food Contact Materials | Analysed in 50% aqueous ethanol food simulant, results obtained must be corrected for the surface area of the individual article under analysis | Based on Bisphenol A - Draft Validation Report, October 2009, EURL, Ispra                          |
|   | SOP PALC 0089 -<br>The determination of bisphenol A in food contact materials and foodstuffs by HPLC and fluorescence detection<br>**1 2 3 4 | Bisphenol A                   | 1 to 1000 µg/kg (analysed in 50% aqueous ethanol food simulant, results obtained must be corrected for the surface area of the individual article under analysis)        | Food Contact Materials | HPLC and Fluorescence Detection   | Based on Bisphenol A Draft Validation Report, October 2009, EURL, Ispra                            |

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| SOP PALC 0090 -<br>The determination of<br>plasticisers in PVC,<br>Oil Food Simulant and<br>Food **1 2 3 4 | Plasticisers: diisooctyl<br>phthalate (DIOP),<br>diisononyl<br>cyclohexanedicarboxylate<br>(DINCH), diisononyl<br>phthalate (DINP),<br>diisodecyl phthalate<br>(DIDP)  | 0.02 to 35 % w/w   | PVC                             | GC-MS          | In-house test method  |
|  | Plasticisers: dimethyl<br>adipate (DMA), diethyl<br>adipate (DEA), dimethyl<br>phthalate (DMP), diethyl<br>phthalate (DEP), dimethyl<br>sebacate (DMS),<br>triethylcitrate (TEC),<br>diethyl sebacate (DES),<br>diisobutyl phthalate<br>(DIBP), dibutyl phthalate<br>(DBP), dihexyl phthalate<br>(DHP), benzyl butyl<br>phthalate (BBP),<br>dicyclohexyl phthalate<br>(DCHP), diethylhexyl<br>phthalate (DEHP), dioctyl<br>terephthalate<br>(DOTP/DETP),<br>diallyl phthalate (DAP),<br>diethyl sebacate (DES),<br>dibutyl sebacate (DBS),<br>tributylacetyl citrate<br>(TBAC), diethylhexyl<br>adipate (DEHA)<br>di-n-octyl phthalate<br>(DNOP) and diethylhexyl<br>sebacate (DEHS) | 0.005 to 35 % w/w  | PVC                             | GC-MS          | In-house test procedure   |
| SOP PALC 0092  | Primary aromatic amines:<br>Aniline (ANL) **1,2  | 4,4'-<br>Methylenedianiline<br>(4,4'-MDA)<br>0.00025-10.0 mg/kg<br>(analysed as 3%<br>acetic acid solution,<br>results obtained<br>must be corrected for<br>the surface area<br>of the individual utensil<br>under analysis) | Black nylon<br>kitchen utensils | By UPLC-MS/MS: | Based on Mortensen,<br>S.K.;<br>Trier, X.T; Foverskov, A;<br>Petersen, J.H: Specific<br>determination of 20<br>primary<br>aromatic amines in<br>aqueous<br>food simulants by liquid<br>chromatography –<br>electrospray |

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|---|---|--|-------------------------------|---|---|
|   |   | *Total PAAs: 0-20.05 mg/kg<br>(*Note: based on lower bound calculation)  |                               |   | ionization tandem mass spectrometry, J. Chromatogr. A 1091, (2005) 40-50        |
| SOP PALC 0092 -<br>The determination of the specific migration of primary aromatic amines (PAAs) from nylon kitchen utensils<br>**1 2 3 4             | Primary Aromatic Amines (PAAs),<br>Aniline (ANL),<br>4,4'-Methylenedianiline (4,4'-MDA) | 0.00025 to 10.0000 mg/kg (analysed as 3% acetic acid solution, results obtained must be corrected for the surface area of the individual article under analysis)<br>*Total PAAs: 0.0000 to 20.0500 mg/kg (*Note: based on lower bound calculation) | Polyamide<br>Kitchen Utensils | UPLC-MS/MS                                      | In-house test procedure   |
| SOP PALC 0094 -<br>The determination of the specific migration of melamine from kitchenware by UPLC-electrospray ionisation-tandem MS/MS              | Residual melamine   | 0.25-250.0 mg/kg food simulant (analysed as 3% acetic acid solution, results obtained must be corrected for the surface area of the individual utensil under analysis)   | Melamine kitchenware          | UPLC-MS/MS                                      | Based on I.S.EN13130-1:2004, Waters Application Note 7200022823EN, Oct 2008     |
| SOP PALC 0094 -<br>The determination of the specific migration of melamine from kitchenware by UPLC-electrospray ionisation-tandem MS/MS<br>**1 2 3 4 |   | 0.25 to 250 mg/kg food simulant (analysed as 3% acetic acid solution, results obtained must be corrected for the surface area of the individual article under analysis)  | Melamine kitchenware          | UPLC-MS/MS                                      | Based on I.S.EN13130-1:2004   |
| SOP PALC 0112 -<br>The determination of the migration of cadmium and lead from ceramic and glass articles by Inductively Coupled Plasma Mass          | Lead and Cadmium  | Ceramics: 0.2 to 40.0 mg/l (lead) 0.02 to 2.0 mg/l (Cadmium)(Analysed as 4% Acetic Acid solution, results obtained must be corrected for surface   | Ceramics<br>Glass articles    | By inductively coupled plasma mass spectroscopy | In-house test procedure based on Commission Directive 2005/31/EC and 84/500/EEC |

|   |                  |   |                        |       |  |
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| Spectroscopy<br>**1 2 3 4   |                  | area of the individual non fill article under analysis)<br>Glass articles: 0.003 to 0.20 mg/litre - Lead and Cadmium (analysed as 4% Acetic Acid, results obtained must be corrected for surface area of the individual non fill article) |                        |       |  |
| SOP PALC 0123 The determination of the specific migration of chromium and nickel from metal kitchen utensils by ICPMS **1 2 3 4 | Chromium Nickel  | Chromium 20 - 2000 µg/l Nickel 10 - 1000 µg/l (Analysed as 4% Acetic acid, results obtained must be corrected for surface area)   | Metal kitchen utensils | ICPMS | In-house test procedure based on JRC scientific and technical report 23814 EN 2009 |
| SOP PALC 0171 - The determination of the specific migration of metals from plastic kitchen ware by ICPMS **1 2 3 4              | Aluminium Nickel | Aluminium: 0.025 to 1.50 mg/kg Nickel: 0.003 to 0.15 mg/kg (Analysed as 3% Acetic acid, results obtained must be corrected for surface area)  | Plastic kitchen ware   | ICPMS | In-house test procedure based on SOP PALC 0092 and SOP PALC 0094                   |
|   | Cobalt           | 0.003 to 0.15 mg/kg (Analysed as 3% Acetic acid, results obtained must be corrected for surface area)   | Plastic kitchen ware   | ICPMS | In-house test method based on SOP PALC 0092 and SOP PALC 0094                      |
|   | Copper           | 0.100 to 6.0 mg/kg (Analysed as 3% Acetic acid, results obtained must be corrected for surface area)  | Plastic kitchen ware   | ICPMS | In-house test method based on SOP PALC 0092 and SOP PALC 0094                      |
|   | Iron             | 1.000 to 60.0 mg/kg (Analysed as 3% Acetic acid, results obtained must be corrected for surface area)   | Plastic kitchen ware   | ICPMS | In-house test method based on SOP PALC 0092 and SOP PALC 0094                      |

|   |   |   |  |                                     |               |   |
|---|---|---|--|-------------------------------------|---------------|---|
|   |   | Lithium   | 0.025 to 1.50 mg/kg<br>(Analysed as 3% Acetic acid, results obtained must be corrected for surface area) | Plastic kitchen ware                | ICPMS         | In-house test method based on SOP PALC 0092 and SOP PALC 0094   |
|   |   | Manganese   | 0.025 to 1.50 mg/kg<br>(Analysed as 3% Acetic acid, results obtained must be corrected for surface area) | Plastic kitchen ware                | ICPMS         | In-house test method based on SOP PALC 0092 and SOP PALC 0094   |
|   |   | Zinc  | 0.100 to 6.0 mg/kg<br>(Analysed as 3% Acetic acid, results obtained must be corrected for surface area)  | Plastic kitchen ware                | ICPMS         | In-house test method based on SOP PALC 0092 and SOP PALC 0094   |
|   | SOP PALCW 0024<br>The determination of the strength of hexafluorosilicic acid<br>**1 2 3 4                        | Hexafluorosilicic Acid (HFSA)                                 | HFSA in Aqueous solution (10 - 35%)  | Misc Materials and products         | By titrimetry | Based on I.S. EN 12175:2013   |
|   | The determination of the specific migration of metals from plastic kitchen ware by ICPMS<br>**1 2 3 4             | Barium  | 0.025 - 1.50 mg/kg<br>(Analysed as 3% Acetic acid, results obtained must be corrected for surface area)  | plastic kitchen ware                | ICPMS         | In-house test method based on SOP PALC 0092 and SOP PALC 0094   |
| 751 Food testing - .01 Migratory substances | SOP PALC 0039 -<br>The determination of Epoxidised Soybean Oil in Food, Food simulant and PVC Gasket<br>**1 2 3 4 | Epoxidised soybean oil (ESBO)                                 | 3 to 1000mg/kg   | Jarred foods including infant foods | GC-MS         | In-house test procedure based on Castle, L., Sharman, M., and Gilbert, J. A.O.A.C. No.6., 71, 1183-1186 |
|   |   |   | 30 to 12000 mg/kg  | Food Simulant                       | GC-MS         | In-house test procedure based on Castle, L., Sharman, M., and Gilbert, J. A.O.A.C. No.6., 71, 1183-1186 |
|   | SOP PALC 0116 -<br>The determination of photo initiators in   | Photoinitiators<br>Benzophenone (BP)<br>Isopropylthioxanthone | Food: 0.06 to 100.0 mg/kg<br>Packaging: 0.2 to 450 mg/dm <sup>2</sup>                                    | Food and Food Packaging             | GC-MS         | In-house test procedure based on Thermo scientific application note                                     |

|   |   |   |   |   |                             |   |
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|   | packaging and food by GC-MS<br>**1 2 3 4  | (ITX)   |   |   |                             | 'Analysis of benzophenone and 4-hydroxybenzophenone in breakfast cereal, 2012'  |
|   | SOP PALC 0119 - The determination of certain perfluoroalkylated substances in fish by LC-MS/MS<br>**1 2 3 4 | Certain perfluoroalkylated substances (PFAS)  | 1 to 100 µg/kg  | Fish  | UPLC-MS/MS                  | In-house test procedure   |
|   | SOP PALC 0181 - The determination of plasticisers in food by LC-MS/MS<br>*1 2 3 4                           | Diethyl adipate (DEA)<br>Dimethyl sebacate (DMS)<br>Diethyl sebacate (DES)<br>Dibutyl sebacate (DBS)<br>Dimethyl phthalate (DMP)<br>Diethyl phthalate (DEP)<br>Diallyl phthalate (DAP)<br>Diisobutyl phthalate (DiBP)<br>Dibutyl phthalate (DBP)<br>Benzyl butyl phthalate (BBP)<br>Dicyclohexyl phthalate (DCHP)<br>Diisononyl phthalate (DINP)<br>Diisodecyl phthalate (DIDP)<br>Triethyl citrate (TEC)<br>Tributylacetyl citrate (TBAC)<br>Diisononyl cyclohexanedicarboxylate (DINCH) | 6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>0.3 to 12 mg/kg<br>3.0 to 160 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg<br>6.0 to 300 mg/kg | Food  | LC-MS/MS                    | In-house test procedure   |
| 751 Food testing - .03 Compositional analysis | SOP PALC 0001 - The determination of percentage alcohol by volume in drinks<br>**1 2 3 4                    | Alcohol by volume in drinks   | 2 - 50% v/v   | Wine<br>Alcoholic beverages (other than wine) | Distillation and pycnometry | Based on Commission Regulation (EC) No. 2870/2000 of 19/12/2000, as amended, laying down Community reference methods for analysis of spirit drinks. |
|   | SOP PALC 0001 -The  |   | 2.5 - 70% v/v   | Wine  | Distillation and            | Based on Commission   |



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| determination of percentage alcohol by volume in drinks<br>**1 2 3 4   |                               |  | Alcoholic beverages (other than wine)       | electronic densimetry                | Regulation (EC) No. 2870/2000 of 19/12/2000, as amended, laying down Community reference methods for analysis of spirit drinks. |
| SOP PALC 0005  | Fructose                      | Fructose 0.1-20.0% w/v   | Non-alcoholic beverages (drinks and juices) | HPLC-RI                              | SOP PALC 0005   |
|  | Glucose                       | Glucose 0.1-20.0% w/v  | Non-alcoholic beverages (drinks and juices) | HPLC-RI                              | SOP PALC 0005   |
|  | Sucrose                       | Sucrose 0.1-20.0% w/v  | Non-alcoholic beverages (drinks and juices) | HPLC-RI                              | SOP PALC 0005   |
| SOP PALC 0005 -<br>The determination of fructose, glucose and sucrose in selected food and drink samples by HPLC (RI detection) **1 2 3 4              | Fructose, Glucose, Sucrose    | Total Sugars 0-60.0% w/v   | Non-alcoholic beverages (drinks and juices) | HPLC-RI                              | SOP PALC 0005   |
| SOP PALC 0005 -<br>The determination of fructose, glucose and sucrose in selected food and drink samples by HPLC (RI detection) **1 2 3 4              | Fructose, glucose and sucrose | 0.1 to 50% w/w<br>Total sugars 0-80% w/w based on lower bound calculations | Honey                                       | HPLC with refractive index detection | In-house test procedure   |
| SOP PALC 0008 -<br>The determination of benzoic acid and sorbic acid in non-alcoholic beverages by high performance liquid chromatography<br>**1 2 3 4 | Benzoic acid and sorbic acid  | Benzoic acid 10 - 500 mg/l<br>Sorbic acid 10 - 500 mg/l                    | Non-alcoholic beverages                     | HPLC                                 | In-house test procedure   |
|  |                               | Benzoic acid 50 - 3000   | Dairy products                              | Steam distillation                   | Based on VEMS   |

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| <p>The determination of benzoic acid and sorbic acid in foods by steam distillation and high performance liquid chromatography<br/>**1 2 3 4</p> |  | <p>mg/kg Sorbic acid 50 - 3000 mg/kg</p>   | <p>Fats and Oils<br/>Soups broths and sauces<br/>Cereals &amp; bakery products<br/>Fruit and vegetables<br/>Confectionery<br/>Hummus and similar products</p>   | <p>and HPLC</p>                    | <p>Method, Code: F/0290, June, 1994</p> |
| <p>SOP PALC 0011 - The determination of sulphur dioxide in food and beverages by distillation and titrimetry **1 2 3 4</p>                       | <p>Sulphur dioxide</p>                       | <p>Meat products 10 - 1000 mg/kg Dried fruit 10 - 2000mg/kg Wine 10 - 160 mg/l Raw potatoes 10 - 1000 mg/kg Raw crustaceans 10 - 300 mg/kg Cider 10 - 200mg/l Cordials 10 - 250 mg/l Parsnips 10 - 3000 mg/kg Beer 10 - 50 mg/l Mustard 10 - 52 mg/kg Olives 10 - 100 mg/kg Additive premixes 10 - 25000 mg/kg Jam/Dessert Syrup/ fruit filling for pastry: 10 - 400 mg/kg</p> | <p>Meat and meat products, game and poultry<br/>Fish, Shellfish and molluscs<br/>Fruit and vegetables<br/>Non-alcoholic beverages<br/>Wine<br/>Alcoholic beverages (other than wine)<br/>Mustard<br/>Olives<br/>Additive premixes<br/>Jam/Dessert Syrup/ fruit filling for pastry</p> | <p>Distillation and titrimetry</p> | <p>In-house test procedure</p>          |
| <p>SOP PALC 0015 - The determination of nitrate in vegetables by anion exchange high performance liquid chromatography<br/>**1 2 3 4</p>         | <p>Nitrate</p>                               | <p>50 – 7500 mg/kg</p>   | <p>Fruit and vegetables</p>   | <p>Anion exchange HPLC</p>         | <p>In-house test procedure</p>          |
| <p>SOP PALC 0016 - The determination of aspartame, acesulfame-K and saccharin in non-</p>  | <p>Aspartame, acesulfame-K and saccharin</p> | <p>Aspartame 40 – 800 mg/l Acesulfame-K 20 – 400 mg/l Saccharin 10 – 200 mg/l</p>  | <p>Non-alcoholic beverages</p>  | <p>UPLC</p>                        | <p>In-house test procedure</p>          |

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| alcoholic beverages by high performance liquid chromatography<br>**1 2 3 4   |  |  |   |                                     |                         |
| SOP PALC 0017 - Determination of biogenic amines in fish and fish products by HPLC and fluorescence detection<br>**1 2 3 4 | Biogenic Amines (Tyramine, putrescine, cadaverine, histamine, agmatine, phenylethylamine, spermidine and spermine) **1,2,3 | Tyramine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Putrescine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Cadaverine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Histamine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Agmatine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Phenylethylamine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Spermidine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) Spermine: 10 to 1000 mg/kg (1) 10 to 4000 mg/kg (2) | 1. Fish, shellfish and fish products inc molluscs<br>2. Soups (fish), broths and sauces   | HPLC and fluorescence detection     | In-house test procedure |
| SOP PALC 0025 - The determination of caffeine in foodstuffs by HPLC and UV detection<br>**1 2 3 4                          | Caffeine   | Instant Coffee 0.1 - 5 g/kg Liquid Samples 20 - 700 mg/l Solid and liquid food supplements: Solid tablet 25,000 - 500,000mg/kg Powder 3,000 - 20,000 mg/kg Gel/liquid 10 - 6,000 mg/kg Capsule 10,000 - 500,000 mg/kg  | Non-alcoholic beverages<br>Cocoa and Cocoa preparations, coffee, tea.<br>Food Supplements | HPLC and UV detection               | In-house test procedure |
| SOP PALC 0026 - The determination of sucralose by HPLC and RI detection<br>**1 2 3 4                                       | Sucralose  | Alcoholic and non-alcoholic beverages 5 to 300 mg/l Yoghurts 40 to 800 mg/kg Jams and dessert jellies 40 to 800 mg/kg Sauces   | Dairy products<br>Non-alcoholic beverages<br>Alcoholic beverages (other than wine)        | HPLC and refractive index detection | In-house test procedure |

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|   |   |   | 40 to 800 mg/kg<br>Confectionery: 200 mg/kg to 2,000 mg/kg<br>Syrups: 40 mg/kg to 2,100 mg/kg<br>Popcorn: 100 to 400 mg/kg<br>Fine bakery wares: 60 to 400 mg/kg<br>Meat products: 30 to 150 mg/kg | Ices and desserts<br>Sauces, jams and desserts<br>Confectionery<br>Syrups<br>Popcorn<br>Fine bakery wares, Meat products |                         |  |
| SOP PALC 0028 -<br>The determination of nitrite and nitrate (expressed as sodium nitrite and sodium nitrate) in meat and meat products and curing brines by anion-exchange high performance liquid chromatography **1 2 3 4 | Nitrite and nitrate (expressed as sodium nitrite and sodium nitrate for all matrices other than processed cereal-based foods and baby foods for infants and young children) | Meat and meat products, game and poultry: 10 - 1,000 mg/kg<br>Brines: 100 - 2,500 mg/kg,<br>Processed cereal-based foods and baby foods for infants and young children: 20 - 300 mg/kg,<br>cheese: 10 - 400 mg/kg,<br>cheese milks 5 - 100 mg/kg,<br>tuna 5 - 50 mg/kg  | Meat and meat products, game and poultry<br>Brines,<br>Processed cereal-based foods and baby foods for infants and young children, cheese, cheese milks, tuna                                      | Anion exchange HPLC  | In-house test procedure |  |
| SOP PALC 0054 -<br>The determination of aspartame, acesulfame-K and saccharin in selected foodstuffs by ultra performance liquid chromatography **1 2 3 4   | Aspartame, acesulfame-K and saccharin   | Dairy products, Soups, broths and sauces, Ices, desserts and Confectionery:<br>Aspartame 40 to 1000 mg/kg<br>Acesulfame-K 10 to 1000 mg/kg<br>Saccharin 10 to 200 mg/kg<br>Chewing Gum:<br>Aspartame: 500 to 10,000 mg/kg<br>Acesulfame K: 250 to 5,000 mg/kg<br>Saccharin: 120 to 2,500 mg/kg<br>Chocolate powder type products:<br>Aspartame: 40 to 800 mg/kg<br>Acesulfame K: 20 to 400 mg/kg<br>Saccharin: 10 - 200 mg/kg<br>Fine Bakery Wares<br>Aspartame: 80 | Dairy products<br>Soups, broths and sauces<br>Ices and desserts<br>Confectionery<br>Chewing gum<br>Chocolate powder type products<br>Fine Bakery Wares, Meat Products                              | UPLC and UV Detection  | In-house test procedure |  |

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|  |                               |  | to 400 mg/kg<br>Acesulfame K: 40 to 400 mg/kg Saccharin: 20 to 200 mg/kg Meat Products: Aspartame: 20 to 100 mg/kg<br>Acesulfame K: 10 to 50 mg/kg Saccharin: 5 to 25 mg/kg |   |  |  |
| SOP PALC 0057 - Determination of the 5-hydroxymethylfurfural (HMF) content of honey by HPLC with UV detection **1<br>2 3 4                 | 5-hydroxymethylfurfural (HMF) | 10 to 2166 mg/kg   | Honey   | HPLC with UV detection                    | Based on Harmonised Methods of the International Honey Commission, 2009  |  |
| SOP PALC 0086 - The determination of the water content of honey by refractive index using a hand-held refractometer **1<br>2 3 4           | Moisture                      | 10.0 to 30.0%  | Honey   | Refractometer                             | Based on Harmonised Methods of the International Honey Commission, 2009. |  |
| SOP PALC 0091 - The determination of melamine in foodstuffs **1 2 3 4  | Melamine                      | 1.48 to 5 mg/kg for soy products, milk powder  | Soy products<br>Milk powder   | By UPLC-MS/MS                             | Based on Waters application note 720002823EN                             |  |
| SOP PALC 0113 - The determination of the diastase activity of honey with Phadebas® by UV/Vis spectrophotometry **1 2 3 4                   | Diastase number               | 2.5 to 30.0 Diastase number  | Honey   | By Phadebas with UV/Vis Spectrophotometry | Based on Harmonised Methods of the International Honey Commission, 2009  |  |
| SOP PALC 0121 - The Determination of Coumarin in Foodstuffs by Gradient High Performance Liquid Chromatography with UV Detection **1 2 3 4 | Coumarin                      | Bakery products: 1 to 100 mg/kg Breakfast cereals: 2 to 50 mg/kg Food Supplements (Liquid): 2.5 to 50 mg/kg Food Supplements (Solid): 5 to 15,000 mg/kg Confectionery: 10 to | Cereals and bakery products<br>Food supplements (liquid)<br>Food supplements (solid)  | By HPLC with UV detection                 | Based on Anal. Methods 2011, 3, 414. Scotter et al.                      |  |

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|  |   | 50 mg/kg   | Confectionery   |  |   |
| SOP PALC 0128 -<br>The Determination of Six Selected Antioxidants in Chewing Gum by Gradient High Performance Liquid Chromatography<br>**1 2 3 4   | 6 Antioxidants<br>Propyl gallate<br>Octyl gallate<br>Dodecyl gallate<br>Tertiary-butylhydroquinone (TBHQ)<br>Butylated hydroxyanisole (BHA)<br>Butylated hydroxytoluene (BHT) | Chewing Gum (20 to 800 mg/kg) Nut Products (4 to 80 mg/kg) Cereals (Range (4 to 200 mg/kg) Oil food supplements (20 to 800 mg/kg)      | Chewing gum<br>Nut Products<br>Cereals<br>Oil food supplements                              | By gradient high performance liquid chromatography with UV detection | In-house test procedure                             |
| SOP PALC 0134 -<br>The determination of citrinin (CIT) in red yeast rice supplements by ultra performance liquid chromatography (UPLC) and tandem mass spectrometry (MS/MS)<br>**1 2 3 4 | Citrinin  | 25 to 4,000 µg/kg  | Food supplements based on rice fermented with red yeast <i>Monascus purpureus</i>           | UPLC-MS/MS   | In-house test procedure                             |
| SOP PALC 0135 -<br>The Determination of Steviol Glycosides (Rebaudioside A & Stevioside) in foodstuffs by gradient high performance liquid chromatography with UV detection<br>**1 2 3 4 | Steviol Glycosides (Rebaudioside A and Stevioside)  | Rebaudioside A: 10 to 400 mg/l (3.3 to 132 mg/l steviol equivalents)<br>Stevioside: 10 to 400 mg/l (4 to 160 mg/l steviol equivalents) | Non-alcoholic beverages<br>See SOP PALC 0149 for solid food analysis                        | By HPLC  | In-house test procedure                             |
| SOP PALC 0137 -<br>The Determination of Quassin in Non-Alcoholic Beverages by High Performance Liquid Chromatography<br>**1 2 3 4  | Quassin   | 0.05 to 1.0 mg/kg<br>0.15 to 2.5 mg/kg   | Non-alcoholic beverages<br>Alcoholic beverages<br>See SOP PALC 0153 for solid food analysis | By HPLC  | Based on Anal. Methods 2011, 3, 414. Scotter et al. |
| SOP PALC 0138 -<br>The Determination of  | Taurine   | 5 to 100 mg/L  | Infant formula and Follow on  | By HPLC with UV detection  | Based on J. Liquid Chrom.                           |

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| Taurine in Infant Formula and Follow-On Formula by High Performance Liquid Chromatography with UV Detection<br>**1 2 3 4  |  |   |  | formula    |  | and Related Technology; 20(8) 1269-1278 (1997) |
| SOP PALC 0139 - The determination of tropane alkaloids in cereal and cereal products by UPLC-MS/MS **1 2 3 4  | Tropane alkaloids (TAs) (Atropine and Scopolamine)                       | Atropine: 0.1 to 250 µg/kg<br>Scopolamine: 0.1 to 25 µg/kg  | Cereal based baby food   | UPLC-MS/MS |  | In-house test procedure                        |
| SOP PALC 0143 - The determination of Dihydroxyacetone (DHA), Methylglyoxal (MGO) and Hydroxymethylfurfural (HMF) in honey by derivatisation and Ultra High Performance Liquid Chromatography (UPLC) with UV detection **1 2 3 4 | Dihydroxyacetone (DHA), Methylglyoxal (MGO), Hydroxymethylfurfural (HMF) | Hydroxymethylfurfural (HMF) 3 to 200 mg/kg<br>Methylglyoxal (MGO) 20 to 640 mg/kg<br>Dihydroxyacetone (DHA) 50 to 3,200 mg/kg   | Honey  | UPLC-TUV   |  | In-house test procedure                        |
| SOP PALC 0149 - The determination of Steviol Glycosides (Rebaudioside A & Stevioside) in foodstuffs by gradient high performance liquid chromatography with UV detection **1 2 3 4  | Steviol Glycosides (Rebaudioside A and Stevioside)                       | Chocolate:<br>Rebaudioside A: 60 to 1,500 mg/kg (20 - 500 mg/kg steviol equivalents)<br>Stevioside: 60 to 1,100 mg/kg (24 to 440 mg/kg steviol equivalents) Other Confectionery:<br>Rebaudioside A: 80 to 2,000 mg/kg (26 to 660 mg/kg steviol equivalents)<br>Stevioside: 80 to 2,000 mg/kg (30 to 800 mg/kg steviol equivalents) Sauces and Canned Vegetables in sauce: | Chocolate<br>Other confectionery<br>Sauces<br>Canned vegetables in sauce See SOP PALC 0135 for non-alcoholic beverage analysis | By HPLC    |  | In-house test procedure                        |

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|  |                                  |  | Rebaudioside A: 37 to 750 mg/kg (12 to 250 mg/kg expressed as steviol equivalents) Stevioside: 40 to 600 mg/kg (16 to 240 mg/kg expressed as steviol equivalents) |  |   |  |
| SOP PALC 0151 - The determination of fructose, glucose and sucrose in spirit drinks by HPLC (ECD detection)<br><br>**1 2 3 4 | Fructose, glucose and sucrose    | Fructose 5 to 1000 mg/l<br>Glucose 5 to 1000 mg/l<br>Sucrose 5 to 1000 mg/l<br>*Total Sugars: 0 to 3000 mg/l (*Note: based on lower bound calculation)   | Alcoholic beverages<br>Spirits  | By HPLC with electrochemical detection | In-house test procedure   |  |
| SOP PALC 0153 - The determination of Quassin in Bakery Wares by High Performance Liquid Chromatography **1 2 3 4             | Quassin                          | 0.1 to 2.0 mg/kg   | Bakery wares<br>See SOP PALC 0137 for non-alcoholic beverage analysis   | HPLC -UV                               | SOP PALC 0153 based on Anal. Methods 2011, 3, 414. Scotter et al. |  |
| SOP PALC 0154 **1 2 3 4  | Congeners in alcoholic beverages | Ranges for the below are as follows: 10 mg/l - 750 mg/l<br>2.5 - 187.5 g/h L @ 100% vol<br>Ethanal Ethyl Acetate Acetal Methanol Butan-2-ol Propan-1-ol Butan-1-ol 2-methyl propan-1-ol 2-methyl butan-1-ol 3-methyl butan-1-ol<br>Ranges for the below are as follows: 2.1 - 1,109 g/hL @ 100% vol<br>Higher alcohols (sum of propan-1-ol, butan-1-ol, butan-2-ol, 2-methyl propan-1-ol, 2-methylbutan-1-ol, 3-methyl butan-1-ol expressed as 2-methyl propan-1-ol). Ranges | Alcoholic beverages - spirits   | By GC                                  | SOP PALC 0154   |  |



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|  |   | for the below are as follows: 0.9 - 85.9 g/hL @ 100% vol<br>Aldehydes (sum of ethanal and acetal expressed as ethanal)                           |  |                             |  |
| SOP PALC 0156 -<br>The determination of cyclamic acid in non-alcoholic beverages by HPLC with UV detection<br>**1 2 3 4                            | Cyclamic Acid   | 25 to 500 mg/l   | Non-alcoholic beverages  | HPLC-UV                     | In-house test procedure  |
| SOP PALC 0165 **1 2 3 4  | Cannabinoids ( $\Delta^9$ -Tetrahydrocannabinol ( $\Delta^9$ -THC), $\Delta^8$ -Tetrahydrocannabinol ( $\Delta^8$ -THC), $\Delta^9$ -Tetrahydrocannabinolic acid ( $\Delta^9$ -THCA), $\Delta^9$ -Tetrahydrocannabivarin ( $\Delta^9$ -THCV), Cannabidiol (CBD), Cannabinolic acid (CBDA), Cannabidiol (CBDV), Cannabinol (CBN), Cannabigerol (CBG), Cannabigerolic acid (CBGA), and Cannabichromene (CBC)) | 0.5 - 50,000 mg/kg (5%)  | Hemp oils and CBD oils   | UPLC-MS/MS                  | SOP PALC 0165  |
| SOP PALC 0166 -<br>The determination of hydrocyanic acid in foods by ultra performance liquid chromatography with fluorescence detection **1 2 3 4 | Hydrocyanic Acid  | Marzipan and Nougat: 5 to 100 mg/kg Fruit 0.5 to 10 mg/kg Alcoholic Beverages: 2.5 to 50 mg/kg Apricot Kernels, Nuts and Seeds 2.5 to 2500 mg/kg | Marzipan and Nougat, Fruit, Alcoholic Beverages, Apricot Kernels, Nuts and Seeds | UPLC/Fluorescence detection | SOP PALC 0166 based on I.S. EN 16160:2012, Animal feeding stuffs - Determination of Hydrocyanic acid by HPLC |
| SOP PALC 0170 -<br>The determination of Epigallocatechin-3-gallate (EGCG) in Food Supplements by HPLC with UV detection                            | Epigallocatechin-3-gallate (EGCG)   | 1,000 to 290,000 mg/kg   | Food Supplements   | HPLC -UV                    | SOP PALC 0170 based on J AOAC Int. 2013 96(5): 933-941   |

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| **1 2 3 4  |  |  |  |                              |                         |
| SOP PALC 0180 -<br>The Determination of<br>Glycyrrhizic Acid by<br>High Performance<br>Liquid<br>Chromatography with<br>UV Detection   | Glycyrrhizic Acid                                  | 50 to 2000 mg/kg<br>100 to 4000 mg/kg  | Confectionery<br>Chewing gum                         | HPLC-UV                      | In-house test procedure |
| SOP PALC 0182 -<br>The determination of<br>Monacolin K in Red<br>Yeast Rice<br>supplements by UPLC<br>with Fluorescence<br>Detection   | Monacolin K  | 1 to 60 mg/g   | Red Yeast Rice<br>Supplements                        | UPLC-FLD                     | In-house test procedure |
| SOP PALC 0184 -The<br>determination of<br>Theobromine in non-<br>alcoholic beverages<br>by high performance<br>liquid chromatography<br>with UV/PDA<br>detection                     | Theobromine  | 5 to 200 mg/kg   | Non-alcoholic<br>beverages                           | HPLC and PDA/UV<br>detection | SOP PALC 0184           |
| SOP PALC 0185 -<br>The determination of<br>Quinine in alcoholic<br>and non-alcoholic<br>beverages by ultra<br>performance liquid<br>chromatography with<br>fluorescence<br>detection | Quinine  | Alcoholic beverages:<br>10 to 400 mg/kg<br>Non-alcoholic<br>beverages: 10 to 200<br>mg/kg                                  | Alcoholic<br>beverages<br>Non-alcoholic<br>beverages | UPLC and<br>Fluorescence     | SOP PALC 0185           |
| SOP PALC 0187 -<br>The determination of<br>Flavourings in<br>Foodstuffs by GC-MS<br>**1 2 3 4  | Beta Asarone,<br>Menthofuran, Pulegone,<br>Thujone | Beta Asarone 0.1 to<br>1.5 mg/kg,<br>Menthofuran 15 to 150<br>mg/kg, Pulegone 15 to<br>120 mg/kg, Thujone 1<br>to 10 mg/kg | Alcoholic<br>beverages                               | GC-MS                        | In-house test procedure |
|  | Estragole,<br>Methyl Eugenol,<br>Safrole           | Estragole 0.7 to 20<br>mg/kg,<br>Methyl Eugenol 0.1 to<br>2 mg/kg,<br>Safrole 0.1 to 3 mg/kg                               | Non-alcoholic<br>beverages                           | GC-MS                        | In-house test procedure |

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|   |  | Menthofuran<br>Pulegone    | Menthofuran 20 to 150 mg/kg,<br>Pulegone 20 to 150 mg/kg  | Chocolate  | GC-MS  | In-house test procedure                                    |
|   |  | Methyl Eugenol,<br>Safrole | Methyl Eugenol 1 to 20 mg/kg,<br>Safrole 1 to 20 mg/kg  | Soups and sauces   | GC-MS  | In-house test procedure                                    |
|   | SOP PALC 0189<br>The determination of Teucrin A in alcoholic beverages by high performance liquid chromatography               | Teucrin A                  | 0.2 - 25 mg/kg  | Alcoholic beverages  | HPLC   | In-house test procedure                                    |
| 751 Food testing - .05 Speciation           | SOP PALC 0158 -<br>The determination of inorganic arsenic species in food extracted with acid/peroxide by HPLC/ICPMS **1 2 3 4 | Inorganic Arsenic          | Fish Tissue: 0.01 to 0.5mg/kg Rice and Rice Products: 0.04 to 1 mg/kg Cheese: 0.04 to 1 mg/kg Seaweed: 0.02 to 100 mg/kg Seafood: 0.01 to 0.5 mg/kg Milk: 0.01 to 0.3 mg/l Fruit and Vegetable Juices: 0.01 to 0.3 mg/litre Bread : 0.01 to 1.0 mg/kg | Fish Tissue, Rice and Rice Products, Cheese, Seaweed, Seafood, Milk, Fruit and Vegetable Juices, Bread | HPLC-ICP-MS PerkinElmer NexSAR<br>HPLC PerkinElmer NexION 2000 and NexION 300D | In-house test procedure based on I.S. EN 16802:2016        |
|   | SOP PALC 0176 -<br>The determination of methylmercury in food by HPLC-ICPMS **1 2 3 4  | Methylmercury              | 0.043 to 5.50 mg/kg   | Fish   | HPLC-ICP-MS PerkinElmer NexSAR<br>HPLC PerkinElmer NexION 2000 and NexION 300D | In-house test procedure based on U.S. FDA method UCM479981 |
| 752 Chemical residue testing - .02 Elements | SOP PALC 0097 -<br>The determination of lead in whole blood by Graphite Furnace atomic absorption spectrophotometry **1 2 3 4  | Lead                       | 2.0 to 50.0 µg/100ml  | Whole blood  | By graphite furnace AA spectrophotometry                                       | In-house test procedure                                    |
|   | SOP PALC 0099 -<br>The determination of copper in plasma and serum by flame atomic absorption spectrophotometry                | Copper                     | 25 to 250 µg/100ml  | Serum, Plasma  | By flame AA spectrophotometry.   | In-house test procedure                                    |

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| **1 2 3 4  |           |                     |               |  |  |
| SOP PALC 0101 -<br>The determination of zinc in plasma and serum by flame atomic absorption spectrophotometry<br>**1 2 3 4                         | Zinc      | 25 to 250 µg/100ml  | Plasma, Serum | By flame AA spectrophotometry  | In-house test procedure  |
| SOP PALC 0104 -<br>The determination of copper in urine by flame atomic absorption spectrophotometry<br>**1 2 3 4                                  | Copper    | 10.0 to 400 µg/l    | Urine         | By flame AA spectrophotometry  | In-house test procedure  |
| SOP PALC 0132 -<br>The determination of manganese in whole blood by Graphite Furnace Atomic Absorption Spectrophotometry<br>**1 2 3 4              | Manganese | 4.3 to 37.7 µg/l    | Blood         | Graphite furnace atomic absorption spectrophotometer - PerkinElmer AAnalyst800                     | In-house test method   |
| SOP PALC 0141 -<br>The determination of Copper, Selenium and Zinc in Plasma and Serum by Inductively Coupled Plasma-Mass Spectrometry<br>**1 2 3 4 | Copper    | 25 to 250 µg/100 ml | Plasma, Serum | Inductively coupled plasma mass spectrometer - PerkinElmer NexION 300D<br>PerkinElmer, NexION 2000 | In-house test procedure based on a Poster from the Mayo Clinic |
| SOP PALC 0141 -<br>The determination of Copper, Selenium and Zinc in Plasma and Serum by Inductively Coupled Plasma-Mass Spectrometry<br>**1 2 3 4 | Selenium  | 25 to 250 µg/l      | Plasma, Serum | Inductively coupled plasma mass spectrometer – PerkinElmer NexION 300D<br>PerkinElmer, NexION 2000 | In-house test procedure based on a Poster from the Mayo Clinic |
| SOP PALC 0141 -<br>The determination of Copper, Selenium and   | Zinc      | 25 to 250 µg/100ml  | Plasma, Serum | Inductively coupled plasma mass spectrometer -   | In-house test procedure based on a Poster from the Mayo Clinic |

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|   | Zinc in Plasma and Serum by Inductively Coupled Plasma-Mass Spectrometry **1 2 3 4  |              |   |  | PerkinElmer NexION 300D<br>PerkinElmer, NexION 2000  |                         |
|   | SOP PALC 0147 - - The determination of manganese, mercury, lead, chromium and cobalt in whole blood by inductively coupled plasma mass spectrometry **1 2 3 4                               | Manganese    | 2.5 to 400 µg/l   | Whole Blood  | Inductively coupled plasma mass spectrometer - PerkinElmer NexION 300D<br>PerkinElmer, NexION 2000 | In-house test procedure |
|   | SOP PALC 0147 - The determination of manganese, mercury, lead, chromium and cobalt in whole blood by inductively coupled plasma mass spectrometry **1 2 3 4                                 | Lead         | 1.0 - 80 µg/100ml   | Whole Blood  | Inductively coupled plasma mass spectrometer - PerkinElmer NexION 300D<br>PerkinElmer, NexION 2000 | In-house test procedure |
|   |   | Mercury      | 1.0 to 40 µg/l  | Whole Blood  | Inductively coupled plasma mass spectrometer - PerkinElmer NexION 300D<br>PerkinElmer, NexION 2000 | In-house test procedure |
| 752 Chemical residue testing - .03 Mycotoxins | SOP PALC 0018 - The determination of ochratoxin A in foodstuffs by immunoaffinity column extraction and high performance liquid chromatography (HPLC) with fluorescence detection **1 2 3 4 | Ochratoxin A | Cereals, Coffee, Dried fruit, Paprika, Chocolate, Chilli, Liquorice, Black/White pepper, Nutmeg, Ginger, Tumeric, Mixed spices, Cocoa, Rice, Green Coffee: 1 to 60 µg/kg Baby foods 0.2 to 30 µg/kg Red/White grape juice and Red/White wine, Sparkling and rose wine: 0.2 to 6 µg/l Beer | Cereal products<br>Dried fruits Wine<br>Beer Coffee<br>Baby food<br>Liquorice Spices<br>Grape juice<br>Chocolate Cocoa<br>Rice Rose and sparkling wine<br>Green coffee | Immunoaffinity column extraction and HPLC with fluorescence detection                              | In-house test procedure |

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|  |                              |  | 0.2 to 3 µg/l  |   |                         |  |
| SOP PALC 0022<br>The determination of zearalenone in cereals, baby food, and maize oil by immunoaffinity column extraction and HPLC with fluorescence detection<br>**1 2 3 4                                       | Zearalenone                  | Cereals: 20 to 400 µg/kg Cereal-based baby foods: 20 to 400 µg/kg Maize Oil: 20 to 1,000 µg/kg   | Cereals, Cereal-based baby foods Maize Oil   | Immunoaffinity column extraction and HPLC with fluorescence detection | In-house test procedure |  |
| SOP PALC 0031 -<br>The determination of aflatoxins in food by Immunoaffinity Column Extraction, and High Performance Liquid Chromatography<br>**1 2 3 4  | Aflatoxins B1, B2, G1 and G2 | Cereals, seeds, nut products, dried fruit and dried fruit products: Individually 0.2 to 20.0 µg/kg *Total Aflatoxins: 0 to 80 µg/kg Shelled nuts Individually 0.2 to 25.0 µg/kg *Total Aflatoxins 0 to 100.0 µg/kg Nuts and groundnuts in shell Individually 0.2 to 40.0 µg/kg *Total Aflatoxins 0 to 160 µg/kg Spices Individually 0.2 to 30.0 µg/kg *Total Aflatoxins 0 to 120 µg/kg Chocolate: 1.0 to 20 µg/kg *Total Aflatoxins 0 to 80 µg/kg Baby foods 0.05 to 20µg/kg (B1 only) | Mycotoxins Cereals, nut products, dried fruit and dried fruit products, shelled nuts, nuts, groundnuts, spices, seeds, baby foods and chocolate. | Immunoaffinity column extraction and HPLC.                            | In-house test procedure |  |
| SOP PALC 0045 -<br>The determination of patulin in apple products, juices and smoothies and ciders by SPE extraction and quantification by UPLC with ultraviolet or tandem mass spectrometric detection<br>**1 2 3 | Patulin                      | 10 - 200 µg/kg - Apple juices, apple smoothies 10 - 250 µg/kg - Ciders 5 – 25 µg/kg - Baby foods   | Non-alcoholic beverages Apple Juice Apple smoothies Alcoholic beverages Ciders Others - Baby foods   | UPLC with UV or MS/MS detection                                       | In-house test procedure |  |

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| SOP PALC 0074 -<br>The determination of T-2 and HT-2 toxins in cereals and baby food by UPLC-MS/MS<br>**1 2 3 4  | T-2 and HT-2 toxins  | T-2 4 to 800 µg/kg HT-2 4 to 800 µg/kg<br>*Sum of T-2 and HT-2 0 to 1,600 µg/kg<br>(*Note: based on lower bound calculation)   | Cereals                                | UPLC-MS/MS  | In-house test procedure |
| SOP PALC 0076 -<br>The determination of fumonisins B1, B2 and B3 in cereals and cereal products by immunoaffinity column extraction and high performance liquid chromatography (HPLC)<br>**1 2 3 4 | Fumonisinis  | Fumonisin B1: 50 to 7780 µg/kg Fumonisin B2: 50 to 8010 µg/kg Fumonisin B3: 50 to 400 µg/kg *Total Fumonisinis: 0 to 16,190 µg/kg<br>(*Note: based on lower bound calculation) | Cereal-based foods and baby foods      | Immunoaffinity column extraction and HPLC with fluorescence detection | In-house test procedure |
| SOP PALC 0077 -<br>The determination of aflatoxin M1 in milk and milk powder by HPLC and fluorescence detection<br>**1 2 3 4   | Aflatoxin M1   | Milk: 0.025 to 0.33 µg/l<br>Milk powder: 0.02 to 0.75 µg/kg  | Milk, milk powder                      | Immunoaffinity column extraction and HPLC with fluorescence detection | In-house test procedure |
| SOP PALC 0081 -<br>The determination of deoxynivalenol in cereal, pasta and baby food products by immunoaffinity column extraction and high performance liquid chromatography (HPLC)<br>**1 2 3 4  | Deoxynivalenol   | Deoxynivalenol 50 to 4,000 µg/kg   | Cereals, cereal based baby food, pasta | Immunoaffinity column extraction and HPLC with fluorescence detection | In-house test procedure |
| SOP PALC 0157 -<br>The determination of type A and B trichothecene mycotoxins in foodstuffs by UPLC-MS/MS<br>**1 2 3 4   | Trichothecenes:<br>Diacetoxyscirpenol (DAS), 3 Acetyl-deoxynivalenol (3AcDON), 15 Acetyldeoxynivalenol (15 AcDON), Deoxynivalenol (DON), Sterigmatocyste | Diacetoxy-scirpenol: 10.0 to 250.0 µg/kg, 3 Acetyl-deoxynivalenol: 10.0 to 250.0 µg/kg, 15 Acetyl-deoxynivalenol: 10.0 to 250.0 µg/kg, Deoxynivalenol: 50.0                    | Cereals                                | UPLC-MS/MS  | In-house test procedure |

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|   |  | in (STC), T-2 toxin, HT-2 toxin, *Sum of T-2 and HT-2 toxins (*based on lower bound calculations) | to 2000.0 µg/kg, Sterigmatocystein: 5.0 - 125.0 µg/kg, T-2 toxin: 10.0 to 1000.0 µg/kg, HT-2 toxin: 10.0 to 1000.0 µg/kg, Sum of T-2 and HT-2 toxins: 0.0 to 2000.0 µg/kg   |   |                 |   |
| 752 Chemical residue testing - .05 Organic contaminants | SOP PALC 0032 - The determination of Acrylamide in food **1 2 3 4                                      | Acrylamide  | 20 to 2500 µg/kg  | Food  | GC-MS           | In-house test procedure based on Castle, L., Determination of Acrylamide Monomer in Mushrooms Grown on Polyacrylamide Gel. J. Agric. Food Chem. 1993, 41, 1261–1263.  |
|   | SOP PALC 0041 - The Determination of Furan and Certain Analogues in Foods by Headspace GC-MS **1 2 3 4 | Furan   | Solid foods (µg/kg)<br>Furan<br>5 to 10000<br>2-methylfuran<br>11 to 55000<br>3-methylfuran<br>1 to 3500<br>2-ethylfuran<br>0.5 to 3500<br>2,5-dimethylfuran 1<br>to 3500<br><br>Liquid foods (µg/L)<br>Furan<br>5 to 1000<br>2-methylfuran<br>11 to 55000<br>3-methylfuran 1<br>to 3500<br>2-ethylfuran<br>0.5 to 3500 (Coffee Only)<br>2,5-dimethylfuran 1<br>to 3500 (Coffee Only) | Solids foods<br>Liquid foods  | Headspace GC-MS | In-house test procedure based on U.S. Food and Drug Administration (US FDA) Centre for Food Safety and Applies Nutrition (CFSAN) Determination of furan in foods May 7 2004 <a href="http://www.cfsan.fda.gov/~dms/furan.html">http://www.cfsan.fda.gov/~dms/furan.html</a> |
|   | SOP PALC 0075 - The determination of polycyclic aromatic hydrocarbons in foods by GC-MS **1 2 3 4      | Polycyclic aromatic hydrocarbons (PAHs):<br>Cyclopenta[cd]pyrene<br>Benz[a]anthracene<br>Chrysene | Meat and meat products, game and poultry<br>Smoked meat:<br>Individual PAHs 0.9 to 20.0 µg/kg *Sum of   | Meat and meat products, game and poultry<br>Smoked meat<br>Heat treated | GC-MS           | In-house test procedure   |



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|  |  | <p>5-Methylchrysene<br/> Benzo[b]fluoranthene<br/> Benzo[j]fluoranthene<br/> Benzo[k]fluoranthene<br/> Benzo[a]pyrene<br/> Indeno[1,2,3-cd]pyrene<br/> Dibenzo[a,h]anthracene<br/> Benzo[ghi]perylene<br/> Dibenzo[a,l]pyrene<br/> Dibenzo[a,e]pyrene<br/> Dibenzo[a,i]pyrene<br/> Dibenzo[a,h]pyrene</p> | <p>PAH4 0 to 80.0 µg/kg<br/> Heat treated meat:<br/> Individual PAHs 0.5 to 25.0 µg/kg*Sum of PAH4 0 to 100.0 µg/kg<br/> Fish, shellfish and molluscs<br/> Smoked fish: Individual PAHs 0.9 to 20.0 µg/kg *Sum of PAH4 0 to 80.0 µg/kg<br/> Fats and oils: Individual PAHs 0.9 to 20.0 µg/kg *Sum of PAH4 0 to 80.0 µg/kg<br/> Cereals and bakery products (Flour): Individual PAHs 0.05 to 5 µg/kg *Sum of PAH4 0 to 20.00 µg/kg<br/> Herbs and spices: Individual PAHs 0.9 to 30.0 µg/kg*Sum of PAH4 0 to 120.0 µg/kg<br/> Cocoa and Cocoa preparations, coffee, tea<br/> Raw beverages: Individual PAHs 1.0 to 10.0 µg/kg *Sum of PAH4 0 to 40.0 µg/kg<br/> Brewed beverages: Individual PAHs 0.2 to 2.0*Sum of PAH4 0 to 8.0 µg/kg<br/> Cocoa beans and derived products: Individual PAHs 0.5 to 29.0 µg/kg fat *Sum of PAH4 0 to 116.0 µg/kg fat<br/> Foodstuffs intended for special nutritional uses (Infant formula ,Baby foods): Individual PAHs 0.2 to 10.0 µg/kg *Sum of PAH4 0 to 40.0 µg/kg<br/> Food Supplements: Individual PAHs 0.9 to</p> | <p>meat<br/> Fish, shellfish and molluscs<br/> Smoked fish<br/> Fats and oils<br/> Cereals and bakery products - Flour<br/> Herbs and spices<br/> Cocoa and Cocoa preparations, coffee, tea<br/> Raw beverages<br/> Brewed beverages<br/> Cocoa beans and derived products<br/> Foodstuffs intended for special nutritional uses<br/> Infant formula<br/> Baby foods<br/> Food supplements,<br/> Smoked cheese</p> |  |  |
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|   |   | 200.0 µg/kg *Sum of PAH4 0 to 800.0 µg/kg<br>*Note: ranges for Sum PAH4 based on lower bound calculation, Smoked cheese: 0.5 to 50 µg/kg for all PAHs |  |            |  |
| SOP PALC 0110 -<br>The determination of Ergot Alkaloids in cereals and cereal based products by LC-MS/MS                    | Ergometrine, Ergometrinine, Ergosine, Ergosinine, Ergocornine, Ergocorninine, Ergocryptine, Ergocryptinine, Ergotamine, Ergotaminine, Ergocristine, Ergocristinine  | 'ine' compounds: 2.5 to 1000 µg/kg<br>'inine' compounds: 1.25 to 1000 µg/kg   | Cereals, Cereal products                         | UPLC-MS/MS | In-house test procedure  |
| SOP PALC 0127 -<br>The determination of 3-monochloro propane-1,2-diol in food by GC-MS<br>**1 2 3 4                         | 3-monochloropropane-1,2-diol  | 8.4 to 1000 µg/kg DM (dry Matter)   | Soy sauce and hydrolysed vegetable protein (HVP) | GC-MS      | In-house test procedure based on I.S. EN 14573:2004<br>Foodstuffs - Determination of 3-Monochloropropane-1,2-Diol by GC/MS |
| SOP PALC 0130 -<br>The determination of pyrrolizidine alkaloids and tropane alkaloids in foodstuffs by UPLC-MS/MS **1 2 3 4 | Pyrrolizidine Alkaloids: Echimidine (Em), Echimidine-N-oxide (Em-ox), Erucifoline (Er), Erucifoline-N-oxide (Er-ox), Europine (Eu), Europine-N-oxide (Eu-ox), Heliotrine (Ht), Heliotrine-N-oxide (Ht-ox), Intermedine (Im), Intermedine-N-oxide (Im-ox), Jacobine (Jb), Jacobine-N-oxide (Jb-ox), Lasiocarpine (Lc), Lasiocarpine-N-oxide (Lc-ox), Lycopsamine (Ly), Lycopsamine-N-oxide (Ly-ox), Monocrotaline (Mc), Monocrotaline-N-oxide (Mc-ox), Retrorsine (Rt), Retrorsine-N-oxide (Rt-ox), Senkirkine (Sk), | 10 to 900 µg/kg   | Black tea  | UPLC-MS/MS | In-house test procedure  |

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|  | Senecionine (Sn), Senecionine-N-oxide (Sn-ox), Seneciphylline (Sp), Seneciphylline-N-oxide (Sp-ox), Trichodesmine (Td) and the Tropane Alkaloids: Atropine and Scopolamine |  |   |          |  |
| SOP PALC 0140 **1 2 3 4  | Monochloropropandiol (MCPDE) and Glycidol esters (GE)  | Liquid infant formula (IF) & follow on formula (FOF) 2.0 - 130 µg/kg for MCPDEs and 2.0 - 170 µg/kg for GEs<br><br>Powder IF & FOF 15 - 1300 µg/kg for MCPDEs and 15 - 1700 µg/kg for GEs<br><br>Fats and Oils: 100 - 20000 µg/kg for MCPDEs and 100 - 20000 µg/kg for GEs<br>Food: 6 - 1200 µg/kg | Liquid and powdered infant formula & follow-on formula<br>Fats and Oils | GC-MS    | In-house test procedure based on 1.1 AOCS Official Method Cd 29a-13.                                   |
| SOP PALC 0161 -<br>The determination of fatty acids in food for infants and young children, milk and milk products **1 2 3 4 | Erucic Acid  | Individual fatty acids: 0.1 to 100 %<br>For erucic acid: 1 to 100 g/kg or 0.1% to 10%  | Food for infants and young children, milk and milk products             | GC-FID   | In-house test procedure based on National Standard of the People's Republic of China GB 5413.27 - 2010 |
| SOP PALC 0162 -<br>The determination of fatty acids in oils and fats and the oils and fats extracted from food. **1 2 3 4    |  | 0.2 to 100 % for fatty acids generally 2 to 100 g/kg fatty acids for erucic acid   | Oils and fats and the oils and fats extracted from food.                | GC-FID   | In-house test procedure based on ISO 12966 parts 1 - 4   |
| SOP PALC 0174 -<br>The determination of acrylamide food by LC-MS/MS **1 2 3 4  | Acrylamide   | 20 to 750 µg/kg  | Food  | LC-MS/MS | In-house test procedure based on ISO 16618:2015  |
| SOP PALC 0186 -<br>The determination of monochloro propane-1,2-diols in food by  | 2-MCPD<br>3-MCPD   | 2- and 3-MCPD: 1 to 200 µg/kg for liquid infant formula and follow-on formula  | Liquid infant formula and follow-on formula<br>Powder infant            | GC-MS    | The method has been tested and validated at the EU Reference Laboratory for                            |

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|  | GC-MS   |              | 2- and 3-MCPD: 5 to 200 µg/kg for powder infant formula and follow-on formula<br>2- and 3-MCPD: 25 to 1000 µg/kg for oils and fats<br>2- and 3-MCPD: 5 to 500 µg/kg for general food   | formula and follow-on formula<br>Oil and fats<br>General food                |  | Processing Contaminants. |
| 766 Environmental testing (inc waters) - .05 Inorganic | SOP PALCW 0005 - The determination of anions in aqueous samples by reagent free ion chromatography<br>**1 2 3 4                       | Fluoride     | Waters for potable and domestic purposes:<br>Fluoride 0.10 to 1.75 mg/l Misc Materials and Products Fluoride 10.9% HFSA solution   | Waters for potable and domestic purposes<br><br>Misc. Materials and products | By reagent free ion chromatography (RFIC)                | In-house test procedure  |
|  | SOP PALCW 0006 - The determination of metals in aqueous samples by inductively coupled plasma/mass spectrometry (ICP-MS)<br>**1 2 3 4 | Total metals | Waters for potable and domestic purposes:<br>Chromium 4 to 80 µg/l Cadmium 1 to 40 µg/l Lead 2 to 40 µg/l Nickel 2 to 40 µg/l Copper 0.1 to 2.0 mg/l Sodium 2 to 200 mg/l Calcium 2 to 40 mg/l Potassium 0.10 to 2.0 mg/l Magnesium 0.10 to 2.0 mg/l Aluminium 20 to 400 µg/l Antimony 1 to 40 µg/l Arsenic 2 to 40 µg/l Selenium 2 to 40 µg/l Manganese 10 to 400 µg/l Boron 100 to 2000 µg/l Iron 20 to 750 µg/l Zinc 20 to 400 µg/l Misc Materials and Products: Antimony 40 to 9250 µg/l Arsenic 40 to 46200 µg/l Cadmium 40 to 4630 µg/l Chromium 40 to 46200 µg/l Lead 40 to 46200 µg/l Nickel 40 to | Waters for potable and domestic purposes<br><br>Misc Materials and products  | By inductively coupled plasma/mass spectrometry (ICP-MS) | In-house test procedure  |

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|              |   |                | 46200 µg/l Selenium<br>40 to 9250 µg/l  |  |  |                         |
|              | SOP PALCW 0019 -<br>The measurement of conductivity of waters for potable and domestic purposes<br>**1 2 3 4                        | Conductivity   | 20 to 1270 µS/cm at 20°C  | Waters for potable and domestic purposes                                 | Jenway conductivity meter                            | In-house test procedure |
|              | SOP PALCW 0020 -<br>The measurement of turbidity in waters for potable and domestic purposes<br>**1 2 3 4                           | Turbidity      | (NTU) 0.5 to 400  | Waters for potable and domestic purposes                                 | Hach Turbidimeter                                    | In-house test procedure |
|              | SOP PALCW 0021 -<br>The determination of analytes in water samples by photometric analysis<br>**1 2 3 4                             | Nutrients      | Ammonium (as NH <sub>4</sub> ) 0.064 to 1.15mg/l<br>Chloride (Cl) 10 to 250mg/l<br>Nitrite (NO <sub>2</sub> ) 0.164 to 1.313mg/l<br>Nitrate (NO <sub>3</sub> ) 6.64 to 50.91mg/l<br>Sulphate (SO <sub>4</sub> ) 8 to 250mg/l<br>Alkalinity (HCO <sub>3</sub> ) 50 to 300mg/l<br>Total Hardness (CaCO <sub>3</sub> ) 50 to 300mg/l<br>Colour (Pt-Co units) 10 to 90 mg/l | Waters for potable and domestic purposes                                 | Using Thermoscientific Aquakem 250 discrete analyser | In-house test procedure |
|              | SOP PALCW 0022 -<br>The measurement of pH of waters for potable and domestic purposes<br>**1 2 3 4                                  | pH             | pH 4 to 10  | Waters for potable and domestic purposes                                 | Jenway pH meter                                      | In-house test procedure |
|              | SOP PALCW 0023 -<br>The determination of mercury in aqueous samples by cold vapour atomic absorption spectrophotometry<br>**1 2 3 4 | Mercury        | Waters for potable and domestic purposes = 0.3 to 5.0 µg/l<br>Misc. Material and Products = 100 to 1200 µg/l  | Waters for potable and domestic purposes<br>Misc. Materials and products | By Cold Vapour Atomic Absorption spectrophotometry   | In-house test procedure |
| 767 Physical | SOP PALC 0115 -   | pH and Acidity | 3.0 to 7.0 - pH 5 to 50   | Honey  | Autotitrator   | Based on the            |

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| test/measurement - .01<br>pH                            | The determination of the pH and free acidity of honey by titration to pH 8.30 or equivalence point<br>**1 2 3 4 |                  | mEq/kg - Acidity                                 |   |                           | Harmonised Methods of the International Honey Commission, 2009.             |
|   | SOP PALC 0160 - The determination of the pH of soft drinks, energy drinks and fruit juices<br>**1 2 3 4         | pH               | 2.00 to 5.00 pH units                            | Non alcoholic beverages (Drinks and juices) | pH Meter                  | In-house test procedure   |
| 767 Physical test/measurement - .02<br>Conductivity     | SOP PALC 0114 - The determination of the electrical conductivity of honey and vodka<br>**1 2 3 4                | Conductivity     | Honey: 0.1 to 1.6 mS/cm<br>Vodka: 7 to 200 µS/cm | Honey, Vodka                                | Conductivity Meter        | Based on the Harmonised Methods of the International Honey Commission, 2009 |
| 767 Physical test/measurement - .03<br>Suspended Solids | SOP PALC 0118 - The determination of insoluble matter in honey<br>**1 2 3 4                                     | Insoluble matter | 0.01 to 0.11 g/100 g                             | Honey                                       | Gravimetric Determination | Based on Harmonised Methods of the International Honey Commission, 2009     |

*The laboratory has been awarded flexible scope in the scope classifications as noted in the scope document and in accordance with the laboratories approved and documented procedures.*

*Note 1 - Range may be extended for the test*

*Note 2 – New parameters / tests may be added*

*Note 3 – New matrices may be added*

*Note 4 – Changes to equipment / kits where the underlying methodology does not change*

*For further details please refer to the laboratories 'Master list of Flexible scope changes', available directly from the laboratory.*