

NIHON HANDA CO., LTD.

Arca Central 16F, 1-2-1, Kinshi, Sumida-ku, Tokyo 130-0013, Japan

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

Sample Name : Solder Paste,SULAP-S3AG0.5CU-0212-F-(92M(S)-D2)(200)

SGS Order No. : 10587633

Sample ID : SGA24-0000559-0001

Sample Receiving Date : 24-Jul-2024

Testing Period : 24-Jul-2024 to 06-Aug-2024

Test Requested : Selected test(s) as requested by the client

Test Method(s) : Please refer to next page(s)

Test Result(s) : Please refer to next page(s)

Conclusion : Based on the performed tests on submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) **comply** with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS Testing & Control Services Singapore Pte Ltd



Y C Tham (Ms)

Technical Manager, Multi-Lab

FOLDER NUMBER : SGA24-0000559

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Test Result(s) :

Sample Description : GRAY PASTE

| Test Item(s) | Unit | Method | Results | MDL | Limit |
|--------------------------------|-------|---|---------|-----|-------|
| Lead (Pb) | mg/kg | With reference to IEC 62321-5:2013. Analysis was performed by ICP/OES | ND | 2 | <1000 |
| Mercury (Hg) | mg/kg | With reference to IEC 62321-4 :2013 +AMD1:2017. Analysis was performed by ICP/OES | ND | 2 | <1000 |
| Cadmium(Cd) | mg/kg | With reference to IEC 62321-5:2013. Analysis was performed by ICP/OES | ND | 2 | <100 |
| Hexavalent Chromium (Cr(VI)) | mg/kg | With reference to IEC 62321-7-2:2017, analysis was performed by UV-Vis. | ND | 8 | <1000 |
| Polybromobiphenyl (PBBs) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | - | <1000 |
| Monobromobiphenyl (MonoBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Dibromobiphenyl (DiBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Tribromobiphenyl (TriBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Tetrabromobiphenyl (TetraBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Pentabromobiphenyl (PentaBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Hexabromobiphenyl (HexaBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Heptabromobiphenyl (HeptaBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Octabromobiphenyl (OctaBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Nonabromobiphenyl (NonaBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Decabromobiphenyl (DecaBB) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Polybromodiphenyl ether(PBDEs) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | - | <1000 |

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| Test Item(s) | Unit | Method | Results | MDL | Limit |
|--|-------|--|---------|------|-------|
| Monobromodiphenylether (MonoBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Dibromodiphenylether (DiBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Tribromodiphenylether (TriBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Tetrabromodiphenylether (TetraBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Pentabromodiphenylether (PentaBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Hexabromodiphenylether (HexaBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Heptabromodiphenylether (HeptaBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Octabromodiphenylether (OctaBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Nonabromodiphenylether (NonaBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Decabromodiphenylether (DecaBDE) | mg/kg | With reference to IEC62321-6 :2015. Analysis was performed by GC/MS | ND | 5 | - |
| Bis-(2-ethylhexyl) Phthalate(DEHP) | mg/kg | With reference to IEC62321-8 :2017. Analysis was performed by GC/MS | ND | 50 | <1000 |
| Benzyl Butyl Phthalate(BBP) | mg/kg | With reference to IEC62321-8 :2017. Analysis was performed by GC/MS | ND | 50 | <1000 |
| Dibutyl Phthalate(DBP) | mg/kg | With reference to IEC62321-8 :2017. Analysis was performed by GC/MS | ND | 50 | <1000 |
| Diisobutyl Phthalate(DIBP) | mg/kg | With reference to IEC62321-8 :2017. Analysis was performed by GC/MS | ND | 50 | <1000 |
| Chlorine(Cl) | mg/kg | With reference to BS EN 14582. Analysis was performed by IC | ND | 50 | - |
| Bromine(Br) | mg/kg | With reference to BS EN 14582. Analysis was performed by IC | 526 | 50 | - |
| PFOS and its salts (CAS No.: 1763-23-1 and its salts)* | mg/kg | Modified EN17681-1:2022 and EN 17681-2:2022. Analysis was performed by LC/MS/MS. | ND | 0.01 | - |

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| Test Item(s) | Unit | Method | Results | MDL | Limit |
|---|-------|--|---------|------|-------|
| PFOA and its salts (CAS No.: 335-67-1 and its salts)* | mg/kg | Modified EN17681-1:2022 and EN 17681-2:2022. Analysis was performed by LC/MS/MS. | ND | 0.01 | - |
| Beryllium(Be) | mg/kg | With reference to US EPA 3052. Analysis was performed by ICP/OES. | ND | 2 | - |
| Antimony(Sb) | mg/kg | With reference to US EPA 3052. Analysis was performed by ICP/OES. | ND | 2 | - |

Remarks:

- (1) mg/kg = ppm ; 0.1wt% = 1000ppm
- (2) ND = Not Detected (Less than MDL)
- (3) MDL = Method Detection Limit
- (4) "-" = Not regulated

Notes:

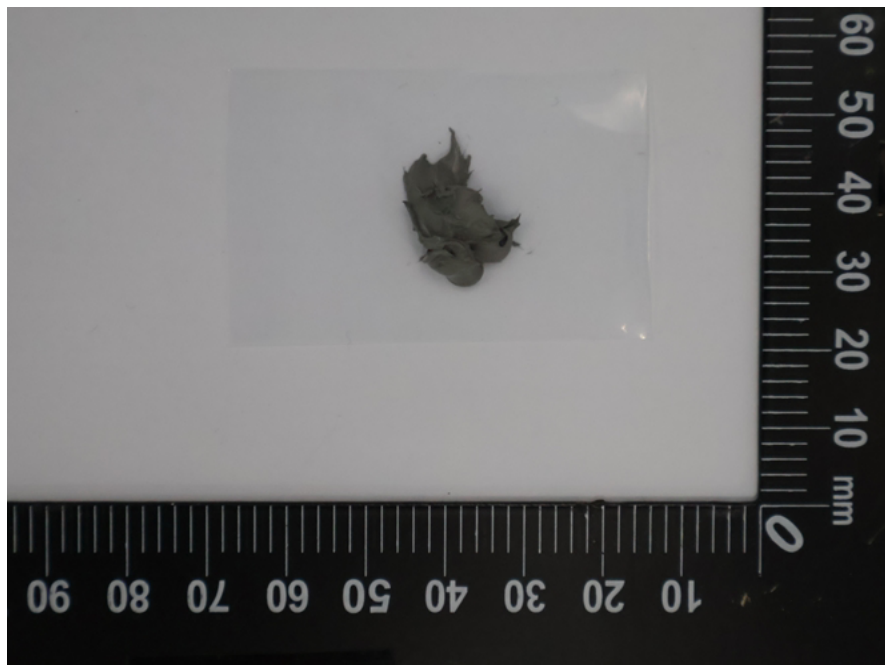
- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
- (4) PFOS and its salts including:
CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307- 35-7, 91036-71-4, 4021-47-0, 71463-74-6 and others.
- (5) PFOA and its salts including:
CAS No.: 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1, 17125-58-5 and others.

* Tested by an SGS Lab (Ref : ETR24705210)

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Sample Photo:



SGA24-0000559-0001

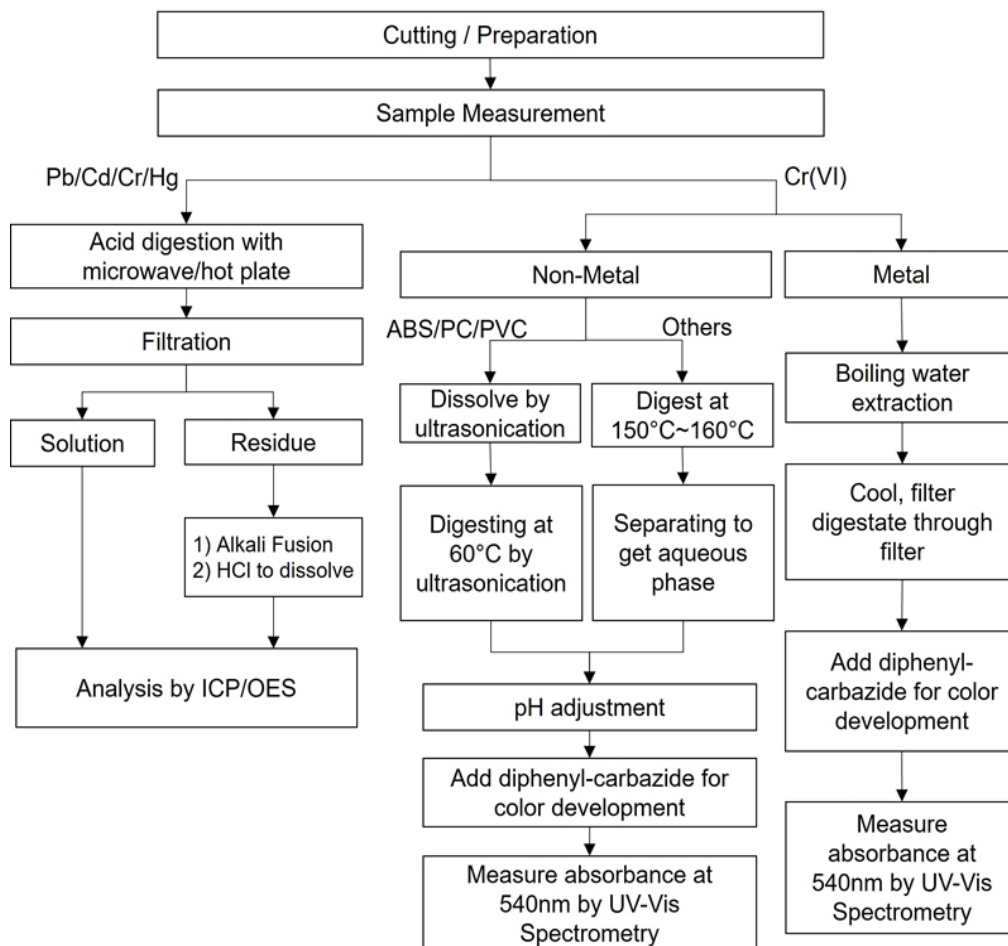
SGS authenticate the photo on original report only

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Analytical flow chart - Heavy metals

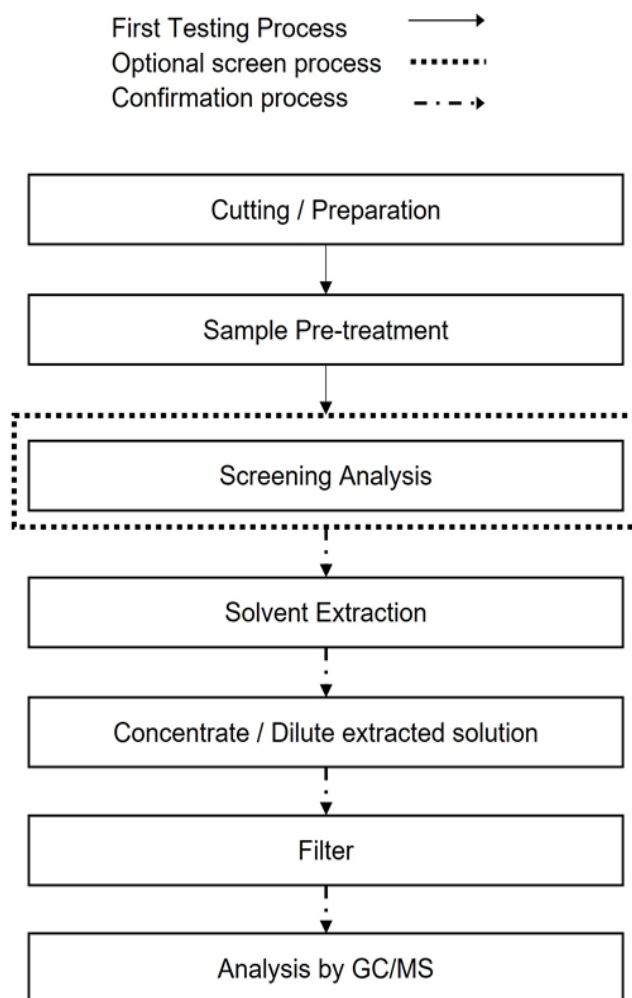
Sample received was totally dissolved by preconditioning method.
[Cr(VI) test method excluded]



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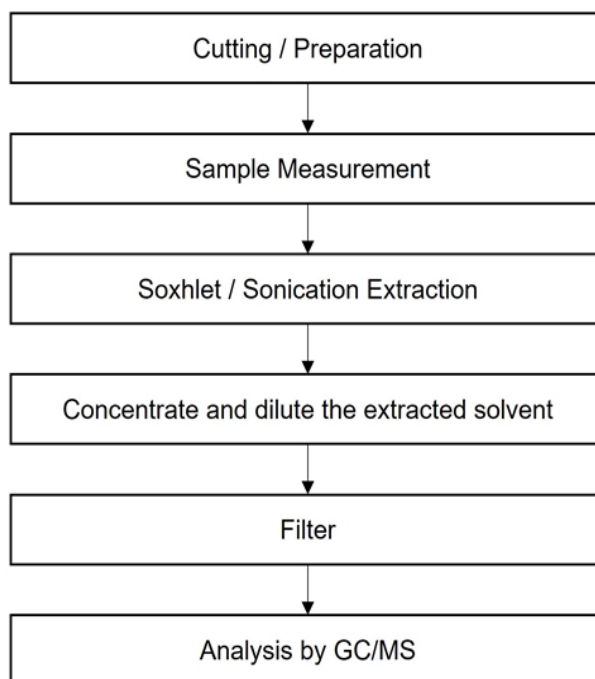
Analytical flow chart - PBBs and PBDEs



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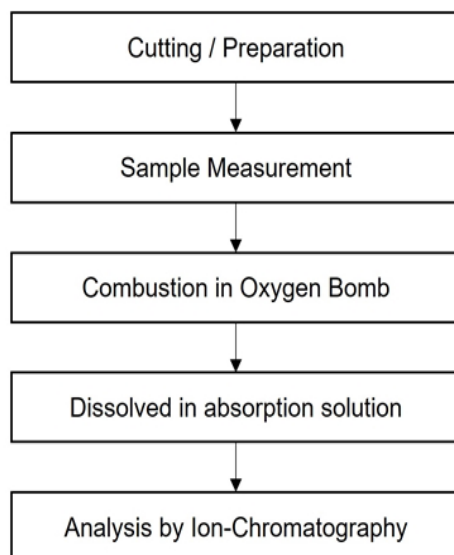
Analytical flow chart – Phthalates (IEC 62321)



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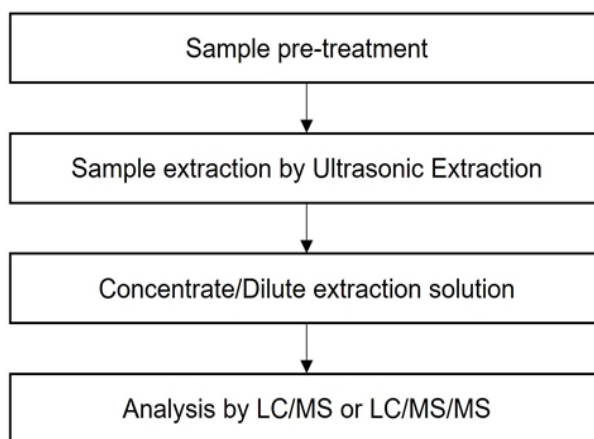
Analytical flow chart - Halogen



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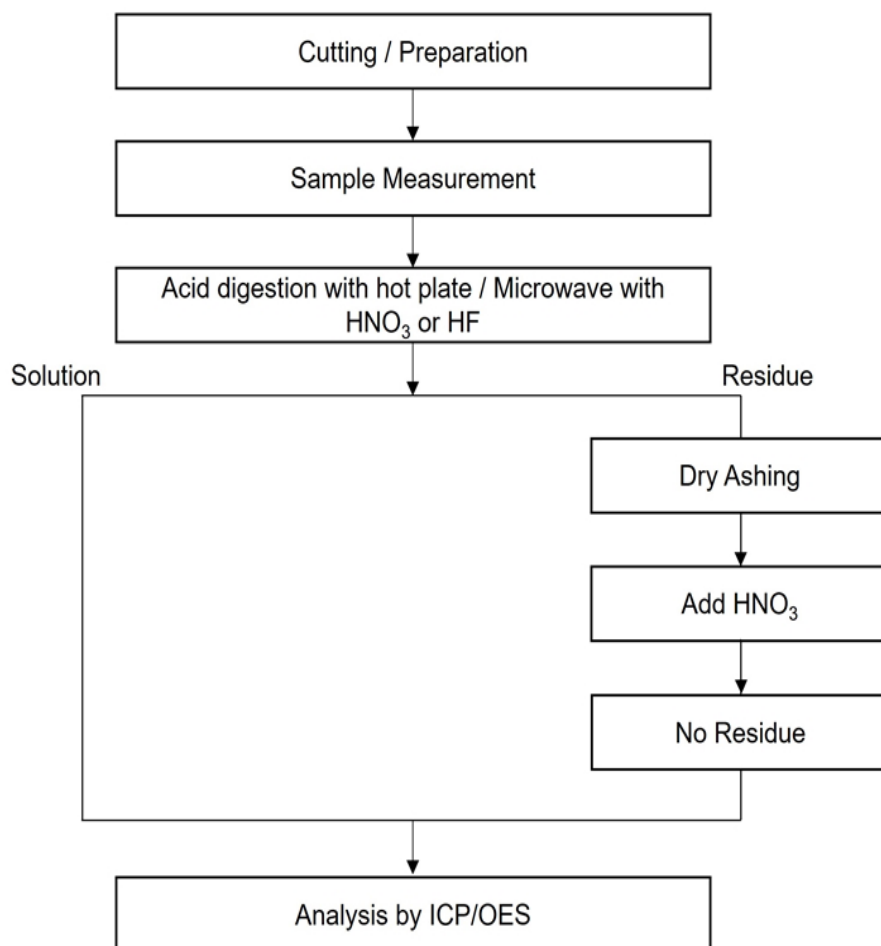
Analytical flow chart - PFOS/PFOA



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Analytical flow chart - Heavy metals (US EPA 3050B/3051A/3052)



End of Report

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