

Test Report

號碼(No.): EKR21701489V01 日期(Date): 29-Jul-2021 頁數(Page): 1 of 14

SENJU METAL INDUSTRY CO.,LTD. 23 SENJU HASHIDO-CHO ADACHI-KU TOKYO 120-8555 JAPAN

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) : SENJU METAL INDUSTRY CO.,LTD.

樣品名稱(Sample Name) : SPARKLE BALL S 樣品型號(Style/Item No.) : Sn63%(63Sn/37Pb)

收件日(Sample Receiving Date)

: 19-Jul-2021

測試期間(Testing Period)

19-Jul-2021 to 26-Jul-2021

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、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, 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).) 請參閱下一頁 (Please refer to following pages.)

測試結果(Test Results)

結 論(Conclusion)

(1) 根據客戶所提供的樣品·其鎘、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, 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.)



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測試部位敘述 (Test Part Description)

No.1 : 銀色金屬球 (SILVER COLORED METAL BALL)

測試結果 (Test Results)

測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	參考IEC 62321-5: 2013 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	參考IEC 62321-4: 2013+ AMD1: 2017 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP- OES.)	mg/kg	2	n.d.	1000
六價鉻 (Hexavalent Chromium) Cr(VI) (CAS No.: 18540-29-9) (#2)	參考IEC 62321-7-1: 2015·以紫外光-可見 光分光光度計分析。(With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.)	μg/cm²	0.1	n.d.	-
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)	參考IEC 62321-6: 2015,以氣相層析儀/質 譜儀分析。(With reference to IEC 62321- 6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobipenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000

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測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
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)	☆ 老店C C2221 C. 2015 □ \\	mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)	參考IEC 62321-6: 2015,以氣相層析儀/質譜儀分析。(With reference to IEC 62321-	mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)	6: 2015, analysis was performed by	mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)	GC/MS.)	mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)	GC/1V13.)	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.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-		mg/kg	50	n.d.	_
8)					
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-	參考BS EN 14582: 2016‧以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.	_
15-1)					
溴 (Br) (Bromine (Br)) (CAS No.: 10097-		mg/kg	50	n.d.	-
32-2)					
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	-
六溴環十二烷及所有主要被辨別出的異構	參考IEC 62321: 2008 · 以氣相層析儀/質譜	mg/kg	5	n.d.	-
物(HBCDD) (α- HBCDD, β- HBCDD, γ-	儀分析。(With reference to IEC 62321:				
HBCDD) (Hexabromocyclododecane	2008, analysis was performed by				
(HBCDD) and all major	GC/MS.)				
diastereoisomers identified (α- HBCDD,					
β- HBCDD, γ- HBCDD)) (CAS No.:					
25637-99-4, 3194-55-6 (134237-51-7,					
134237-50-6, 134237-52-8))					
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-	參考US EPA 3052: 1996·以感應耦合電漿	mg/kg	2	11.2	-
36-0)	發射光譜儀分析。(With reference to US				
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-	EPA 3052: 1996, analysis was performed	mg/kg	2	n.d.	-
41-7)	by ICP-OES.)				



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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
全氟辛酸 (PFOA)及其鹽類 (Perfluorooctanoic acid (PFOA) and it's salt) (CAS No.: 335-67-1 and its salts)	參考CEN/TS 15968: 2010 · 以液相層析串 聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	No.1 n.d.	-
全氟辛烷磺酸(PFOS)及其鹽類 (Perfluorooctane sulfonate (PFOS) and it's salt) (CAS No.: 1763-23-1 and its salts)		mg/kg	0.01	n.d.	-
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)	參考IEC 62321-8: 2017·以氣相層析儀/質 譜儀分析。(With reference to IEC 62321- 8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (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 (DEHP)) (CAS No.: 117-81-7)		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)		mg/kg	50	n.d.	1000
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40- 0, 68515-49-1)		mg/kg	50	n.d.	-
` ' '		mg/kg	50	n.d.	-
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)		mg/kg	50	n.d.	-
1,2-苯二酸-二(C6-8支鏈)烷基酯(富C7) (DIHP) (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)) (CAS No.: 71888-89-6)		mg/kg	50	n.d.	-
鄰苯二甲酸二(C7-11支鏈與直鏈)烷基酯 (DHNUP) (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)) (CAS No.: 68515- 42-4)		mg/kg	50	n.d.	-



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測試項目	測試方法	單位	MDL	結果	限值
(Test Items)	(Method)	(Unit)		(Result)	(Limit)
				No.1	
鄰苯二甲酸二(2-甲氧基乙基)酯 (DMEP)		mg/kg	50	n.d.	-
(Bis-(2-methoxyethyl) phthalate					
(DMEP)) (CAS No.: 117-82-8)					
鄰苯二甲酸二異戊酯 (DIPP) (Diisopentyl		mg/kg	50	n.d.	-
phthalate (DIPP)) (CAS No.: 605-50-5)					
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl		mg/kg	50	n.d.	-
phthalate (DNHP)) (CAS No.: 84-75-3)	參考IEC 62321-8: 2017,以氣相層析儀/質				
鄰苯二甲酸二乙酯 (DEP) (Di-ethyl	譜儀分析。(With reference to IEC 62321-	mg/kg	50	n.d.	-
phthalate (DEP)) (CAS No.: 84-66-2)	8: 2017, analysis was performed by				
鄰苯二甲酸二甲酯 (DMP) (Dimethyl	GC/MS.)	mg/kg	50	n.d.	-
phthalate (DMP)) (CAS No.: 131-11-3)					
鄰苯二甲酸二戊酯 (DPP) (Di-pentyl		mg/kg	50	n.d.	-
phthalate (DPP)) (CAS No.: 131-18-0)					
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-		mg/kg	50	n.d.	-
pentyl phthalate (DNPP)) (CAS No.:					
131-18-0)					

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); 小於MDL / Less than MDL
- 4. "-" = Not Regulated (無規格值)
- 5. 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.

6. 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.



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7. (#2) =

- a. 當六價鉻結果大於 $0.13~\mu g/cm^2 \cdot$ 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 $0.13~\mu g/cm^2$. The sample coating is considered to contain Cr(VI).) b. 當六價鉻結果為n.d. (濃度小於 $0.10~\mu g/cm^2$) · 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 $0.10~\mu g/cm^2$). The coating is considered a non-Cr(VI) based coating) c. 當六價鉻結果介於 $0.10~及~0.13~\mu g/cm^2$ 時,無法確定塗層是否含有六價鉻。(The result between $0.10~\mu g/cm^2$ and $0.13~\mu g/cm^2$ is considered to be inconclusive unavoidable coating variations may influence the determination.)
- 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.)
- 9. 本測試報告取代EKR21701489 · 原測試報告作廢。(This test report supersedes the previous document bearing the report number EKR21701489, the report EKR21701489 was voided.)



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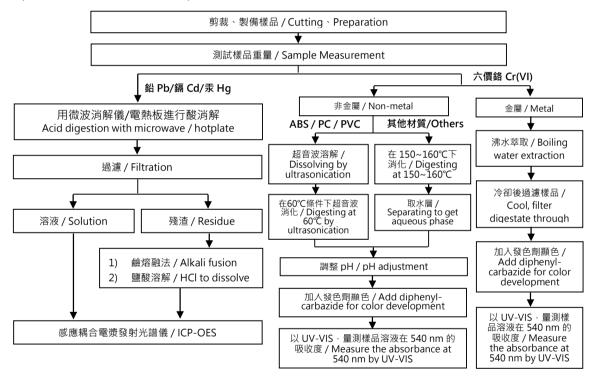
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重金屬流程圖 / Analytical flow chart of Heavy Metal

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. (Cr^{6+} test method excluded)





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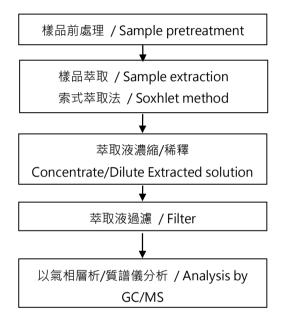
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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART





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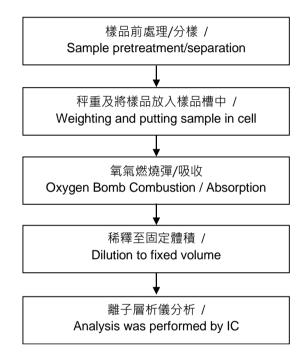
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鹵素分析流程圖 / Analytical flow chart of Halogen





Test Report

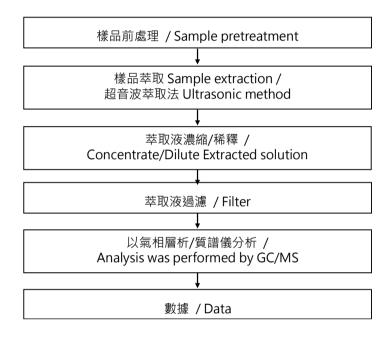
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD





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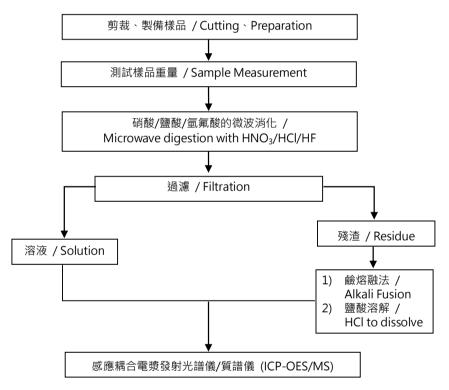
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重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件,樣品已完全溶解。

These samples were dissolved totally by pre-conditioning method according to below flow chart.

【參考方法/Reference method: US EPA 3051、US EPA 3052】



* US EPA 3051 方法未添加氫氟酸 / US EPA 3051 method does not add HF.



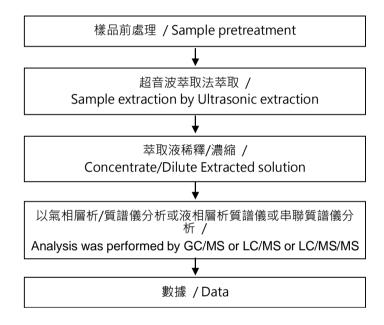
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全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)





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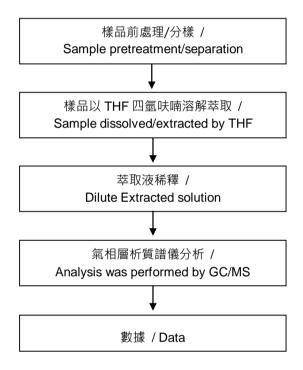
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可塑劑分析流程圖 / Analytical flow chart of phthalate content

【測試方法/Test method: IEC 62321-8】





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* 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.)

EKR21701489



** 報告結尾 (End of Report) **