

Chemical Laboratory - Kao., SGS Taiwan Ltd.

# Test Report

No. : KA/2018/10184

Date : 2018/01/09

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GRAND PACIFIC PETROCHEMICAL CORP.

NO. 4, HSING KUNG RD., TA-SHE INDUSTRIAL DISTRICT, KAOHSIUNG, 81567 TAIWAN R.O.C.

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

Sample Description : ABS  
Style/Item No. : D-470  
Sample Receiving Date : 2018/01/03  
Testing Period : 2018/01/03 TO 2018/01/09  
Sample Submitted By : GRAND PACIFIC PETROCHEMICAL CORP.

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**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.

**Conclusion** : 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 and amending Directive (EU) 2015/863.

  
  
Ray Chang Ph.D. / Manager - Tech  
Signed for and on behalf of  
SGS Taiwan Limited

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## Test Result(s)

PART NAME No.1 : WHITE ABS PELLET

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

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| Test Item(s)   | Unit  | Method  | MDL | Result | Limit |
|--|-------|---|-----|--------|-------|
|  |       |   |     | No.1   |       |
| DIBP (Di-isobutyl phthalate)<br>(CAS No.: 84-69-5)         | mg/kg | With reference to IEC 62321-8:2017.<br>Analysis was performed by GC/MS. | 50  | n.d.   | 1000  |
| DBP (Dibutyl phthalate)<br>(CAS No.: 84-74-2)              |       |   | 50  | n.d.   | 1000  |
| BBP (Butyl Benzyl phthalate)<br>(CAS No.: 85-68-7)         |       |   | 50  | n.d.   | 1000  |
| DEHP (Di- (2-ethylhexyl) phthalate)<br>(CAS No.: 117-81-7) |       |   | 50  | n.d.   | 1000  |

## 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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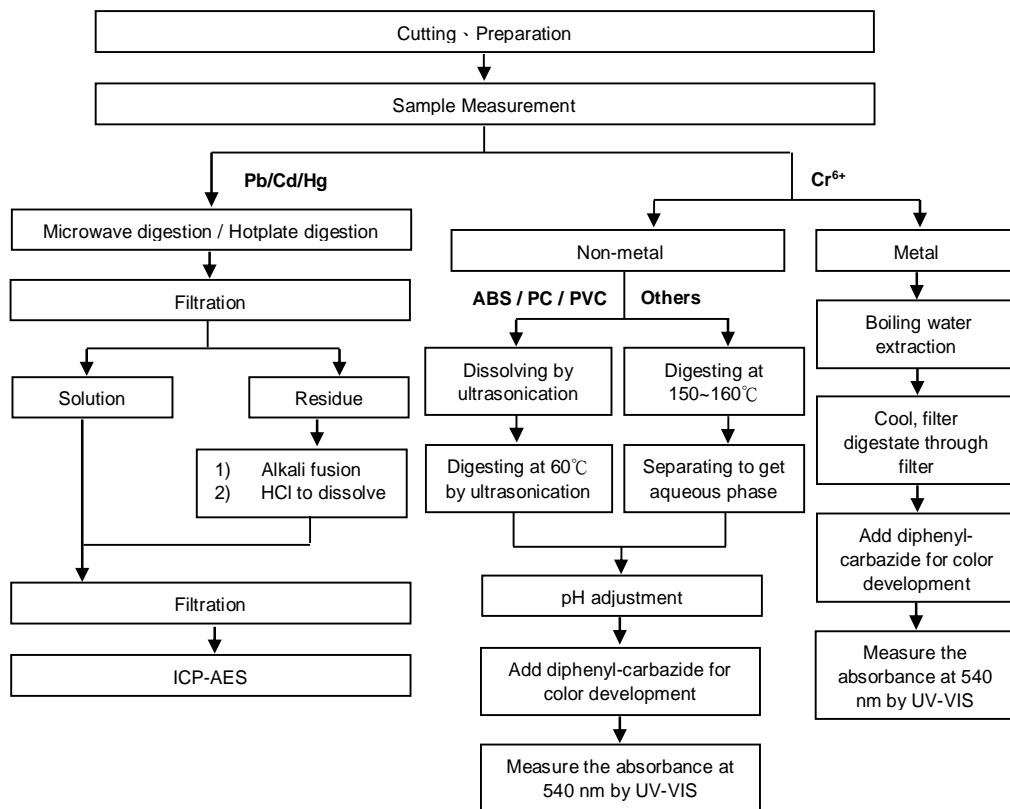
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### Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)

- Technician : Jony Liu
- Supervisor: Ray Chang



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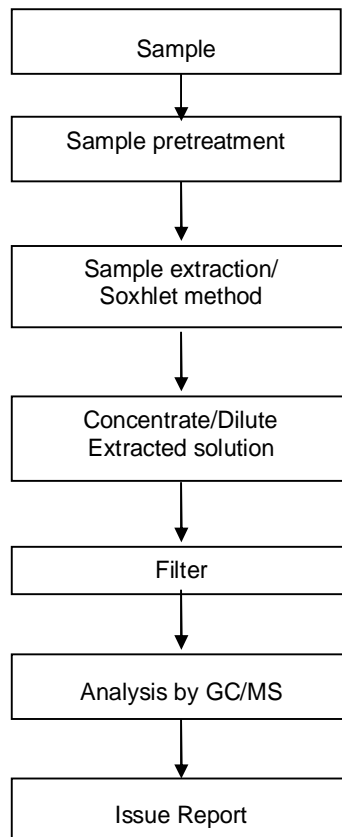
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### PBB/PBDE analytical FLOW CHART

1) Name of the person who made measurement: Dorothy Chen

2) Name of the person in charge of measurement: Ray Chang



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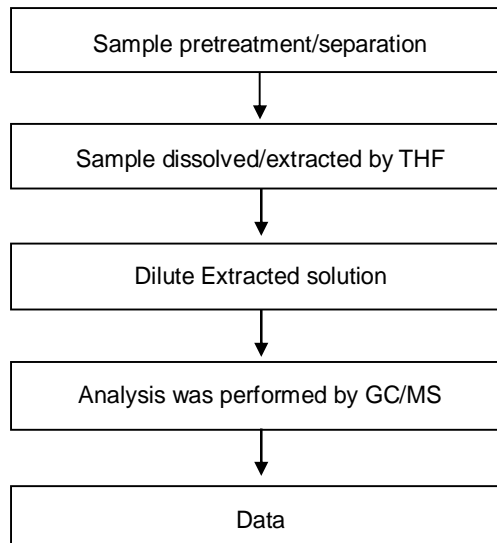
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### Analytical flow chart of phthalate content

- Name of the person who made measurement: Dorothy Chen
- Name of the person in charge of measurement: Ray Chang

【Test method: IEC 62321-8】



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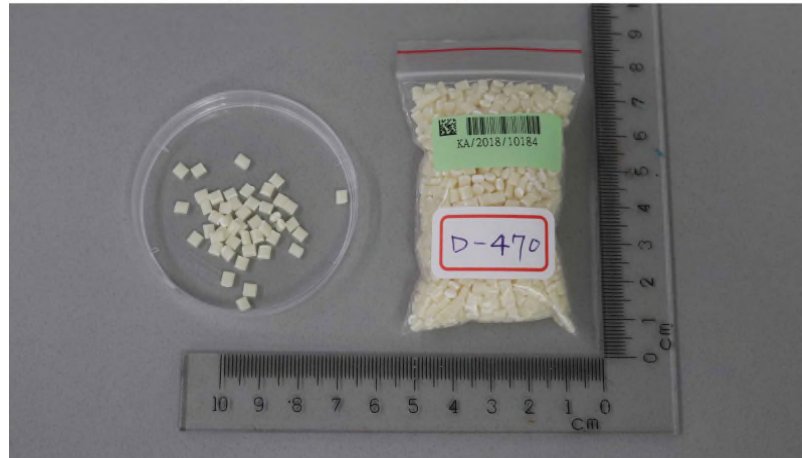
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\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

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\*\* End of Report \*\*

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