

## 試驗報告 Test Report

號碼(No.) : KA/2020/52238 日期(Date) : 2020/06/04

頁數(Page) : 1 of 8

中國鋼鐵股份有限公司  
CHINA STEEL CORPORATION  
高雄市小港區中鋼路1號  
1 CHUNG KANG ROAD, HSIAO KANG, KAOHSIUNG 81233, TAIWAN, REPUBLIC OF CHINA

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) : 中國鋼鐵股份有限公司 (CHINA STEEL CORPORATION)  
樣品名稱(Sample Description) : BAR AND ROD PRODUCT (條線產品)  
收件日期(Sample Receiving Date) : 2020/05/27  
測試期間(Testing Period) : 2020/05/27 to 2020/06/04

=====  
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 2011/65/EU Annex II暨其修訂指令(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 Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)

  
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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# Test Report

號碼(No.) : KA/2020/52238 日期(Date) : 2020/06/04

頁數(Page) : 2 of 8

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## 測試結果(Test Results)

測試部位(PART NAME)No. 1 : 銀灰色金屬 (SILVER GRAY METAL)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result)	限值 (Limit)
				No. 1	
鎘 / Cadmium (Cd)	mg/kg	依據IEC 62321-5: 2013方法, 以感應耦合電漿發射光譜儀檢測. / According to IEC 62321-5: 2013 and performed by ICP-OES.	2	n. d.	100
鉛 / Lead (Pb)	mg/kg	依據IEC 62321-5: 2013方法, 以感應耦合電漿發射光譜儀檢測. / According to IEC 62321-5: 2013 and performed by ICP-OES.	2	n. d.	1000
汞 / Mercury (Hg)	mg/kg	依據IEC 62321-4:2013+AMD1:2017, 以感應耦合電漿發射光譜儀檢測. / According to IEC 62321-4:2013+AMD1:2017 and performed by ICP-OES.	2	n. d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)(#2)	µg/cm <sup>2</sup>	依據IEC 62321-7-1:2015, 以UV-VIS檢測. / According to IEC 62321-7-1:2015 and performed by UV-VIS.	0.10	n. d.	-
<b>多溴聯苯總和 / Sum of PBBs</b>	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 / Monobromobiphenyl			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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# Test Report

號碼(No.) : KA/2020/52238 日期(Date) : 2020/06/04

頁數(Page) : 3 of 8

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	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	依據IEC 62321-8:2017, 以氣相層析儀/質譜儀檢測。 / According 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
鄰苯二甲酸丁苄甲酯 / 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

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## 試驗報告

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頁數(Page) : 4 of 8

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### 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)
5. (#2) =
  - a. 當六價鉻結果大於 $0.13 \mu\text{g}/\text{cm}^2$ ，表示樣品表層含有六價鉻。 / 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).
  - b. 當六價鉻結果為n. d. (濃度小於 $0.10 \mu\text{g}/\text{cm}^2$ )，表示表層不含六價鉻。 / 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 coating is considered a non-Cr(VI) based coating.
  - c. 當六價鉻結果介於  $0.10$  及  $0.13 \mu\text{g}/\text{cm}^2$  時，無法確定塗層是否含有六價鉻。 / 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.
6. 符合性結果之判定係以測試結果與限值做比較。 / The statement of compliance conformity is based on comparison of testing results and limits.

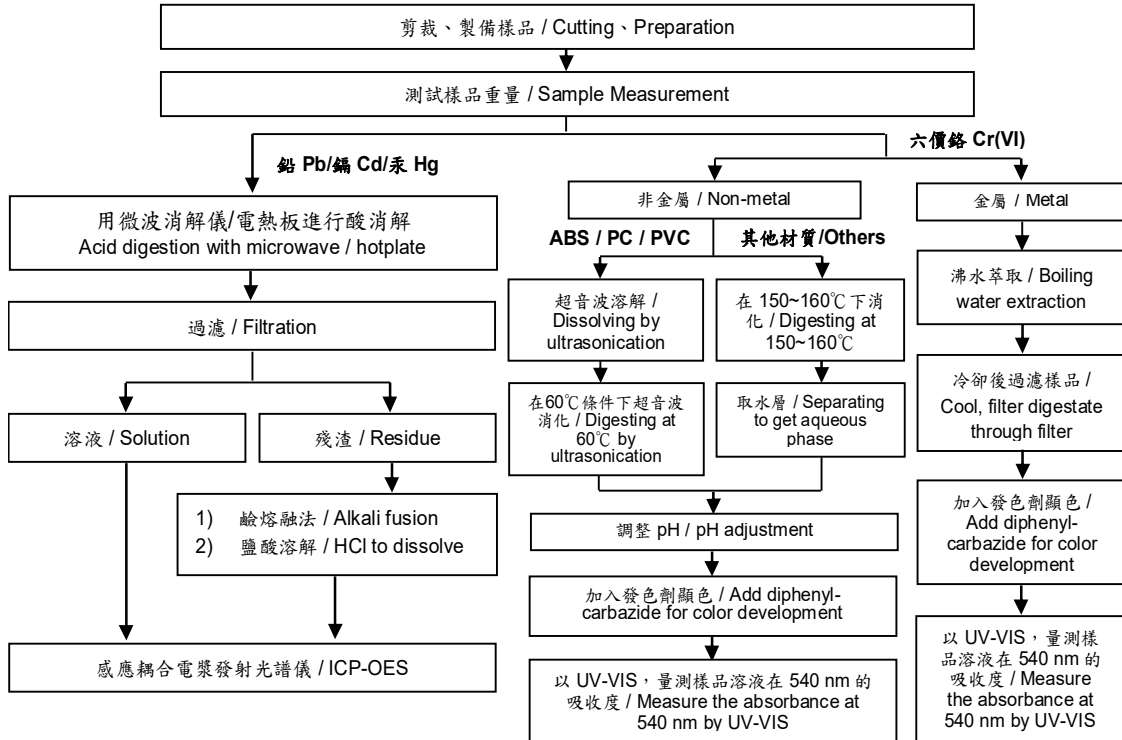
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### 重金屬流程圖 / Analytical flow chart of Heavy Metal

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. (Cr<sup>6+</sup> test method excluded)



## 試驗報告

## Test Report

號碼(No.) : KA/2020/52238 日期(Date) : 2020/06/04

頁數(Page) : 6 of 8

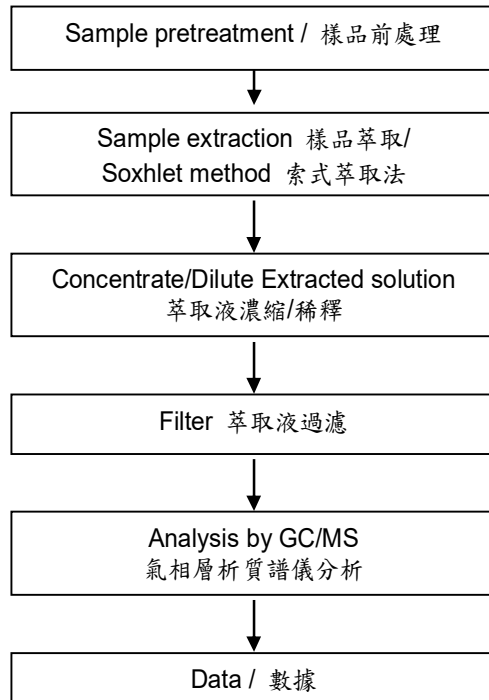
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### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART



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# Test Report

號碼(No.) : KA/2020/52238 日期(Date) : 2020/06/04

頁數(Page) : 7 of 8

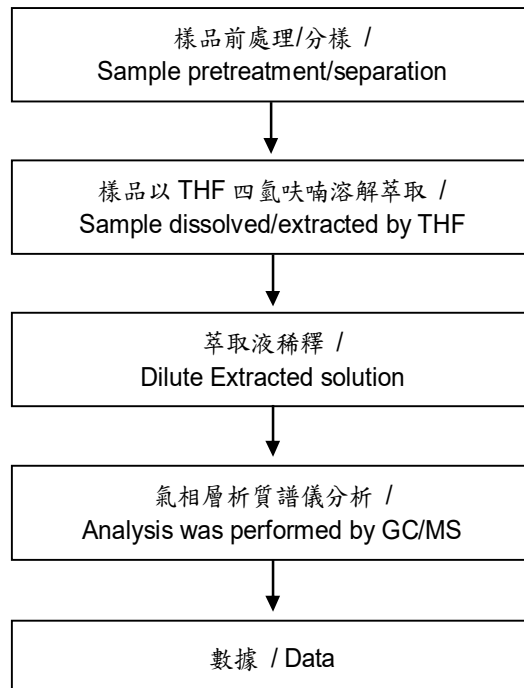
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## 可塑劑分析流程圖 / Analytical flow chart of phthalate content

### 【測試方法/Test method: IEC 62321-8】



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頁數(Page) : 8 of 8

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\* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。\*  
(The tested sample / part is marked by an arrow if it's shown on the photo.)

### KA/2020/52238



\*\* 報告結尾 (End of Report) \*\*

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