

Hexabromocyclododecane 57.24 399.41 360.79 21.96 reW\* n9.43 Tm5(e 2.43 360

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.



Sue Sheng  
Approved Signatory



# Test Report

No.: SHAEC24020976309

Date: Sep 19, 2024

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## Test Result(s):

### Test Part Description

| SN ID | Sample No. | SGS Sample ID           | Description            |
|-------|------------|-------------------------|------------------------|
| SN1   | A3         | SHA24-0209763-0001.C003 | Colorful silicon wafer |

### Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

**EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU - Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)**

**Test Method:** With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES/AAS, UV-Vis and GC-MS.

| Test Item(s)                       | Limit | Unit(s) | MDL | A3 |
|------------------------------------|-------|---------|-----|----|
| Lead (Pb)                          | 1000  | mg/kg   | 2   | ND |
| Mercury (Hg)                       | 1000  | mg/kg   | 2   | ND |
| Cadmium (Cd)                       | 100   | mg/kg   | 2   | ND |
| Hexavalent Chromium (Cr(VI))       | 1000  | mg/kg   | 8   | ND |
| Polybromobiphenyl (PBB)            | 1000  | mg/kg   | -   | ND |
| Monobrominated biphenyl (MonoBB)   | -     | mg/kg   | 5   | ND |
| Dibrominated biphenyl (DiBB)       | -     | mg/kg   | 5   | ND |
| Tribrominated biphenyl (TriBB)     | -     | mg/kg   | 5   | ND |
| Tetrabrominated biphenyl (TetraBB) | -     | mg/kg   | 5   | ND |
| Pentabrominated biphenyl (PentaBB) | -     | mg/kg   | 5   | ND |
| Hexabrominated biphenyl (HexaBB)   | -     | mg/kg   | 5   | ND |
| Heptabrominated biphenyl (HeptaBB) | -     | mg/kg   | 5   | ND |
| Octabrominated biphenyl (OctaBB)   | -     | mg/kg   | 5   | ND |
| Nonabrominated biphenyl (NonaBB)   | -     | mg/kg   | 5   | ND |
| Decabrominated biphenyl (DecaBB)   | -     | mg/kg   | 5   | ND |
| Polybromodiphenyl ether(PBDE)      | -     | mg/kg   | 5   | ND |

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| Test Item(s)                                                 | CAS No.    | Unit(s) | MDL   | A3 |
|--------------------------------------------------------------|------------|---------|-------|----|
| <b>PFOS, its salts and related compounds</b>                 |            |         |       |    |
| Perfluorooctane sulfonic acid (PFOS), its salts^             | 1763-23-1  | mg/kg   | 0.010 | ND |
| N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA)              | 4151-50-2  | mg/kg   | 0.010 | ND |
| N-methylperfluoro-1-octanesulfonamide (N-MeFOSA)             | 31506-32-8 | mg/kg   | 0.010 | ND |
| 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)  | 1691-99-2  | mg/kg   | 0.010 | ND |
| 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE) | 24448-09-7 | mg/kg   | 0.010 | ND |
| Perfluorooctane Sulfonamide (PFOSA),                         |            |         |       |    |

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|                                                                                                                                                           |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Perfluorooctanesulfonate                                                                                                                                  | 45298-90-6   |
| Triethylammonium perfluorooctane sulfonate (PFOS-N(C <sub>2</sub> H <sub>5</sub> ) <sub>3</sub> )                                                         | 54439-46-2   |
| Tetramethylammonium perfluorooctane sulfonate (PFOS-N(CH <sub>3</sub> ) <sub>4</sub> )                                                                    | 56773-44-5   |
| N,N,N-Tripropylpentan-1-aminium heptadecafluorooctane-1-sulfonate (PFOS-N(C <sub>3</sub> H <sub>7</sub> ) <sub>3</sub> (C <sub>5</sub> H <sub>11</sub> )) | 56773-56-9   |
| N,N-Dibutyl-N-methylbutan-1-aminium heptadecafluorooctane-1-sulfonate (PFOS-N(C <sub>4</sub> H <sub>9</sub> ) <sub>3</sub> (CH <sub>3</sub> ))            | 124472-68-0  |
| Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with perfluoro-1-octanesulfonic acid (1:1)                                                              | 213740-80-8  |
| Diphenyl(2,4,6-trimethylphenyl)sulfonium perfluoro-1-octanesulfonate                                                                                      | 258341-99-0  |
| 1-Hexadecylpyridinium perfluoro-1-octanesulfonate                                                                                                         | 334529-63-4  |
| N,N,N-Triethyldecan-1-aminium heptadecafluorooctane-1-sulfonate                                                                                           | 773895-92-4  |
| Tetrabutylphosphonium perfluorooctane sulfonate (PFOS-P (C <sub>4</sub> H <sub>9</sub> ) <sub>4</sub> )                                                   | 2185049-59-4 |
| Perfluorooctanesulfonic acid diethylamine salt (PFOS-C <sub>4</sub> H <sub>11</sub> N)                                                                    | 2205029-08-7 |
| heptyldimethyl{2-[(2-methylprop-2-enoyl)oxy]ethyl}azanium heptadecafluorooctane-1-sulfonate (PFOS-C <sub>15</sub> H <sub>30</sub> NO <sub>2</sub> )       | 1203998-97-3 |
| Perfluorooctane sulfonic anhydride (PFOSAN)                                                                                                               | 423-92-7     |
| <b>FOSAA, its salts</b>                                                                                                                                   |              |
| Perfluorooctane sulfonamidoacetic Acid (FOSAA)                                                                                                            | 2806-24-8    |
| N-[(Perfluorooctyl)sulfonyl]glycine salt (PFOS                                                                                                            |              |

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|                                                                                                                  |              |
|------------------------------------------------------------------------------------------------------------------|--------------|
| Heptadecafluorooctane-1-sulphonamide, compound with triethylamine (1:1) (PFOSA-C <sub>6</sub> H <sub>15</sub> N) | 76752-82-4   |
| <b>PFOA, its salts &amp; derivatives</b>                                                                         |              |
| Perfluorooctanoic acid (PFOA)                                                                                    | 335-67-1     |
| Sodium perfluorooctanoate (PFOA-Na)                                                                              | 335-95-5     |
| Potassium perfluorooctanoate (PFOA-K)                                                                            | 2395-00-8    |
| Silver perfluorooctanoate (PFOA-Ag)                                                                              | 335-93-3     |
| Perfluorooctanoyl fluoride (PFOA-F)                                                                              | 335-66-0     |
| Ammonium pentadecafluorooctanoate (APFO)                                                                         | 3825-26-1    |
| Lithium perfluorooctanoate (PFOA-Li)                                                                             | 17125-58-5   |
| Cobalt perfluorooctanoate (PFOA-Co)                                                                              | 35965-01-6   |
| Cesium perfluorooctanoate (PFOA-Cs)                                                                              | 17125-60-9   |
| Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, chromium(3+) (PFOA-Cr(3+))                        | 68141-02-6   |
| Pentadecafluorooctanoic acid--piperazine (2/1) (PFOA-NH(C <sub>4</sub> H <sub>10</sub> N))                       | 423-52-9     |
| Pentadecafluorooctanoate (anion)                                                                                 | 45285-51-6   |
| Perfluorooctanoic Anhydride                                                                                      | 33496-48-9   |
| N,N,N-Triethylethanaminium perfluorooctanoate                                                                    | 98241-25-9   |
| Perfluorooctanoate N,N,N-Trimethylmethanaminium                                                                  | 32609-65-7   |
| Tetrapropylammonium perfluorooctanoate                                                                           | 277749-00-5  |
| Potassium pentadecafluorooctanoate--water (1/1/2) (PFOA-K(H <sub>2</sub> O) <sub>2</sub> )                       | 98065-31-7   |
| Perfluorooctanoic acid compd. with ethanamine (1:1) (PFOA-C <sub>2</sub> H <sub>7</sub> N)                       | 1376936-03-6 |

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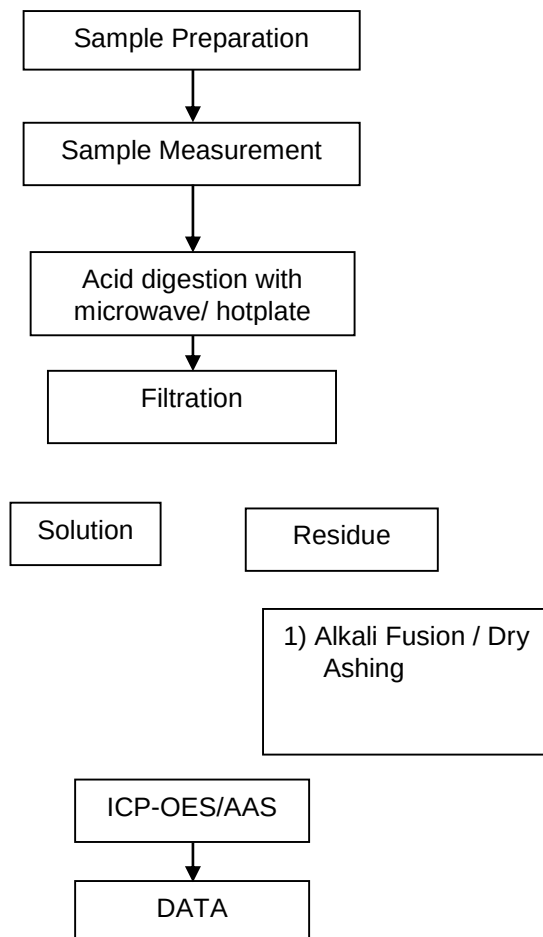
## ATTACHMENTS

### Elements Testing Flow Chart

Name of the person who made testing: Meria Jin/Sielina Song

Name of the person in charge of testing: John Cheng

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



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### ATTACHMENTS

#### Hexavalent Chromium (Cr(VI)) Testing Flow Chart

Name of the person who made testing: Alex Wang

Name of the person in charge of testing: Xiaolong Yang

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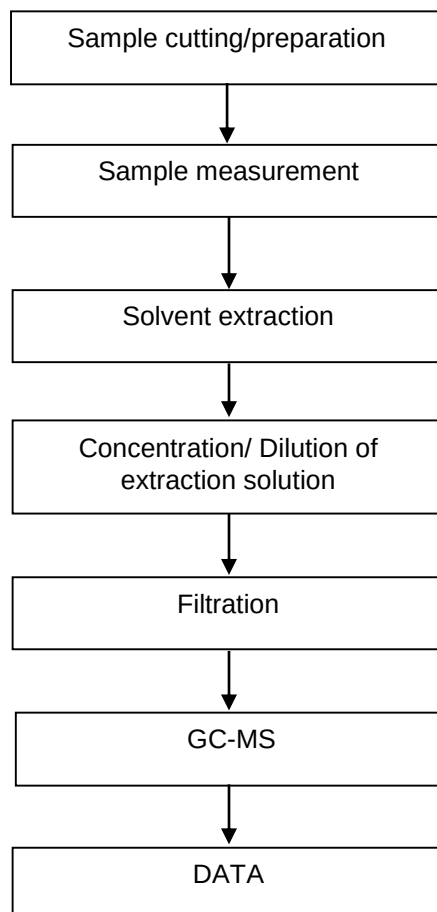
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### ATTACHMENTS

#### PBB/PBDE Testing Flow Chart

Name of the person who made testing: Gary Xu

Name of the person in charge of testing: Carol Cui



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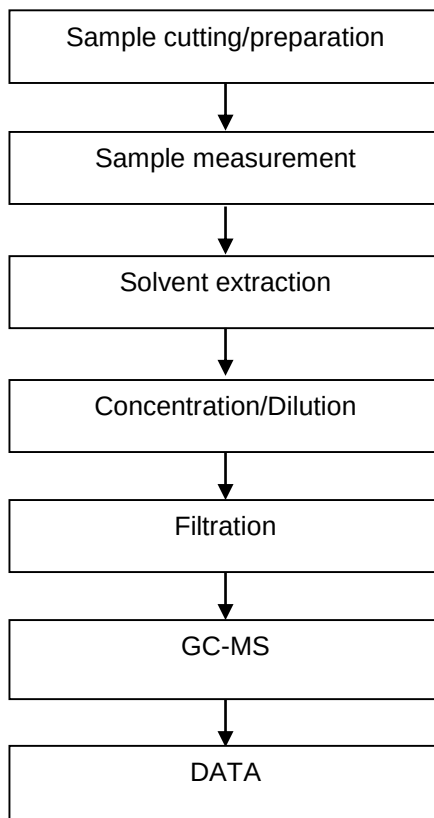
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### ATTACHMENTS

#### Phthalates Testing Flow Chart

Name of the person who made testing: Sherry Shi

Name of the person in charge of testing: Carol Cui



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### ATTACHMENTS

#### Halogen Testing Flow Chart

Name of the person who made testing: Andy Zhang

Name of the person in charge of testing: Gordon Mu



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ATTACHMENTS

HBCDD Testing Flow Chart

Name of the person who made testing: Gary Xu

Name of the person in charge of testing: Carol Cui

Sample cutting/preparation

Sample

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**PFASs/ PFOS/PFOA Testing Flow Chart**

Name of the person who made testing: Ance Chen  
Name of the person in charge of testing: Liyas Wang

