

Test Report

No. : CE/2018/45145

Date : 2018/05/02

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AVX HONG KONG LTD. (TAIWAN BRANCH)

7F, NO. 56, LANE 258, RUIGUANG ROAD, NEIHU DISTRICT, TAIPEI CITY 11491, TAIWAN (R.O.C.)



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

Sample Submitted By : AVX HONG KONG LTD. (TAIWAN BRANCH)
 Sample Description : MANGANESE NITRATE
 Style/Item No. : TANTALUM DIVISION
 Sample Receiving Date : 2018/4/24
 Testing Period : 2018/4/24 TO 2018/05/02

Test Requested : 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).

Test Method : Please refer to following pages.

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


 Troy Chang, Manager/Tech
 Signed for and on behalf of
 SGS TAIWAN LTD. (TAIWAN)
 Chemical Laboratory - Taipei



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Test Result(s)

PART NAME No.1 : TRANSPARENT CRYSTAL

| Test Item(s) | Unit | Method | MDL | Result No.1 |
|----------------------------|-------|---|-----|----------------|
| Cadmium (Cd) | mg/kg | With reference to IEC 62321-5 (2013) and performed by ICP-AES. | 2 | n.d. |
| Lead (Pb) | mg/kg | With reference to IEC 62321-5 (2013) and performed by ICP-AES. | 2 | n.d. |
| Mercury (Hg) | mg/kg | With reference to IEC 62321-4 (2013) and performed by ICP-AES. | 2 | n.d. |
| Hexavalent Chromium Cr(VI) | mg/kg | With reference to IEC 62321-7-2 (2017) and performed by UV-VIS. | 8 | n.d. |
| Sum of PBBs | mg/kg | With reference to IEC 62321-6 (2015) and performed by GC/MS. | - | n.d. |
| Monobromobiphenyl | 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 PBDEs | mg/kg | | - | n.d. |
| Monobromodiphenyl ether | 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. |

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| Test Item(s) | Unit | Method | MDL | Result |
|---|-------|--|-----|--------|
| | | | | No.1 |
| BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7) | mg/kg | With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS. | 50 | n.d. |
| DBP (Dibutyl phthalate) (CAS No.: 84-74-2) | mg/kg | | 50 | n.d. |
| DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5) | mg/kg | | 50 | n.d. |
| DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7) | mg/kg | | 50 | n.d. |

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated

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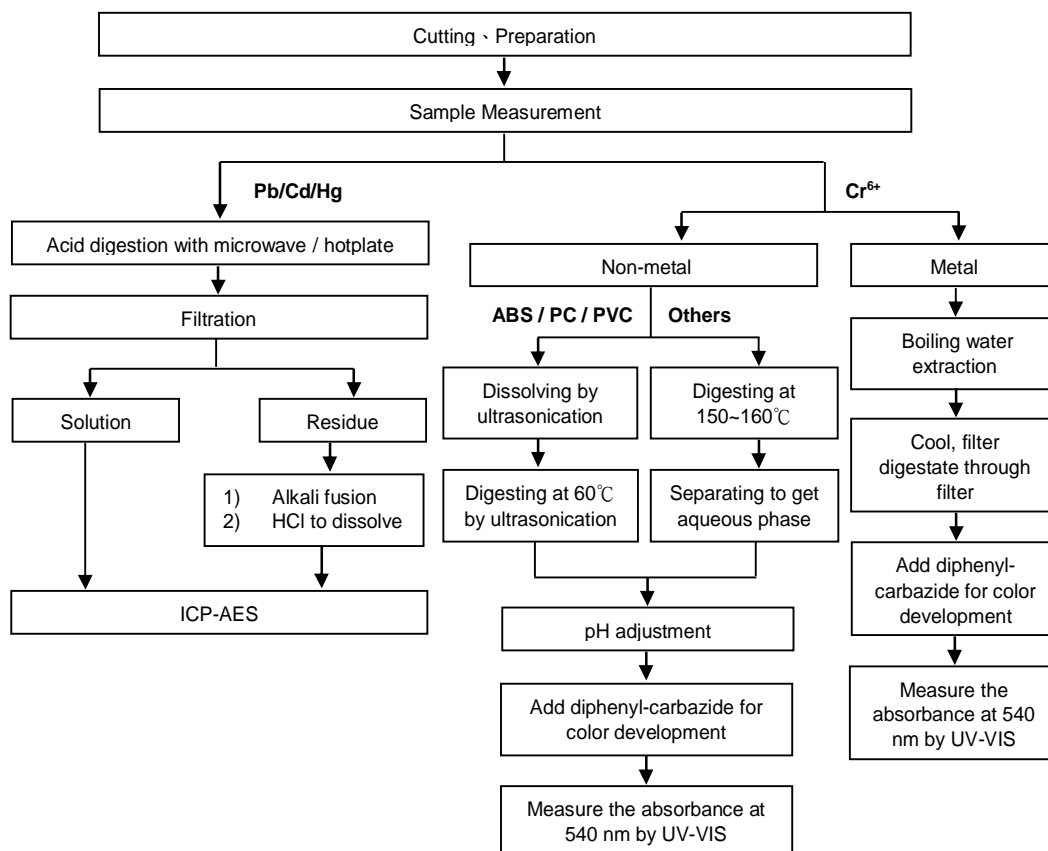
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Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

- Technician : Rita Chen
- Supervisor: Troy Chang



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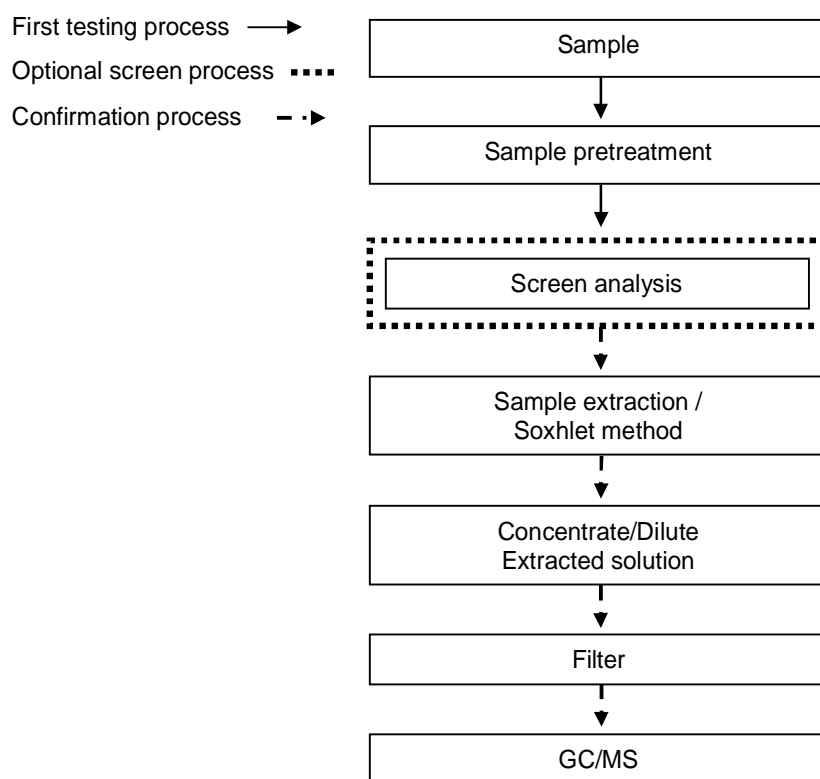
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Analytical flow chart – PBB / PBDE

- Technician : Yaling Tu
- Supervisor: Troy Chang



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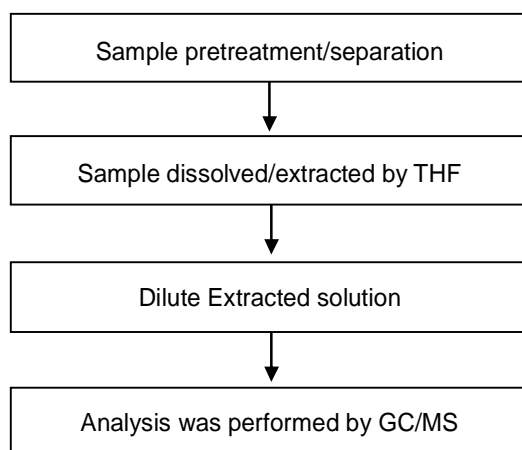
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Analytical flow chart - Phthalate

- Technician: Andy Hsu
- Supervisor: Troy Chang

【Test method: IEC 62321-8】



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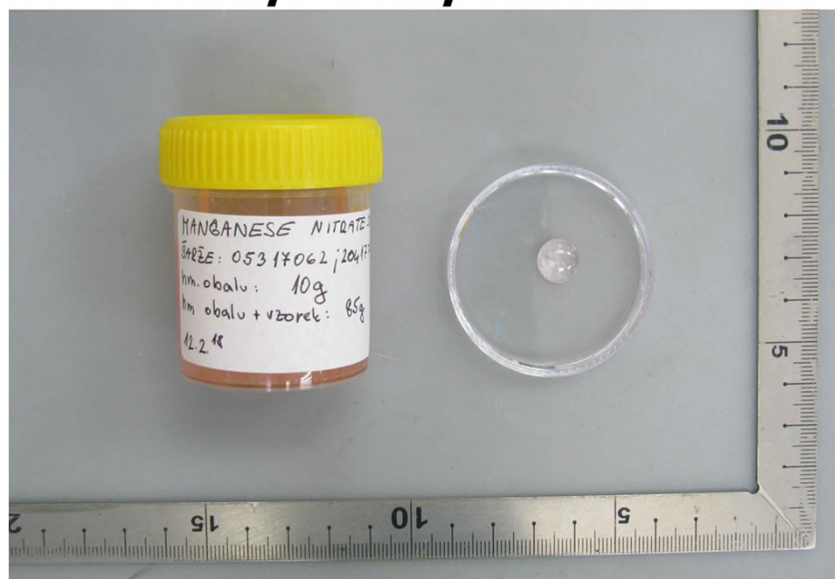
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* The tested sample / part is marked by an arrow if it's shown on the photo. *

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** End of Report **

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