

Test Report

No.: ETR24305544

Date: 09-Apr-2024

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TOWER SEMICONDUCTOR LTD.
4321 JAMBOREE ROAD NEWPORT BEACH, CALIFORNIA 92660 USA

The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : TOWER SEMICONDUCTOR LTD.
Sample Name : 8" TOWER SEMICONDUCTOR NPB FAB3 PH18 (SiPho)

Sample Receiving Date : 27-Mar-2024
Testing Period : 27-Mar-2024 to 09-Apr-2024

- Test Requested** : (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).
(2) Please refer to next pages for the other item(s).
- Test Results** : Please refer to following pages.
- Conclusion** : (1) Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.


Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



PIN CODE: 4759879A

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Test Part Description

No.1 : SILICON WAFERS

Test Result(s)

| Test Item(s) | Method | Unit | MDL | Result | Limit |
|----------------------------|---|---|-------|--------|-------|
| | | | | No.1 | |
| Cadmium (Cd) | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | 100 |
| Lead (Pb) | With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | 1000 |
| Mercury (Hg) | With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | 1000 |
| Hexavalent Chromium Cr(VI) | With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS. | mg/kg | 8 | n.d. | 1000 |
| Monobromobiphenyl | With reference to IEC 62321-6: 2015, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| Dibromobiphenyl | | mg/kg | 5 | n.d. | - |
| Tribromobiphenyl | | mg/kg | 5 | n.d. | - |
| Tetrabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Pentabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Hexabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Heptabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Octabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Nonabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Decabromobiphenyl | | mg/kg | 5 | n.d. | - |
| Sum of PBBs | | mg/kg | - | n.d. | 1000 |
| Monobromodiphenyl ether | | With reference to IEC 62321-6: 2015, analysis was performed by GC/MS. | mg/kg | 5 | n.d. |
| Dibromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Tribromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Tetrabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Pentabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Hexabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Heptabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Octabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Nonabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Decabromodiphenyl ether | mg/kg | | 5 | n.d. | - |
| Sum of PBDEs | mg/kg | | - | n.d. | 1000 |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|--|--|-------|-----|--------|-------|
| | | | | No.1 | |
| Butyl benzyl phthalate (BBP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Dibutyl phthalate (DBP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Di-(2-ethylhexyl) phthalate (DEHP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Diisobutyl phthalate (DIBP) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | 1000 |
| Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| Bis(2-methoxyethyl) phthalate (DMEP) (CAS No.: 117-82-8) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP) (CAS No.: 68515-42-4) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) (CAS No.: 71888-89-6) | With reference to IEC 62321-8: 2017, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β - HBCDD, γ - HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)) | With reference to IEC 62321: 2008, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| Polychlorinated biphenyls (PCBs) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 0.5 | n.d. | - |
| Polychlorinated naphthalene (PCNs) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| Polychlorinated terphenyls (PCTs) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 0.5 | n.d. | - |

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|---|---|-------|-----|--------|-------|
| | | | | No.1 | |
| Short Chain Chlorinated Paraffins(C10-C13) (SCCP) (CAS No.: 85535-84-8) | With reference to ISO 18219-1: 2021, analysis was performed by GC/MS. | mg/kg | 50 | n.d. | - |
| AZO Dyes | | | | | |
| 4-aminodiphenyl (CAS No.: 92-67-1) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| Benzidine (CAS No.: 92-87-5) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 4-chloro-o-toluidine (CAS No.: 95-69-2) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2-naphthylamine (CAS No.: 91-59-8) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| o-aminoazotoluene (CAS No.: 97-56-3) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 5-nitro-o-toluidine (CAS No.: 99-55-8) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 4-chloroaniline (CAS No.: 106-47-8) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2,4-diaminoanisole (CAS No.: 615-05-4) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 4,4'-diaminodiphenylmethane (MDA) (CAS No.: 101-77-9) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 3,3'-dichlorobenzidine (CAS No.: 91-94-1) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|---|-------|-----|--------|-------|
| | | | | No.1 | |
| 3,3'-dimethoxybenzidine (CAS No.: 119-90-4) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 3,3'-dimethylbenzidine (CAS No.: 119-93-7) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 3,3'-dimethyl-4,4'-diaminodiphenylmethane (CAS No.: 838-88-0) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2-methoxy-5-methylaniline (CAS No.: 120-71-8) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 4,4'-methylene-bis-(2-chloroaniline) (CAS No.: 101-14-4) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 4,4'-oxydianiline (CAS No.: 101-80-4) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 4,4'-thiodianiline (CAS No.: 139-65-1) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| o-toluidine (CAS No.: 95-53-4) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2,4-diaminotoluene (CAS No.: 95-80-7) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2,4,5-trimethylaniline (CAS No.: 137-17-7) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| o-anisidine (CAS No.: 90-04-0) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|--|---|-------|-----|----------|-------|
| | | | | No.1 | |
| 4-aminoazobenzene (CAS No.: 60-09-3) | With reference to EN ISO 14362-1: 2017 or/and EN ISO 14362-3: 2017, analysis was performed by GC/MS & HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2,4-xylidine (CAS No.: 95-68-1) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| 2,6-xylidine (CAS No.: 87-62-7) | With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD. | mg/kg | 3 | n.d. | - |
| Formaldehyde (CAS No.: 50-00-0) | With reference to ISO 17226-1: 2021, analysis was performed by LC/DAD. | mg/kg | 3 | n.d. | - |
| Asbestos | | | | | |
| Actinolite (CAS No.: 77536-66-4) | With reference to EPA 600/R-93/116: 1993, analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD). | - | - | Negative | - |
| Amosite (CAS No.: 12172-73-5) | | - | - | Negative | - |
| Anthophyllite (CAS No.: 77536-67-5) | | - | - | Negative | - |
| Chrysotile (CAS No.: 12001-29-5) | | - | - | Negative | - |
| Crocidolite (CAS No.: 12001-28-4) | | - | - | Negative | - |
| Tremolite (CAS No.: 77536-68-6) | | - | - | Negative | - |
| Dimethyl fumarate (DMFu) (CAS No.: 624-49-7) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 0.1 | n.d. | - |
| Polyvinyl chloride (PVC) | With reference to ASTM E1252: 2021, analysis was performed by FT-IR and Flame Test. | ** | - | Negative | - |
| Chlorofluorocarbons (CFCs) | | | | | |
| CFC-13 (CAS No.: 75-72-9) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-111 (CAS No.: 354-56-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-112 (CAS No.: 76-12-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-211 (CAS No.: 422-78-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-212 (CAS No.: 3182-26-1) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|--|-------|-----|--------|-------|
| | | | | No.1 | |
| CFC-213 (CAS No.: 2354-06-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-214 (CAS No.: 29255-31-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-215 (CAS No.: 4259-43-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-216 (CAS No.: 661-97-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-217 (CAS No.: 422-86-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-12 (CAS No.: 75-71-8) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-11 (CAS No.: 75-69-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-115 (CAS No.: 76-15-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-114 (CAS No.: 76-14-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| CFC-113 (CAS No.: 76-13-1) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Hydrochlorofluorocarbons (HCFCs) | | | | | |
| HCFC-21 (CAS No.: 75-43-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-22 (CAS No.: 75-45-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-31 (CAS No.: 593-70-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-121 (CAS No.: 354-14-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-122 (CAS No.: 354-21-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-123 (CAS No.: 306-83-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-124 (CAS No.: 2837-89-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|--------------------------------|--|-------|-----|--------|-------|
| | | | | No.1 | |
| HCFC-131 (CAS No.: 359-28-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-132b (CAS No.: 1649-08-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-133a (CAS No.: 75-88-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-142b (CAS No.: 75-68-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-221 (CAS No.: 422-26-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-222 (CAS No.: 422-49-1) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-223 (CAS No.: 422-52-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-224 (CAS No.: 422-54-8) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-225ca (CAS No.: 422-56-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-225cb (CAS No.: 507-55-1) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-226 (CAS No.: 431-87-8) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-231 (CAS No.: 421-94-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-232 (CAS No.: 460-89-9) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-233 (CAS No.: 7125-84-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-234 (CAS No.: 425-94-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-235 (CAS No.: 460-92-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-241 (CAS No.: 666-27-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-242 (CAS No.: 460-63-9) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|-----------------------------------|--|-------|-----|--------|-------|
| | | | | No.1 | |
| HCFC-244 | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-251 (CAS No.: 421-41-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-252 (CAS No.: 819-00-1) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-261 (CAS No.: 420-97-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-262 (CAS No.: 421-02-03) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-271 (CAS No.: 430-55-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-141b (CAS No.: 1717-00-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-243 (CAS No.: 460-69-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-253 (CAS No.: 460-35-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-141 | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-142 | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-151 | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HCFC-225 | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Halons | | | | | |
| Halon-1211 (CAS No.: 353-59-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Halon-1301 (CAS No.: 75-63-8) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Halon-2402 (CAS No.: 124-73-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Methyl Bromide (CAS No.: 74-83-9) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|--|--|-------|-----|--------|-------|
| | | | | No.1 | |
| Hydrobromofluorocarbons (HBFCs) | | | | | |
| HBFC-271B1 (C3H6FBr) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-262B1 (C3H5F2Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-261B2 (C3H5FBr2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-253B1 (C3H4F3Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-252B2 (C3H4F2Br2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-251B3 (C3H4FBr3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-244B1 (C3H3F4Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-243B2 (C3H3F3Br2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-242B3 (C3H3F2Br3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-241B4 (C3H3FBr4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-235B1 (C3H2F5Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-234B2 (C3H2F4Br2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-233B3 (C3H2F3Br3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-232B4 (C3H2F2Br4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-231B5 (C3H2FBr5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-226B1 (C3HF6Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-225B2 (C3HF5Br2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|--|-------|-----|--------|-------|
| | | | | No.1 | |
| HBFC-224B3 (C3HF4Br3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-223B4 (C3HF3Br4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-222B5 (C3HF2Br5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-221B6 (C3HFBr6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-151B1 (C2H4FBr) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-142B1 (C2H3F2Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-141B2 (C2H3FBr2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-133B1 (C2H2F3Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-132B2 (C2H2F2Br2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-131B3 (C2H2FBr3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-124B1 (C2HF4Br) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-123B2 (C2HF3Br2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-122B3 (C2HF2Br3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-121B4 (C2HFBr4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-31B1 (CH2FBr) (CAS No.: 373-52-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-22B1 (CHF2Br) (CAS No.: 1511-62-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HBFC-21B2 (CHFBr2) (CAS No.: 1868-53-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|--|--|-------|-----|--------|-------|
| | | | | No.1 | |
| Chlorinate hydrocarbon (CHCs) | | | | | |
| 1,1-Dichloropropene (CAS No.: 563-58-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,2-Dichloroethane (CAS No.: 107-06-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 2,2-Dichloropropane (CAS No.: 594-20-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Carbon tetrachloride (CAS No.: 56-23-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Chloromethane (CAS No.: 74-87-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| cis-1,2-Dichloroethene (CAS No.: 156-59-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| cis-1,3-Dichloropropene (CAS No.: 10061-01-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Hexachlorobutadiene (CAS No.: 87-68-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| trans-1,2-Dichloroethene (CAS No.: 156-60-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| trans-1,3-Dichloropropene (CAS No.: 10061-02-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Dichloromethane, Methylene chloride (CAS No.: 75-09-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,2-Dichloropropane (CAS No.: 78-87-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,1,1-Trichloroethane (CAS No.: 71-55-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,1,2-Trichloroethane (CAS No.: 79-00-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,1,2,2-Tetrachloroethane (CAS No.: 79-34-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,1-Dichloroethylene (CAS No.: 75-35-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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|---|--|-------|-----|--------|-------|
| | | | | No.1 | |
| 1,1-Dichloroethane (CAS No.: 75-34-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Chloroethane (CAS No.: 75-00-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Tetrachloroethene (CAS No.: 127-18-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Trichloroethylene (CAS No.: 79-01-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,3-Dichloropropane (CAS No.: 142-28-9) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Chloroform (CAS No.: 67-66-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 1,2,3-Trichloropropane (CAS No.: 96-18-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Hydrofluorocarbon (HFCs) | | | | | |
| HFC-23 (CHF3) (CAS No.: 75-46-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-32 (CH2F2) (CAS No.: 75-10-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-41 (CH3F) (CAS No.: 593-53-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-43-10mee (C5H2F10) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-125 (C2HF5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-134 (C2H2F4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-134a (CH2FCF3) (CAS No.: 811-97-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-143 (C2H3F3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-143a (C2H3F3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-152a (C2H4F2) (CAS No.: 75-37-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|--|-------|-----|--------|-------|
| | | | | No.1 | |
| HFC-227ea (C3HF7) (CAS No.: 431-89-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-236fa (CAS No.: 431-63-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-245ca (C3H3F5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-245fa (C3H3F5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-365mfc (C4H5F5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| HFC-236ea (C3H2F6) (CAS No.: 431-63-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Perfluorocarbon (PFCs) | | | | | |
| 1,4-dihydrooctafluorobutane (CAS No.: 377-36-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| 2-Perfluoromethylpentane (CAS No.: 355-04-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Decafluorobutane (CAS No.: 355-25-9) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| F14 (CAS No.: 75-73-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Fluorocarbon 116 (CAS No.: 76-16-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Freon 218 (CAS No.: 76-19-7) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Freon C318 (CAS No.: 115-25-3) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Nonafluor-2-(trifluoromethyl)butane (CAS No.: 594-91-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Perfluorisobutene (CAS No.: 382-21-8) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Perfluorohexane (CAS No.: 355-42-0) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Perfluoro-n-pentane (CAS No.: 678-26-2) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |

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Test Report

No.: ETR24305544

Date: 09-Apr-2024

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TOWER SEMICONDUCTOR LTD.

4321 JAMBOREE ROAD NEWPORT BEACH, CALIFORNIA 92660 USA

| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|--|-------|-------|--------|-------|
| | | | | No.1 | |
| Perfluor-1-butene (CAS No.: 357-26-6) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Sulfur hexafluoride (CAS No.: 2551-62-4) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Bromochloromethan (CAS No.: 74-97-5) | With reference to US EPA 5021A: 2014, analysis was performed by GC/MS. | mg/kg | 1 | n.d. | - |
| Fluorine (F) (CAS No.: 14762-94-8) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Chlorine (Cl) (CAS No.: 22537-15-1) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Bromine (Br) (CAS No.: 10097-32-2) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Iodine (I) (CAS No.: 14362-44-8) | With reference to BS EN 14582: 2016, analysis was performed by IC. | mg/kg | 50 | n.d. | - |
| Triphenyl tin (TPT) | With reference to ISO 17353: 2004, analysis was performed by GC/FPD. | mg/kg | 0.03 | n.d. | - |
| Tributyl tin (TBT) | With reference to ISO 17353: 2004, analysis was performed by GC/FPD. | mg/kg | 0.03 | n.d. | - |
| Dioctyl tin (DOT) | With reference to ISO 17353: 2004, analysis was performed by GC/FPD. | mg/kg | 0.03 | n.d. | - |
| Dibutyl tin (DBT) | With reference to ISO 17353: 2004, analysis was performed by GC/FPD. | mg/kg | 0.03 | n.d. | - |
| Bis(tributyltin) oxide (TBTO) (CAS No.: 56-35-9) | Calculated from the result of Tributyl Tin (TBT). | mg/kg | 0.03▲ | n.d. | - |
| Hexabromobenzene (CAS No.: 87-82-1) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| Brominated styrene | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| TBBP-A-bis (CAS No.: 21850-44-2) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7) | With reference to RSTS-E&E-121, analysis was performed by LC/MS. | mg/kg | 10 | n.d. | - |

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TOWER SEMICONDUCTOR LTD.

4321 JAMBOREE ROAD NEWPORT BEACH, CALIFORNIA 92660 USA

| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|--|-------|-------|----------|-------|
| | | | | No.1 | |
| Monomethyl dibromodiphenyl methane (DBBT) (CAS No.: 99688-47-8) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 0.5 | n.d. | - |
| Monomethyl dichlorodiphenyl methane (Ugilec121) (CAS No.: 81161-70-8) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 0.5 | n.d. | - |
| Monomethyl tetrachlorodiphenyl methane (Ugilec141) (CAS No.: 76253-60-6) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 0.5 | n.d. | - |
| Red Phosphorus | Analysis was performed by Pyrolyzer-GC/MS. | ** | - | Negative | - |
| Uranium (U) (Radioactive element) (CAS No.: 7440-61-1) | With reference to US EPA 3052: 1996 & 6020B: 2014, analysis was performed by ICP-MS. | mg/kg | 1 | n.d. | - |
| Thorium (Th) (Radioactive element) (CAS No.: 7440-29-1) | With reference to US EPA 3052: 1996 & 6020B: 2014, analysis was performed by ICP-MS. | mg/kg | 1 | n.d. | - |
| Strontium (Sr) (Radioactive element) (CAS No.: 7440-24-6) | With reference to US EPA 3052: 1996 & 6020B: 2014, analysis was performed by ICP-MS. | mg/kg | 1 | n.d. | - |
| Caesium (Cs) (Radioactive element) (CAS No.: 7440-46-2) | With reference to US EPA 3052: 1996 & 6020B: 2014, analysis was performed by ICP-MS. | mg/kg | 1 | n.d. | - |
| Perchlorate (CAS No.: 14797-73-0) | Analysis was performed by IC. | µg/g | 0.006 | n.d. | - |
| PFOS and its salts (CAS No.: 1763-23-1 and its salts) | With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS. | mg/kg | 0.01 | n.d. | - |
| 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) (CAS No.: 3846-71-7) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |

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| Test Item(s) | Method | Unit | MDL | Result | Limit |
|---|---|-------|-----|--------|-------|
| | | | | No.1 | |
| Arsenic (As) (CAS No.: 7440-38-2) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | - |
| Diarsenic trioxide (As ₂ O ₃) (CAS No.: 1327-53-3) | Calculated from the result of Arsenic. | mg/kg | 2▲ | n.d. | - |
| Diarsenic pentaoxide (As ₂ O ₅) (CAS No.: 1303-28-2) | Calculated from the result of Arsenic. | mg/kg | 2▲ | n.d. | - |
| Beryllium (Be) (CAS No.: 7440-41-7) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | - |
| Boron (B) (CAS No.: 7440-42-8) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | 13.5 | - |
| Cobalt (Co) (CAS No.: 7440-48-4) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | - |
| Cobalt dichloride (CoCl ₂) (CAS No.: 7646-79-9) | Analysis was performed by ICP-OES, IC. Calculated from the results of Cobalt, Chlorine. | mg/kg | 50▲ | n.d. | - |
| Tris(2-chloroethyl) phosphate (TCEP) (CAS No.: 115-96-8) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 5 | n.d. | - |
| Diethylene glycol dimethyl ether (DEGDME) (CAS No.: 111-96-6) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 10 | n.d. | - |
| 4-Tert-octylphenol (CAS No.: 140-66-9) | With reference to US EPA 3550C: 2007, analysis was performed by LC/MS. | mg/kg | 10 | n.d. | - |
| N,N-Dimethylacetamide (DMAC) (CAS No.: 127-19-5) | With reference to US EPA 3550C: 2007, analysis was performed by GC/MS. | mg/kg | 10 | n.d. | - |
| Antimony (Sb) (CAS No.: 7440-36-0) | With reference to US EPA 3052: 1996, analysis was performed by ICP-OES. | mg/kg | 2 | n.d. | - |

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Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated
5. **= Qualitative analysis (No Unit)
6. Negative = Undetectable ; Positive = Detectable
7. Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".
8. ▲ : The MDL was evaluated for element / tested substance.

Conversion Formula : $AX = A \times F$

| AX | A | F |
|------------------------------|--------------------|--------|
| Diarsenic pentaoxide | Arsenic | 1.5339 |
| Diarsenic trioxide | Arsenic | 1.3203 |
| Bis(tributyltin)oxide (TBTO) | Tributyl Tin (TBT) | 1.0276 |

Parameter Conversion Table : https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others

9. Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.

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PFAS Remark :

The quantitative technology of PFAS is to analyze the specific structure of PFAS substances. However, PFAS acid and its salts with the same carbon number group have the same specific structure that can be identified. The tested results of the analyzed specific structure cannot be distinguished to identify the contribution from PFAS acid or its salts. Therefore, the tested results display the sum of concentrations of PFAS acids and its salts with the same carbon number group. The concentration of PFAS substances in the below table have been included in the tested results, please refer to the table for relevant information: (The listed PFAS substances are examples only, it do not include all PFAS salts with the same carbon number group.)

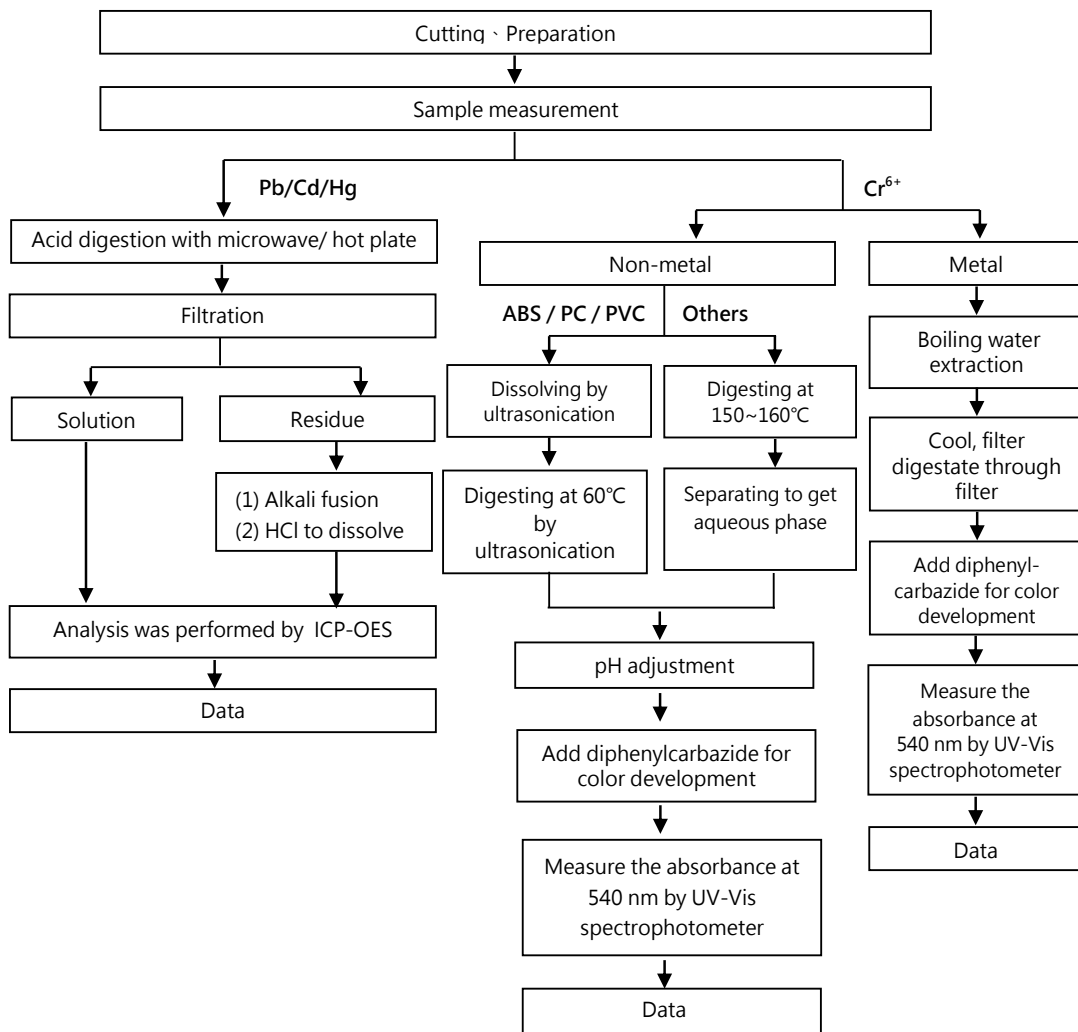
| Group Name | Substance Name | CAS No. |
|-------------------------------|--|-------------|
| PFOS, its salts & derivatives | Perfluorooctane sulfonates (PFOS) | 1763-23-1 |
| | Potassium perfluorooctanesulfonate (PFOS-K) | 2795-39-3 |
| | Perfluorooctanesulfonic acid, lithium salt (PFOS-Li) | 29457-72-5 |
| | Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄) | 29081-56-9 |
| | Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH) ₂) | 70225-14-8 |
| | Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄) | 56773-42-3 |
| | N-decyl-N,N-dimethyldecyl-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-DDA) | 251099-16-8 |
| | Perfluorooctane sulfonyl fluoride (POSF) | 307-35-7 |
| | Perfluorooctanesulfonic acid, magnesium salt (PFOS-Mg) | 91036-71-4 |
| | Perfluorooctanesulfonic acid, sodium salt (PFOS-Na) | 4021-47-0 |
| | Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctanesulfonate | 71463-74-6 |

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Analytical flow chart of heavy metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.

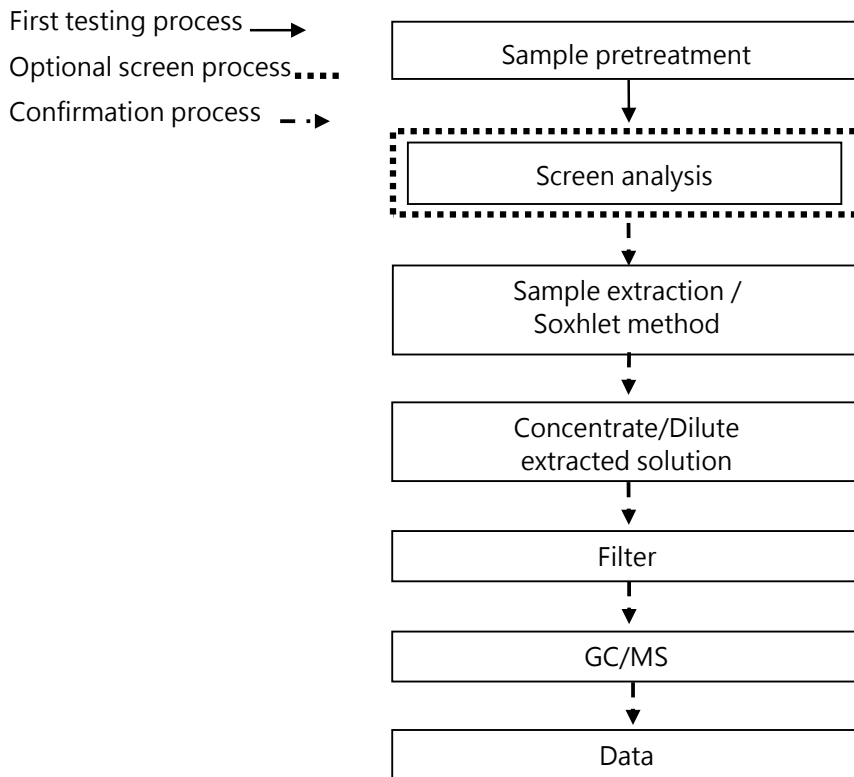
(Cr⁶⁺ test method excluded)



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Analytical flow chart – PBBs / PBDEs



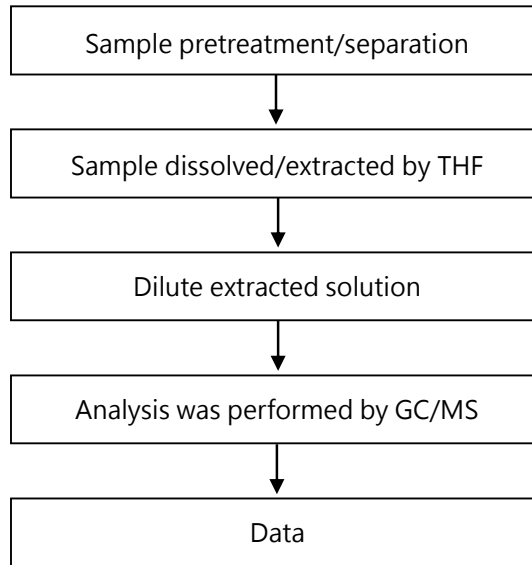
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Analytical flow chart - Phthalate

【 Test method: IEC 62321-8】

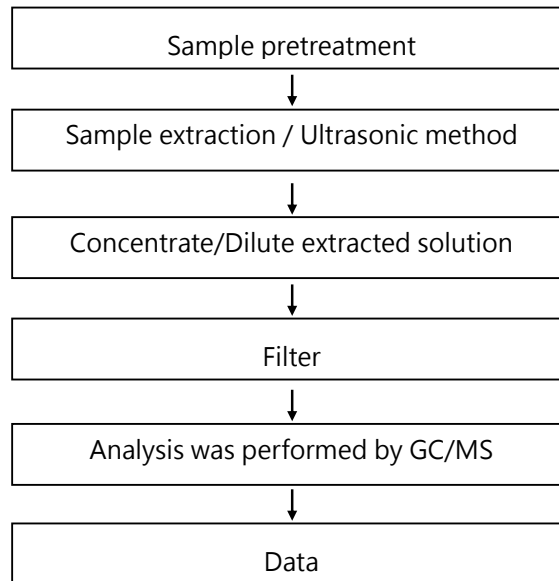


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Analytical flow chart - HBCDD

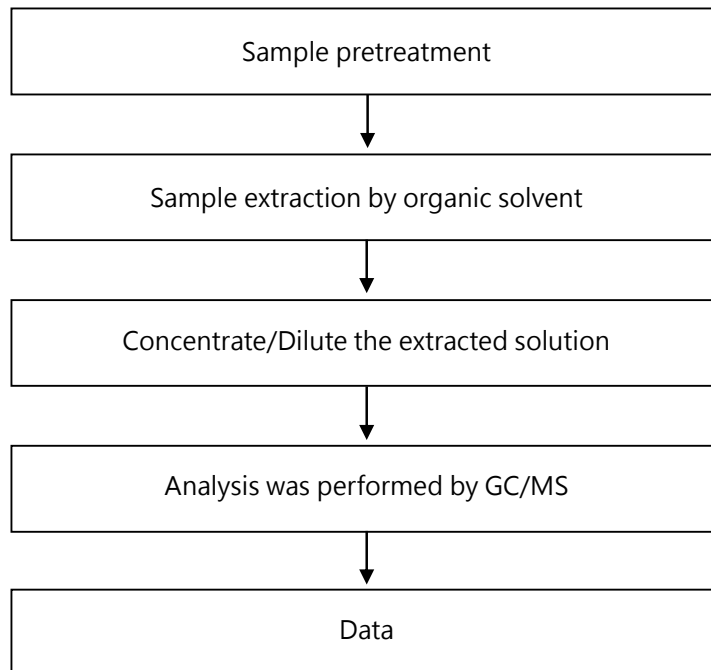


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Analytical flow chart

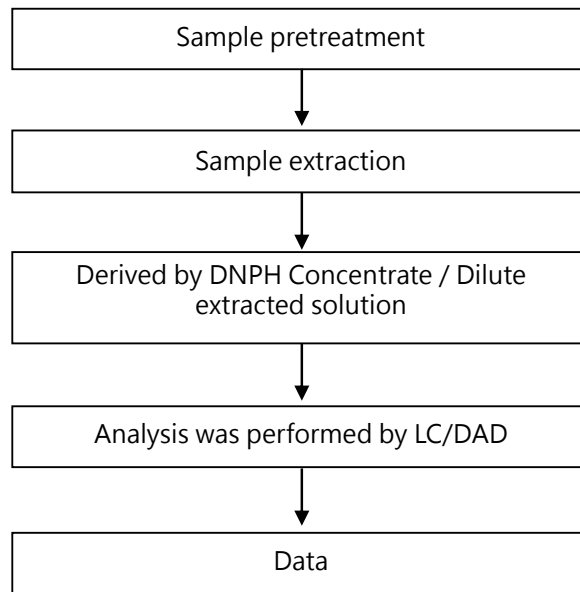
* Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT



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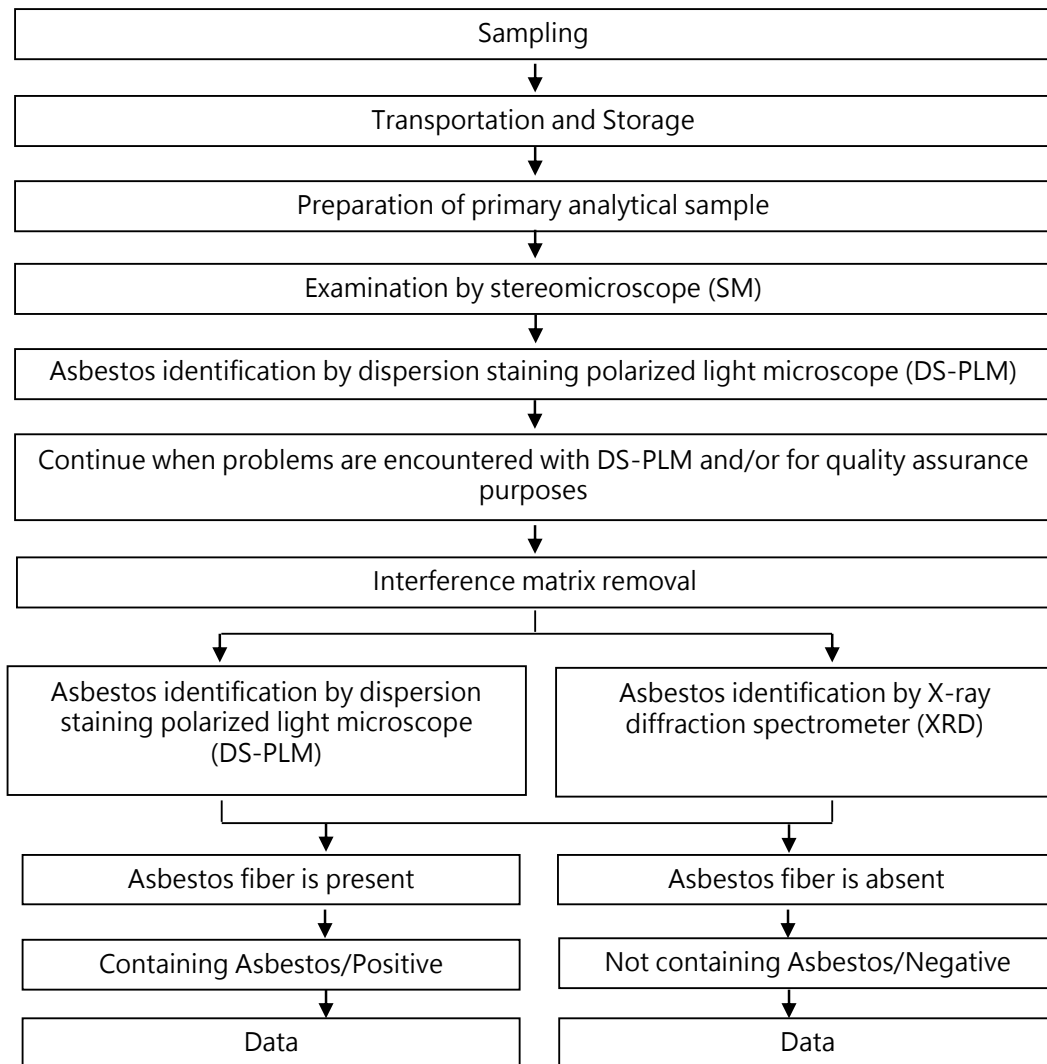
Analytical flow chart - Formaldehyde



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Analysis flow chart for determination of Asbestos

【 Reference method: EPA 600/R-93/116 】

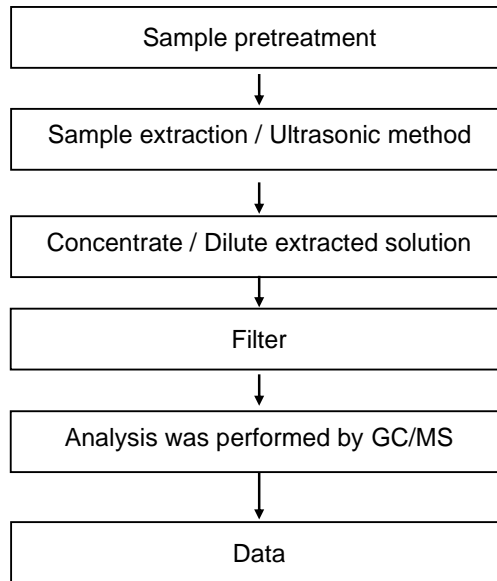


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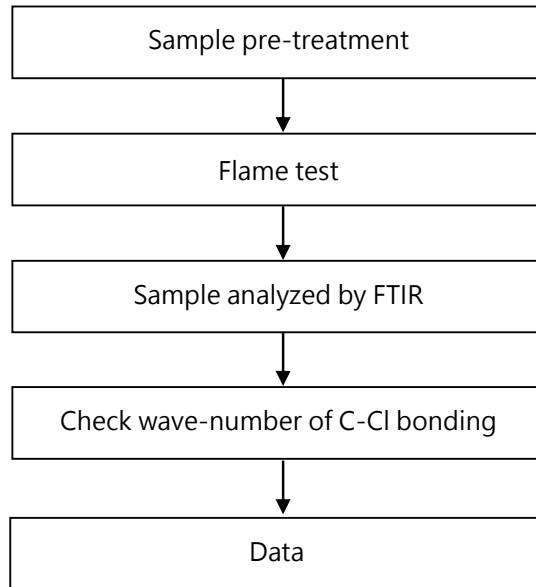
Analytical flow chart - Dimethyl Fumarate



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Analysis flow chart - PVC

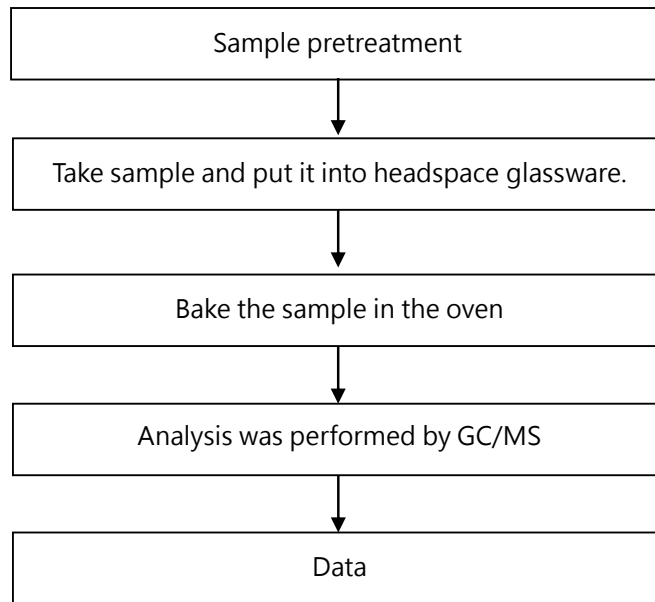


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Analytical flow chart of volatile organic compounds (VOCs)

【Reference method : US EPA 5021A】

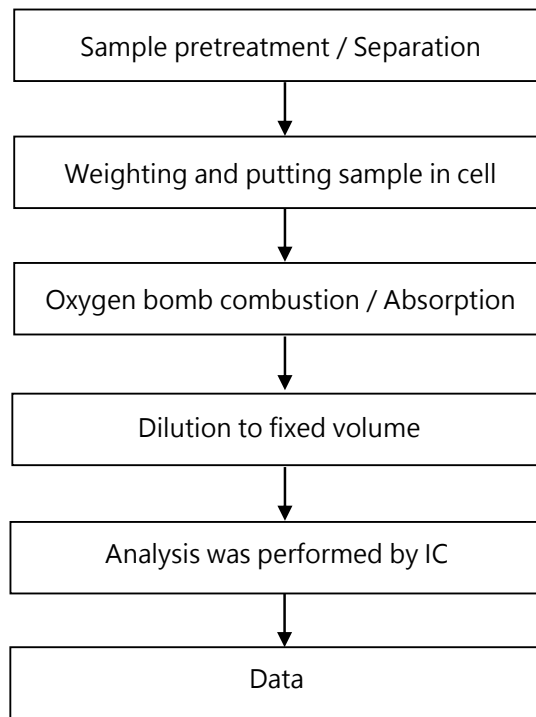


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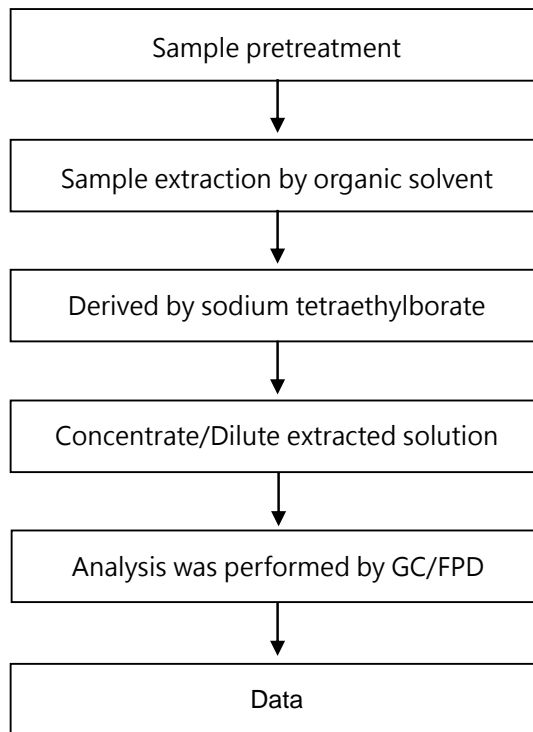
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Analytical flow chart - Halogen



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Analytical flow chart - Organic-Tin

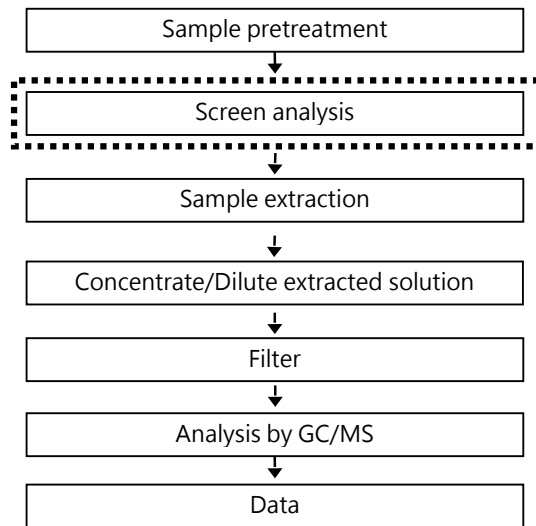


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Analytical flow chart - TBBP-A-bis

First testing process ———→
 Optional screen process ······→
 Confirmation process - · - · →

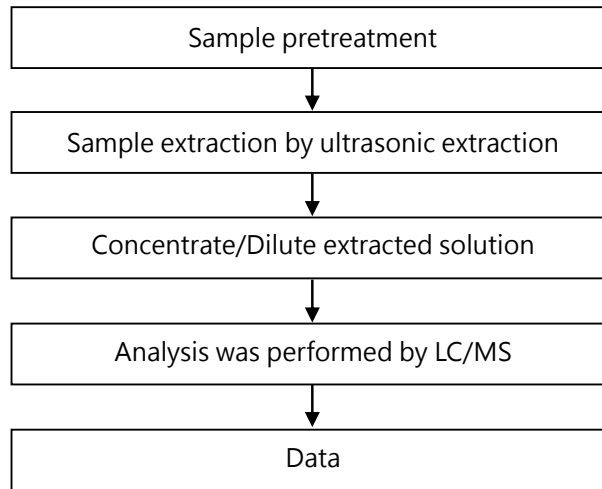


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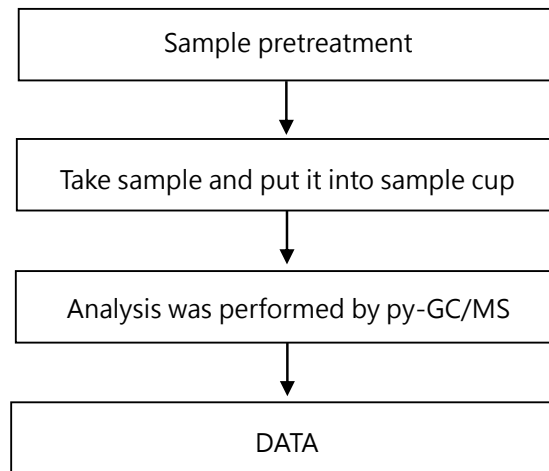
Analytical flow chart - TBBP-A



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Analytical flow chart - Red phosphorus

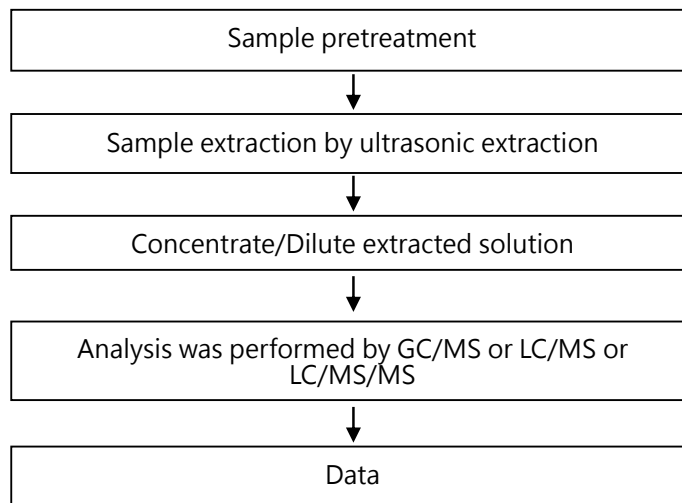


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Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)

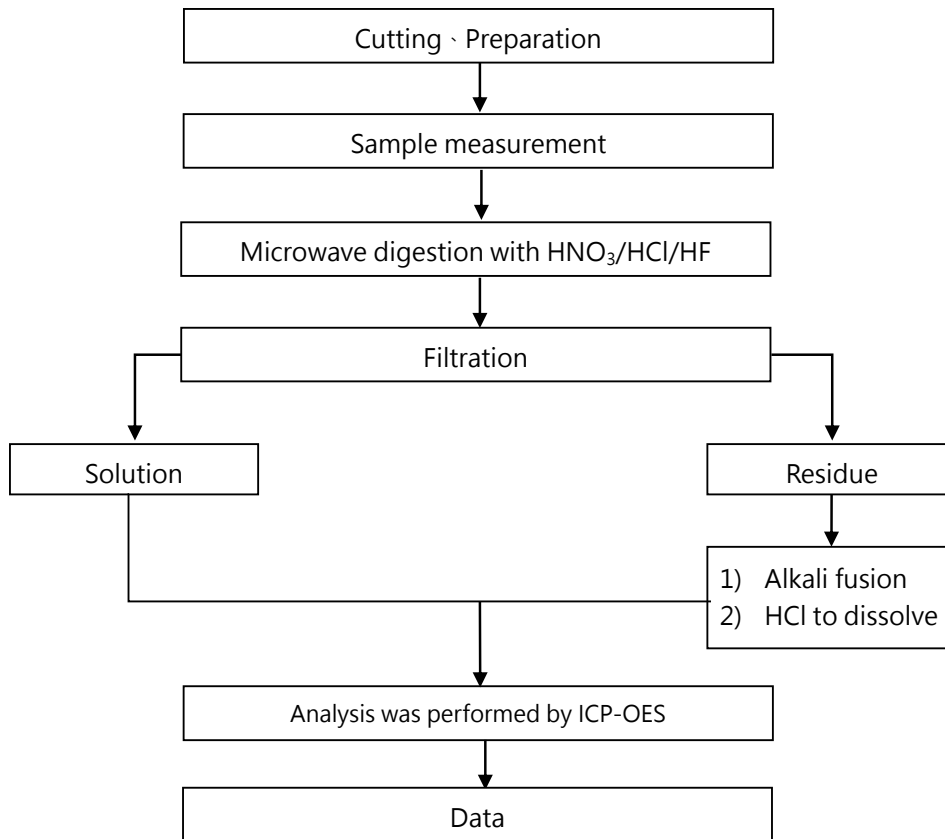


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Analytical flow chart of elements (Heavy metal included)

These samples were dissolved totally by pre-conditioning method according to below flow chart.

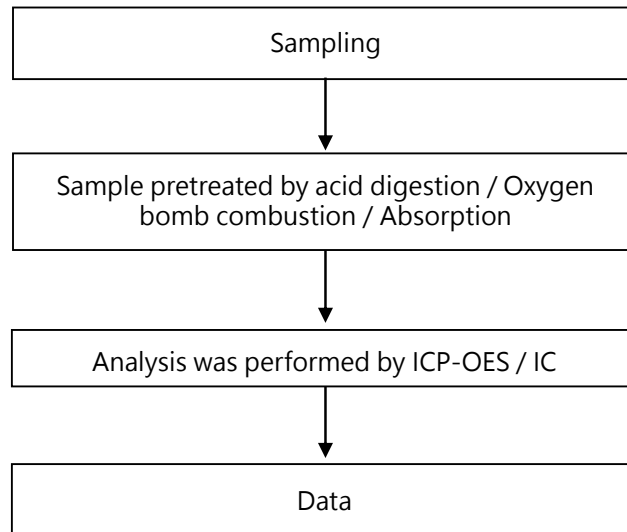
【 Reference method : US EPA 3051A · US EPA 3052 】



* US EPA 3051A method does not add HF.

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Analytical flow chart - Cobalt dichloride

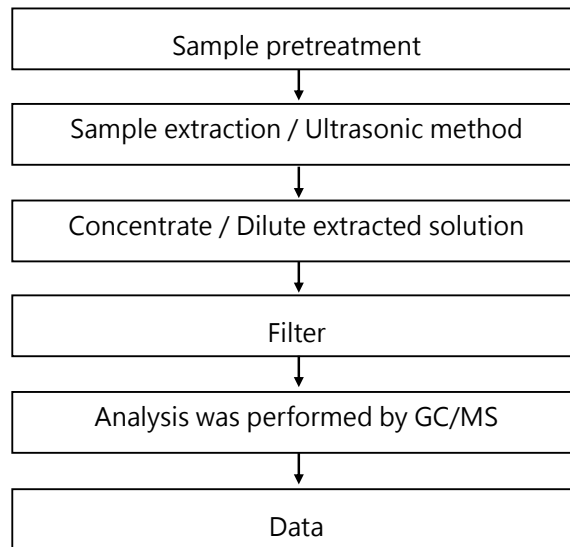


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Analytical flow chart - Organic phosphorus compounds

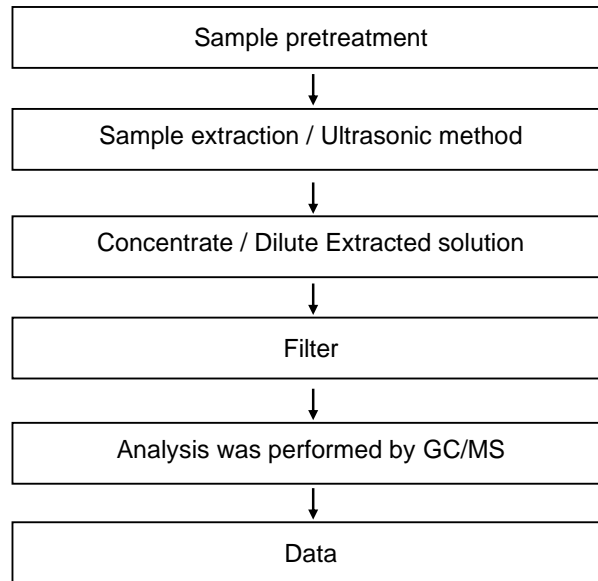


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Analytical flow chart - Ethylene glycol ether

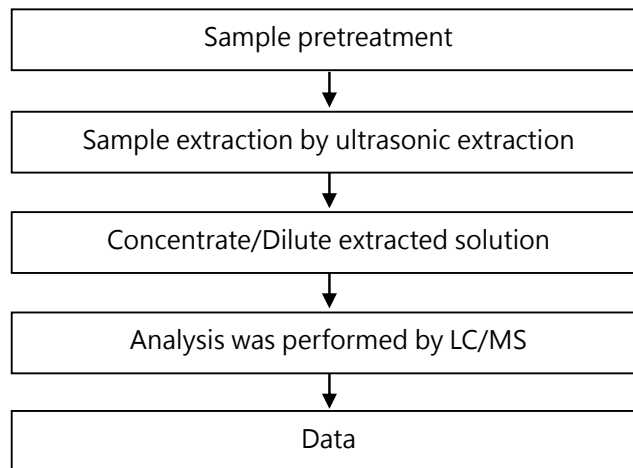


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Analytical flow chart - NP、OP、4-t-OP、NPEO、OPEO



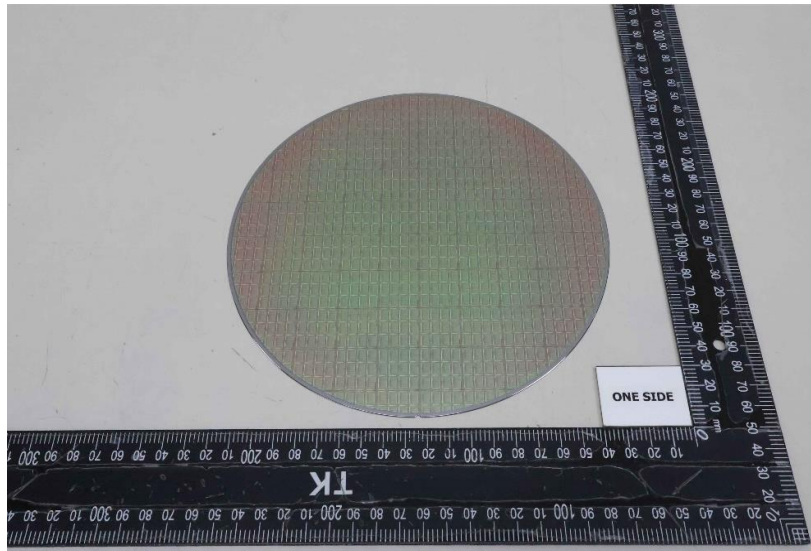
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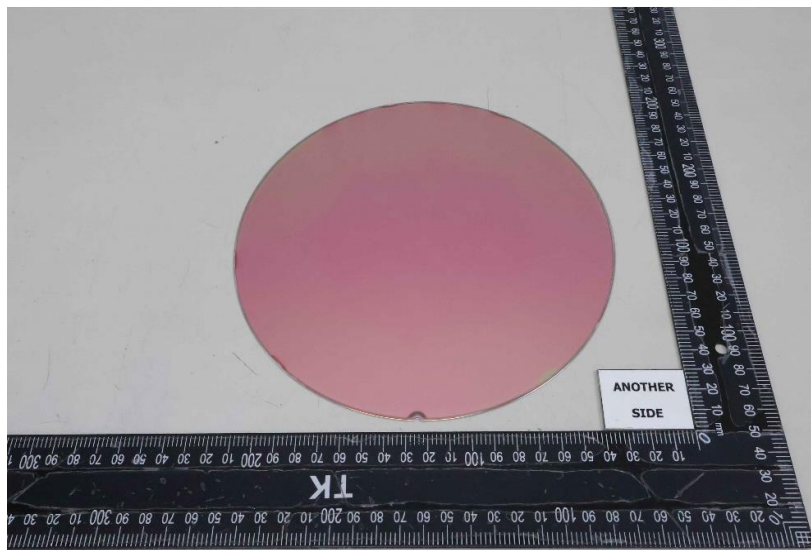
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* The tested sample / part is marked by an arrow if it's shown on the photo. *

ETR24305544



ETR24305544



** End of Report **

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