

TEST REPORT

CheckCode:249985
Report No.:C202411292384-17E

Company Name: Shanghai Eastsoft Microelectronics Co.,Ltd.
Address: 3rd Floor, Building 12,Phoenix Park, No.1515 Gumei Road, Xuhui District,Shanghai.

The following sample information is provided by the client and responsible for its authenticity

Sample Name: LQFP Chip
Material: LQFP52
Sample State: Normal

Date of Receipt: Dec. 6, 2024 **Test Period:** Dec. 6, 2024 – Dec. 13, 2024

Test Request:

- 1) As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium [Cr(VI)], Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) content in the submitted sample(s).

Judge Standard:

- 1) RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.
- 2) EN 61249-2-21:2003

Test Result: Please refer to following page(s).

Conclusion:

- 1) Based on the performed test on submitted sample, the result(s) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.
- 2) Based on the performed test on submitted sample, the result(s) comply with the limits as set by EN 61249-2-21:2003.

Edited by Guo Yiyang Reviewed by Zhang Lina Approved by Zheng Xiaoping



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Issue date:Dec.13,2024

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Laboratory Add: No. 31, Nanxiang 2nd Road, Science City, Huangpu District, Guangzhou, P.R.China
Tel: 4006020999 Fax: +86-020-38698685 Website: <http://www.grgttest.com>

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Sample description:

| Sample No. | Description |
|------------|-----------------------------------|
| 1 | Black body with It-brown printing |
| 2 | Silvery metal pin |

- Remark:
- 1) mg/kg = ppm
 - 2) MDL = Method Detection Limit
 - 3) "N.D." = Not Detected (Below Method Detection Limit)
 - 4) For metal sample
 - a. The sample is negative for Cr(VI) if Cr(VI) is N.D.(concentration less than 0.10 $\mu\text{g}/\text{cm}^2$).The sample coating is considered a non- Cr(VI) based coating.
 - b. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$.The sample coating is considered to contain Cr(VI).
 - c. The result between 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$ is considered to be inconclusive. unavoidable coating variations may influence the determination.

Test result(s):

1) RoHS

Test method:

| Test Item(s) | Test Method | Measuring Instrument | Limit |
|--|--------------------------------|----------------------|-----------|
| Lead (Pb) | IEC 62321-5:2013 | ICP-OES | 1000mg/kg |
| Cadmium (Cd) | IEC 62321-5:2013 | ICP-OES | 100mg/kg |
| Mercury (Hg) | IEC 62321-4:2013 +AMD1:2017 | ICP-OES | 1000mg/kg |
| Hexavalent Chromium [Cr (VI)] | IEC 62321-7-1:2015 | UV-Vis | --- |
| | IEC 62321-7-2:2017 | UV-Vis | 1000mg/kg |
| Polybrominated biphenyls (PBBs) | IEC 62321-6:2015 | GC-MS | 1000mg/kg |
| Polybrominated diphenyl ethers (PBDEs) | IEC 62321-6:2015 | GC-MS | 1000mg/kg |

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| Test Item(s) | Test Method | Measuring Instrument | Limit |
|------------------------------------|------------------|----------------------|-----------|
| Bis(2-ethylhexyl) phthalate (DEHP) | IEC 62321-8:2017 | GC-MS | 1000mg/kg |
| Butyl benzyl phthalate (BBP) | IEC 62321-8:2017 | GC-MS | 1000mg/kg |
| Dibutyl phthalate (DBP) | IEC 62321-8:2017 | GC-MS | 1000mg/kg |
| Diisobutyl phthalate (DIBP) | IEC 62321-8:2017 | GC-MS | 1000mg/kg |

| Test Item | Sample | Unit | MDL |
|------------------------------|--------|-------|-----|
| | 1 | | |
| Lead (Pb) | N.D. | mg/kg | 2 |
| Cadmium (Cd) | N.D. | mg/kg | 2 |
| Mercury (Hg) | N.D. | mg/kg | 2 |
| Hexavalent Chromium [Cr(VI)] | N.D. | mg/kg | 8 |

| Test Item | Sample | Unit | MDL |
|------------------------------|--------|--------------------|------|
| | 2 | | |
| Lead (Pb) | N.D. | mg/kg | 2 |
| Cadmium (Cd) | N.D. | mg/kg | 2 |
| Mercury (Hg) | N.D. | mg/kg | 2 |
| Hexavalent Chromium [Cr(VI)] | N.D. | µg/cm ² | 0.10 |

| Test Item | Sample | Unit | MDL |
|-------------------|--------|-------|-----|
| | 1 | | |
| Sum of PBBs | N.D. | mg/kg | --- |
| Monobromobiphenyl | N.D. | mg/kg | 50 |
| Dibromobiphenyl | N.D. | mg/kg | 50 |
| Tribromobiphenyl | N.D. | mg/kg | 50 |

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| Test Item | Sample | Unit | MDL |
|--------------------------|--------|-------|-----|
| | 1 | | |
| Tetrabromobiphenyl | N.D. | mg/kg | 50 |
| Pentabromobiphenyl | N.D. | mg/kg | 50 |
| Hexabromobiphenyl | N.D. | mg/kg | 50 |
| Heptabromobiphenyl | N.D. | mg/kg | 50 |
| Octabromobiphenyl | N.D. | mg/kg | 50 |
| Nonabromobiphenyl | N.D. | mg/kg | 50 |
| Decabromobiphenyl | N.D. | mg/kg | 50 |
| Sum of PBDEs | N.D. | mg/kg | --- |
| Monobromodiphenyl ether | N.D. | mg/kg | 50 |
| Dibromodiphenyl ether | N.D. | mg/kg | 50 |
| Tribromodiphenyl ether | N.D. | mg/kg | 50 |
| Tetrabromodiphenyl ether | N.D. | mg/kg | 50 |
| Pentabromodiphenyl ether | N.D. | mg/kg | 50 |
| Hexabromodiphenyl ether | N.D. | mg/kg | 50 |
| Heptabromodiphenyl ether | N.D. | mg/kg | 50 |
| Octabromodiphenyl ether | N.D. | mg/kg | 50 |
| Nonabromodiphenyl ether | N.D. | mg/kg | 50 |
| Decabromodiphenyl ether | N.D. | mg/kg | 50 |

| Test Item | Sample | Unit | MDL |
|------------------------------------|--------|-------|-----|
| | 1 | | |
| Bis(2-ethylhexyl) phthalate (DEHP) | N.D. | mg/kg | 50 |
| Butyl benzyl phthalate (BBP) | N.D. | mg/kg | 50 |
| Dibutyl phthalate (DBP) | N.D. | mg/kg | 50 |
| Diisobutyl phthalate (DIBP) | N.D. | mg/kg | 50 |

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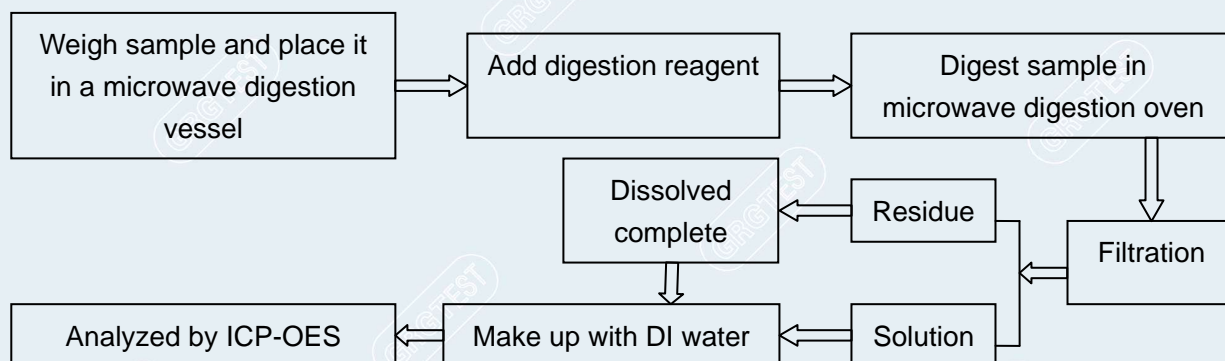
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2) Halogen

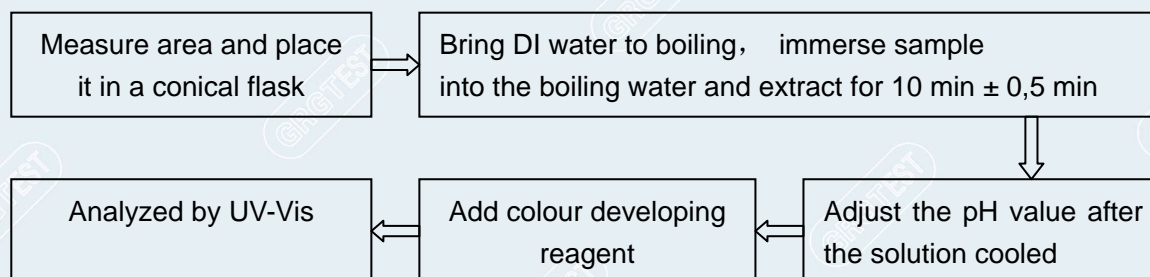
Test Method: With reference to EN 14582: 2016, analysis was performed by Ion Chromatography.

| Test Item | Sample | Unit | MDL | Limit | Conclusion |
|----------------|--------|-------|-----|-------|------------|
| | 1 | | | | |
| Fluorine (F) | N.D. | mg/kg | 25 | --- | --- |
| Chlorine (Cl) | N.D. | mg/kg | 25 | ≤900 | Comply |
| Bromine (Br) | N.D. | mg/kg | 25 | ≤900 | Comply |
| Iodine (I) | N.D. | mg/kg | 25 | --- | --- |
| Sum of Cl & Br | N.D. | mg/kg | --- | ≤1500 | Comply |

Test Process for Pb / Cd / Hg



Test Process for Cr (VI) (metal / plating)



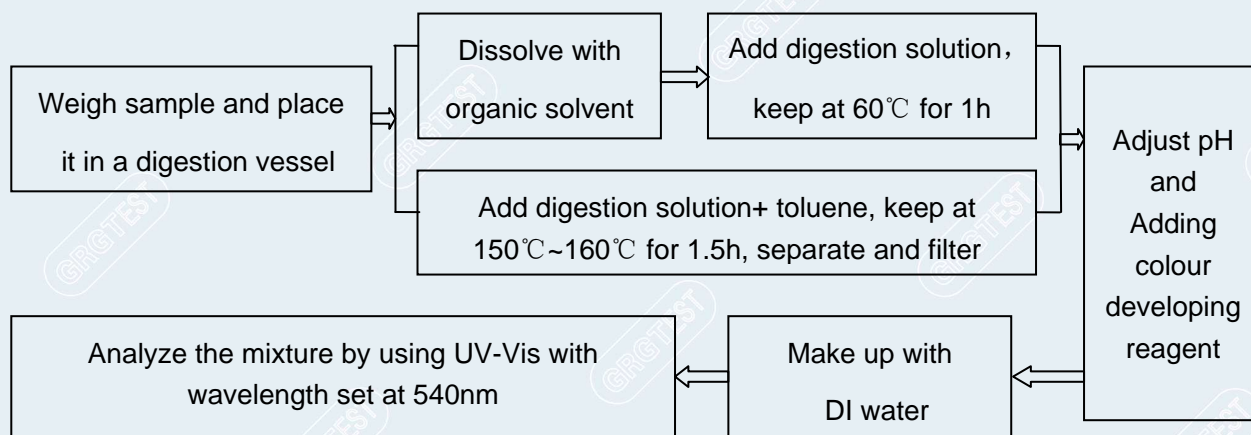
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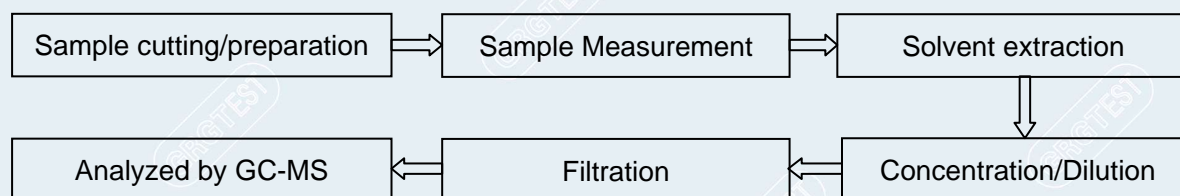
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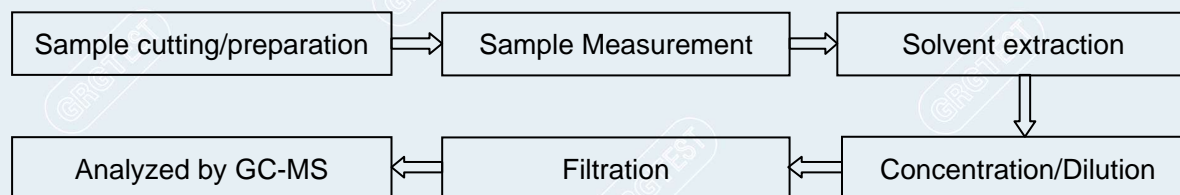
Test Process for Cr (VI) (Nonmetal)



Test Process for PBBs & PBDEs



Test Process for Phthalates



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Halogen test process:

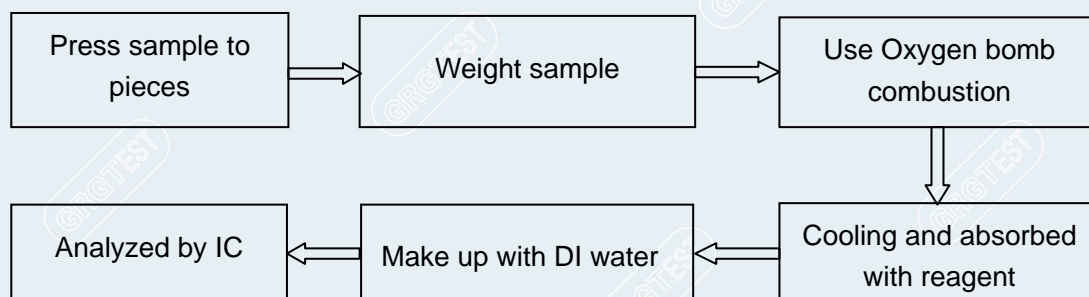
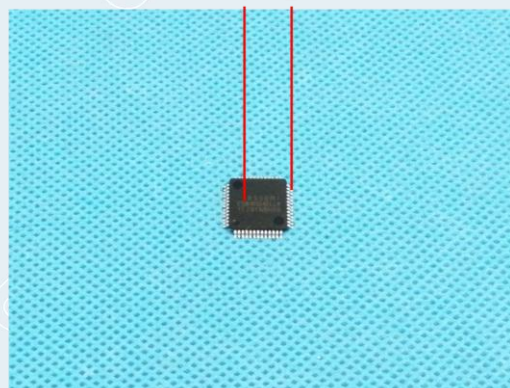
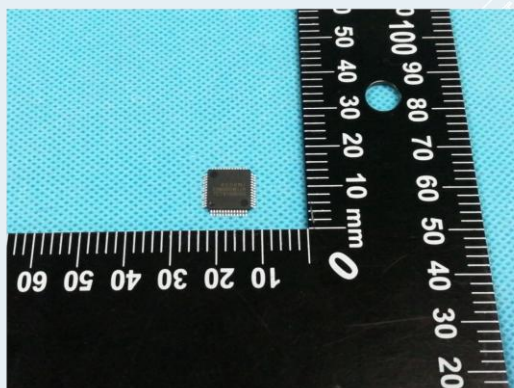


Photo of Sample



-----End of Report-----

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