COSMETICS

Cosmetics & Toiletries Proficiency Testing Scheme

Scheme Description

LGC Standards
Proficiency Testing
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Email: cosmetics@lgcgroup.com
Website: www.lgcstandards.com
Record of issue status and modifications

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>ISSUE DATE</th>
<th>DETAILS</th>
<th>AUTHORISED BY</th>
</tr>
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<tr>
<td>1</td>
<td>Oct 2010</td>
<td>First issued</td>
<td>T. Noblett</td>
</tr>
<tr>
<td>2</td>
<td>March 2011</td>
<td>Updated scheme format following trial</td>
<td>T. Noblett</td>
</tr>
<tr>
<td>3</td>
<td>Jan 2012</td>
<td>Details of Robust Mean AV calculation amended. Added qualitative tests for micro. Cream sample for hydroquinone analysis included as regular sample.</td>
<td>T. Noblett</td>
</tr>
<tr>
<td>4</td>
<td>Dec 2012</td>
<td>Trial sample added for the analysis of physicochemical parameters in liquid cosmetics.</td>
<td>M. Whetton</td>
</tr>
<tr>
<td>5</td>
<td>Feb 2014</td>
<td>Trial samples 24 and 25 added for the analysis of trace elements in mouthwash and toothpaste. Inclusion of traceability information to Appendix A. Micro method abbreviation codes added.</td>
<td>M. Whetton</td>
</tr>
<tr>
<td>6</td>
<td>January 2015</td>
<td>SDPA for hydroquinone updated to 10% of the assigned value. COSMETICS Scheme added to the UKAS schedule of accreditation; therefore, UKAS logo added on page 1. Sample volume included for Sample 23. Units for sample 25 amended to mg/kg. Addition of new sample 26 for the determination of SPF in sunscreen. Inclusion of subcontracting information in ‘Test Materials’ section.</td>
<td>M. Whetton</td>
</tr>
</tbody>
</table>

Notes:
Where this document has been translated, the English version shall remain the definitive version
Scheme Aims and Organisation
The primary aim of the Cosmetics & Toiletries Proficiency Testing Scheme (COSMETICS) is to enable laboratories performing the analysis of cosmetic and toiletries to monitor their performance and compare it with that of their peers. The COSMETICS Scheme also aims to provide information to participants on technical issues and methodologies relating to testing of cosmetics/toiletries and related products.

The COSMETICS scheme year operates from April to March. Further information about the scheme, including test material availability, round despatch date and reporting deadline, are available on the current scheme application form.

Test Materials
Details of the test materials available are given in Appendix A. The test parameters are continually reviewed to ensure they meet the needs of current laboratory testing and regulatory requirements.

Test material batches are tested for homogeneity for at least one test parameter where deemed appropriate. Details of homogeneity tests performed and results are given in the COSMETICS scheme reports.

Some aspects of the scheme, such as test material production, homogeneity testing and stability assessment, can from time to time be subcontracted. When subcontracting occurs, it is placed with a competent subcontractor and LGC is responsible for this work. The planning of the scheme, the evaluation of performance and the authorisation of the final report will never be subcontracted.

Statistical Analysis
Information on the statistics used can be found in the General Protocol and in the Scheme Report. Methods for determining assigned values and the values for SDPA used for individual samples are given in Appendix A.

Methods
Methods are listed in Appendix A and PORTAL. Please select the most appropriate method from the list. If none of the methods are appropriate, then please report your method as ‘Other’ and record a brief description in the Comments Section in PORTAL. Abbreviations for microbiological method codes can be found in Appendix A. The time and temperature of incubation does not need to be reported.

Results and Reports
Results are returned through our electronic reporting software, PORTAL, full instructions for which are provided by email. However, participants may request result submission forms on which to report and return results if they are unable to report through electronic means. This will incur an additional charge.

Reports will be available on the website within 10 working days of round closure. Participants will be emailed a link to the report when it is available.
APPENDIX A - Description of abbreviations used

Assigned Value (AV)
The assigned value may be derived in the following ways:

- From the robust mean (median) of participant results (RMean). This is the median of participant results after the removal of test results that are inappropriate for statistical evaluation, e.g. miscalculations, transpositions and other gross errors. Generally, the assigned value will be set using results from all methods, unless the measurement is considered method-dependent, in which case the assigned value will be set by method as illustrated in the report tables. For some analytes, where there is a recognised reference method for that type of measurement, this may be used as the assigned value for a particular analyte i.e. it would be applied to results obtained by any method.

  *Traceability:* Assigned values which are derived from the participant results, or a sub-set of the results are not traceable to an international measurement standard. The uncertainty of assigned values derived in this way is estimated from the participant results, according to ISO 13528.

- From a formulation value (Formulation). This denotes the use of an assigned value derived from sample preparation details, where known and exact quantities of analyte have been used to prepare the sample.

  *Traceability:* Assigned values calculated from the formulation of the test sample are traceable, via an unbroken metrological traceability chain, to an international measurement standard. The measurement uncertainty of the assigned value is calculated using the contributions from each calibration in the traceability chain.

- From a qualitative formulation (Qual Form). This applies to qualitative tests where the assigned value is simply based on the presence/absence of the analyte in the test material.

  *Traceability:* Assigned values calculated from the qualitative formulation of the test sample are traceable to a certified reference standard or a microbiological reference strain.

- From expert labs (Expert). The assigned value for the analyte is provided by an ‘expert’ laboratory.

  *Traceability:* Assigned values provided by an ‘expert’ laboratory may be traceable to an international measurement standard, according to the laboratory and the method used. The uncertainty of measurement for an assigned value produced in this way will be provided by the laboratory undertaking the analysis. Details of traceability and the associated uncertainty will be provided in the report for the scheme/round.

Range
This indicates the concentration range at which the analyte may be present in the test material.

SDPA
SDPA represents the ‘standard deviation for proficiency assessment’ which is used to assess participant performance for the measurement of each analyte. This may be a fixed value (as stated), a percentage (%) of the assigned value or based on the robust standard deviation of the participant measurement results, either across all methods or by method depending on whether the measurement made is method dependent (see assigned value).
Units
This indicates the units used for the assessment of data. These are the units in which participants should report their results. For some analytes in some schemes participants may have a choice of which units to report their results, however, the units stipulated in this scheme description are the default units to which any results reported using allowable alternative results will be converted to.

DP
This indicates the number of decimal places to which participants should report their measurement results.
### Appendix A – COSMETICS Scheme Materials

**Samples 10A; 13A; 16A**

**Microbiological Analysis of Cosmetics and Toiletries for TAMC and indicator organisms**

1 x 10mL or gram of matrix (10A=powder, 13A=cream, 16A=liquid) plus a 10mL glass sealed vial containing lyophilised microorganism(s).

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection and/or enumeration of aerobic mesophilic bacteria</td>
<td>Tryptone soy agar</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Plate count agar</td>
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<tr>
<td></td>
<td>Eugon LT 100 agar</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soy caesin digest agar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection and/or enumeration of <em>Staphylococcus aureus</em></td>
<td>Baird Parker agar</td>
<td>RMean</td>
<td>0 to &lt;100,000</td>
<td>$\log_{10} 0.35$</td>
<td>cfu ml or g$^{-1}$</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Vogel Johnson agar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mannitol salt agar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enumeration of Enterobacteriaceae</td>
<td>VRBGA</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Detection of <em>Escherichia coli</em></td>
<td>Maconkey agar</td>
<td>RMean</td>
<td>0 to &lt;100,000</td>
<td>$\log_{10} 0.35$</td>
<td>cfu ml or g$^{-1}$</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>EMB agar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TBX agar</td>
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<td>COLI ID</td>
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</tbody>
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**Samples 10B; 13B; 16B**

**Microbiological Analysis of Cosmetics and Toiletries for enumeration of yeast, mould and pseudomonas**

1 x 10mL or gram of matrix (10B=powder, 13B=cream, 16B=liquid) plus a 10mL glass sealed vial containing lyophilised microorganism(s).

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
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<tbody>
<tr>
<td>Enumeration of yeast and mould (total count)</td>
<td>Potato dextrose</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Sabourand dextrose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Malt extract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rose bengal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OGYE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection of <em>Candida albicans</em></td>
<td>Candida agar</td>
<td>RMean</td>
<td>0 to &lt;100,000</td>
<td>$\log_{10} 0.35$</td>
<td>cfu ml or g$^{-1}$</td>
<td>0</td>
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<tr>
<td></td>
<td>PCR</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Detection and/or enumeration of <em>Pseudomonas aeruginosa</em></td>
<td>Pseudomonas agar P</td>
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<td></td>
<td></td>
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<tr>
<td>Detection of <em>Burkholderia cepacia</em></td>
<td>Cepacia agar</td>
<td>RMean</td>
<td>0 to &lt;100,000</td>
<td>$\log_{10} 0.35$</td>
<td>cfu ml or g$^{-1}$</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PCR</td>
<td></td>
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**ABBREVIATIONS FOR MICROBIOLOGICAL METHOD CODES**

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<tr>
<td>EMB</td>
<td>Eosin methylene blue</td>
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<tr>
<td>OGYE</td>
<td>Oxytetracycline glucose yeast extract agar</td>
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<tr>
<td>PCR</td>
<td>Polymerase chain reaction</td>
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<tr>
<td>TBX</td>
<td>Tryptone bile X-glucuronidase</td>
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<tr>
<td>VRBGA</td>
<td>Violet red bile glucose agar</td>
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</table>

**Sample 19  Trace Elements in Lipstick**

**Supplied as:** 1 x 5g lipstick sample

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<th>Range</th>
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<td>Chromium</td>
<td>ICP-EOS</td>
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<tr>
<td>Lead</td>
<td>AAS</td>
<td>RMean</td>
<td>0-50</td>
<td>10%</td>
<td>mg/kg</td>
<td>2</td>
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<tr>
<td>Nickel</td>
<td>X-ray fluorescence</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Arsenic*</td>
<td>GFAAS</td>
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<td>Mercury*</td>
<td>FLAAS</td>
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*analytes marked with an asterisk are not included in LGC’s UKAS scope of accreditation

**Sample 20  Trace Elements in Lip Gloss**

**Supplied as:** 1 x 5g lip gloss sample

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<thead>
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<th>Method</th>
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<th>Range</th>
<th>SDPA</th>
<th>Units</th>
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<tr>
<td>Cadmium</td>
<td>ICP-MS</td>
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</tr>
<tr>
<td>Chromium</td>
<td>ICP-EOS</td>
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</tr>
<tr>
<td>Lead</td>
<td>AAS</td>
<td>RMean</td>
<td>0-50</td>
<td>10%</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Nickel</td>
<td>X-ray fluorescence</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Arsenic*</td>
<td>GFAAS</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mercury*</td>
<td>FLAAS</td>
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</table>

*analytes marked with an asterisk are not included in LGC’s UKAS scope of accreditation
### Sample 21: Trace Elements in Powdered Cosmetics
**Supplied as:** 1 x 5g powder sample (e.g. eyeshadow, etc)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
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</thead>
<tbody>
<tr>
<td>Cadmium</td>
<td>ICP-MS</td>
<td>RMean</td>
<td>0-50</td>
<td>10%</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Chromium</td>
<td>ICP-EOS</td>
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<td></td>
</tr>
<tr>
<td>Lead</td>
<td>AAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nickel</td>
<td>X-ray fluorescence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenic*</td>
<td>GFAAS</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mercury*</td>
<td>FLAAS</td>
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*analytes marked with an asterisk are not included in LGC’s UKAS scope of accreditation

### Sample 22: Chemical Analysis of Cream Cosmetics
**Supplied as:** 1 x 5mL cream sample

<table>
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<th>Analyte</th>
<th>Method</th>
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<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
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<td>Hydroquinone</td>
<td>HPLC</td>
<td>RMean</td>
<td>0-4</td>
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<td>% (w/w)</td>
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<tr>
<td></td>
<td>Spectrophotometric</td>
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</table>

### Sample 23: Physicochemical Analyses of Liquid Cosmetics
**Supplied as:** 1 x 250mL liquid cosmetic sample

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<th>Analyte</th>
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<th>SDPA</th>
<th>Units</th>
<th>DP</th>
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</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH meter</td>
<td>RMean</td>
<td>5-9</td>
<td>0.1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Rotary viscometer</td>
<td>RMean</td>
<td>1000-12000</td>
<td>Robust SD</td>
<td>mPa.s</td>
<td>0</td>
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<tr>
<td>Density</td>
<td>Pycnometer</td>
<td>RMean</td>
<td>0.95-1.05</td>
<td>0.002</td>
<td>g/cm³</td>
<td>4</td>
</tr>
<tr>
<td>Density</td>
<td>Density meter</td>
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</tbody>
</table>
Sample 24**  
Trace Elements in Mouthwash  
Supplied as:  
1 x 125mL mouthwash sample

<table>
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<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony</td>
<td>ICP-MS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/L</td>
<td>2</td>
</tr>
<tr>
<td>Arsenic</td>
<td>ICP-EOS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/L</td>
<td>2</td>
</tr>
<tr>
<td>Barium</td>
<td>AAS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/L</td>
<td>2</td>
</tr>
<tr>
<td>Copper</td>
<td>X-ray fluorescence</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/L</td>
<td>2</td>
</tr>
<tr>
<td>Fluoride</td>
<td>Ion selective electrode</td>
<td>RMean</td>
<td>0-1</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
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<tr>
<td>Mercury</td>
<td>HPLC-IC</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/L</td>
<td>2</td>
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<tr>
<td>Selenium</td>
<td>GFAAS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/L</td>
<td>2</td>
</tr>
<tr>
<td>Zinc</td>
<td>FLAAS</td>
<td>RMean</td>
<td>0-2000</td>
<td>Robust SD</td>
<td>mg/kg</td>
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**Test material currently not included in LGC’s UKAS Scope of Accreditation.

Sample 25**  
Trace Elements in Toothpaste  
Supplied as:  
1 x 25g toothpaste sample

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony</td>
<td>ICP-MS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Arsenic</td>
<td>ICP-EOS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Barium</td>
<td>AAS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Copper</td>
<td>X-ray fluorescence</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Fluoride</td>
<td>Ion selective electrode</td>
<td>RMean</td>
<td>0-0.5</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
</tr>
<tr>
<td>Mercury</td>
<td>HPLC-IC</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
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<tr>
<td>Selenium</td>
<td>GFAAS</td>
<td>RMean</td>
<td>0-20</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
</tr>
<tr>
<td>Zinc</td>
<td>FLAAS</td>
<td>RMean</td>
<td>0-2000</td>
<td>Robust SD</td>
<td>mg/kg</td>
<td>2</td>
</tr>
</tbody>
</table>

**Test material currently not included in LGC’s UKAS Scope of Accreditation.

Sample 26***  
Supplied as:  
1 x 25mL cream sample

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPF_{in\text{vitr}} &amp; ISO 24443 (2012)</td>
<td>RMean</td>
<td>5 - 50</td>
<td>Robust SD</td>
<td>SPF</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

***Assigned values, ranges and SDPAs are subject to alterations. Test material currently not included in LGC’s UKAS Scope of Accreditation.
### Sample 27***
**Preservatives in Cosmetics**
**Supplied as:** 1 x 25mL cream sample

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylparaben</td>
<td>HPLC</td>
<td>RMean</td>
<td>0 - 1</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
</tr>
<tr>
<td>Propylparaben</td>
<td>HPLC</td>
<td>RMean</td>
<td>0 - 1</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
</tr>
<tr>
<td>Butylparaben</td>
<td>HPLC</td>
<td>RMean</td>
<td>0 - 1</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
</tr>
<tr>
<td>Benzoic acid</td>
<td>HPLC</td>
<td>RMean</td>
<td>0 - 5</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
</tr>
<tr>
<td>Sorbic acid</td>
<td>HPLC</td>
<td>RMean</td>
<td>0 - 1</td>
<td>Robust SD</td>
<td>%</td>
<td>3</td>
</tr>
</tbody>
</table>

***Assigned values, ranges and SDPAs are subject to alterations. Test material currently not included in LGC's UKAS Scope of Accreditation.

### Sample 28****
**Chemical analysis of soaps**
**Supplied as:** 1 x 100g liquid or solid soap

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorides (as Cl⁻)</td>
<td>ASTM D460</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ISO 457</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISO 4323</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>AOCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free caustic alkali (as NaOH)</td>
<td>ASTM D460</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ISO 456</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AOCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free fatty acids (as oleic acid)</td>
<td>ASTM D460</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>GC-MS</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>AOCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matter insoluble in ethanol</td>
<td>ASTM D460</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ISO 673</td>
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</tr>
<tr>
<td></td>
<td>AOCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture and volatile matter</td>
<td>ASTM D460</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ISO 672</td>
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</tr>
<tr>
<td></td>
<td>AOCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total fatty matter content</td>
<td>ASTM D460</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ISO 685</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>AOCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

****This sample is a trial sample: assigned values, ranges and SDPAs are subject to alterations. Test material currently not included in LGC's UKAS Scope of Accreditation.
## Sample 29****
### Chemical analysis of powder detergents
**Supplied as:** 1 x 100g powder detergent

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>AV</th>
<th>Range</th>
<th>SDPA</th>
<th>Units</th>
<th>DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water insoluble matter</td>
<td>Various</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% m/m</td>
<td>2</td>
</tr>
<tr>
<td>pH (1% aqueous solution at 25°C)</td>
<td>pH meter</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Moisture and volatile matter</td>
<td>Oven</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>% (m/m)</td>
<td>2</td>
</tr>
<tr>
<td>Anionic-active matter</td>
<td>ISO 2271</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>%(m/m)</td>
<td>2</td>
</tr>
<tr>
<td>Cationic-active matter</td>
<td>ISO 2871</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>%(m/m)</td>
<td>2</td>
</tr>
<tr>
<td>Chlorides (as Cl)</td>
<td>ASTM D1681</td>
<td>RMean</td>
<td>All</td>
<td>Robust SD</td>
<td>%(m/m)</td>
<td>2</td>
</tr>
</tbody>
</table>

***This sample is a trial sample: assigned values, ranges and SDPAs are subject to alterations. Test material currently not included in LGC’s UKAS Scope of Accreditation.***