

Test Report

東弘金屬工業股份有限公司

TONG HORNG METAL INDUSTRIAL CO., LTD.

臺南市新市區三舍里三舍153號

NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, 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):

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

送樣廠商(Sample Submitted By) : 東弘金屬工業股份有限公司 (TONG HORNG METAL INDUSTRIAL CO., LTD.)

樣品名稱(Sample Description) : 紅銅板 (COPPER)

樣品型號(Style/Item No.) : C1100 收件日期(Sample Receiving Date) : 2020/09/02

測試期間(Testing Period) : 2020/09/02 to 2020/09/14

測試需求(Test Requested)

(1) 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).)

(2) 其他測試項目請見下一頁. (Please refer to next pages for the other item(s).)

測試結果(Test Results)

: 請見下一頁 (Please refer to next pages).

MENTE ACTION RESULT

結論(Conclusion)

(1) 根據客戶所提供的樣品,其編、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, DBP, 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/技術經典 Ray Chang, Ph.D/Manager -Tech

Signed for and on behalf of SGS Taiwan Limited

化學實驗室-高雄/Chemical Laboratory

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頁數(Page): 1 of 11

PIN CODE: 10304B7D



Test Report

頁數(Page): 2 of 11 號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

東弘金屬工業股份有限公司 TONG HORNG METAL INDUSTRIAL CO., LTD. 臺南市新市區三舍里三舍153號 NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, TAIWAN (R.O.C.)

測試結果(Test Results)

測試部位(PART NAME) NO.1 : 銅色金屬片(COPPER COLORED METAL SHEET)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) NO.1	法規 限值 (Limit)
鎘 / Cadmium (Cd)	mg/kg	参考IEC 62321-5: 2013,以感應耦合電漿發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n. d.	100
鉛 / Lead (Pb)	mg/kg	参考IEC 62321-5: 2013,以感應耦合電漿發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-OES.	2	n. d.	1000
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4:2013+AMD1:2017,以感應 耦合電漿發射光譜儀檢測. / With reference 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/cm²	参考IEC 62321-7-1:2015,以UV-VIS檢測. / With reference to IEC 62321-7-1:2015 and performed by by UV-VIS.	0.10	n. d.	-
多溴聯苯總和 / Sum of PBBs	mg/kg		-	n. d.	1000
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n. d.	-
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n. d.	_
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n. d.	-
四溴聯苯 / Tetrabromobiphenyl	mg/kg	参考IEC 62321-6:2015,以氣相層析/質譜	5	n. d.	_
五溴聯苯 / Pentabromobiphenyl	mg/kg	儀檢測. / With reference to IEC 62321-	5	n. d.	-
六溴聯苯 / Hexabromobiphenyl	mg/kg	6:2015 and performed by GC/MS.	5	n. d.	-
七溴聯苯 / Heptabromobiphenyl	mg/kg		5	n. d.	_
八溴聯苯 / Octabromobiphenyl	mg/kg	-	<u>5</u>	n. d.	-
九溴聯苯 / Nonabromobiphenyl	mg/kg	-	<u>5</u>	n. d.	_
十溴聯苯 / Decabromobiphenyl	mg/kg		5	n. d.	_



Test Report

頁數(Page): 3 of 11 號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

東弘金屬工業股份有限公司 TONG HORNG METAL INDUSTRIAL CO., LTD. 臺南市新市區三舍里三舍153號

NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, TAIWAN (R.O.C.)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) NO.1	法規 限值 (Limit)
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		-	n. d.	1000
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg		5	n. d.	_
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n. d.	-
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n. d.	-
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg	參考IEC 62321-6:2015,以氣相層析/質譜	5	n. d.	-
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg	儀檢測. / With reference to IEC 62321-	5	n. d.	-
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg	6:2015 and performed by GC/MS.	5	n. d.	_
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg		5	n. d.	_
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg		5	n. d.	_
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg		5	n. d.	_
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg		5	n. d.	-
鄰苯二甲酸二異丁酯 / DIBP (Di-	mg/kg		50	n. d.	1000
isobutyl phthalate) (CAS No.: 84-					
69-5)					
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	参考IEC 62321-8:2017,以氣相層析/質譜 儀檢測. / With reference to IEC 62321-	50	n. d.	1000
	/1		50	al	1000
鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-	mg/kg	8:2017. Analysis was performed by	90	n. d.	1000
7)		GC/MS.			
	mg/kg		50	n. d.	1000
(Di- (2-ethylhexyl) phthalate)					
(CAS No.: 117-81-7)					
鹵素 / Halogen					
鹵素 (氟) / Halogen-Fluorine (F)	mg/kg		50	n. d.	-
(CAS No.: 14762-94-8)	0 0				
鹵素 (氣) / Halogen-Chlorine (Cl)	mg/kg	参考BS EN 14582:2016,以離子層析儀檢	50	n. d.	-
(CAS No.: 22537-15-1)		測. / With reference to BS EN			
鹵素(溴)/ Halogen-Bromine (Br)	mg/kg	14582:2016. Analysis was performed by IC.	50	n. d.	_
(CAS No.: 10097-32-2) 鹵素(碘)/ Halogen-Iodine (I)	mcr /1z cr		50	n. d.	
图象(映)/ narogen-rourne(1) (CAS No.: 14362-44-8)	mg/kg		υU	11 . U.	



Test Report

東弘金屬工業股份有限公司

頁數(Page): 4 of 11 號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

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臺南市新市區三舍里三舍153號

NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, TAIWAN (R.O.C.)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) NO.1	法規 限值 (Limit)
全氟辛酸及其鹽類 / PFOA and its	mg/kg		0.01	n. d.	-
salts (CAS No.: 335-67-1 and its		參考CEN/TS 15968 (2010),以液相層析/串			
salts)		聯質譜儀檢測. / With reference to			
全氟辛烷磺酸及其鹽類 / PFOS and	mg/kg	CEN/TS 15968 (2010). Analysis was	0.01	n. d.	-
its salts (CAS No.: 1763-23-1 and		performed by LC/MSMS.			
its salts)					
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052: 1996,以感應耦合電漿	2	n. d.	-
		發射光譜儀檢測. / With reference to US			
		EPA 3052: 1996. Analysis was performed			
		by ICP-0ES.			

備註(Note):

- 1. mg/kg = ppm; 0. 1wt% = 1000ppm
- 2. MDL = Method Detection Limit (方法偵測極限值)
- 3. n.d. = Not Detected (未檢出)
- 4. "-" = Not Regulated (無規格值)
- 5. (#2) =
 - a. 當六價鉻結果大於0.13 µg/cm²,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 µg/cm². 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 μg/cm²),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 μg/cm²). The coating is considered a non-Cr(VI) based coating
 - c. 當六價鉻結果介於 0.10 及 0.13 μg/cm² 時,無法確定塗層是否含有六價鉻. / The result between 0.10 μg/cm² and $0.13~\mu\text{g/cm}^2$ is considered to be inconclusive - unavoidable coating variations may influence the determination.
- 6. 全氟辛烷磺酸及其鹽類包含 / PFOS and its salts including:

CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.

- 7. 全氟辛酸及其鹽類包含 / PFOA and its salts including:
 - CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
- 8. 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.



Test Report

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

頁數(Page): 5 of 11

東弘金屬工業股份有限公司

TONG HORNG METAL INDUSTRIAL CO., LTD.

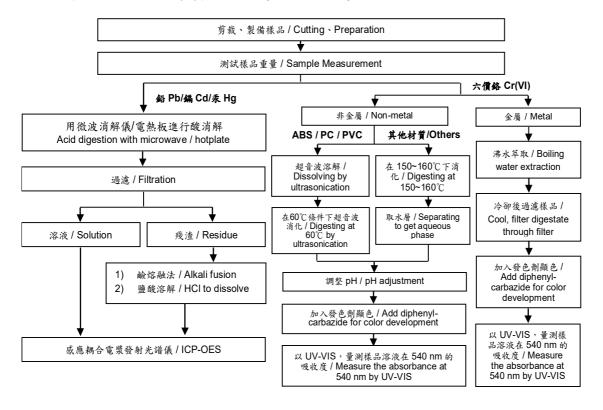
臺南市新市區三舍里三舍153號

NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, TAIWAN (R.O.C.)

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^{6+} test method excluded)



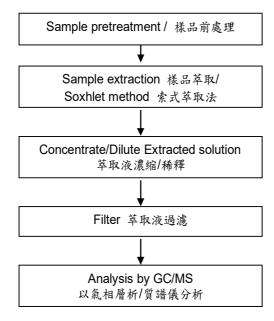


Test Report

東弘金屬工業股份有限公司 TONG HORNG METAL INDUSTRIAL CO., LTD. 臺南市新市區三舍里三舍153號 NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, TAIWAN (R.O.C.)

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

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14



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頁數(Page): 6 of 11

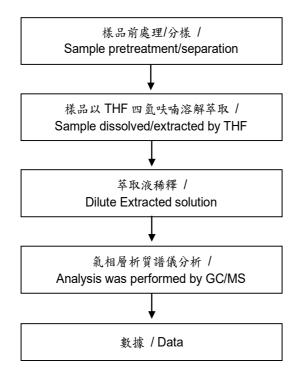


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可塑劑分析流程圖 / Analytical flow chart of phthalate content 【測試方法/Test method: IEC 62321-8】

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14



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頁數(Page): 7 of 11

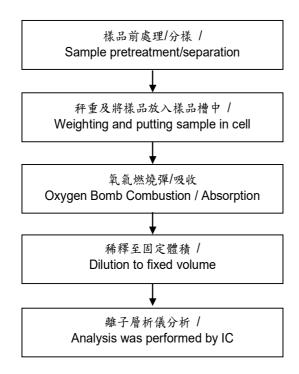


Test Report

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鹵素分析流程圖 / Analytical flow chart of Halogen

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14



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頁數(Page): 8 of 11

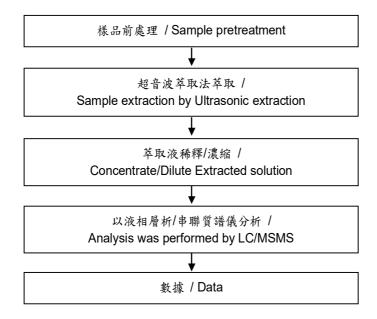


Test Report

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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14



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頁數(Page): 9 of 11



Test Report

頁數(Page): 10 of 11 號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

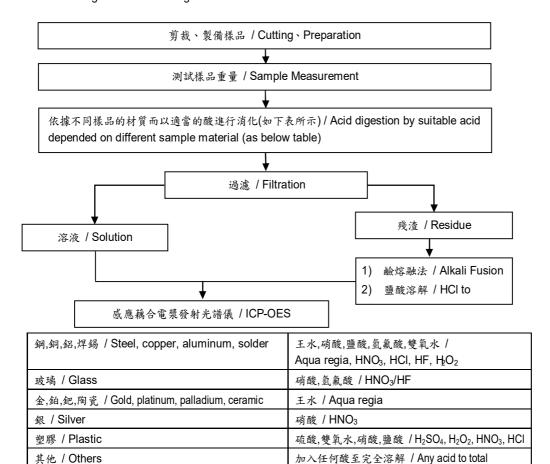
東弘金屬工業股份有限公司 TONG HORNG METAL INDUSTRIAL CO., LTD.

臺南市新市區三舍里三舍153號

NO. 153, SANSHE, XINSHI DIST., TAINAN CITY 744, TAIWAN (R.O.C.)

元素以 ICP-OES 分析的消化流程圖 (Flow Chart of digestion for the elements analysis performed by ICPOES)

根據以下的流程圖之條件,樣品已完全溶解。 / These samples were dissolved totally by pre conditioning method according to below flow chart.



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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.)

號碼(No.): KA/2020/90133 日期(Date): 2020/09/14

KA/2020/90133



** 報告結尾(End of Report) **

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頁數(Page): 11 of 11