

試驗報告

Test Report

號碼(No.) : KA/2019/10498 日期(Date) : 2019/01/15

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國亨化學股份有限公司

GPPC CHEMICAL CORPORATION

高雄市路竹區長興路66號

NO. 66, CHANG HSIN ROAD, LU-CHU DIST., KAOHSIUNG 821-50, TAIWAN, R. O. C.

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as):

送樣廠商(Sample Submitted By) : 國亨化學股份有限公司 (GPPC CHEMICAL CORPORATION)
樣品名稱(Sample Description) : HIPS
樣品型號(Style/Item No.) : PS-333
收件日期(Sample Receiving Date) : 2019/01/09
測試期間(Testing Period) : 2019/01/09 to 2019/01/15

=====
測試需求(Test Requested) : 依據客戶指定, 參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP. (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).)

測試方法(Test Method) : 請參閱下一頁 (Please refer to following pages).

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages).

結論(Conclusion) : 根據客戶所提供的樣品, 其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS指令暨(EU) 2015/863之限值要求. (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.)

報告簽署人/張伯睿/博士/技術經理

Ray Chang, Ph.D./Manager -Tech

Signed for and on behalf of

SGS Taiwan Limited

化學實驗室-高雄/Chemical Laboratory-Kaohsiung



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測試結果(Test Results)

測試部位(PART NAME)No. 1 : 白色塑膠粒 (WHITE PLASTIC PELLETS)

| 測試項目 (Test Items) | 單位 (Unit) | 測試方法 (Method) | 方法偵測 極限值 (MDL) | 結果 (Result) No. 1 | 限值 (Limit) |
|----------------------------------|--------------|--|----------------------|-------------------------|---------------|
| | | | | | |
| 鎘 / Cadmium (Cd) | mg/kg | 參考 IEC 62321-5: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-AES. | 2 | n. d. | 100 |
| 鉛 / Lead (Pb) | mg/kg | 參考 IEC 62321-5: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-AES. | 2 | n. d. | 1000 |
| 汞 / Mercury (Hg) | mg/kg | 參考 IEC 62321-4: 2013 方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4: 2013 and performed by ICP-AES. | 2 | n. d. | 1000 |
| 六價鉻 / Hexavalent Chromium Cr(VI) | mg/kg | 參考 IEC 62321-7-2:2017, 以 UV-VIS 檢測. / With reference to IEC 62321-7-2:2017 and performed by UV-VIS. | 8 | n. d. | 1000 |
| 多溴聯苯總和 / Sum of PBBs | | | - | n. d. | 1000 |
| 一溴聯苯 / Monobromobiphenyl | mg/kg | 參考 IEC 62321-6: 2015 方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS. | 5 | n. d. | - |
| 二溴聯苯 / Dibromobiphenyl | | | 5 | n. d. | - |
| 三溴聯苯 / Tribromobiphenyl | | | 5 | n. d. | - |
| 四溴聯苯 / Tetrabromobiphenyl | | | 5 | n. d. | - |
| 五溴聯苯 / Pentabromobiphenyl | | | 5 | n. d. | - |
| 六溴聯苯 / Hexabromobiphenyl | | | 5 | n. d. | - |
| 七溴聯苯 / Heptabromobiphenyl | | | 5 | n. d. | - |
| 八溴聯苯 / Octabromobiphenyl | | | 5 | n. d. | - |
| 九溴聯苯 / Nonabromobiphenyl | | | 5 | n. d. | - |
| 十溴聯苯 / Decabromobiphenyl | | | 5 | n. d. | - |

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| 測試項目 (Test Items) | 單位 (Unit) | 測試方法 (Method) | 方法偵測 極限值 (MDL) | 結果 (Result) | 限值 (Limit) |
|---|--------------|---|----------------------|----------------|---------------|
| | | | | No. 1 | |
| 多溴聯苯醚總和 / Sum of PBDEs | mg/kg | 參考 IEC 62321-6: 2015 方法, 以氣相層析/ 質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS. | - | n. d. | 1000 |
| 一溴聯苯醚 / Monobromodiphenyl ether | | | 5 | n. d. | - |
| 二溴聯苯醚 / Dibromodiphenyl ether | | | 5 | n. d. | - |
| 三溴聯苯醚 / Tribromodiphenyl ether | | | 5 | n. d. | - |
| 四溴聯苯醚 / Tetrabromodiphenyl ether | | | 5 | n. d. | - |
| 五溴聯苯醚 / Pentabromodiphenyl ether | | | 5 | n. d. | - |
| 六溴聯苯醚 / Hexabromodiphenyl ether | | | 5 | n. d. | - |
| 七溴聯苯醚 / Heptabromodiphenyl ether | | | 5 | n. d. | - |
| 八溴聯苯醚 / Octabromodiphenyl ether | | | 5 | n. d. | - |
| 九溴聯苯醚 / Nonabromodiphenyl ether | | | 5 | n. d. | - |
| 十溴聯苯醚 / Decabromodiphenyl ether | 5 | n. d. | - | | |
| 鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No. : 84-69-5) | mg/kg | 參考 IEC 62321-8:2017, 以氣相層析儀/ 質譜儀檢測. / With reference to IEC 62321-8:2017. Analysis was performed by GC/MS. | 50 | n. d. | 1000 |
| 鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No. : 84-74-2) | mg/kg | | 50 | n. d. | 1000 |
| 鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No. : 85-68-7) | mg/kg | | 50 | n. d. | 1000 |
| 鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No. : 117-81-7) | mg/kg | | 50 | n. d. | 1000 |

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n. d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)

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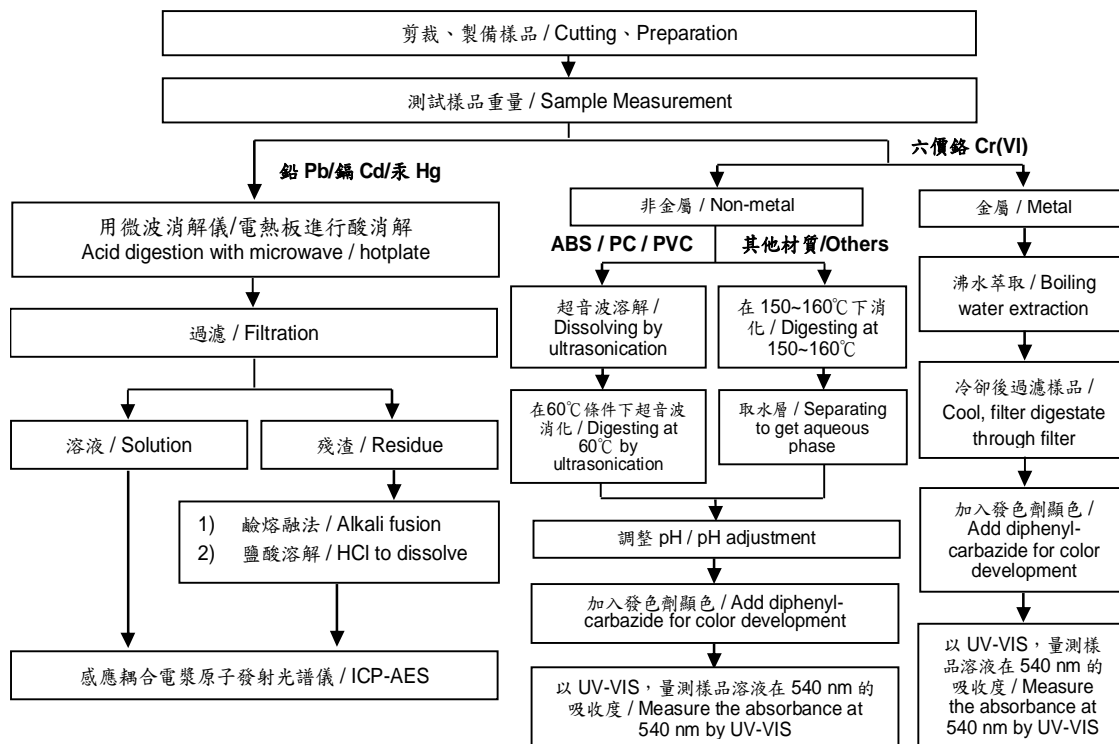
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重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外)

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

- 測試人員：劉俊宏 / Technician : Jony Liu
- 測試負責人：張伯睿 / Supervisor: Ray Chang



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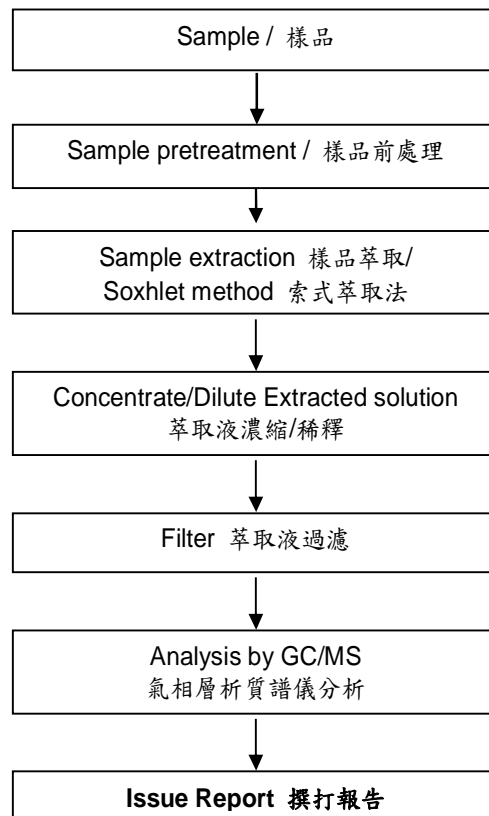
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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 測試人員：陳威錚 / Technician : Dorothy Chen
- 測試負責人：張伯睿 / Supervisor: Ray Chang



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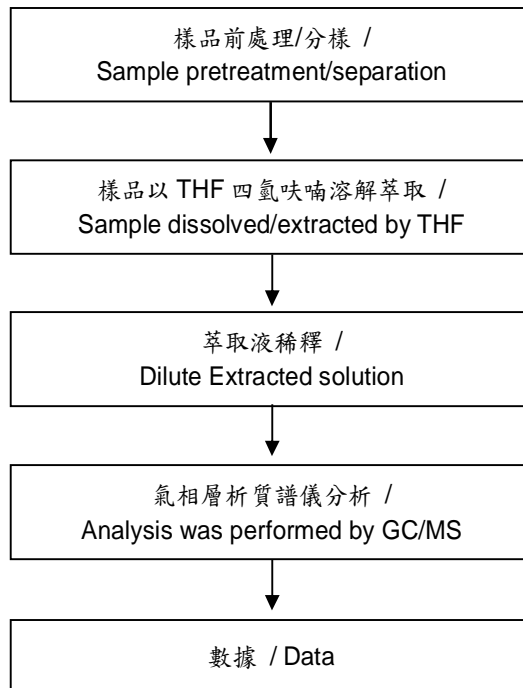
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可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 測試人員：陳威錚 / Technician : Dorothy Chen
- 測試負責人：張伯睿 / Supervisor: Ray Chang

【測試方法/Test method: IEC 62321-8】



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

KA/2019/10498



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