



Test Report

No. **4687577-CH01**

Date: **November 10, 2020**

Page 1 of 14

**Lord Corporation
2455 Robison Road West
Erie, PA 16509-4675
United States**

The following sample(s) was/were submitted and identified by/on behalf of the client as:

**EP-937
Model/Part No.: EP-937_20201014
Color: Black
Country of Destination: USA**

Sample Received Date: **10/19/2020**

Testing Period: **10/20/2020 – 11/9/2020**

Test Requested : Please refer to the result summary.

Test Method & Results : Please refer to next page(s).

Result Summary :

| Test Requested | Conclusion |
|---|------------------|
| 1. RoHS Directive 2011/65/EU Annex II | PASS |
| 2. European Regulation (EC) No. 1907/2006 (REACH) Annex XVII and its amendments – Phthalate Content | PASS |
| 3. Diisobutyl Phthalate (DIBP) Content | See Test Results |
| 4. Di-n-Hexyl Phthalate (DnHP) Content | See Test Results |
| 5. Halogen Content (Cl, Br, I, F) of the submitted sample(s) with reference to BS EN 14582:2016 | See Test Results |
| 6. Beryllium Content | See Test Results |
| 7. Antimony Content | See Test Results |
| 8. Annex XVII of REACH Regulation (EC) No. 1907/2006 and its amendments –Perfluorooctane Sulfonates (PFOS) Content (Formerly Directive 2006/122/EC) | PASS |
| 9. Perfluorooctanoic Acid (PFOA) Content | See Test Results |

Signed for and on behalf of SGS North America, Inc.

Prepared By:

Sandip Ramolia
Laboratory Supervisor, Chemistry Laboratory

Shaina Gibbons
Technical Report Writer, Chemistry Laboratory

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

1. RoHS Directive 2011/65/EU Annex II

| Test Item(s): | Unit | Test Method | Results | MDL | Limit |
|----------------------------|-------|--|---------|-----|-------|
| | | | 1 | | |
| Cadmium (Cd) | mg/kg | With reference to IEC 62321-5:2013 (Determination of Cd and Pb by ICP-OES and /or ICP-MS) | ND | 2 | 100 |
| Lead (Pb) | mg/kg | | 4.48 | 2 | 1000 |
| Mercury (Hg) | mg/kg | With reference to IEC 62321-4:2013 (Determination of Hg by ICP-OES and/ or ICP-MS) | ND | 2 | 1000 |
| Hexavalent Chromium (CrVI) | mg/kg | With reference to IEC 62321-7-2:2017 (Determination of CrVI by UV-Vis) | ND* | 8 | 1000 |
| Sum of PBBs | mg/kg | With reference to IEC 62321-6:2015 (Determination of PBB and PBDE by GC-MS) | ND | - | 1000 |
| Monobromobiphenyl | mg/kg | | ND | 5 | - |
| Dibromobiphenyl | mg/kg | | ND | 5 | - |
| Tribromobiphenyl | mg/kg | | ND | 5 | - |
| Tetrabromobiphenyl | mg/kg | | ND | 5 | - |
| Pentabromobiphenyl | mg/kg | | ND | 5 | - |
| Hexabromobiphenyl | mg/kg | | ND | 5 | - |
| Heptabromobiphenyl | mg/kg | | ND | 5 | - |
| Octabromobiphenyl | mg/kg | | ND | 5 | - |
| Nonabromobiphenyl | mg/kg | | ND | 5 | - |
| Decabromobiphenyl | mg/kg | | ND | 5 | - |
| Sum of PBDEs | mg/kg | | ND | - | 1000 |
| Monobromodiphenyl ether | mg/kg | | ND | 5 | - |
| Dibromodiphenyl ether | mg/kg | | ND | 5 | - |
| Tribromodiphenyl ether | mg/kg | ND | 5 | - | |
| Tetrabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Pentabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Hexabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Heptabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Octabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Nonabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Decabromodiphenyl ether | mg/kg | ND | 5 | - | |
| Conclusion | / | / | PASS | / | / |

Sample Description:

1. EP-937

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Note:

- (a) mg/kg = ppm ; 0.1wt% = 1000ppm
- (b) ND= not detected
- (c) MDL = Method Detection Limit
- (d) - = not regulated
- (e) * = Total Chromium analysis by ICP-MS and/or ICP-OES was not detected in submitted sample. Therefore, Hexavalent Chromium determination using UV-Visible Spectroscopy was not performed.
- (f) IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

2. European Regulation (EC) No. 1907/2006 (REACH) Annex XVII and its amendments – Phthalate Content

Test Method: With reference to IEC 62321-8:2017. Analysis was performed by Gas Chromatography / Mass Spectrometry.

| Test Item | Result (%) | Detection Limit (%) | Permissible Limit (%) |
|-------------------------------------|------------|---------------------|-----------------------|
| | 1 | | |
| Dibutyl Phthalate (DBP) | ND | 0.005 | -- |
| Benzylbutyl Phthalate (BBP) | ND | 0.005 | -- |
| Bis-(2-ethylhexyl) Phthalate (DEHP) | ND | 0.005 | -- |
| DBP + BBP + DEHP | < 0.05 | -- | 0.1 |
| Diisononyl Phthalate (DINP) | ND | 0.005 | -- |
| Di-n-octyl Phthalate (DNOP) | ND | 0.005 | -- |
| Diisodecyl Phthalate (DIDP) | ND | 0.005 | -- |
| DINP + DNOP + DIDP | < 0.05 | -- | 0.1 |
| Comment | PASS | -- | -- |

Sample Description:

1. EP-937

- Note :
1. % = percentage by weight
 2. ND = Not Detected
 3. < = less than
 4. 1% = 10000 mg/kg (ppm)

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

3. Diisobutyl Phthalate (DIBP) Content

Test Method: With reference to IEC 62321-8:2017 followed by analysis using GC-MS.

| Test Item | Result (%) | | Detection Limit (%) |
|-----------------------------|------------|--|---------------------|
| | 1 | | |
| Diisobutyl Phthalate (DIBP) | ND | | 0.005 |

Sample Description:

1. EP-937

Note: 1. % = percentage by weight

2. 1% = 10000 mg/kg (ppm)

3. ND = Not Detected, reported when the reading is less than the detection limit value.

4. Di-n-Hexyl Phthalate (DnHP) Content

Test Method: With reference to IEC 62321-8:2017 followed by analysis using GC-MS.

| Test Item | Result (%) | | Detection Limit (%) |
|-----------------------------|------------|--|---------------------|
| | 1 | | |
| Di-n-Hexyl Phthalate (DnHP) | ND | | 0.005 |

Sample Description:

1. EP-937

Note: 1. % = percentage by weight

2. 1% = 10000 mg/kg (ppm)

3. ND = Not Detected, reported when the reading is less than the detection limit value.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

5. Halogen Content (Cl, Br, I, F) of the submitted sample(s) with reference to BS EN 14582:2016

With reference to **BS EN 14582:2016** "Characterization of waste – Halogen and sulfur content – Oxygen Combustion in closed systems and determination methods". Analysis was performed by Ion Chromatography.

| Test Items | Unit | Method Detection Limit | 1 |
|---|-------|------------------------|-----|
| Halogen – Chlorine (Cl) CAS # 007782-50-5 | mg/kg | 50 | 546 |
| Halogen – Bromine (Br) CAS # 007726-95-6 | mg/kg | 50 | ND |
| Halogen – Fluorine (F) CAS # 007782-41-4 | mg/kg | 50 | ND |
| Halogen – Iodine (I) CAS # 007553-56-2 | mg/kg | 50 | ND |

Sample Description:

1. EP-937

Note: 1. mg/kg = milligram per kilogram

2. mg/kg = ppm

3. ND = Not Detected, reported when the reading is less than the detection limit value.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

6. Beryllium Content

Test Method: With reference to US EPA Method 3052 followed by analysis using ICP-OES and/or ICP-MS.

| Test Item | Result (mg/kg) | | Detection Limit (mg/kg) |
|----------------|----------------|--|-------------------------|
| | 1 | | |
| Beryllium (Be) | ND | | 2 |

Sample Description:

1. EP-937

Note: 1. mg/kg = milligram per kilogram

2. mg/kg = ppm

3. ND = Not Detected, reported when the reading is less than the detection limit value.

7. Antimony Content

Test Method: With reference to US EPA Method 3052 followed by analysis using ICP-OES and/or ICP-MS.

| Test Item | Result (mg/kg) | | Detection Limit (mg/kg) |
|---------------|----------------|--|-------------------------|
| | 1 | | |
| Antimony (Sb) | ND | | 2 |

Sample Description:

1. EP-937

Note: 1. mg/kg = milligram per kilogram

2. mg/kg = ppm

3. ND = Not Detected, reported when the reading is less than the detection limit value.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

8. Annex XVII of REACH Regulation (EC) No. 1907/2006 and its amendments – Perfluorooctane Sulfonates (PFOS) Content (Formerly Directive 2006/122/EC)

Test Method: Solvent extraction followed by analysis with High Performance Liquid Chromatography – Mass Selective Detector (HPLC-MSD).

| Test Item | Result (%) | Detection Limit (%) | Permissible Limit (%) |
|------------------------------------|------------|---------------------|-----------------------|
| | 1 | | |
| Perfluorooctane sulfonates (PFOS)# | ND | 0.0001 | 0.1 |
| Comment | PASS | -- | -- |

Sample Description:

1. EP-937

Note : 1. % = percentage by weight

2. ND = Not Detected

3. # = Perfluorooctane sulfonates (PFOS) are represented by sum of PFOS – Acid, PFOS – Metal Salt and PFOS – Amide.

Remark: Recommended requirement with reference to commission regulation (EU) No. 757/2010 amending Regulation (EC) No 850/2004 (previously restricted under entry 53 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006)

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

9. Perfluorooctanoic Acid (PFOA) Content

Test Method: Solvent extraction followed by analysis with High Performance Liquid Chromatography – Mass Selective Detector (HPLC-MSD).

| Test Item | Result (%) | Detection Limit (%) |
|-------------------------------|------------|---------------------|
| | 1 | |
| Perfluorooctanoic Acid (PFOA) | ND | 0.0001 |

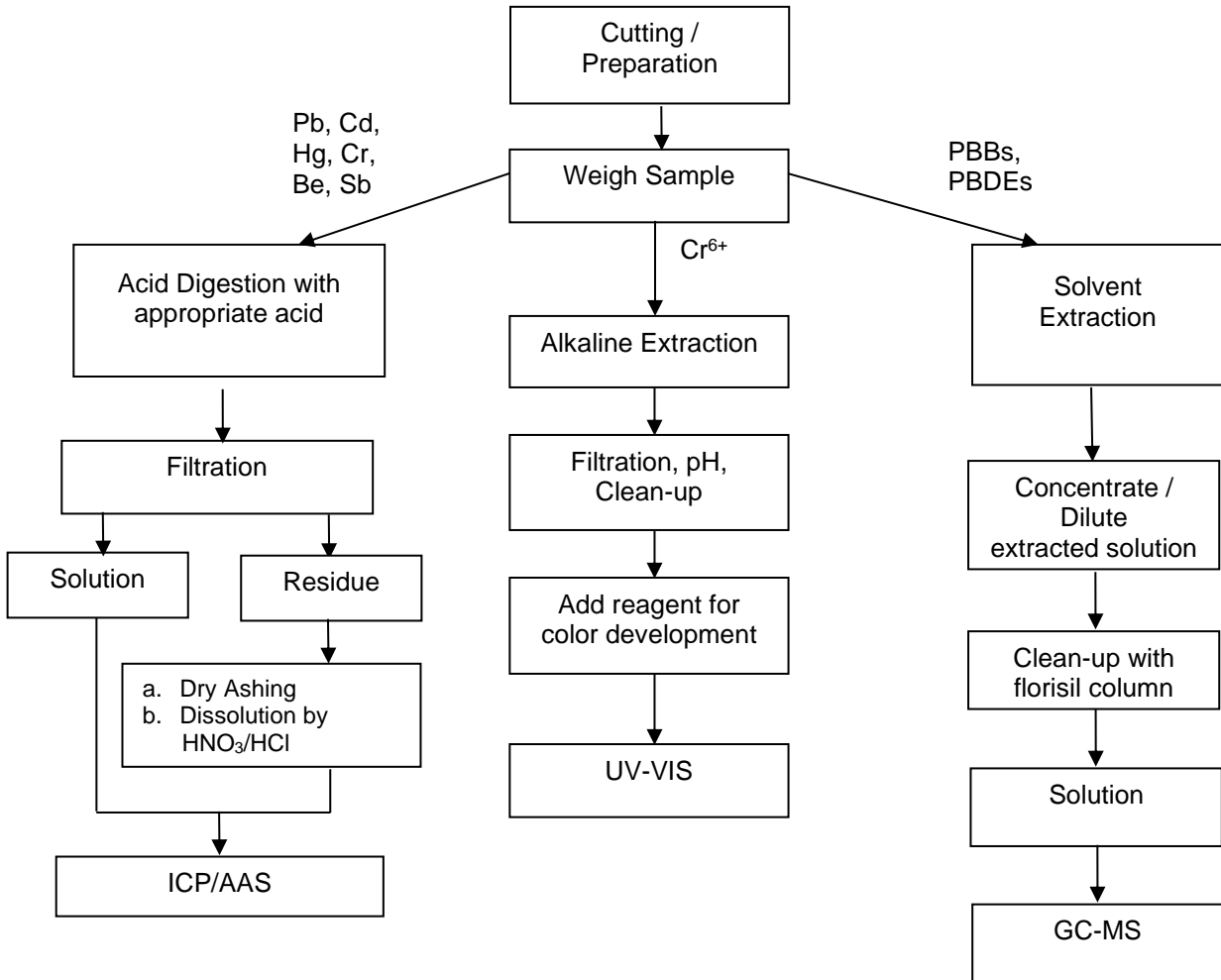
Sample Description:

1. EP-937

Note : 1. % = percentage by weight
2. ND = Not Detected

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

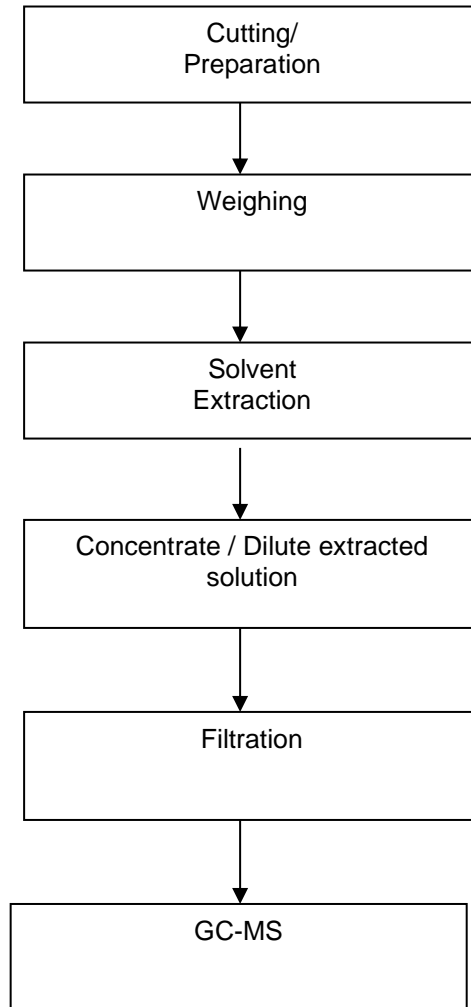
Flowchart for RoHS Testing:



- Note :
1. Cr⁶⁺ is performed only when total Cr is detected
 2. The Cr, Cd, Pb and Hg contents test on polymeric samples were dissolved totally by pre-conditioning method according to above flow chart.

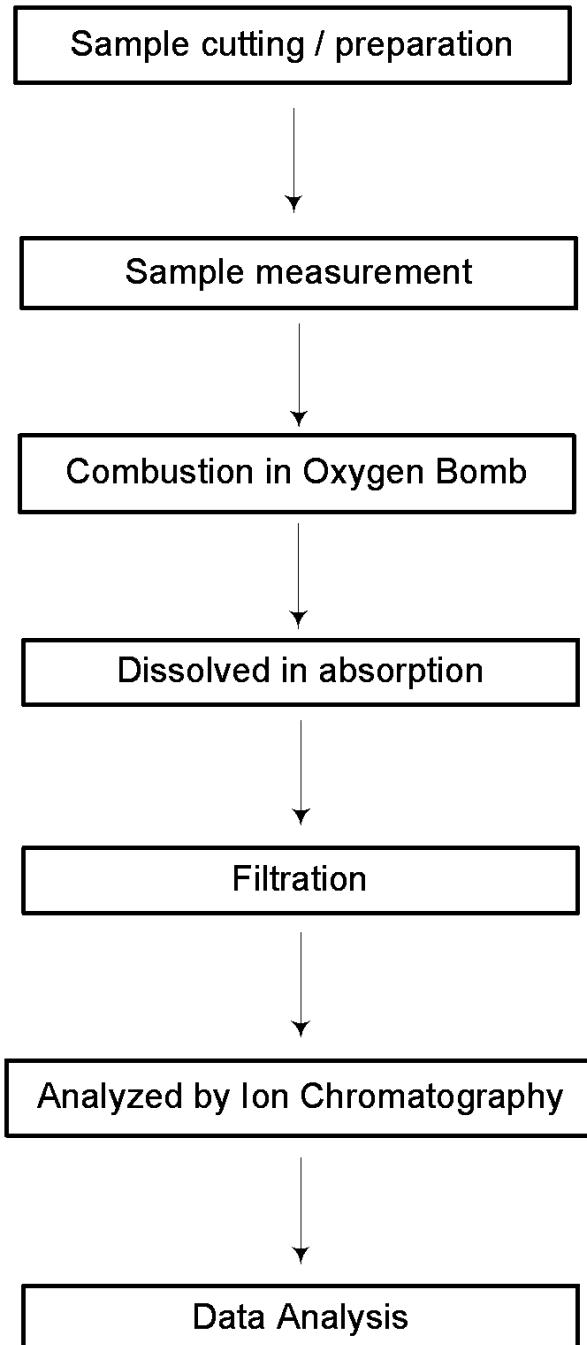
"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Flowchart for Phthalates



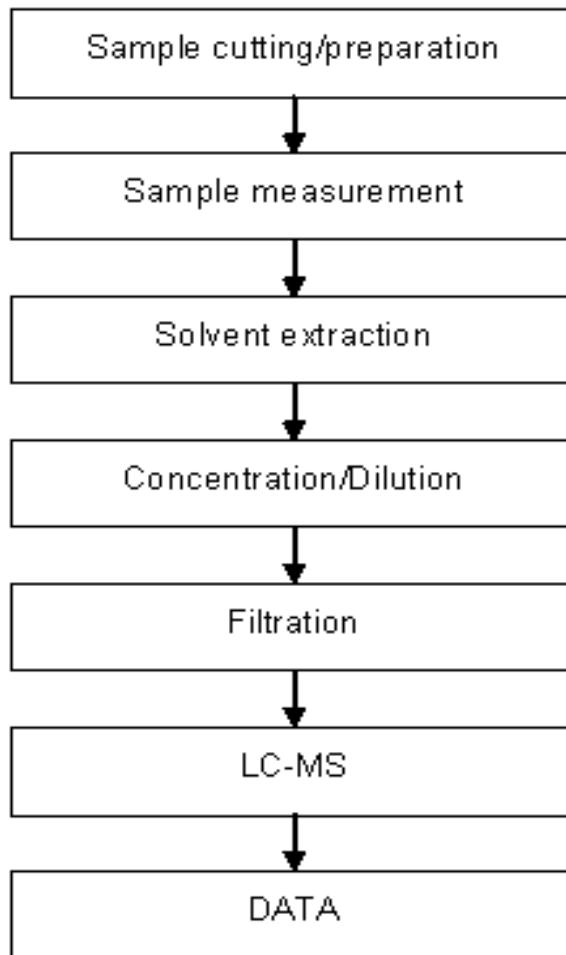
"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Halogen Testing Flow Chart



"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

PFOS/PFOA Testing Flow Chart



"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."

Sample Photo(s):



SGS authenticates the photo(s) on the original report only

*** End of Report ***

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 45 days only."