Schedule of Accreditation

Organisation Name
Public Analyst's Laboratory Dublin

Trading As
99T

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Accreditation Standard
19/12/2002

Date Initially Awarded
Biological and veterinary testing

Scope Classification
Chemical testing

Scope Classification

Services available to the public

¹ Refer to document on interpreting INAB Scopes of Accreditation

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Office</td>
<td>Sir Patrick Dun's, Lr. Grand Canal Street, Dublin, D2</td>
</tr>
</tbody>
</table>
## Scope of Accreditation

### Head Office

**Biological and Veterinary Testing**

Category: A

<table>
<thead>
<tr>
<th>Biology/veterinary field - Tests</th>
<th>Test name</th>
<th>Technique</th>
<th>Matrix</th>
<th>Equipment</th>
<th>Std. reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth -.01 Culture of bacteria</td>
<td>SOP PALM 0001 SOP PALM 0001 (S)</td>
<td>Aerobic colony count (pour plate) at 30°C for 72 hours. Aerobic colony count (spiral plate) at 30°C for 72 hours.</td>
<td>Dairy products Egg and egg products Meat and meat products, game and poultry Fish, shellfish and molluscs Fruit and vegetables Prepared dishes Surfaces Stick swabs</td>
<td>Based on I.S. EN ISO 4833-1:2013 Based on I.S. EN ISO 4833-2:2013 &amp; AC:2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOP PALM 0003(S)</td>
<td>Enumeration of presumptive Bacillus cereus using Bacillus cereus agar.</td>
<td>Dairy products Egg and egg products Meat and meat products, game and poultry Fish, shellfish and molluscs Cereals and bakery products Fruit and vegetables Prepared dishes</td>
<td>Based on ISO 7932:2004</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOP PALM 0004</td>
<td>Detection of salmonella spp</td>
<td>Cereals and bakery products Fruit and vegetables Herbs and spices Alcoholic beverages (other than wine) – Cream Liquors Ices and desserts Confectionery Nuts and nut products Prepared dishes Dairy products Eggs and egg products Meat and meat products, game and poultry Fish, shellfish and molluscs</td>
<td>Based on I.S. EN ISO 6579:2002 Amd. 1 2007</td>
<td></td>
</tr>
</tbody>
</table>

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| SOP PALM 0005 | Enumeration of Escherichia coli in food products using TEMPO EC(E coli) test | Dairy products
Eggs and egg products
Meat and meat products, game and poultry
Fish, shellfish and molluscs
Soups, broths and sauces
Confectionery
Cereals and bakery products
Prepared dishes
Surfaces
Stick swabs | Based on TEMPO EC
AFNOR validation BIO
12/13-02/05 |
| --- | --- | --- | --- |
| SOP PALM 0006 | Enumeration of Clostridium perfringens | Dairy products
Egg and egg products
Meat and meat products, game and poultry
Fish, shellfish and molluscs
Fruit and vegetables
Prepared dishes
Soups, broths and sauces | Based on I.S.
EN ISO 7937:2004 |
| SOP PALM 0009 | Enumeration of Enterobacteriaceae | Dairy products
Eggs and egg products
Meat and meat products, game and poultry
Fish, shellfish and molluscs
Soups broths and sauces
Fruits and vegetables
Confectionery
Prepared dishes
Alcoholic beverages (other than wine) – Cream liqueurs
Surfaces
Stick swabs | Based on ISO
21528-2:2004 |
| SOP PALM 0011 | Enumeration of viable aerobic mesophilic flora using TEMPO AC | Dairy Products
Egg & egg products
Meat & meat products, game and poultry
Fish, shellfish & molluscs
Cereals and bakery products
Fruit & vegetables
Prepared dishes
Surfaces
Stick swabs | Based on TEMPO AC®
AFNOR validation BIO
12/35-05/13 |
| SOP PALM 0017 | Detection of Listeria monocytogenes and Listeria spp | Dairy products  
Egg and egg products  
Meat and meat products, game and poultry  
Fish, shellfish and molluscs  
Cereals & Bakery  
Fruit and vegetables  
Prepared dishes | Based on I.S. EN ISO 11290-1:2017 |
| ---------------|---------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------|
| SOP PALM 0018(S) | Enumeration of Listeria spp and L. monocytogenes | Dairy products  
Egg and egg products  
Meat and meat products, game and poultry  
Fish, shellfish and molluscs  
Fruit and vegetables  
Prepared dishes | Based on I.S. EN ISO 11290-2:2017 |
| SOP PALM 0023 | Detection of Campylobacter spp | Dairy Products  
Egg and egg products  
Meat and meat products, game and poultry  
Fish, shellfish and molluscs  
Fruit and vegetables  
Prepared dishes | Based on I.S. EN ISO 10272-1:2017 |
| SOP PALM 0026 | Enumeration of β-glucuronidase-positive E.coli by colony count at 44°C using TBX | Egg and egg products  
Meat and meat products, game and poultry  
Fish, shellfish and molluscs  
Cereals and bakery products  
Cocoa and cocoa preparations, coffee and tea  
Prepared dishes  
Dairy products  
Soups, Broths and Sauces  
Confectionery  
Surfaces  
Stick Swabs | Based on ISO 16649-2:2001 |
| SOP PALM 0028 | Detection and enumeration of Vibrio parahaemolyticus (Surface – spread/spiral) | Fish, shellfish and molluscs | Based on ISO 21782-1:2017 |
| SOP PALM 0061 | Enumeration of coagulase-positive staphylococci by RPF technique | Egg and egg products  
Meat and meat products, game and poultry | Based on I.S. EN ISO 6888-2:1999 Amd.1 2003 |
<p>| SOP PALM 0062 | Detection and Enumeration of thermotolerant Campylobacter spp. in water by the membrane filtration method | Potable waters Swimming pools and spas Environmental waters | Based on ISO 17995:2005 |
| SOP PALM 0100 | Detection and enumeration of coliforms bacteria and E.coli in water by membrane filtration | Potable waters Environmental waters | Based on the Microbiology of Drinking Water 2009, 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 ISO 7899-2:2000 |
| SOP PALM 0104 | Detection and enumeration of sulphite reducing clostridia and Cl. perfringens in water by membrane filtration. | Potable waters Swimming pools and spas Environmental waters | Based on the 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 Potable Waters | Based on the 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 the ISO 6222:1999 |
| SOP PALM 0108 | Chromogenic/ Fluorogenic MPN enumeration of coliform and E. coli using Colilert Quanti-Tray MPN. | Environmental waters Potable waters Swimming pools and spas | Based on ISO 9308-2:2012 |
| SOP PALM 0111 | Coliforms and E.coli by membrane filtration | Potable Waters | ISO 9308-1 (2014) SOP PALM 0111 |
| SOP PALM 3000 | Enumeration of aerobic mesophilic bacteria | Cosmetics | Based on ISO 21149:2006 |
| SOP PALM 3001 | Detection of Ps. Aeruginosa | Cosmetics | Based on ISO 22717:2006 |
| SOP PALM 3002 | Detection of Staphylococcus aureus | Cosmetics | Based on ISO 22718:2015 |</p>
<table>
<thead>
<tr>
<th>SOP PALM 3006</th>
<th>Detection of Escherichia coli by standard plating methods</th>
<th>Cosmetics</th>
<th>SOP PALM 3006 based on ISO 2150:2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP PALM 4001</td>
<td>Elf Detection of Salmonellaspp using VIDAS SLM Kit.</td>
<td>Dairy Products Egg and egg products Meat and meat products, game and poultry Fish, shellfish and molluscs Soups, broths and sauces Cereals and bakery products Fruit and vegetables Herbs and spices Alcoholic beverages other than wine (Cream liqueur) Ices and desserts Confectionary Nuts and nut products Prepared dishes Surfaces Stick swabs</td>
<td>Based on AFNOR VIDAS Salmonella (VIDAS SLM) method BIO 12/1-04/94 Screening method. Cultural and confirmation aspects based on I.S. EN ISO 6579:2002 Amd. 1 2007</td>
</tr>
<tr>
<td>803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth - .02 Culture of fungi</td>
<td>SOP PALM 0025</td>
<td>Enumeration of yeasts and moulds in products with water activity greater than 0.95</td>
<td>Based on ISO 21527-1:2008</td>
</tr>
<tr>
<td>SOP PALM 0080</td>
<td>Enumeration of yeasts and moulds in products with water activity less than or equal to 0.95</td>
<td>Cereals and bakery products Fruit &amp; vegetables Non-alcoholic beverages Soups, broths and sauces Alcoholic beverages (other than wine) – Cream liqueurs</td>
<td>Based on ISO 21527-2:2008</td>
</tr>
<tr>
<td>SOP PALM 3003</td>
<td>Enumeration of yeasts and</td>
<td>Cosmetics</td>
<td>Based on ISO 16212:2008</td>
</tr>
<tr>
<td>SOP PALM 0025</td>
<td>Enumeration of yeasts and moulds in products with water activity greater than 0.95 by standard plating</td>
<td>Cereals and bakery products, Fruit and vegetables, Non alcoholic beverages, Soups broths and sauces, Alcoholic beverages (other than wine) – Cream liqueurs</td>
<td>SOP PALM 0025 based on ISO 21527-1:2008</td>
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<tr>
<td>SOP PALM 0080</td>
<td>Enumeration of yeasts and moulds in products with water activity less than or equal to 0.95</td>
<td>Cereals and bakery products</td>
<td>Based on ISO 21527-2:2008</td>
</tr>
<tr>
<td>SOP PALM 3003</td>
<td>Enumeration of yeasts and moulds</td>
<td>Cosmetic products</td>
<td>Based on ISO 16212:2017</td>
</tr>
<tr>
<td>SOP PALM 0110</td>
<td>Legionella pneumophila and Legionella spp by qPCR</td>
<td>Sanitary Water (Water from hot water systems)</td>
<td>SOP PALM 0110</td>
</tr>
</tbody>
</table>

803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth - .04 Culture of yeasts

805 Detection and/or identification of bacterial, parasitic, fungal and viral nucleic acids using appropriate techniques - .03 Nucleic acid amplification tests, CE marked commercial systems
## Chemical Testing

### Category: A

<table>
<thead>
<tr>
<th>Chemistry Field - Tests</th>
<th>Test name</th>
<th>Analyte</th>
<th>Range of measurement</th>
<th>Matrix</th>
<th>Equipment/technique</th>
<th>Standard reference/SOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>710 Materials testing - .03 Chemical analysis</td>
<td>SOP PALC 0039</td>
<td>Epoxidised soybean oil (ESBO)</td>
<td>3.0% - 50% w/w</td>
<td>PVC Gasket</td>
<td>GC-MS</td>
<td>based on Castle, L., Sharman, M., and Gilbert, J. A.O.A.C. No.6., 71, 1183-1186</td>
</tr>
<tr>
<td></td>
<td>SOP PALC 0089</td>
<td>Bisphenol A</td>
<td>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)</td>
<td>Food Contact Materials</td>
<td>HPLC and Fluorescence Detection</td>
<td>Based on Bisphenol A Draft Validation Report, October 2009, EURL, Ispra</td>
</tr>
<tr>
<td></td>
<td>SOP PALC 0092</td>
<td>Primary Aromatic Amines (PAAs) Aniline (ANL) 4,4’–Methylenedianiline (4,4’-MDA)</td>
<td>0.00025-0.025 mg/kg (analysed as 3% acetic acid solution, results obtained must be corrected for the surface area of the individual utensil under analysis) 0.00025-10.0 mg/kg (analysed as 3% acetic acid solution, results obtained must be corrected for the surface area of the individual utensil under analysis) *Total PAAs: 0-20.05 mg/kg (*Note: based on lower bound calculation)</td>
<td>Polyamide Kitchen Utensils</td>
<td>UPLC-MS/MS</td>
<td>Based on Mortensen, S.K.; Trier, X.T; Foverskov, A; Petersen, J.H: Specific determination of 20 primary aromatic amines in aqueous food simulants by liquid chromatography – electrospray ionization tandem mass spectrometry, J. Chromatogr. A 1091, (2005) 40-50</td>
</tr>
<tr>
<td></td>
<td>SOP PALC 0094</td>
<td>Residual melamine</td>
<td>0.25-250 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)</td>
<td>Melamine kitchenware</td>
<td>UPLC-MS/MS</td>
<td>Based on I.S.EN13130-1:2004, Waters application note 7200022823EN, Oct 2008</td>
</tr>
<tr>
<td></td>
<td>SOP PALC 0112</td>
<td>Lead and Cadmium</td>
<td>Ceramics: 0.2-40.0 mg/l (lead) 0.02-2.0 mg/l (Cadmium) (Analysed as 4% Acetic Acid solution, results obtained must be</td>
<td>Ceramics Glass articles</td>
<td>By inductively coupled plasma mass spectrometry</td>
<td>Based on Commission Directive 2005/31/EC and 84/500/EEC</td>
</tr>
<tr>
<td>SOP PALC 0117</td>
<td>Residual formaldehyde</td>
<td>3-30 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)</td>
<td>Melamine kitchenware</td>
<td>UV spectrophotometry</td>
<td>Based on Determination of formaldehyde in food simulants I.S. CEN/TS 13130-23:2005</td>
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<tr>
<td>SOP PALCW 0024</td>
<td>Hexafluorosilicic Acid (HFSA)</td>
<td>HFSA in Aqueous solution (10-35%)</td>
<td>Misc Materials and products</td>
<td>By Titrimetry</td>
<td>Based on I.S. EN 12175:2013</td>
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<tr>
<td>751 Food testing - .01</td>
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<tr>
<td>Migratory substances</td>
<td>SOP PALC 0039</td>
<td>Epoxidised soybean oil (ESBO)</td>
<td>30-12000mg/kg</td>
<td>Food Simulant</td>
<td>GC-MS</td>
<td>based on Castle, L., Sharman, M., and Gilbert, J. A.O.A.C. No.6., 71, 1183-1186</td>
</tr>
<tr>
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<td></td>
<td>3-1000mg/kg</td>
<td>Jarred foods including infant foods.</td>
<td>GC-MS</td>
<td>based on Castle, L., Sharman, M., and Gilbert, J. A.O.A.C. No.6., 71, 1183-1186</td>
</tr>
<tr>
<td>751 Food testing - .03</td>
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</table>

Corrected for surface area of the individual non fill article under analysis.

Glass articles: 0.003 – 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.)
<p>| SOP PALC 0005 | Fructose, glucose and sucrose | Fructose 0.1-20.0% w/v  Glucose 0.1-20.0% w/v  Sucrose 0.1-20.0% w/v  *Total Sugars 0-60.0% w/v based on lower bound calculations | Non-alcoholic beverages (drinks and juices) | HPLC with refractive index detection | SOP PALC 0005 |
| SOP PALC 0005 | 0.1 - 50% w/w  Total sugars 0-80% w/w based on lower bound calculations | Honey | HPLC with refractive index detection |
| SOP PALC 0005 | Fructose 0.1-10.0% w/v  Glucose 0.1-10.0% w/v  Sucrose 0.1-10.0% w/v  *Total Sugars 0-30.0% w/v based on lower bound calculations | Non-alcoholic beverages (fruit juices) | HPLC with refractive index detection |
| SOP PALC 0008 | Benzoic acid and sorbic acid | Benzoic acid 10-500 mg/l  Sorbic acid 10-500 mg/l | Non-alcoholic beverages | HPLC | Based on VEMS Method, Code: F/0290, June, 1994 |
| SOP PALC 0009 | Benzoic acid 50–3000 mg/kg  Sorbic acid 50–3000 mg/kg | Dairy products  Fats and Oils  Soups broths and sauces  Cereals &amp; bakery products  Fruit and vegetables  Confectionery | Steam distillation and HPLC | Based on VEMS Method, Code: F/0290, June, 1994 |
| SOP PALC 0011 | Sulphur dioxide | Meat products 10-1000 mg/kg  Dried fruit 10-2000 mg/kg  Wine 10-160 mg/l  Raw potatoes 10-1000 mg/kg  Raw crustaceans 10-240 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 | Meat and meat products, game and poultry  Fish, Shellfish and molluscs  Fruit and vegetables  Non-alcoholic beverages  Wine  Alcoholic beverages (other than wine)  Mustard  Olives  Additive premixes Jam/Dessert Syrup/fruit filling for pastry | Distillation and titrimetry | Based on VEMS Method, Code: F/0360, May 1994 |
| SOP PALC 0015 | Nitrate | 50–7500 mg/kg | Fruit and vegetables | Anion exchange HPLC | Based on I.S. EN 12014-2:1997 |</p>
<table>
<thead>
<tr>
<th>SOP PALC 0017</th>
<th>Tyramine, putrescine, cadaverine, histamine, agmatine, phenyethylamine, spermidine and spermine **1,2,3</th>
<th>Tyramine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Putrescine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Cadaverine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Histamine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Agmatine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Phenylethylamine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Spermidine: 10–1000 mg/kg (1) 10-4000 mg/kg (2) Spermine: 10–1000 mg/kg (1) 10-4000 mg/kg (2)</th>
<th>1. Fish, shellfish and fish products inc molluscs 2. Soups (fish), broths and sauces</th>
<th>HPLC and fluorescence detection</th>
<th>Based on SOP for Biogenic Amines by HPLC, Torry Research Station, MAFF, Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP PALC 0025</td>
<td>Caffeine</td>
<td>Instant Coffee 0.1-5 g/kg Liquid Samples 20-350 mg/l Solid and liquid food supplements: Solid tablet 25,000-500,000 mg/kg Powder 3,000-20,000 mg/kg Gel/liquid 10-6,000 mg/kg Capsule 10,000-500,000 mg/kg</td>
<td>Non-alcoholic beverages Cocoa and Cocoa preparations, coffee, tea. Food Supplements</td>
<td>HPLC and UV detection</td>
<td>Based on ISO 20481:2008(E)</td>
</tr>
<tr>
<td>SOP PALC 0026</td>
<td>Sucralose</td>
<td>Alcoholic and non-alcoholic beverages 5-300 mg/l Yoghurts 40-800 mg/kg Jams and dessert jellies 40-800 mg/kg Sauces 40-800 mg/kg Confectionery: 200 mg/kg - 2,000 mg/kg Syrups: 40 mg/kg – 2,100 mg/kg Popcorn: 100-400 mg/kg</td>
<td>Dairy products Non-alcoholic beverages Alcoholic beverages (other than wine) Ices and desserts Sauces, jams and desserts Confectionery Syrups Popcorn</td>
<td>HPLC and refractive index detection</td>
<td>Based on TDS for Splenda, Tate and Lyle.</td>
</tr>
<tr>
<td>SOP PALC 0028</td>
<td>Nitrite and nitrate (expressed as sodium nitrite and sodium nitrate)</td>
<td>Meat and meat products, game and poultry: 10-1,000 mg/kg Brines: 100-2,500 mg/kg</td>
<td>Meat and meat products, game and poultry Brines</td>
<td>Anion exchange HPLC</td>
<td>Based on I.S. EN 12014-4:2005</td>
</tr>
<tr>
<td>SOP PALC 0054</td>
<td>Aspartame, acesulfame-K and saccharin</td>
<td>Dairy products, Soups, broths and sauces, ices, desserts and Confectionery: Aspartame 40-1000 mg/kg Acesulfame-K 10-</td>
<td>Dairy products Soups, broths and sauces Ices and desserts Confectionery Chewing gum Chocolate powder-type products</td>
<td>HPLC</td>
<td>Based on I.S. EN 12856:1999</td>
</tr>
<tr>
<td>SOP PALC 0057</td>
<td>5-hydroxymethylfurfural (HMF)</td>
<td>10-2166 mg/kg</td>
<td>Confectionery</td>
<td>HPLC with UV detection</td>
<td>Honey Commission, 2009.</td>
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<tr>
<td>SOP PALC 0086</td>
<td>Moisture</td>
<td>10-30%</td>
<td>Honey</td>
<td>By refractometer</td>
<td>Based on Harmonised Methods of the International Honey Commission, 2009.</td>
</tr>
<tr>
<td>SOP PALC 0091</td>
<td>Melamine</td>
<td>1.48-5 mg/kg for soy products, milk powder</td>
<td>Soy products Milk powder</td>
<td>By UPLC-MS/MS</td>
<td>Based on Waters application note 720002823EN</td>
</tr>
<tr>
<td>SOP PALC 0113</td>
<td>Diastase number</td>
<td>2.5 - 30 Diastase number</td>
<td>Honey</td>
<td>By Phadebas</td>
<td>Based on Harmonised Methods of the International Honey Commission, 2009.</td>
</tr>
<tr>
<td>SOP PALC 0119</td>
<td>Perfluoralkylated substances (PFAS)</td>
<td>1-100 pg/kg</td>
<td>Fish</td>
<td>UPLC-MS/MS</td>
<td>Based on Perfluorinated compounds in Foodstuffs in Switzerland, RAFA 2011</td>
</tr>
<tr>
<td>SOP PALC 0121</td>
<td>Coumarin</td>
<td>Bakery products: 1-100 mg/kg Breakfast cereals: 2-50 mg/kg Food Supplements (Liquid): 2.5 - 50 mg/kg Food Supplements (Solid): 5-15,000 mg/kg Confectionery: 10 -50mg/kg</td>
<td>Cereals and bakery products. Food supplements (liquid) Food supplements (solid) Confectionery</td>
<td>By HPLC with UV detection.</td>
<td>Based on Anal. Methods 2011, 3, 414. Scotter et al.</td>
</tr>
<tr>
<td>SOP PALC 0128</td>
<td>6 Antioxidants Propyl gallate Octyl gallate Dodecyl gallate Tertiary-butylhydroquinone (TBHQ) Butylated hydroxyanisole (BHA) Butylated hydroxytoluene (BHT)</td>
<td>Chewing Gum (20-800 mg/kg) Nut Products (4 mg/kg - 80 mg/kg) Cereals (Range (4 mg/kg – 200 mg/kg) Oil food supplements (20 mg/kg - 800 mg/kg)</td>
<td>Chewing gum Nut Products Cereals Oil food supplements</td>
<td>By gradient high performance liquid chromatography with UV detection</td>
<td>Based on IUPAC method 2.642</td>
</tr>
<tr>
<td>SOP PALC 0129</td>
<td>Safrole</td>
<td>0.1 – 2.0 mg/kg</td>
<td>Cola-type beverages</td>
<td>GC-MS</td>
<td>SOP PALC 0129 (in house procedure)</td>
</tr>
<tr>
<td>SOP PALC 0134</td>
<td>Citrinin</td>
<td>25 -4,000 μg/kg</td>
<td>Food supplements based on rice fermented with red</td>
<td>By UPLC-MS/MS</td>
<td>SOP PALC 0134</td>
</tr>
<tr>
<td>SOP PALC 0135</td>
<td>Steviol Glycosides (Rebaudioside A and Stevioside)</td>
<td>Rebaudioside A: 10-400 mg/l (3.3 - 132 mg/l steviol equivalents) Stevioside: 10-400 mg/l (4-160 mg/l steviol equivalents)</td>
<td>Non-alcoholic beverages</td>
<td>By HPLC</td>
<td>Based on FAO JECFA Monographs 10(2010) P. 17-21</td>
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<tr>
<td>SOP PALC 0137</td>
<td>Quassin</td>
<td>0.05-1.0 mg/kg</td>
<td>Non-alcoholic beverages</td>
<td>By HPLC</td>
<td>Based on Anal. Methods 2011, 3, 414. Scotter et al.</td>
</tr>
<tr>
<td>SOP PALC 0138</td>
<td>Taurine</td>
<td>5-100 mg/L</td>
<td>Infant formula and Follow on formula</td>
<td>By HPLC with UV detection</td>
<td>Based on J. Liquid Chrom. and Related Technology; 20(8) 1269-1278 (1997)</td>
</tr>
<tr>
<td>SOP PALC 0139</td>
<td>Determination of tropane alkaloids (TAs)</td>
<td>Atropine 0.1 - 250 µg/kg Scopolamine 0.1 - 25 µg/kg</td>
<td>Cereals</td>
<td>UPLC-MS/MS</td>
<td>Based on EURL Mycotoxins SOP</td>
</tr>
<tr>
<td>SOP PALC 0143</td>
<td>Hydroxymethylfurfural (HMF) Methyglyoxal (MGO) Dihydroxyacetone (DHA)</td>
<td>Hydroxymethylfurfural (HMF) 10-200 mg/kg Methyglyoxal (MGO) 20-640 mg/kg Dihydroxyacetone (DHA) 50-3,200 mg/kg</td>
<td>Honey</td>
<td>UPLC-TUV</td>
<td>Based on The quantitation of HMF in Australian Leptospermum honeys, J. Pharmacognosy and Phytotherapy</td>
</tr>
<tr>
<td>SOP PALC 0149</td>
<td>Steviol Glycosides (Rebaudioside A and Stevioside)</td>
<td>Chocolate: Rebaudioside A: 60-1,500 mg/kg (20 - 500 mg/kg steviol equivalents) Stevioside: 60-1,100 mg/kg (24-440 mg/kg steviol equivalents) Other Confectionery: Rebaudioside A: 80-2,000 mg/kg (26 - 660 mg/kg steviol equivalents) Stevioside: 80-2,000 mg/kg (30-800 mg/kg steviol equivalents) Sauces and Canned Vegetables in sauce: Rebaudioside A: 37 – 750 mg/kg (12 –250 mg/kg expressed as steviol equivalents) Stevioside: 40 – 600 mg/kg (16 – 240 mg/kg expressed as steviol equivalents).</td>
<td>Chocolate Other confectionery Sauces Canned vegetables in sauce</td>
<td>By HPLC</td>
<td>Based on FAO JECFA Monographs 10(2010) P. 17-21</td>
</tr>
<tr>
<td>SOP PALC 0151</td>
<td>Fructose, glucose and sucrose</td>
<td>Fructose 5-1000 mg/l Glucose 5-1000 mg/l Sucrose 5-1000 mg/l *Total Sugars: 0-3000 mg/l (*Note: based on lower bound calculation)</td>
<td>Alcoholic beverages Spirits</td>
<td>By HPLC with electrochemical detection</td>
<td>SOP PALC 0151</td>
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<tr>
<td>SOP PALC 0153</td>
<td>Quassin</td>
<td>0.1 – 2.0 mg/kg</td>
<td>Bakery wares</td>
<td>HPLC -UV</td>
<td>SOP PALC 0153 based on Anal. Methods 2011, 3, 414. Scotter et al.</td>
</tr>
<tr>
<td>SOP PALC 0154</td>
<td>Congeners in alcoholic beverages</td>
<td>Ranges for the below are as follows: 10 mg/l – 250 mg/l 2.5-62.5 g/hL @ 100% vol 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 Ranges for the below are as follows: 2.1 -370 g/hL @ 100% vol Higher alcohols (sum of propan-1-ol, butan-1-ol, butan-2-ol, 2-methyl propan-1-ol, 2-methyl butan-1-ol, 3-methyl butan-1-ol expressed as 2-methyl propan-1-ol). Ranges for the below are as follows: 0.9-85.9 g/hL @ 100% vol Aldehydes (sum of ethanal and acetal expressed as ethanal)</td>
<td>Alcoholic beverages - spirits</td>
<td>By GC</td>
<td>SOP PALC 0154</td>
</tr>
<tr>
<td>SOP PALC 0170</td>
<td>Epigallocatechin-3-gallate (EGCG)</td>
<td>1,000 – 290,000 mg/kg</td>
<td>Food Supplements</td>
<td>HPLC -UV</td>
<td>SOP PALC 0170 based on J AOAC Int. 2013 96(5): 933-941</td>
</tr>
</tbody>
</table>
### 751 Food testing - .05 Speciation

| SOP PALC 0158 | Inorganic Arsenic | Fish Tissue: 0.01 – 0.5 mg/kg Rice and Rice Products: 0.04 – 1 mg/kg Cheese: 0.04 – 1 mg/kg Seaweed: 0.02 – 100 mg/kg Seafood: 0.01 – 0.5 mg/kg Milk: 0.01 – 0.3 mg/l Fruit and Vegetable Juices: 0.01 – 0.3 mg/l Bread: 0.01 – 1.0 mg/kg | Fish Tissue Rice & Rice Products Cheese Seaweed Seafood Milk Fruit and Vegetable Juices Bread | HPLC-ICP-MS PerkinElmer LC200-PerkinElmer NexION 300D or PerkinElmer ElanDRCII | SOP PALC 0158 based on I.S. EN 16802:2016 |

### 752 Chemical residue testing - .02 Elements

<p>| SOP PALC 0097 | Lead | 2.0-50 μg/100ml Whole blood | By graphite furnace AA spectrophotometry | SOP PALC 0097 |
| SOP PALC 0099 | Copper | 50.0-197.4 μg/100 ml Serum | By flame AA spectrophotometry. | SOP PALC 0099 |
| SOP PALC 0101 | Zinc | 50.0-182.4 μg/100 ml Serum | By flame AA spectrophotometry. | SOP PALC 0101 |
| SOP PALC 0104 | Copper | 10.0-400 μg/l Urine | By flame AA spectrophotometry. | SOP PALC 0104 |
| SOP PALC 0132 | Manganese | 4.3 – 37.7 μg/l Blood | Graphite furnace atomic absorption spectrophotometer - PerkinElmer AAnalyst800 | SOP PALC 0132 |
| SOP PALC 0141 | Copper | 25 -200 mg/100ml Serum | Inductively coupled plasma mass spectrometer – PerkinElmer NexION 300D PerkinElmer ElanDRCII | SOP PALC 0141 based on a Poster from the Mayo Clinic |
| Selenium | 25 - 156 μg /litre Serum | Inductively coupled plasma mass spectrometer – PerkinElmer NexION 300D PerkinElmer ElanDRCII | SOP PALC 0141 based on a Poster from the Mayo Clinic |
| Zinc | 25 – 183 mg/100ml Serum | Inductively coupled plasma mass spectrometer – PerkinElmer NexION 300D PerkinElmer ElanDRCII | SOP PALC 0141 based on a Poster from the Mayo Clinic |
| SOP PALC 0147 | Lead | 1.0 – 80μg /100ml Whole Blood | Inductively coupled plasma mass spectrometer – PerkinElmer NexION 300D | SOP PALC 0147 |
| Manganese | 2.5 – 400 μg/l Whole Blood | Inductively coupled plasma mass spectrometer – PerkinElmer NexION 300D | SOP PALC 0147 |
| Mercury | 1 – 40μg /l Whole Blood | Inductively coupled plasma mass | SOP PALC 0147 |
| SOP PALC 0018 | Ochratoxin A | Cereals, Coffee, Dried fruit, Paprika, Chocolate, Chilli, Liquorice, Black/White pepper, Nutmeg, Ginger, Turmeric, Mixed spices, Cocoa, Rice, Green Coffee: 1-60 μg/kg Baby foods 0.2-30 μg/kg Red/White grape juice and Red/White wine, Sparkling and rose wine: 0.2-6 μg/L Beer 0.2-3 μg/L | Mycotoxins Cereal products Dried fruits Wine Beer Coffee Baby food Liquorice Spices Grape juice Chocolate Cocoa Rice Rose and sparkling wine Green coffee | HPLC and fluorescence detection | Based on Application notes from R-Biopharm Rhone Ltd. |
| SOP PALC 0022 | Zearalenone | Cereals 20-400 μg/kg Cereal-based baby foods 20–400 μg/kg Maize Oil 20-1,000 μg/kg | Mycotoxins Cereals, Cereal-based baby foods Maize Oil | Immunoaffinity column extraction and HPLC with fluorescence detection | Based on Application notes from R-Biopharm Rhone Ltd. |
| SOP PALC 0031 | Aflatoxins B1, B2, G1 and G2 | Cereals, seeds, nut products, dried fruit and dried fruit products: Individually 0.2-20.0 μg/kg *Total Aflatoxins: 0-80 μg/kg Shelled nuts Individually 0.2-25.0 μg/kg *Total Aflatoxins 0-100.0 μg/kg Nuts and groundnuts in shell Individually 0.2-40.0 μg/kg *Total Aflatoxins 0-160 μg/kg Spices Individually 0.2-30.0 μg/kg *Total Aflatoxins 0-120 μg/kg Baby foods 0.05 - 20μg/kg (B1 only) Chocolate: 1.0 – 20 μg/kg *Total Aflatoxins 0-80 μg/kg | Mycotoxins Cereals, nut products, dried fruit and dried fruit products products, shelled nuts, nuts, groundnuts, spices, seeds, baby foods and chocolate. | Immunoaffinity column extraction and HPLC. |
| SOP PALC 0045 | Patulin | 10-200 μg/kg - Non alcoholic beverages (Apple juices, apple smoothies) 10-250 μg/kg - Alcoholic beverages (Ciders) | Non-alcoholic beverages Apple Juice Apple smoothies Alcoholic beverages Ciders Others - Baby foods | UPLC with UV or MS/MS detection | Based on Romer Application brief, 2nd Feb 2007. LC-MS/MS confirmation. |</p>
<table>
<thead>
<tr>
<th>SOP PALC 0074</th>
<th>T-2 and HT-2 toxins</th>
<th>5 – 25 μg/kg - Others (Baby foods)</th>
<th>Mycotoxins Cereals</th>
<th>UPLC-MS/MS</th>
<th>SOP PALC 0074</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP PALC 0076</td>
<td>Fumonisin</td>
<td>Fumonisin B1 50-7780 μg/kg Fumonisin B2 50-8010 μg/kg Fumonisin B3 50-400 μg/kg *Total Fumonisins 0-16,190 μg/kg (*Note: based on lower bound calculation)</td>
<td>Maize-based foods and baby foods</td>
<td>By immunoaffinity column extraction and HPLC with fluorescence detection</td>
<td>Based on Application notes from R-Biopharm Rhone Ltd.</td>
</tr>
<tr>
<td>SOP PALC 0077</td>
<td>Aflatoxin M1</td>
<td>Milk powder 0.02-0.75 μg/kg Milk 0.025-0.33 μg/l</td>
<td>Milk powder Milk</td>
<td>By HPLC and fluorescence detection.</td>
<td>Based on Application notes from R-Biopharm Rhone Ltd.</td>
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<tr>
<td>SOP PALC 0081</td>
<td>Deoxynivalenol</td>
<td>Deoxynivalenol 50-4,000 μg/kg</td>
<td>Cereals, cereal based baby food, pasta</td>
<td>By HPLC and fluorescence detection</td>
<td>Based on Application notes from R-Biopharm Rhone Ltd.</td>
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<tr>
<td>SOP PALC 0041</td>
<td>Furan</td>
<td>Solid foods (μg/kg) Furan 5 - 10000 2-methylfuran 11 - 55000 3-methylfuran 1 - 3500 2-ethylfuran 0.5 - 3500 2,5-dimethylfuran</td>
<td>Solids foods Liquid foods</td>
<td>Headspace GC-MS</td>
<td>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/">http://www.cfsan.fda.gov/</a></td>
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<tr>
<td>SOP PALC 0075</td>
<td>Polycyclic aromatic hydrocarbons (PAHs):</td>
<td>Meat and meat products, game and poultry</td>
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<tr>
<td></td>
<td>Cyclopenta[cd]pyrene</td>
<td>Smoked meat:</td>
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<tr>
<td></td>
<td>Benz[a]anthracene</td>
<td>Individual PAHs 0.9-20.0 μg/kg</td>
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<tr>
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<td>Chrysene</td>
<td>*Sum of PAH4 0-80.0 μg/kg</td>
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<td>S-Methylchryrsene</td>
<td>Heat treated meat:</td>
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<td>Benzo[b]fluoranthene</td>
<td>Individual PAHs 0.5-25.0 μg/kg</td>
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<td></td>
<td>Benzo[j]fluoranthene</td>
<td>*Sum of PAH4 0-100.0 μg/kg</td>
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<td>Benzo[k]fluoranthene</td>
<td>Fish, shellfish and molluscs</td>
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<td></td>
<td>Benzo[a]pyrene</td>
<td>Smoked fish:</td>
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<td></td>
<td>Indeno[1,2,3-cd]pyrene</td>
<td>Individual PAHs 0.9-20.0 μg/kg</td>
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<tr>
<td></td>
<td>Dibenzo[a,h]anthracene</td>
<td>*Sum of PAH4 0-80.0 μg/kg</td>
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<td>Benzo[g,h,i]perylene</td>
<td>Fats and oils:</td>
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<td>Dibenzo[a,l]pyrene</td>
<td>Individual PAHs 0.9-20.0 μg/kg</td>
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<tr>
<td></td>
<td>Dibenzo[a,i]pyrene</td>
<td>*Sum of PAH4 0-80.0 μg/kg</td>
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<tr>
<td></td>
<td>Dibenzo[a,h]pyrene</td>
<td>Cereals and bakery products (Flour):</td>
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<tr>
<td></td>
<td>Meat and meat products, game and poultry</td>
<td>Individual PAHs 0.05-5 μg/kg</td>
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<td>Smoked meat</td>
<td>*Sum of PAH4 0-20.00 μg/kg</td>
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<td>Heat treated meat</td>
<td>Herbs and spices:</td>
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<td>Individual PAHs 0.9-20.0 μg/kg</td>
<td>Individual PAHs 0.9-30.0 μg/kg</td>
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<td>*Sum of PAH4 0-80.0 μg/kg</td>
<td>*Sum of PAH4 0-120.0 μg/kg</td>
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<tr>
<td></td>
<td>Fish, shellfish and molluscs</td>
<td>Cocoa and Cocoa preparations, coffee, tea</td>
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<td>Smoked fish</td>
<td>Raw beverages:</td>
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<td>Individual PAHs 1.0-10.0 μg/kg</td>
<td>Individual PAHs 1.0-10.0 μg/kg</td>
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<td>*Sum of PAH4 0-40.0 μg/kg</td>
<td>*Sum of PAH4 0-80.0 μg/kg</td>
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<td>Brewed beverages: Individual PAHs 0.2-2.0</td>
<td>Brewed beverages: Individual PAHs 0.2-2.0</td>
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*Sum of PAH indicates a cumulative total of 16 PAHs.
<table>
<thead>
<tr>
<th>SOP PALC 0127</th>
<th>3-monochloropropane-1,2-diol</th>
<th>Soy sauce and hydrolysed vegetable protein (HVP)</th>
<th>GC-MS</th>
<th>SOP PALC 0127 based on I.S. EN 14573:2004 Foodstuffs-Determination of 3-Monochloropropane-1,2-Diol by GC/MS</th>
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<tbody>
<tr>
<td>SOP PALC 0140</td>
<td>Monochloropropandiol (MCPDE) and Glycidol esters (GE)</td>
<td>Liquid infant formula (IF) &amp; follow on formula (FOF) 2.0 - 130 µg/kg for MCPDEs and 2.0 - 170 µg/kg for GEs Powder IF &amp; FOF 15 - 1300 µg/kg for MCPDEs and 15 - 1700 µg/kg for GEs Fats and Oils: 100 - 20000 µg/kg for MCPDEs and 100 - 20000 µg/kg for GEs</td>
<td>Liquid and powdered infant formula &amp; follow-on formula Fats and Oils</td>
<td>GC-MS Based on 1.1 AOCS Official Method Cd 29a-13.</td>
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<tr>
<td>766 Environmental testing (inc waters) - .05 Inorganic</td>
<td>Fluoride and sulphate</td>
<td>Waters for potable and domestic purposes: Sulphate 5-250 mg/l Fluoride 0.10-1.75 mg/l Misc Materials and Products Fluoride 10.9% HFSA solution</td>
<td>Waters for potable and domestic purposes Misc Materials and products</td>
<td>By reagent free ion chromatography (RFIC) Reagent free Ion Chromatography Based on I.S. EN 12175:2013</td>
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<tr>
<td>SOP PALCW 0006 ¹ ² ³</td>
<td>Total metals</td>
<td>Waters for potable and domestic purposes:</td>
<td>Waters for potable and domestic purposes</td>
<td>By inductively coupled plasma/mass spectrometry (ICP-MS)</td>
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<td>Chromium</td>
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<td>Copper</td>
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<td>Zinc</td>
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<td>Misc Materials and Products:</td>
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<td>Lead</td>
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<td>Nickel</td>
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<td>Selenium</td>
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<tr>
<th>SOP PALCW 0019 ¹ ³</th>
<th>Conductivity</th>
<th>20-1270μS/cm at 20°C</th>
<th>Waters for potable and domestic purposes</th>
<th>Jenway Conductivity meter</th>
<th>Based on Jenway conductivity meter operation.</th>
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<tr>
<td>SOP PALCW 0020 ¹ ³</td>
<td>Turbidity</td>
<td>(NTU) 0.5-400</td>
<td>Waters for potable and domestic purposes</td>
<td>Hach Turbidimeter</td>
<td>Based on Hach Turbidimeter Method.</td>
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<tr>
<td>SOP PALCW 0021 ¹ ² ³</td>
<td>Nutrients</td>
<td>Ammonium (as NH4) 0.064-1.15mg/l</td>
<td>Waters for potable and domestic purposes</td>
<td>Using Thermoscientific Aquakem 250 discrete analyser</td>
<td>Thermoscientific Aquakem 250 discrete analyser manual</td>
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<td>Chloride (Cl) 10-250mg/l</td>
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<td>Nitrite (NO2) 0.164-1.313mg/l</td>
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<td>Nitrate (NO3) 6.64 -50.91mg/l</td>
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<td>Sulphate (SO4) 8-250mg/l</td>
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<tr>
<td></td>
<td>Alkalinity (HCO3) 50-300mg/l</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Hardness (CaCO3) 50-300 mg/l</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colour (Pt-Co units) 10-90 mg/l</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP PALCW 0022 ¹ ³</td>
<td>pH</td>
<td>pH 4-10</td>
<td>Waters for potable and domestic purposes</td>
<td>Jenway pH meter</td>
<td>Based on Jenway pH meter operation</td>
</tr>
</tbody>
</table>

In addition to the above, the following methods were used for analysis:

- **Conductivity**: Measured using a Jenway Conductivity meter based on Jenway Conductivity meter operation.
- **Turbidity**: Assessed using a Hach Turbidimeter based on Hach Turbidimeter Method.
- **Nutrients**: Determined using a Thermoscientific Aquakem 250 discrete analyser manual.
<table>
<thead>
<tr>
<th>SOP PALCW 0023</th>
<th>Mercury</th>
<th>Waters for potable and domestic purposes = 0.5 - 5.0 μg/L</th>
<th>Waters for potable and domestic purposes Misc Materials and products</th>
<th>By Cold Vapour Atomic Absorption spectrophotometry</th>
<th>Based on I.S. EN 12175:2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>767 Physical test/measurement - .01 pH</td>
<td>SOP PALC 0115</td>
<td>pH and Acidity</td>
<td>3.0-7.0 - pH 5-50 mEq/kg - Acidity</td>
<td>Honey</td>
<td>Autotitrator</td>
</tr>
<tr>
<td>SOP PALC 0160</td>
<td>pH</td>
<td>2.0 - 5.0 pH units</td>
<td>Non alcoholic beverages (drinks and juices)</td>
<td>pH Meter</td>
<td>SOP PALC 0160</td>
</tr>
<tr>
<td>767 Physical test/measurement - .02 Conductivity</td>
<td>SOP PALC 0114</td>
<td>Conductivity</td>
<td>0.1-1.6 mS.cm-1 7 - 200 μS/cm (Vodka)</td>
<td>Honey</td>
<td>Conductivity Meter</td>
</tr>
<tr>
<td>SOP PALC 0118</td>
<td>Insoluble matter</td>
<td>0.01-0.11 g/100 g</td>
<td>Honey</td>
<td>Gravimetric Determination</td>
<td>Based on Harmonised Methods of the International Honey Commission, 2009.</td>
</tr>
</tbody>
</table>

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.