



Test Report

Number : TWNC00189611

Applicant 申請商: Kin Join Co., Ltd.
No 166 Ren Hua Rd Ta Li City
Taichung Taiwan ROC

Date : Jan 31, 2011

Sample Description 樣品敘述:

One (1) group of submitted samples said to be :

以下測試樣品乃供應商所提供及確認:

Sample Description : 熱可塑性聚氨酯 (Thermoplastic Polyurethane)

樣品名稱

Style / Item No. : TPU 全系列 (65A~72D)

產品型號

Date Sample Received : Jan 20, 2011

收件日期

Date Test Started : Jan 21, 2011

開始測試日期

Test Conducted 測試執行:

As requested by the applicant, for details please refer to attached pages.
依申請商之要求, 細節請參考附頁.

Authorized By:
On Behalf Of Intertek Testing Services
Taiwan Limited



K. Y. Liang
Director

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except in full, without the written
approval of the laboratory.

Test Conducted

(I) Test Result Summary 測試結果:

Testing Item 測試項目	Result 結果 (ppm)
	Transparent Plastic Bean
Heavy Metal / 重金屬	
Cadmium (Cd) Content / 鎘含量	ND
Lead (Pb) Content / 鉛含量	ND
Mercury (Hg) Content / 汞含量	ND
Arsenic (As) Content / 砷含量	ND
Barium (Ba) Content / 鋇含量	ND
Chromium (Cr) Content / 鉻含量	ND
Antimony (Sb) Content / 銻含量	ND
Selenium (Se) Content / 硒含量	ND
Chromium VI (Cr ⁶⁺) Content / 六價鉻含量	ND
Polybrominated Biphenyls (PBBs) / 多溴聯苯	
Monobrominated Biphenyls (MonoBB) / 單溴聯苯	ND
Dibrominated Biphenyls (DiBB) / 二溴聯苯	ND
Tribrominated Biphenyls (TriBB) / 三溴聯苯	ND
Tetrabrominated Biphenyls (TetraBB) / 四溴聯苯	ND
Pentabrominated Biphenyls (PentaBB) / 五溴聯苯	ND
Hexabrominated Biphenyls (HexaBB) / 六溴聯苯	ND
Heptabrominated Biphenyls (HeptaBB) / 七溴聯苯	ND
Octabrominated Biphenyls (OctaBB) / 八溴聯苯	ND
Nonabrominated Biphenyls (NonaBB) / 九溴聯苯	ND
Decabrominated Biphenyl (DecaBB) / 十溴聯苯	ND
Polybrominated Diphenyl Ethers (PBDEs) / 多溴聯苯醚	
Monobrominated Diphenyl Ethers (MonoBDE) / 單溴聯苯醚	ND
Dibrominated Diphenyl Ethers (DiBDE) / 二溴聯苯醚	ND
Tribrominated Diphenyl Ethers (TriBDE) / 三溴聯苯醚	ND
Tetrabrominated Diphenyl Ethers (TetraBDE) / 四溴聯苯醚	ND
Pentabrominated Diphenyl Ethers (PentaBDE) / 五溴聯苯醚	ND
Hexabrominated Diphenyl Ethers (HexaBDE) / 六溴聯苯醚	ND
Heptabrominated Diphenyl Ethers (HeptaBDE) / 七溴聯苯醚	ND
Octabrominated Diphenyl Ethers (OctaBDE) / 八溴聯苯醚	ND
Nonabrominated Diphenyl Ethers (NonaBDE) / 九溴聯苯醚	ND
Decabrominated Diphenyl Ether (DecaBDE) / 十溴聯苯醚	ND

Test Conducted

(I) Test Result Summary 測試結果:

Testing Item 測試項目	Result 結果 (ppm)
	Transparent Plastic Bean
Organotin Compounds / 有機錫化合物	
Tributyltin Compounds Including TBTO / 三丁基錫化合物	ND
Triphenyltin Compounds / 三苯基錫化合物	ND
Azo Dyes Compounds (Specific Amine) / 偶氮化合物	
4-Aminobiphenyl / 4-氨基聯苯 (CAS No: 92-67-1)	ND
Benzidine / 聯苯胺 (CAS No: 92-87-5)	ND
4-Chloro-O-Toluidine / 4-氯鄰甲苯胺 (CAS No: 95-69-2)	ND
2-Naphthylamine / 2-萘胺 (CAS No: 91-59-8)	ND
O-Aminoazotoluene / 鄰氨基二甲基偶氮苯 (CAS No: 97-56-3)	ND
2-Amino-4-Nitrotoluene / 2-氨基-4-硝基甲苯 (CAS No: 99-55-8)	ND
P-Chloroaniline / 4-氯苯胺 (CAS No: 106-47-8)	ND
2,4-Diaminoanisole / 2,4-二氨基茴香醚 (CAS No: 615-05-4)	ND
4,4'-Diaminobiphenylmethane / 4,4'-二氨基二苯甲烷 (CAS No: 101-77-9)	ND
3,3'-Dichlorobenzidine / 3,3'-二氯聯苯胺 (CAS No: 91-94-1)	ND
3,3'-Dimethoxybenzidine / 3,3'-二甲氧基聯苯胺 (CAS No: 119-90-4)	ND
3,3'-Dimethylbenzidine / 3,3'-二甲基聯苯胺 (CAS No: 119-93-7)	ND
3,3'-Dimethyl-4,4'-Diaminobiphenylmethane / 3,3'-二甲基-4,4'-二氨基二苯甲烷 (CAS No: 838-88-0)	ND
P-Cresidine / 2-甲氧基-5 甲基苯胺 (CAS No: 120-71-8)	ND
4,4'-Methylene-Bis-(2-Chloroaniline) / 4,4'-亞甲基-雙-(2-氯苯胺) (CAS No: 101-14-4)	ND
4,4'-Oxydianiline / 4,4'-二胺基聯苯醚 (CAS No: 101-80-4)	ND
4,4'-Thiodianiline / 4,4'-硫苯胺 (CAS No: 139-65-1)	ND
O-Toluidine / 鄰甲苯胺 (CAS No: 95-53-4)	ND
2,4-Toluyldiamine / 2,4-二氨基甲苯 (CAS No: 95-80-7)	ND
2,4,5-Trimethylaniline / 2,4,5-三甲苯胺 (CAS No: 131-17-7)	ND
o-Anisidine / 鄰甲氧基苯胺 (CAS No: 90-04-0)	ND
4-Aminoazobenzene / 4-胺基偶氮苯 (CAS No: 60-09-3)	ND
2,4-Xylidine / 2,4-二甲苯胺 (CAS No: 95-68-1)	ND
2,6-Xylidine / 2,6-二甲苯胺 (CAS No: 87-62-7)	ND

Test Conducted

(I) Test Result Summary 測試結果:

Testing Item 測試項目	Result 結果 (ppm)
	Transparent Plastic Bean
Phthalates / 鄰苯二甲酸酯	
Di(2-ethylhexyl) Phthalate (DEHP) / 二(2-乙基己基)鄰苯二甲酸酯	ND
Dibutyl Phthalate (DBP) / 二丁基鄰苯二甲酸酯	ND
Benzyl Butyl Phthalate (BBP) / 丁基苯基鄰苯二甲酸酯	ND
Di-(Iso-Nonyl) Phthalate (DINP) / 二異壬基鄰苯二甲酸酯	ND
Di-(Iso-Decyl) Phthalate (DIDP) / 二異癸基鄰苯二甲酸酯	ND
Di-(N-Octyl) Phthalate (DNOP) / 二正辛基鄰苯二甲酸酯	ND
Halogen Content / 鹵素含量	
Fluorine (F) / 氟	ND
Chlorine (Cl) / 氯	ND
Bromine (Br) / 溴	ND
Iodine (I) / 碘	ND
Others 其他	
Polychlorinated Biphenyls (PCBs) / 多氯聯苯	ND
Polychlorinated Naphthalenes (PCNs) / 多氯化萘	ND
Short Chain Chlorinated Paraffins (C10-C13) / 短鏈氯化石蠟	ND
Formaldehyde / 甲醛	ND
Polyvinyl Chloride (PVC) / 聚氯乙烯和聚氯乙烯混合物	Negative
Asbestos / 石棉	Negative
Nonylphenol (NP) / 壬基苯酚	ND
4,4-DDT / 4,4-滴滴涕	ND
Perfluorooctane Sulfonates (PFOS) / 全氟辛磺酸	ND
Perfluorooctanoic Acid (PFOA) / 全氟辛酸	ND

Remarks: ppm = Parts per million based on weight of tested sample
 備註 = 百萬分之一, 依據測試樣品重量計算
 ND = Not detected = 未檢測出

Responsibility of chemist 分析人員 : Irene Chiou / Kevin Liu / Cathy Chen

Date Sample Received 樣品收件日期 : Jan 20, 2011

Testing Period 樣品測試期間 : Jan 21, 2011 To Jan 31, 2011

Test Conducted

(II) RoHS Requirement 限值:

Restricted Substances 限用物質	Limits 限值
Cadmium (Cd) content / 鎘含量	0.01% (100ppm)
Lead (Pb) content / 鉛含量	0.1% (1000ppm)
Mercury (Hg) content / 汞含量	0.1% (1000ppm)
Chromium VI (Cr ⁶⁺) content / 六價鉻含量	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs) / 多溴聯苯	0.1% (1000ppm)
Polybrominated Diphenyl Ehters (PBDEs) / 多溴聯苯醚	0.1% (1000ppm)

The above limits were quoted from 2002/95/EC and amendment 2005/618/EC for homogeneous material.

本限值是依據歐盟指令2002/95/EC與其更新指令2005/618/EC針對均質材質所訂定。

(II) Test Method 測試方法:

Testing Item 測試項目	Testing Method 測試方法	Reporting Limit 報告極限
Cadmium (Cd) Content 鎘含量	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES. 參考IEC 62321, 2008年第一版第8/9/10章, 以微波消化法測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm
Lead (Pb) Content 鉛含量	With reference to IEC 62321 edition 1.0:2008 in clause 8/9/10, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES. 參考IEC 62321, 2008年第一版第8/9/10章, 以微波消化法測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm

Test Conducted

(II) Test Method 測試方法:

<u>Testing Item</u> 測試項目	<u>Testing Method</u> 測試方法	<u>Reporting Limit</u> 報告極限
Mercury (Hg) Content 汞含量	With reference to IEC 62321 edition 1.0:2008 in clause 7, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES. 參考IEC 62321, 2008年第一版第7章, 以微波消化法測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm
Arsenic (As) Content 砷含量	With reference to USEPA 3052, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES 參考USEPA 3052, 以微波消化法消化測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm
Barium (Ba) Content 鋇含量	With reference to USEPA 3052, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES 參考USEPA 3052, 以微波消化法消化測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm
Chromium (Cr) Content 鉻含量	With reference to USEPA 3052, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES 參考USEPA 3052, 以微波消化法消化測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm
Antimony (Sb) Content 銻含量	With reference to USEPA 3052, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES 參考USEPA 3052, 以微波消化法消化測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm

Test Conducted

(II) Test Method 測試方法:

<u>Testing Item</u> 測試項目	<u>Testing Method</u> 測試方法	<u>Reporting Limit</u> 報告極限
Selenium (Se) Content 硒含量	With reference to USEPA 3052, by microwave digestion until the tested samples are totally dissolved and determined by ICP-OES 參考USEPA 3052, 以微波消化法消化測試樣品直到樣品完全溶解並用感應耦合電漿原子放射光譜儀分析。	2 ppm
Chromium VI (Cr ⁶⁺) Content 六價鉻含量	With reference to IEC 62321 edition 1.0:2008 in annex C, by alkaline digestion and determined by UV-Vis spectrophotometer. 參考IEC 62321, 2008年第一版附錄C, 以鹼液消化並用紫外光-可見光分光光度計分析。	1 ppm
Polybrominated Biphenyls (PBBs) 多溴聯苯	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary 參考IEC 62321, 2008年第一版附錄A, 以溶劑萃取並用氣相層析質譜儀分析, 必要時會以高效能液相層析-二極體陣列偵檢器進行確認。	5 ppm
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚	With reference to IEC 62321 edition 1.0:2008 in annex A, by solvent extraction and determined by GC-MSD and further HPLC confirmation when necessary 參考IEC 62321, 2008年第一版附錄A, 以溶劑萃取並用氣相層析質譜儀分析, 必要時會以高效能液相層析-二極體陣列偵檢器進行確認。	5 ppm
Organotin Compounds 有機錫化合物	With reference to DIN 38407-13, by solvent extraction and determined by GC-MSD 參考DIN 38407-13, 以溶劑萃取並用氣相層析-質譜儀分析。	0.03 ppm

Test Conducted

(II) Test Method 測試方法:

Testing Item 測試項目	Testing Method 測試方法	Reporting Limit 報告極限
Azo Dyes Compounds (Specific Amine) 偶氮化合物	With reference to EN 14362-1:2003, EN 14362-2:2003, ISO/TS 17234:2003 and determined by GC-MSD 參考EN 14362-1:2003, EN 14362-2:2003, ISO/TS 17234:2003, 以氣相層析-質譜儀分析。	5 ppm
Phthalates 鄰苯二甲酸酯	With reference to ASTM D3421-75, by solvent extraction and determined by GC-MSD or GC-FID 參考ASTM D3421-75, 以溶劑萃取測試樣品並用氣相層析-質譜儀分析或氣相層析-火焰離子偵測儀分析。	10 ppm
Halogen Content 鹵素含量	With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by ion chromatography 參考EN 14582:2007, 以氧彈燃燒集氣法並用離子層析儀分析。	50 ppm
Polychlorinated Biphenyls (PCBs) 多氯聯苯	With reference to USEPA 3540C / 8082A, by solvent extraction and determined by GC-ECD or GC-MSD 參考USEPA 3540C / 8082A, 以溶劑萃取並用氣相層析-電子捕捉偵測器或氣相層析-質譜儀分析。	1 ppm
Polychlorinated Naphthalenes (PCNs) 多氯化萘	With reference to USEPA 3540C / 8081B, by solvent extraction and determined by GC-ECD or GC-MSD 參考USEPA 3540C / 8081B, 以溶劑萃取並用氣相層析-電子捕捉偵測器或氣相層析-質譜儀分析。	10 ppm
Short Chain Chlorinated Paraffins (C10~C13) 短鏈氯化石蠟	With reference to USEPA 3540C, by solvent extraction and determined by GC-ECD or GC-MSD 參考USEPA 3540C, 以溶劑萃取並用氣相層析-電子捕捉偵測器或氣相層析-質譜儀分析。	10 ppm
Formaldehyde 甲醛	With reference to ISO/TS 17226 and determined by HPLC-DAD 參考ISO/TS 17226, 並用高效能液相層析儀-二極體光譜偵檢器分析。	5 ppm

Test Conducted

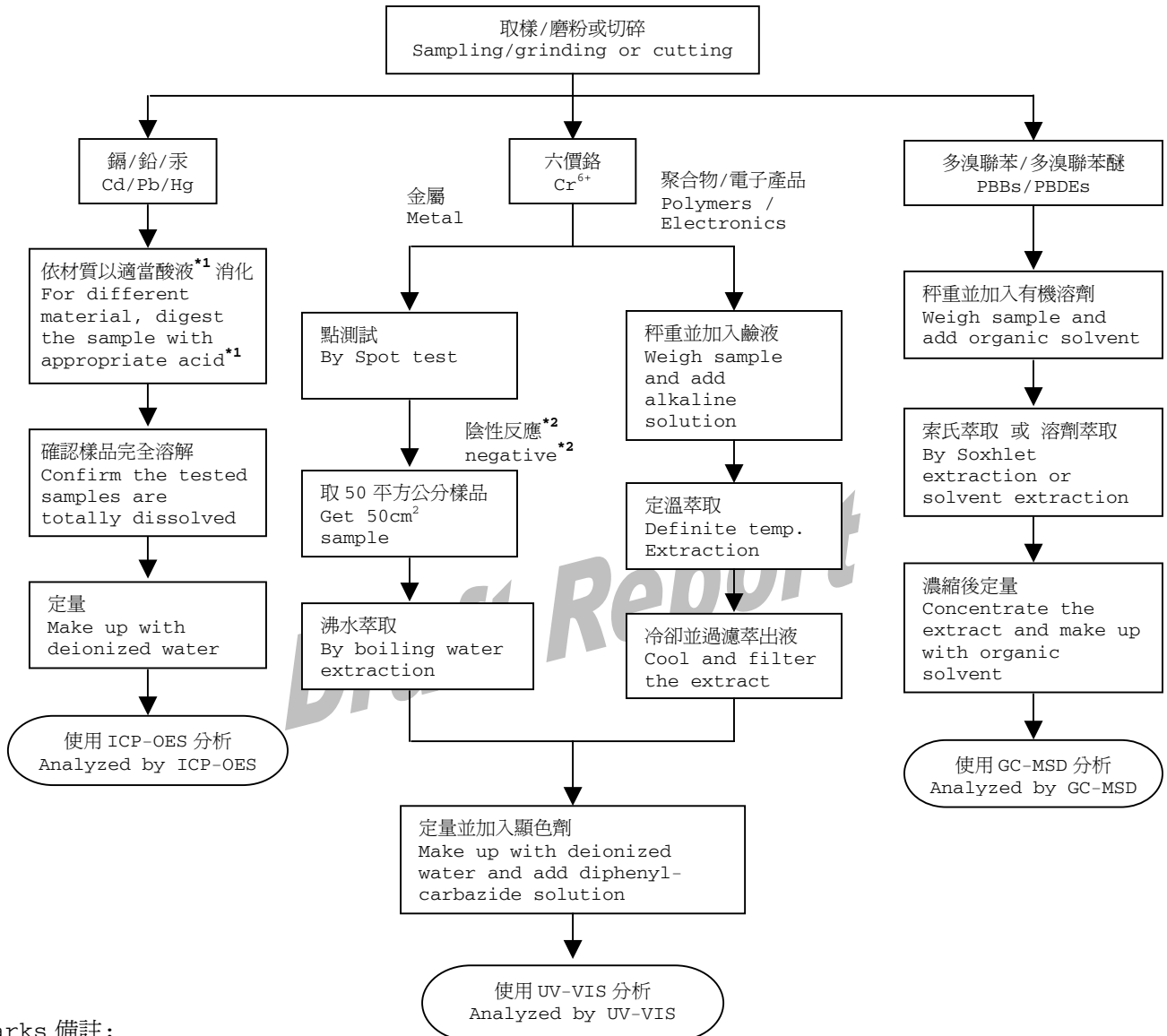
(II) Test Method 測試方法:

<u>Testing Item</u> 測試項目	<u>Testing Method</u> 測試方法	<u>Reporting Limit</u> 報告極限
Polyvinyl Chloride (PVC) 聚氯乙烯和聚氯乙烯混合物	Beilstein's test (Flame Test) and FT-IR analysis 火焰法及傅立葉轉換紅外線吸收光譜儀檢測。	NA
Asbestos 石棉	FT-IR analysis 傅立葉轉換紅外線吸收光譜儀檢測。	NA
Nonylphenol (NP) 壬基苯酚	By solvent extraction and determined by GC-MSD 以溶劑萃取並用氣相層析-質譜儀分析。	10 ppm
4,4-DDT 4,4-滴滴涕	With reference to USEPA 8081 / 8151A, by solvent extraction and determined by GC-ECD and GC-MSD 參考USEPA 8081 / 8151A, 以溶劑萃取並用氣相層析-電子捕捉偵測器及氣相層析-質譜儀分析。	0.1 ppm
Perfluorooctane Sulfonates (PFOS) 全氟辛磺酸	By solvent extraction and determined by LC-MS 以溶劑萃取並用液相層析質譜儀分析。	10 ppm
Perfluorooctanoic Acid (PFOA) 全氟辛酸	By solvent extraction and determined by LC-MS 以溶劑萃取並用液相層析質譜儀分析。	10 ppm

Remarks: NA = Not applicable = 不適用
 備註 Reporting Limit = quantitation limit of analyte in sample
 報告極限 = 測試樣品之定量偵測極限

Test Conducted

(IV) Measurement Flowchart 測試流程圖:

 Test For Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Contents RoHS六項測試流程圖
 Reference Standard 參考方法: IEC 62321 edition 1.0:2008


Remarks 備註:

*1: List Of Appropriate Acid 各材質添加酸液如下表:

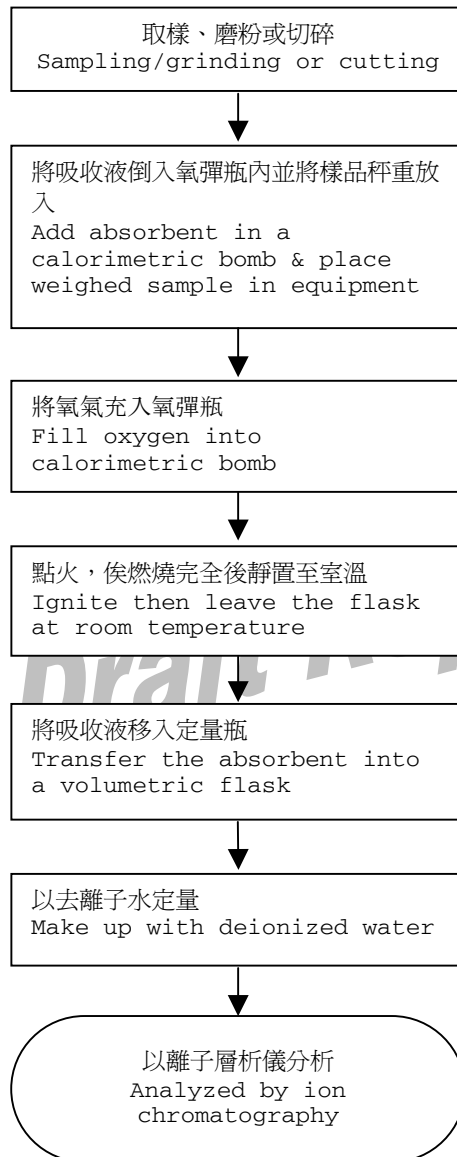
Material 樣品材質	Acid Added For Digestion 添加酸液種類
Polymers / 聚合物	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃ 硝酸、鹽酸、氫氟酸、雙氧水、硼酸
Metals / 金屬	HNO ₃ , HCl, HF 硝酸、鹽酸、氫氟酸
Electronics / 電子產品	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄ 硝酸、鹽酸、雙氧水、氟硼酸

 *2: If the result of spot test is positive, Chromium VI would be determined as detected.
 若點測試的結果為陽性反應，則直接判定為測試樣品含有六價鉻。

Test Conducted

(IV) Measurement Flowchart 測試流程圖:

Test For Halogen Content 鹵素測試流程圖
Reference Standard 參考方法: EN 14582



End Of Report

Test Conducted

Photo

