NO：

TO：

Halogen Free Part

SPECIFICATION FOR APPROVAL

DESCRIPTION：MINI PCI-E 0.8PITCH 52P 5.2H

CUSTOMER P/N：

LOTES P/N：AAA-PCI-092-P07

CUSTOMER APPROVAL SIGN：

SEND BY	QA CONFIRM	R&D CONFIRM	PREPARE BY
		Barney	Xi huang Li

Lotes SZ　　Lotes GZ　　Lotes TW

www.lotes.cc

LOTES CO., LTD

INDEX

PRODUCT SPECIFICATION	REV	ECR No.
	4C	SN14***

DIMENSION

1.This specification covers 0.8mm pitch MINI PCI EXPRESS(**AAA-PCI-073/092/093-*****) connector series.

2.The physical dimensions and the 0.8mm pitch MINI PCI EXPRESS connector are shown in drawing.

MATERIAL AND FINISH

1.Housing: High temperature thermoplastic.

2.Contact: Copper Alloy, Nickel-plating over all, Gold Plating on contact area, Matte Tin plated on solder area.

3.PEG : Copper Alloy , Matte Tin plated on solder area.

OPERATING PERFORMANCE

1.Operation Temperature: -40℃ to 80℃

2.Voltage Rating: 25 V AC per contact

3.Current Rating: 0.5 A

ELECTRICAL PERFORMANCE

Test item	Test condition	Requirements
Examination of product	• Visual inspection • EIA-364-18	• No physical damage
Low Level Contact Resistance	• Mate connectors: apply a current of 10mA(max) at open circuit voltage of 20mV (max) EIA-364-23	• 55mΩ MAX. per contact (Initial) • △LLCR=20mΩ Max.(Final)
Insulation resistance	• Applying 500VDC between adjacent contacts of unmated and unmount connectors EIA-364-21	• 500MΩ MIN
Dielectric withstanding voltage	• Measured by applying 300VAC for one minute between adjacent contacts of unmated connector assemblies. EIA-364-20	• No breakdown or flash • Current leakage:1mA

LOTES CO., LTD	PRODUCT NAME: 0.8mm PITCH MINI PCI EXPRESS CONNECTOR		
	DOCUMENT No: SP-AAA-PCI-073	REV: 4C	PAGE: 1 OF 4
	APPROVED BY: Barney 01/09'14	CHECKED BY: Vito 01/09'14	WRITTEN BY: Lxh 01/09'14

MECHANICAL PERFORMANCE

Test item	Test condition	Requirements
Vibration test (Random)	・Subject mated connectors and vibrate per EIA 364-28 test Condition.Ⅶ test condition letter D(15 minutes in each of 3 mutually perpendicular directions)	・No electrical discontinuity greater than 1 microsecond. ・△LLCR =20mΩ Max.(Final)
Mechanical shock	・Subject mated connector to 50Gs,half-sine shock pulses of 11 millisecond duration,3drops in each direction applied along the 3 mutually perpendicular planes total 18 shock. EIA-364-27 test condition A	・No electrical discontinuity greater than 1 microsecond ・△LLCR =20mΩ Max.(Final) ・No physical damage
Durability (repeated mate/un-mate)	・Repeat insertion the card to the connector and extraction card from the connector for 50 cycles. EIA-364-09	・△LLCR =20mΩ Max.(Final)
Mating and Unmating force	・ Insert the card at the specified angle Rotate the card into position Reverse the installation sequence to unmating EIA-364-13	・2.3 Kgf MAX

ENVIRONMENTAL PERFORMANCE

PRODUCT SPECIFICATION		REV	ECR No.
		4C	SN14***
Test item	**Test condition**	**Requirements**	
Humidity (steady state)	・Expose the mates connectors to 40±2℃,relative humidity 90~95%RH for 96 hours.EIA-364-31	・△LLCR =20mΩ Max.(Final) ・Insulation resistance:500MΩMin. ・No physical damage.	
Thermal shock	・Expose the connectors to -55℃/30min. and 85℃ /30min.(Repeat 10 cycles)---EIA-364-32 condition Ⅰ	・△LLCR =20mΩ Max.(Final) ・No physical damage.	
Solder ability	Solder temperature:245+5℃ Immersion Duration:3+0.5sec.	・ Wet solder coverage: 95%Min	
Salt spray	・ Subject the connector to 5%salt-solution concentration at 35℃ for 24 hours. ・ EIA-364-26	・△LLCR =20mΩMax .(Final)	
Resistance to Solder Heat	・EIA -364-56C IR Reflow : ・ The peak temperature on the board shall be maintained for 10 second 250±10℃	・No evidence of physical damage	
Rework temperature	Soldering iron method Soldering Time : 5 sec. Solder Temperature : 370-400℃ ・ 0.5 mm from terminal tip	・No evidence of physical damage	
Temperature life	Mate PCB module and subject to 85±3℃ for 96 hours EIA-364-17 condition A	・Contact resistance: △LLCR =20mΩ Max.(Final)	

TEST CONDITIONS

The tests shall be carried out under the conditions as the referring.

(1).Temperature:15~35℃.

(2). Humidity: 45~75%.

PACKAGE

All parts shall be packaged and packed to protect against physical damage, corrosion and deterioration during shipment and storage.

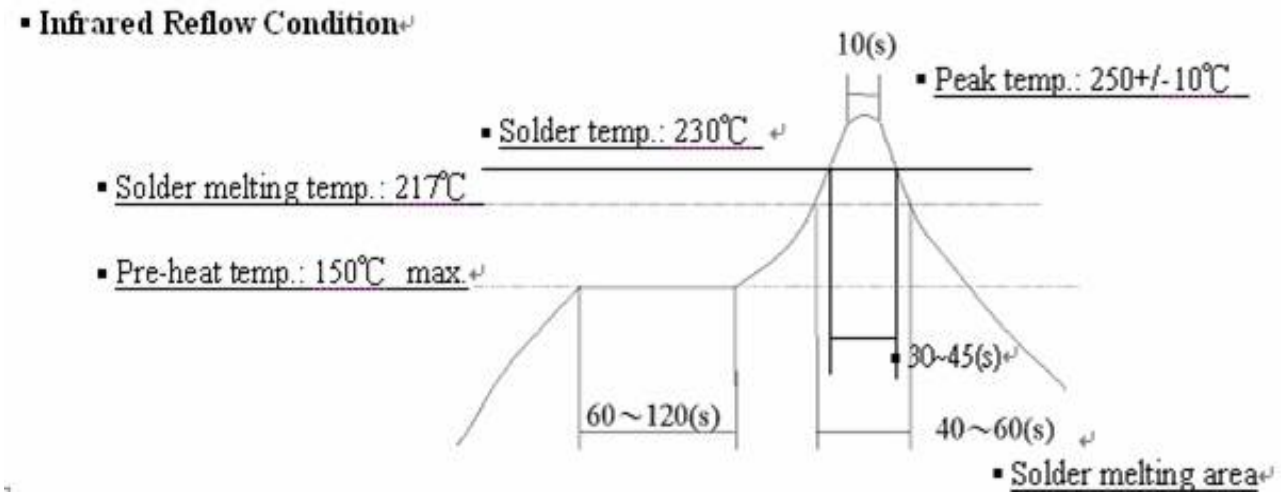
LOTES CO., LTD	TITLE: 0.8mm PITCH MINI PCI EXPRESS CONNECTOR		
	DOCUMENT No: SP-AAA-PCI-073	REV: 4C	PAGE: 3 OF 4
	APPROVED BY: Barney 01/09'14	CHECKED BY: Vito 01/09'14	WRITTEN BY: Lxh 01/09'14

TEST SEQUENCE:

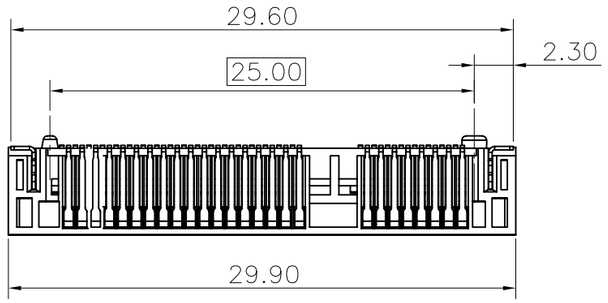
Test or Examination	Test Group							
	A	B	C	D	E	F	G	H
Examination of Product	1,5	1,9	1,5	1,8	1,3	1,5	1,5	1,3
Contact Resistance	2,4	2,6	2,4			2,4	2,4	
Insulation Resistance				2,6				
Dielectric Withstanding Voltage				3,7				
Vibration	3							
Durability (Repeated)		5						
Mating force		3,7						
Unmating force		4,8						
Solder ability					2			
Humidity (Steady State)				5				
Thermal Shock				4				
Mechanical shock			3					
Temperature life						3		
Salt spray							3	
Resistance to Soldering Heat								2

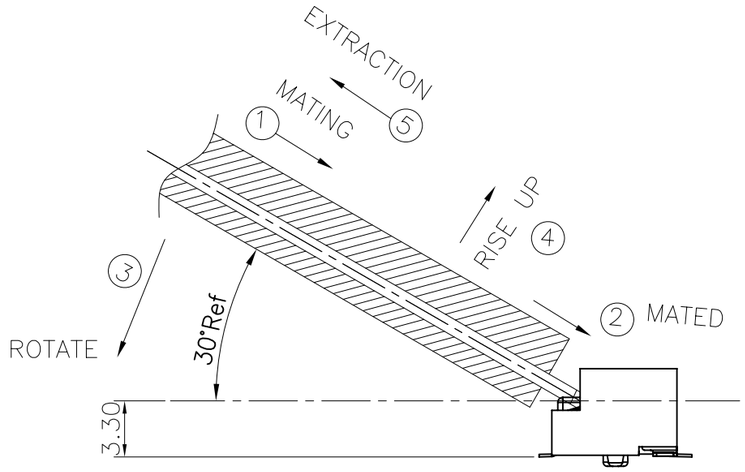
RECOMMENDED INFORARED REFLOW CONDITION

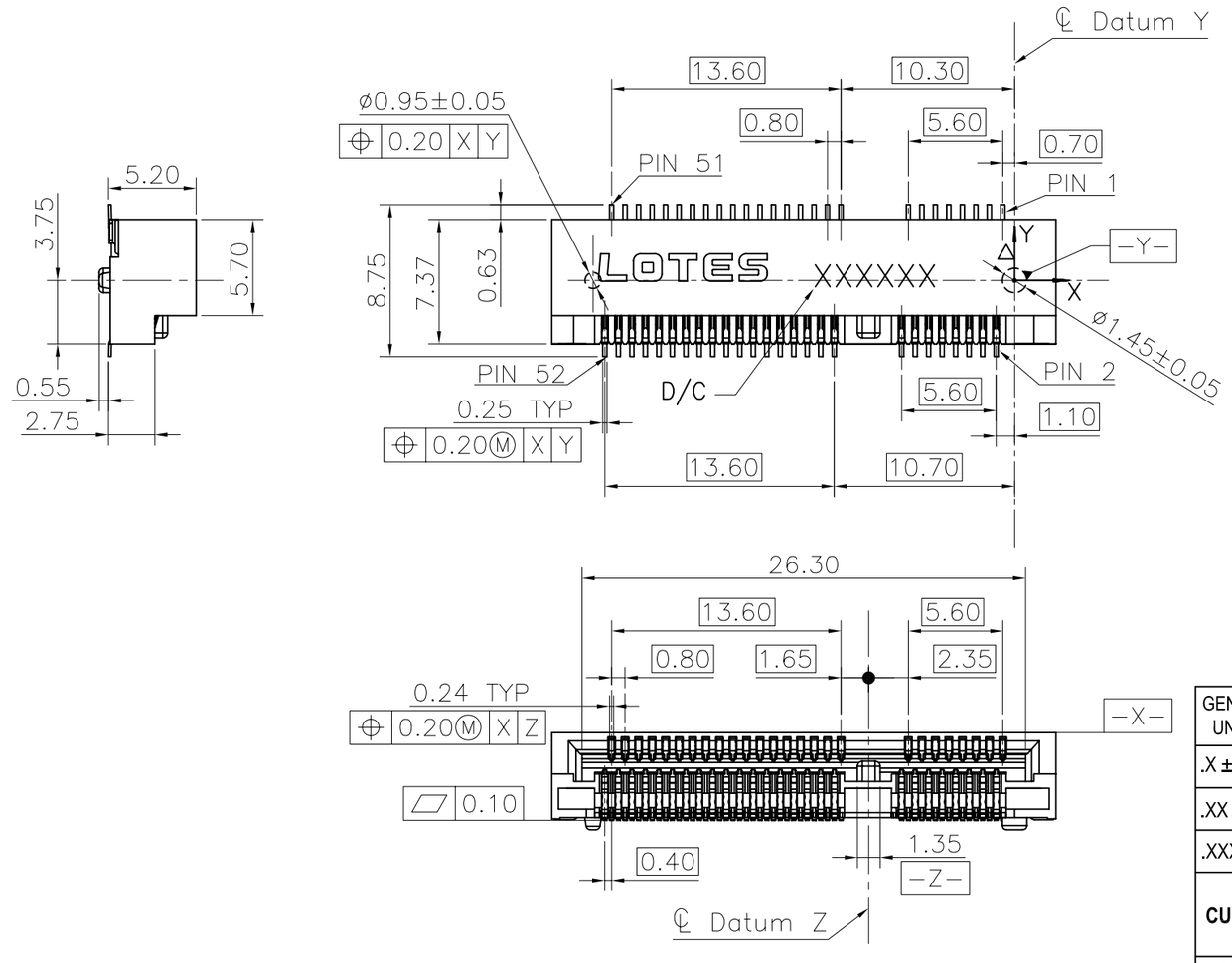
Suggestion：In SMT process , the thickness of solder paste is 0.13mm minimum



REV.	ECR/N NO./DESCRIPTION	DATE	DRAWN	CHECKED	APPROVE
8C	SR***	04/17'12	Tracy	Vito	Barney
8D	SR***	08/16'13	Lxh	Vito	Barney
8E	SR***	02/25'14	Lxh	Vito	Barney







HOW TO MATE AND UNMATE

MATE: 1 → 3

UNMATE: 4 → 5

1.DATUM X IS THE TOP SURFACE OF PRODUCT.

2.(1) THE HORIZONTAL AXIS FOR THE PATTERN IS ESTABLISHED BY A LINE THROUGH THE CENTER OF THE ø1.45 AND ø0.95 POSTS.
(2) THE VERTICAL AXIS IS 90° TO THE HORIZONTAL AXIS. THROUGH THE CENTER OF DATUM Y.

GENERAL TOLERANCES UNLESS SPECIFIED		PART NO.	LOTES
.X ± 0.35	X.° ± 3°	SEE TABLE	
.XX ± 0.25	.X° ± 2°	APPROVED BY: Richard Zhu	TITLE: MINI PCI EXPRESS 5.2H 0.8PITCH 52P
.XXX ±0.15	.XX° ±1°		
CUSTOMER DRAWING		CHECKED BY: Kelvin_Yao	DWG NO.: AP-AAA-PCI-092
SIZE: A4	UNITS: MM	DRAWN BY: Cary He	SHEET: 1 / 7 · SCALE: 2 : 1 · REV: 8E

REEL_POSITIVE PACK(卷盘正向包装)

PART NO	CONTACT MATERIAL & PLATING	COLOR
AAA-PCI-092-K01	PHOSPHOR BRONZE C5191 _Au 1u"	BLACK
AAA-PCI-092-K02	PHOSPHOR BRONZE C5191 _Au 30u"	BLACK
AAA-PCI-092-K03	PHOSPHOR BRONZE C5191 _Au 10u"	BLACK
AAA-PCI-092-P01	PHOSPHOR BRONZE C5191 _Au 1u"	BLACK
AAA-PCI-092-P03	PHOSPHOR BRONZE C5191 _Au 10u"	BLACK
AAA-PCI-092-P04	PHOSPHOR BRONZE C5191 _Au 1u"	WHITE
AAA-PCI-092-P05	PHOSPHOR BRONZE C5191 _Au 1u"	BLACK
AAA-PCI-092-P06	PHOSPHOR BRONZE C5191 _Au 10u"	WHITE
AAA-PCI-092-P07	BRASS C2680 _Au 1u"	BLACK
AAA-PCI-092-P08	BRASS C2680 _Au 10u"	BLACK
AAA-PCI-092-P09	BRASS C2680 _Au 30u"	BLACK
AAA-PCI-092-P10	BRASS C2680 _Au 15u"	BLACK
AAA-PCI-092-P11	BRASS C2680 _Au 10u"	WHITE
AAA-PCI-092-P12	BRASS C2680 _Au 1u"	WHITE
AAA-PCI-092-Y01	PHOSPHOR BRONZE C5191 _Au 1u"	BLACK
AAA-PCI-092-Q07	BRASS C2680 _Au 1u"	BLACK

REEL_REVERSE PACK(卷盘反向包装)

PART NO	CONTACT MATERIAL & PLATING	COLOR
AAA-PCI-092-K03_A	PHOSPHOR BRONZE C5191 _Au 10u"	BLACK
AAA-PCI-092-P01_A	PHOSPHOR BRONZE C5191 _Au 1u"	BLACK
AAA-PCI-092-P03_A	PHOSPHOR BRONZE C5191 _Au 10u"	BLACK
AAA-PCI-092-P07_A	BRASS C2680 _Au 1u"	BLACK
AAA-PCI-092-P08_A	BRASS C2680 _Au 10u"	BLACK

GENERAL TOLERANCES UNLESS SPECIFIED		PART NO. SEE TABLE	LOTES
.X ± 0.35	X.° ± 3°		
.XX ± 0.25	.X° ± 2°	APPROVED BY Richard Zhu	TITLE MINI PCI EXPRESS5.2H 0.8PITCH 52P
.XXX ±0.15	.XX° ±1°		
CUSTOMER DRAWING		CHECKED BY Kelvin_Yao	DWG NO. AP-AAA-PCI-092
SIZE	UNITS	DRAWN BY Cary He	SHEET 2 / 7 · SCALE 5 : 3 · REV 8E
A4	MM		

NOTES:

1.MATERIAL:
  1).HOUSING: LCP BLACK OR WHITE UL94V-0.
  2).CONTACT: PHOSPHOR BRONZE OR BRASS (SEE TABLE).
  3).PADS: BRASS .

2.FINISH:
  2.1 CONTACTS:
    1).50u"MIN Ni UNDER PLATED OVER ALL.
    2).Au PLATING ON CONTACT AREA (SEE TABLE).
    3).MATTE-Tin 100u"MIN ON SOLDER AREA.
  2.2 PADS:
    1).60u"MIN Ni UNDER PLATED OVER ALL.
    2).MATTE-Tin 100u"MIN ON SOLDER AREA.

3.MECHANICAL PERFORMANCE,
  MATING & UNMATING FORCE: 2.3 Kgf MAX.

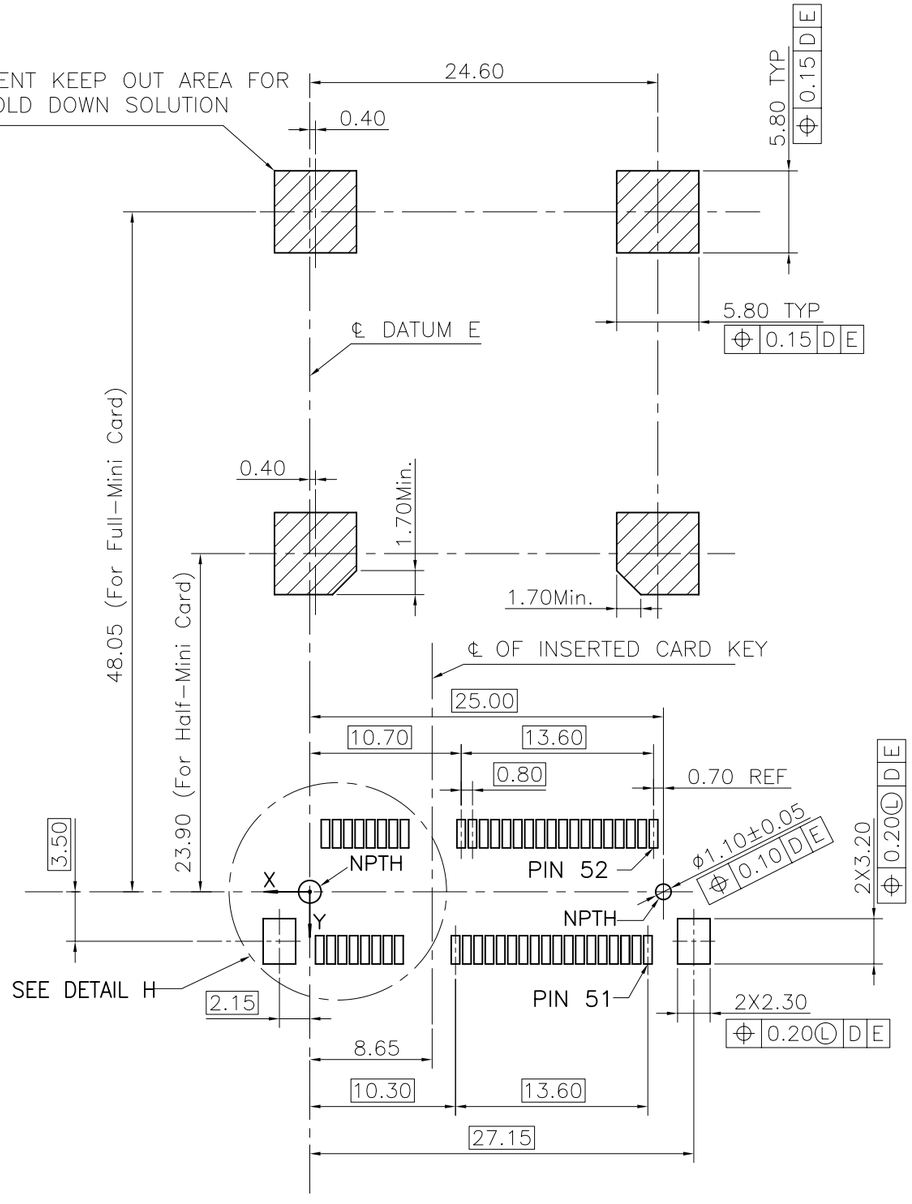
4.ELECTRICAL PERFORMANCE,
  4-1.VOLTAGE RATING: 50 V AC PER CONTACT.
    CURRENT RATING: 0.5 A.
  4-2.LLCR:INITIAL 55mΩ MAX PER CONTACT..
    FINAL 20mΩ MAX
  4-3.INSULATION RESISTANCE:
    500MΩ MIN
  4-4.DIELECRIC WITHSTAND VOLTAGE:
    AC 300V FOR 1 MINUTE BETWEEN ADJACENT CONTACTS.
    NO BREAKDOWN OR FLASH.
    CURRENT LEAKAGE:1mA.

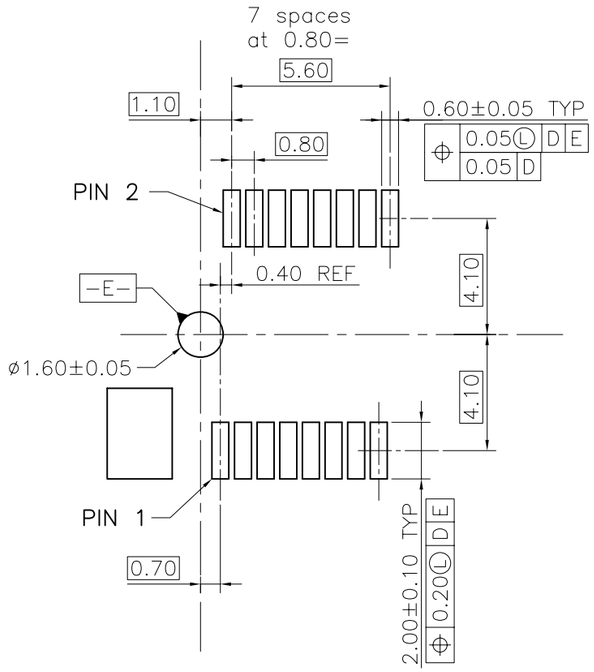
5. IR REFLOW:
  THE PEAK TEMPRATURE ON THE BOARD SHALL BE
  MAINTAINED FOR 10 SECONDS AT 250±10°C.

6. DC: XXXXXX
  - DATE
  - WEEK
  - YEAR

7. PRODUCT NO:AAA-PCI-***-***
  - TYPE SERIAL NUMBER
  - P:HALOGEN FREE;K:LEAD FREE
  - PRODUCT SERIAL NUMBER
  - PRODUCT TYPE
  - FINISHED PRODUCT
  - BOARD TO CONNECTOR
  - CONNECTOR

GENERAL TOLERANCES UNLESS SPECIFIED .X ± 0.35 / X.° ± 3° .XX ± 0.25 / .X° ± 2° .XXX ±0.15 / .XX° ±1°	PART NO. SEE TABLE	LOTES	
	APPROVED BY Richard Zhu	TITLE MINI PCI EXPRESS 5.2H 0.8PITCH 52P	
CUSTOMER DRAWING	CHECKED BY Kelvin_Yao	DWG NO. AP-AAA-PCI-092	
SIZE: A4 / UNITS: MM	DRAWN BY Cary He	SHEET: 3 / 7	SCALE: 5 : 2 / REV: 8E

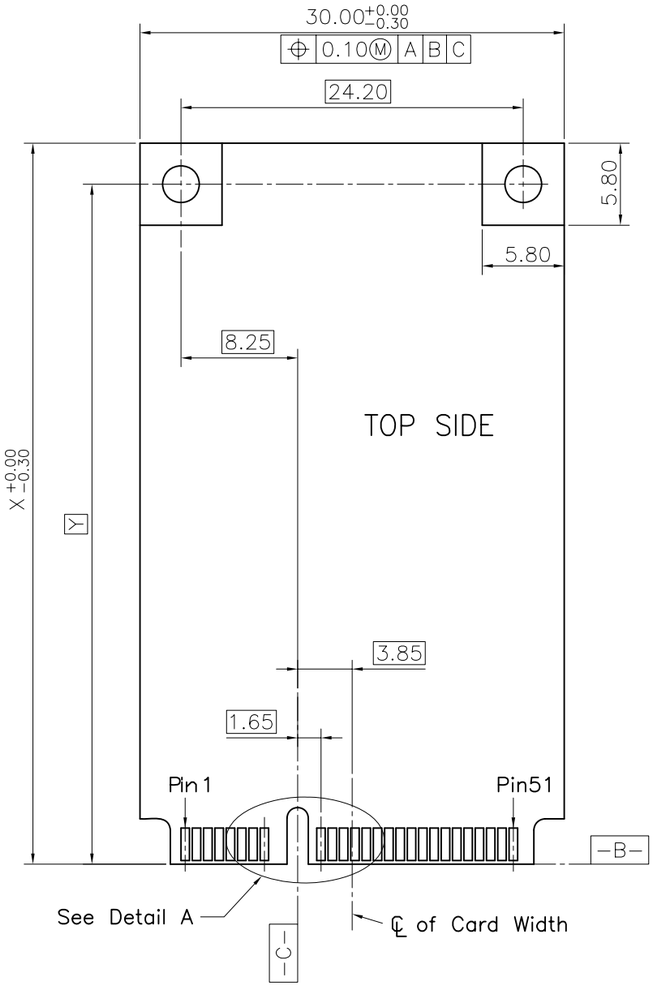


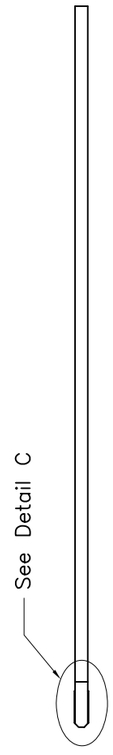


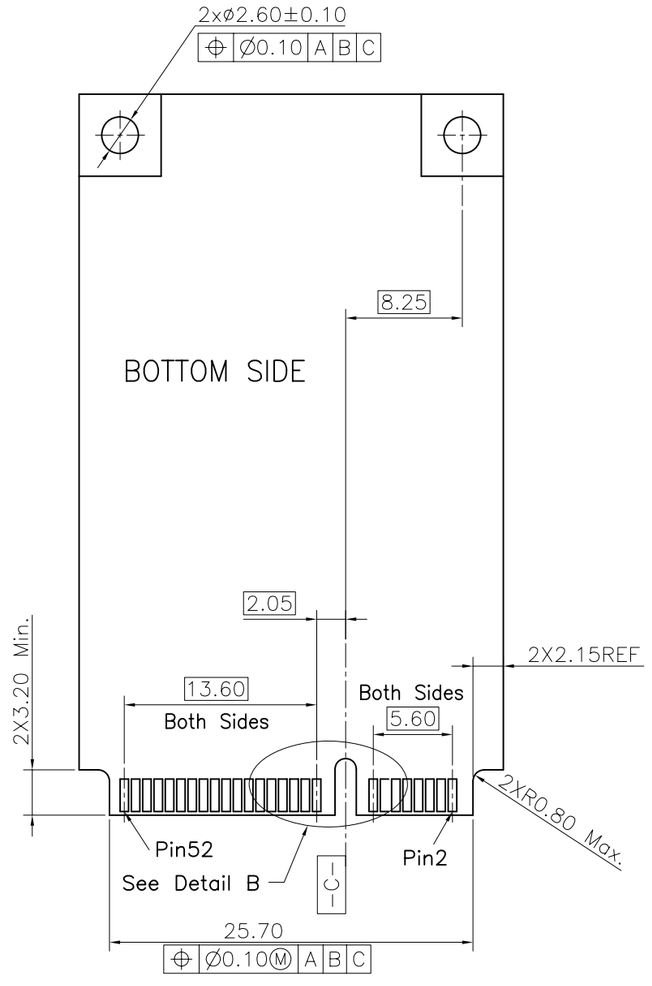
DETAIL H／SCALE 2:1

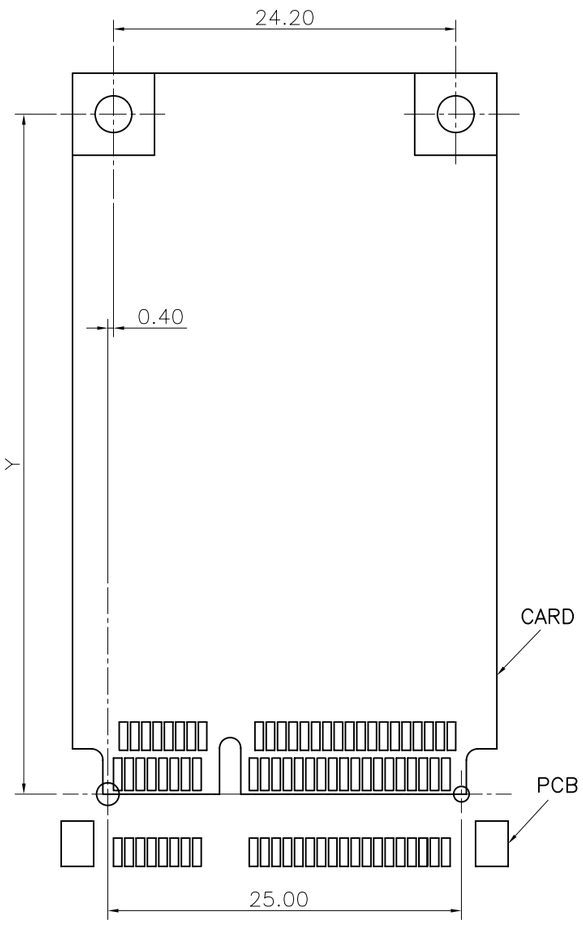
1. DATUM D IS THE TOP SURFACE OF PCB
2. THE HORIZONTAL AXIS FOR THE PATTERN IS ESTABLISHED BY A LINE THROUGH THE CENTER OF THE ø1.60 AND ø1.10 HOLES. THE VERTICAL AXIS IS 90° TO THE HORIZONTAL AXIS, THROUGH THE CENTER OF DATUM E.
3. LOCATION OF INSERTED CARD EDGE IS ALIGNED WITH ℄ OF HOLES.

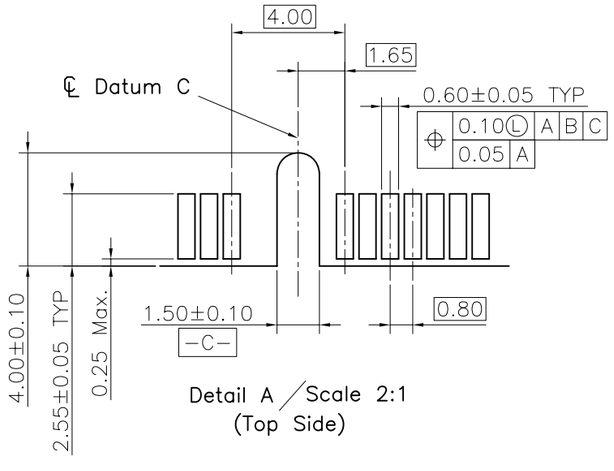
GENERAL TOLERANCES UNLESS SPECIFIED		PART NO. SEE TABLE	LOTES
.X ± 0.35	X.° ± 3°		
.XX ± 0.25	.X° ± 2°	APPROVED BY Richard Zhu	TITLE MINI PCI EXPRESS 5.2H 0.8PITCH 52P
.XXX ±0.15	.XX° ±1°		
CUSTOMER DRAWING		CHECKED BY Kelvin_Yao	DWG NO. AP-AAA-PCI-092
SIZE	UNITS	DRAWN BY Cary He	SHEET 4 / 7 · SCALE 5 : 3 · REV 8E
A4	MM		

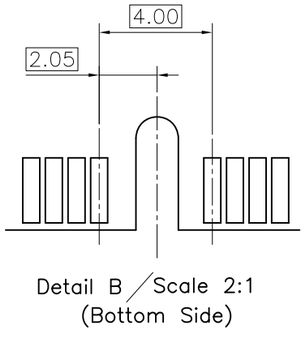


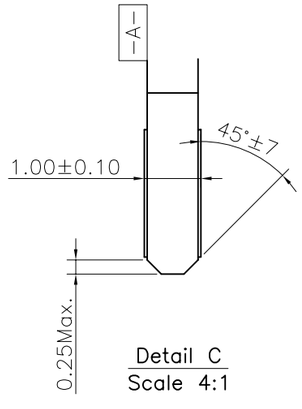








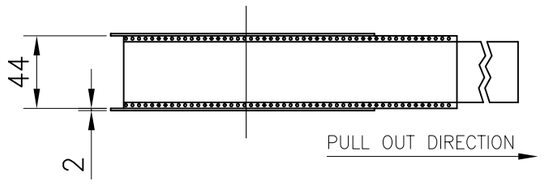


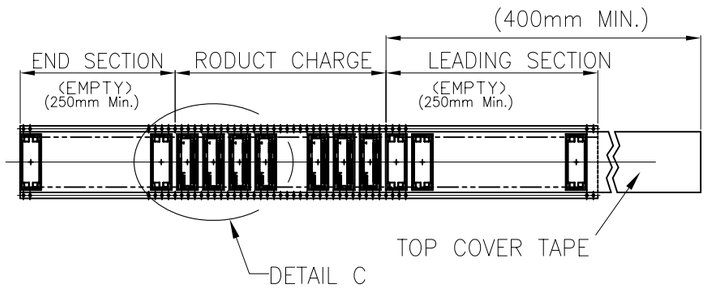


	DIM X	DIM Y
Half−Mini Card	26.80	23.90
Full−Mini Card	50.95	48.05

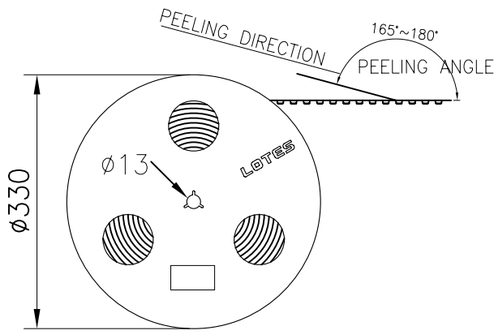
GENERAL TOLERANCES UNLESS SPECIFIED		PART NO. SEE TABLE	LOTES
.X ± 0.35	X.° ± 3°		
.XX ± 0.25	.X° ± 2°	APPROVED BY Richard Zhu	TITLE MINI PCI EXPRESS5.2H 0.8PITCH 52P
.XXX ±0.15	.XX° ±1°		
CUSTOMER DRAWING		CHECKED BY Kelvin_Yao	DWG NO. AP-AAA-PCI-092
SIZE	UNITS	DRAWN BY Cary He	SHEET 5 / 7 · SCALE 5 : 3 · REV 8E
A4	MM		

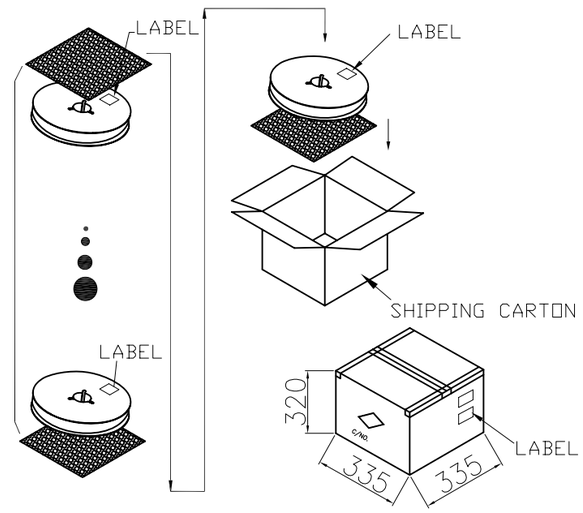
REEL_POSITIVE PACK

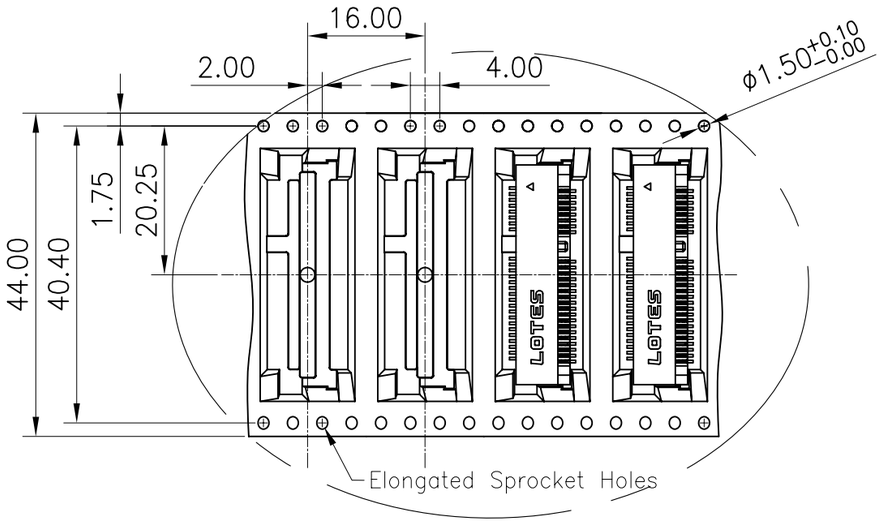




NOTES:
1. MATERIAL :
   1.1 CARRY TAPE: PS
   1.2 COVER TAPE: PET
   1.3 SHIPPING CARTON: CORRUGATED FIBER
2. DIMENSION :
   2.1 REEL: W=44.5, ØA=330
   2.2 SHIPPING CARTON: L=335, W=335, H=320 (INNER)
3. QUANTITY :
   3.1 PRIMARY PACKING: 600 PCS/REEL
   3.2 SECONDARY PACKING: 6 REELS/CARTON(3600PCS)
4. PEELING RESISTANCE: 20gf~120gf.
5. PEELING SPEED: 300mm/minutes.





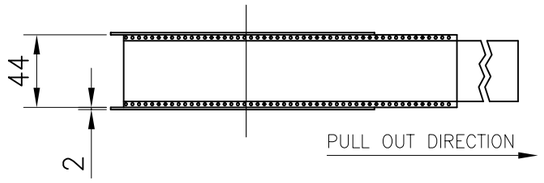


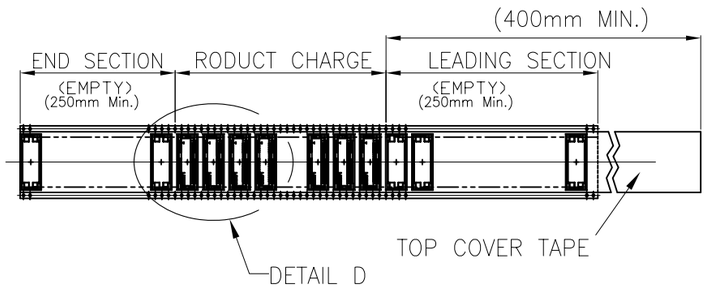
DETAIL C
SCALE 4:1

FEEDING DIRECTION

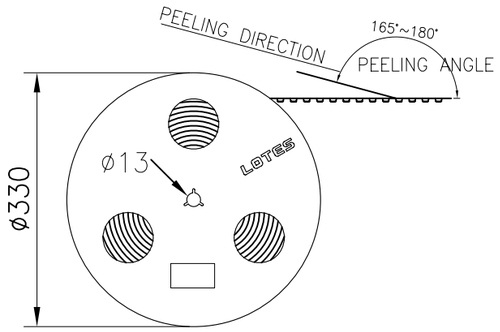
GENERAL TOLERANCES UNLESS SPECIFIED		PART NO. SEE TABLE	LOTES		
.X ± 0.35	X.° ± 3°				
.XX ± 0.25	.X° ± 2°	APPROVED BY Richard Zhu	TITLE MINI PCI EXPRESS 5.2H 0.8PITCH 52P		
.XXX ±0.15	.XX° ±1°				
CUSTOMER DRAWING		CHECKED BY Kelvin_Yao	DWG NO. AP-AAA-PCI-092		
SIZE	UNITS	DRAWN BY Cary He		SHEET	SCALE	REV
A4	MM			6 / 7	N/A	8E

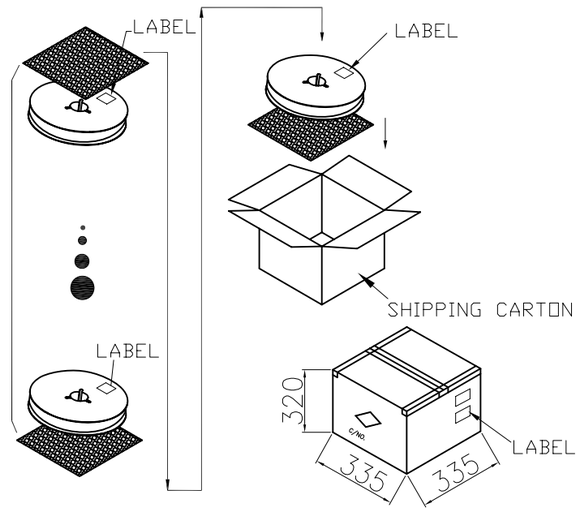
REEL_REVERSE PACK

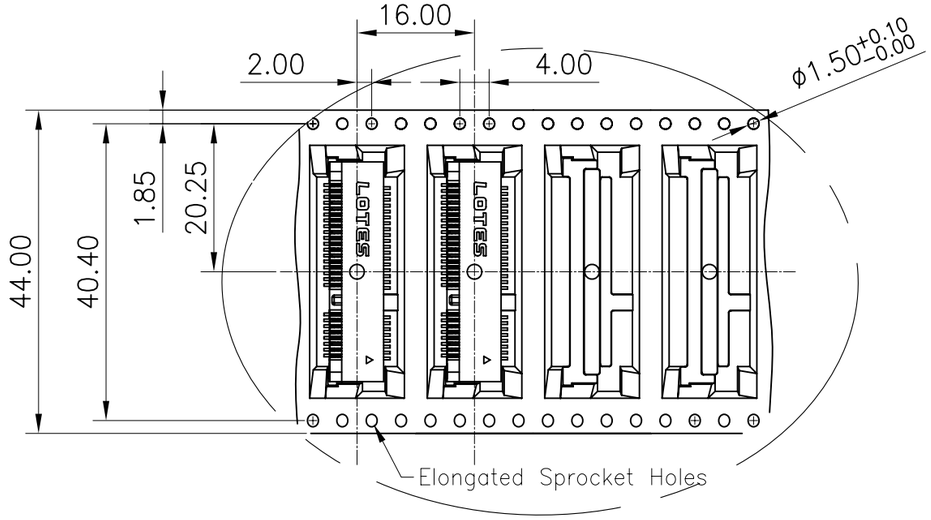




NOTES:
1. MATERIAL :
   1.1 CARRY TAPE: PS
   1.2 COVER TAPE: PET
   1.3 SHIPPING CARTON: CORRUGATED FIBER
2. DIMENSION :
   2.1 REEL: W=44.5, ØA=330
   2.2 SHIPPING CARTON: L=335, W=335, H=320 (INNER)
3. QUANTITY :
   3.1 PRIMARY PACKING: 600 PCS/REEL
   3.2 SECONDARY PACKING: 6 REELS/CARTON(3600PCS)
4. PEELING RESISTANCE: 20gf~120gf.
5. PEELING SPEED: 300mm/minutes.







DETAIL D
SCALE 4:1

FEEDING DIRECTION

GENERAL TOLERANCES UNLESS SPECIFIED		PART NO. SEE TABLE	LOTES
.X ± 0.35	X.°± 3°		
.XX ± 0.25	.X°± 2°	APPROVED BY Richard Zhu	TITLE MINI PCI EXPRESS 5.2H 0.8PITCH 52P
.XXX ±0.15	.XX°±1°		
CUSTOMER DRAWING		CHECKED BY Kelvin_Yao	DWG NO. AP-AAA-PCI-092
SIZE	UNITS	DRAWN BY Cary He	SHEET 7 / 7 · SCALE N/A · REV 8E
A4	MM		

LOTES

PRODUCT RELIABILITY TEST REPORT

Report No. GL-RD090107 **GL-P-027-005**

Product: MINI PCI-E 5.2H
Part NO.: AAA-PCI-092-***
Test Object: Product Reliability Test
Sample Quantity: 40PCS
Test Environment: 20-24℃，50-62%RH
Date of Test: Jan.08,09~ Mar.02,09

Test Result Summary:

Qualification Group	Pass / Fail	Comments
Test Group A	Pass	
Test Group B	Pass	
Test Group C	Pass	
Test Group D	Pass	
Test Group E	Pass	
Test Group F	Pass	
Test Group G	Pass	
Test Group H	Pass	

* ** *

Approved By:King **Checked By:Su** **Prepared By: Hejie**

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LOTES

PRODUCT RELIABILITY TEST REPORT

Report No. GL-RD090107 **GL-P-027-005**

1. Testing Sequence:

Test or examination		Test group step							
		A	B	C	D	E	F	G	H
1	Examination of product	1,5	1,9	1,5	1,8	1,3	1,5	1,5	1,3
2	Contact Resistance	2,4	2,6	2,4			2,4	2,4	
3	Insulation Resistance				2,6				
4	Dielectric withstanding voltage				3,7				
5	Vibration	3							
6	Durability		5						
7	Mating force		3,7						
8	Unmating Force		4,8						
9	Solder ability					2			
10	Humidity				5				
11	Thermal Shock				4				
12	Mechanical shock			3					
13	Temperature life						3		
14	Salt spray							3	
15	Resistance to Solder Heat								2
Specimen quantity (pcs)		5	5	5	5	5	5	5	5

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2. Test Item & Condition & Requirements ：

Test item		Test condition	Requirements
1	Examination of product	EIA-364-18. Meets requirements of product drawing	No physical damage
2	Contact Resistance	EIA 364-23 Subject mated contacts assembled in housing to closed circuit current of 10mA max. at open circuit voltage of 20mV max.	55 milliohms max.(initial). △R=20 milliohms max.(Final)
3	Dielectric Withstanding Voltage	EIA 364-20 Subject mated connector with a voltage of 300VAC for 1.0minute between adjacent contacts.	No disruptive discharge or leakage greater than 1.0 mA(max)
4	Insulation Resistance	EIA 364-21 Impressed voltage 500V DC. Test between adjacent contacts of unmated connectors.	500 MΩmin
5	Durability	EIA 364-9 Repeated insertion and Removal of P.C.B from the connector for 50 cycles	Show no physical damage △R=20 milliohms max.(Final)
6	Vibration	EIA 364-28 Subject mated connectors to 10-55-10Hz traversed in 1 minute at 1.52 mm amplitude 2hours each of 3 mutually perpendicular planes.100mA applied.	No electrical discontinuity greater Than 1.0microsecond shall occur. △R=20 mΩ max.(Final)
7	Mechanical Shock	EIA 364-27 Subject mated specimens to 50G's half-sine shock pulses of 11 milliseconds duration three shocks in each direction applied along three mutually perpendicular planes (18 shocks)	No electrical discontinuity greater than 1.0 microsencond shall occur. △R=20 mΩ max.(Final)

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8	Mating and Unmating force	EIA 364-13 Insert the card at the specified angle Rotate the card into position Reverse the installtion sequence to unmating	2.3kgfmax.
9	Temperature Life	EIA 364-17 Expose mated connectors to a temperature of 85+/-3℃ for 96hours.	Show no physical damage. △R=20 mΩ max.(Final)
10	Thermal Shock	EIA 364-32 Mated connector -55℃/30 min., +85℃/30min. Making this a cycle, repeat 10 cycles	Show no physical damage. △R=20 mΩ max.(Final)
11	Humidity temperature cycling	EIA 364-31 Subject specimens to 96 hours at 40+/-2℃,with RH of 90~95%	Show no physical damage. △R=20 mΩmax.(Final) Insulationresistance:500MΩ min
12	Solder ability	EIA 364-52 Solder Temperature(Tin): 245±5℃ Immersion Durating::3+0.5 sec.	Wet solder coverage 95% min.
13	Salt Spray	EIA 364-26 Mated connector expose to 24 hours at 35±2℃ and 5% salt-solution concentration.After the test,specimens shall be washed with running water and dried naturally before the measurement of contact resistance.	Show no physical damage
14	Resistance to solder heat	EIA-364-56 Max.peak temperature of 260+/-5℃ 300℃ with 10second(sohdering iron)	Show no physical damage.

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3. Testing Equipment:

Name	Model
Microscope	MITUTOYO-TM
Milliohmmeter	KEITHLEY-580
Withstanding voltage & insulation auto tester	ZENTECH-9052
Load cell auto tester	ALGOL-1220s
Thermal shock test chamber	CHANGHONG-SH-T-601
Temperature & humidity cycling chamber	WT-RF-5EE
Mechanical shock tester	King Design-DP-1200-ST-250
Vibration tester	King Design-9363EM-600F2K-40N120
High temperature oven	SMO-4
Salt Spray tester	SSF-060
PCB soldering machine	JIAZE-PS-2000

4. Testing Result:

Group A:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	LLCR	40.37	37.84	36.93	39.41	42.76	mΩ	Pass
3	Vibration	Normal	Normal	Normal	Normal	Normal	/	Pass
4	LLCR	42.86	44.77	37.97	40.54	46.23	mΩ	Pass
5	Examination of product	Normal	Normal	Normal	Normal	Normal	/	Pass

Group B:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	LLCR	39.79	42.14	41.44	42.04	41.77	mΩ	Pass
3	Mating force	0.15	0.32	0.10	0.13	0.19	kgf	Pass
4	Unmating force	0.09	0.20	0.06	0.01	0.07	kgf	Pass
5	Durability	Normal	Normal	Normal	Normal	Normal	/	Pass
6	LLCR	53.10	52.87	51.18	51.06	52.75	mΩ	Pass
7	Mating force	0.31	0.21	0.24	0.15	0.25	kgf	Pass
8	Unmating force	0.02	0.05	0.05	0.03	0.09	kgf	Pass
9	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass

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Group C:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	LLCR	42.34	39.48	37.21	38.49	41.42	mΩ	Pass
3	Mechanical shock	Normal	Normal	Normal	Normal	Normal	/	Pass
4	LLCR	38.94	38.49	37.17	37.36	38.18	mΩ	Pass
5	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass

Group D:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	IR	>500	>500	>500	>500	>500	MΩ	Pass
3	DWV	300	300	300	300	300	V	Pass
4	Thermal shock	Normal	Normal	Normal	Normal	Normal	/	Pass
5	Humidity	Normal	Normal	Normal	Normal	Normal	/	Pass
6	IR	>500	>500	>500	>500	>500	MΩ	Pass
7	DWV	300	300	300	300	300	V	Pass
8	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass

Group E:

Examination Step/ Item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	Solder ability	Normal	Normal	Normal	Normal	Normal	/	Pass
3	Examination of product	Normal	Normal	Normal	Normal	Normal	/	Pass

Group F:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	LLCR	35.95	37.55	35.70	35.00	35.55	mΩ	Pass
3	Temperature life	Normal	Normal	Normal	Normal	Normal	/	Pass
4	LLCR	40.13	42.42	40.46	39.27	41.48	mΩ	Pass
5	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass

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Group G:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	LLCR	40.89	39.85	42.73	44.50	40.01	mΩ	Pass
3	Salt spray	Normal	Normal	Normal	Normal	Normal	/	Pass
4	LLCR	44.45	41.60	36.95	35.20	35.60	mΩ	Pass
5	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass

Group H:

Examination step/ item		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Unit	Pass/fail
1	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass
2	Resistance to solder heat	Normal	Normal	Normal	Normal	Normal	/	Pass
3	Examination of Product	Normal	Normal	Normal	Normal	Normal	/	Pass

5. The LLCR as follow:

Group A

NO	A-Vibration									
	Initial					After Vibration				
	A1	A2	A3	A4	A5	A1	A2	A3	A4	A5
1-3	38.55	37.03	36.93	37.30	38.03	42.86	37.08	37.97	38.18	38.52
5-7	36.97	36.94	36.70	37.26	35.96	39.38	44.77	37.45	37.68	39.17
9-11	37.57	36.85	36.54	37.79	37.75	39.86	39.57	36.63	38.52	38.40
13-15	37.28	37.07	36.71	36.65	36.52	39.88	37.59	37.22	37.09	38.03
17-19	36.81	37.15	36.31	37.53	38.30	37.66	37.00	36.58	37.72	39.08
21-23	36.81	36.84	36.37	37.52	38.07	37.76	36.45	36.24	38.06	38.88
25-27	37.07	37.24	36.09	39.41	38.76	38.11	36.90	36.18	40.54	40.41
29-31	38.31	36.85	36.37	38.12	37.50	40.18	36.48	36.67	38.71	38.44
33-35	37.83	37.14	36.24	39.17	42.76	39.04	37.04	36.98	38.71	46.23
37-39	37.49	36.60	36.08	37.07	38.53	38.88	36.42	36.09	37.56	39.10
41-43	40.37	37.84	36.03	37.33	37.04	42.84	37.06	36.13	38.26	37.78
45-47	37.14	37.57	36.56	36.65	37.75	39.32	36.75	36.61	37.13	38.70
49-51	37.33	37.03	36.63	37.16	37.88	40.08	37.17	37.06	36.85	38.93
2-4	25.64	27.06	26.78	25.86	27.44	26.83	25.39	26.21	25.16	26.41
6-8	27.35	27.16	29.71	26.09	25.93	26.90	25.85	25.42	25.67	26.23
10-12	26.46	27.99	26.75	28.55	25.77	26.53	25.88	25.69	26.00	26.44
14-16	26.40	28.61	26.47	25.95	26.47	26.10	26.23	25.77	25.78	26.40
18-20	26.90	26.94	26.40	26.37	27.57	27.04	25.71	25.61	25.98	26.67
22-24	26.53	27.01	25.94	26.33	26.40	26.30	27.02	25.30	25.64	27.38
26-28	26.31	26.85	28.84	26.32	26.06	27.26	26.44	26.42	25.67	27.95
30-32	26.62	27.54	26.30	26.77	27.39	26.24	26.34	26.01	26.64	26.70
34-36	26.65	26.32	26.09	26.68	25.75	27.49	26.63	26.52	25.99	28.09
38-40	25.99	26.63	25.81	26.81	26.34	26.80	26.52	26.21	25.95	26.65
42-44	25.56	26.30	27.45	26.56	25.86	27.23	26.54	25.76	25.66	26.91
46-48	25.68	26.96	25.92	26.75	25.77	27.06	26.90	28.65	25.66	27.35
50-52	25.06	25.97	25.51	25.93	26.22	26.88	26.06	27.45	25.68	27.23
Max	40.37	37.84	36.93	39.41	42.76	42.86	44.77	37.97	40.54	46.23
Min	25.06	25.97	25.51	25.86	25.75	26.10	25.39	25.30	25.16	26.23
Avg	31.95	32.06	31.59	32.07	32.22	33.25	31.99	31.49	31.94	33.15
Stdev	5.88	5.16	5.00	5.70	6.08	6.66	6.05	5.42	6.30	6.51

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Group B

NO	B-Durability									
	Initial					After Durabilitye				
	B1	B2	B3	B4	B5	B1	B2	B3	B4	B5
1-3	37.87	40.93	41.44	42.04	37.71	49.98	52.87	51.18	51.06	51.81
5-7	38.22	39.65	37.93	40.44	37.17	52.63	52.50	45.46	47.54	52.67
9-11	38.15	42.14	38.49	38.13	41.24	52.05	52.16	48.05	48.63	51.88
13-15	38.46	40.12	35.95	37.24	40.65	51.19	52.02	48.53	47.17	50.69
17-19	36.90	38.75	37.65	37.08	37.88	53.10	46.52	47.06	47.21	48.32
21-23	37.67	39.12	38.18	40.56	38.38	48.99	46.53	47.44	46.27	46.14
25-27	37.51	38.01	38.54	39.23	38.18	52.09	47.03	49.29	49.01	49.31
29-31	37.89	38.18	36.52	38.54	38.80	48.68	47.93	47.15	46.94	48.86
33-35	38.27	39.16	37.74	38.07	38.57	49.83	52.87	48.64	46.53	51.14
37-39	38.73	38.34	36.35	37.88	38.93	51.47	48.86	47.82	46.94	51.44
41-43	38.38	37.87	37.26	37.88	39.73	52.63	49.74	48.30	47.74	52.75
45-47	39.79	37.96	36.41	38.38	41.77	51.95	51.43	48.47	47.65	51.18
49-51	38.75	38.76	36.60	36.93	40.05	52.71	51.89	49.21	49.96	51.23
2-4	25.93	27.65	26.23	26.56	26.49	37.50	40.23	41.03	38.75	39.40
6-8	25.70	28.58	26.88	26.31	27.24	37.51	40.54	40.63	38.59	39.73
10-12	26.31	27.67	26.90	27.32	26.98	39.14	40.24	40.38	39.62	39.74
14-16	26.49	28.00	26.13	26.94	26.70	39.03	41.03	41.88	38.69	42.08
18-20	25.56	27.01	26.15	27.58	27.10	39.45	39.48	40.81	39.01	39.88
22-24	26.18	27.41	26.09	27.16	26.95	38.71	38.80	40.70	38.44	39.09
26-28	25.59	27.07	26.08	27.03	26.98	39.70	39.02	39.59	38.58	39.14
30-32	26.55	27.55	25.88	26.75	27.45	38.59	39.49	40.10	38.51	39.19
34-36	26.57	28.28	26.05	26.88	27.54	39.87	39.60	41.26	39.27	38.28
38-40	26.74	27.74	26.27	27.11	27.90	38.56	41.89	39.27	38.07	38.82
42-44	26.55	27.69	26.08	26.97	27.75	39.37	39.69	41.59	38.39	38.63
46-48	27.14	27.10	26.92	26.92	28.06	39.22	38.88	39.20	38.80	39.75
50-52	26.64	26.97	26.30	26.94	27.68	39.14	39.91	40.68	37.79	39.09
Max	39.79	42.14	41.44	42.04	41.77	53.10	52.87	51.18	51.06	52.75
Min	25.56	26.97	25.88	26.31	26.49	37.50	38.80	39.20	37.79	38.28
Avg	32.25	33.37	31.96	32.80	33.22	45.12	45.04	44.37	43.27	45.01
Stdev	6.09	5.97	5.86	6.06	6.14	6.44	5.55	4.06	4.82	5.86

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Group C

NO	C-Mechanical shock									
	Initial					After Mechanical shock				
	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5
1-3	40.09	39.36	36.78	37.45	38.25	37.57	37.91	36.09	36.61	36.59
5-7	39.34	38.10	36.41	38.30	39.44	37.56	37.43	36.23	37.12	37.78
9-11	39.34	38.37	36.83	38.20	38.19	37.12	37.94	36.29	37.06	37.05
13-15	40.83	39.48	36.97	38.49	36.14	37.18	38.19	36.83	37.36	36.64
17-19	39.50	36.89	36.41	36.14	37.99	36.92	37.16	36.15	36.59	37.25
21-23	42.34	37.25	37.07	37.54	39.16	38.94	37.19	36.71	36.81	38.18
25-27	40.48	38.28	36.28	37.05	41.42	38.22	38.49	36.45	36.53	36.95
29-31	38.65	36.51	36.55	37.04	37.51	38.28	37.61	37.07	36.71	37.08
33-35	38.60	37.82	36.08	36.71	37.96	37.40	37.78	36.07	36.57	36.85
37-39	37.19	36.68	36.25	37.01	37.33	37.85	36.42	37.04	36.73	36.84
41-43	38.23	37.55	36.28	37.07	36.78	37.15	37.28	36.78	36.66	36.18
45-47	39.57	37.17	36.99	37.17	36.90	37.76	37.05	37.17	37.02	36.88
49-51	38.07	38.15	37.21	37.29	37.43	36.91	36.86	36.74	36.11	36.63
2-4	26.37	28.02	25.06	26.00	26.50	26.08	26.41	25.70	26.67	25.25
6-8	27.30	25.78	25.86	26.44	27.94	25.24	25.77	26.00	26.88	25.98
10-12	26.65	27.78	26.29	26.83	29.60	25.22	26.28	26.10	26.83	25.86
14-16	26.67	26.02	26.69	28.14	28.06	25.55	27.10	26.01	26.97	25.89
18-20	26.88	29.70	25.94	27.36	27.47	26.73	27.64	25.79	26.49	26.30
22-24	26.16	26.02	27.95	27.55	25.81	26.47	25.89	26.02	26.52	26.28
26-28	26.42	27.01	26.34	27.93	27.18	26.20	26.08	25.94	26.58	26.14
30-32	26.69	26.39	26.45	27.47	27.32	26.48	25.73	26.23	26.80	26.53
34-36	26.39	28.84	26.44	27.61	26.56	26.45	26.83	25.85	26.16	26.32
38-40	26.35	28.23	26.60	28.73	27.03	26.58	25.66	25.95	26.39	27.98
42-44	25.82	26.75	26.62	28.96	27.57	25.75	27.12	25.60	26.42	26.80
46-48	26.07	26.10	26.68	28.23	27.19	26.18	25.47	25.47	25.81	26.87
50-52	28.04	26.57	26.63	28.25	27.25	25.50	30.68	25.08	25.69	25.78
Max	42.34	39.48	37.21	38.49	41.42	38.94	38.49	37.17	37.36	38.18
Min	25.82	25.78	25.06	26.00	25.81	25.22	25.47	25.08	25.69	25.25
Avg	33.00	32.49	31.52	32.50	32.69	31.82	32.07	31.20	31.62	31.65
Stdev	6.61	5.53	5.23	5.00	5.57	5.93	5.61	5.50	5.25	5.48

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Group F

NO	F- Temperature life									
	Initial					After Temperature life				
	F1	F2	F3	F4	F5	F1	F2	F3	F4	F5
1-3	35.95	36.15	34.40	33.70	35.55	40.13	41.17	40.46	38.20	40.73
5-7	34.00	36.35	33.30	32.45	34.35	39.11	39.30	38.16	36.75	39.95
9-11	33.85	37.20	34.05	35.00	33.20	38.55	40.70	38.89	39.27	38.65
13-15	32.35	37.55	33.45	34.40	32.80	36.53	40.84	35.87	38.18	37.90
17-19	33.65	35.30	33.45	32.95	33.60	38.63	39.47	38.04	37.17	38.81
21-23	34.95	35.75	33.70	32.90	35.25	40.07	39.83	36.25	36.86	39.19
25-27	34.90	36.60	34.00	33.80	34.70	40.07	39.68	37.89	37.80	39.19
29-31	34.35	35.25	33.70	32.90	33.80	39.62	42.42	38.17	37.25	41.48
33-35	34.30	33.65	34.55	34.30	33.35	38.33	39.67	38.12	37.91	39.94
37-39	33.35	34.20	33.90	33.55	32.90	37.92	39.85	38.03	37.62	40.75
41-43	33.05	34.95	35.70	34.00	32.90	36.31	39.83	38.52	37.14	39.57
45-47	33.55	36.25	35.00	33.00	33.70	37.61	41.95	38.63	37.93	40.87
49-51	33.90	33.00	35.70	33.95	33.15	37.12	37.61	39.29	38.64	40.11
2-4	23.50	22.15	22.70	22.55	22.10	28.07	27.10	27.20	27.64	27.65
6-8	23.45	23.05	23.55	23.05	22.05	28.45	27.52	27.38	28.32	27.93
10-12	23.50	22.95	23.15	22.90	22.15	27.79	27.68	27.36	28.36	27.85
14-16	23.45	23.00	23.30	23.15	22.20	27.87	27.47	27.38	28.22	27.71
18-20	25.10	23.00	23.45	22.95	22.45	27.90	27.81	27.23	27.01	27.71
22-24	23.25	23.25	23.55	22.80	22.50	27.97	27.90	27.40	27.83	28.03
26-28	24.30	22.80	24.05	22.90	22.20	28.75	27.75	27.57	27.48	28.27
30-32	24.10	22.55	23.90	22.80	22.35	28.21	27.67	27.67	27.16	28.56
34-36	25.05	22.75	24.00	22.85	22.20	28.10	27.35	27.68	27.40	28.73
38-40	24.30	22.80	23.75	27.80	22.55	27.89	27.42	27.52	27.59	28.98
42-44	24.45	23.30	23.80	22.65	22.40	27.51	27.92	27.39	28.81	29.64
46-48	23.50	22.45	23.90	22.65	22.80	26.74	26.83	27.53	28.16	29.80
50-52	22.60	22.15	23.50	22.15	22.20	26.36	26.54	28.16	26.57	30.16
Max	35.95	37.55	35.70	35.00	35.55	40.13	42.42	40.46	39.27	41.48
Min	22.60	22.15	22.70	22.15	22.05	26.36	26.54	27.20	26.57	27.65
Avg	28.95	29.17	28.90	28.39	28.05	33.14	33.82	32.84	32.74	34.16
Stdev	5.23	6.58	5.46	5.44	5.88	5.52	6.55	5.51	5.15	5.81

LOTES

PRODUCT RELIABILITY TEST REPORT

Report No. GL-RD090107 **GL-P-027-005**

Group G

NO	G-Salt Spray									
	Initial					After Salt Spray				
	G1	G2	G3	G4	G5	G1	G2	G3	G4	G5
1-3	39.15	39.20	42.73	43.14	39.18	35.00	37.35	35.35	35.20	34.45
5-7	39.06	38.45	39.71	43.19	38.55	36.50	35.60	34.05	34.65	33.80
9-11	40.89	39.85	39.77	39.33	40.01	43.80	41.60	33.45	34.05	35.45
13-15	38.76	38.15	36.88	37.52	38.54	44.45	37.10	32.55	33.20	34.10
17-19	37.60	38.40	39.62	38.01	37.84	33.75	34.00	33.60	33.25	33.90
21-23	38.66	37.64	41.01	44.50	37.21	33.65	33.55	34.80	33.95	33.55
25-27	39.12	38.97	41.69	41.68	37.53	33.50	34.05	36.95	33.70	35.60
29-31	26.11	38.48	39.03	39.01	37.61	34.35	34.05	34.20	34.00	33.90
33-35	40.27	38.77	38.80	38.14	38.00	33.75	34.40	33.95	33.05	34.50
37-39	39.91	37.74	37.90	39.37	37.49	33.85	34.05	34.15	33.80	33.60
41-43	39.35	38.67	37.61	38.37	38.59	34.30	35.00	33.55	32.95	34.80
45-47	39.82	38.79	37.64	38.60	37.87	34.45	34.35	34.30	33.35	34.75
49-51	38.53	38.79	37.48	38.01	38.09	33.40	34.45	34.10	33.00	34.50
2-4	26.54	27.41	27.54	31.56	26.25	22.90	23.50	22.60	23.35	22.80
6-8	27.42	27.27	27.15	28.42	27.34	22.90	23.35	22.55	23.00	23.50
10-12	26.92	28.02	27.80	27.56	26.92	23.00	23.35	23.15	23.55	24.10
14-16	27.39	27.61	29.43	28.07	27.32	24.30	23.40	22.75	23.50	24.25
18-20	27.51	27.97	31.14	27.74	26.42	23.30	23.35	23.20	24.00	23.10
22-24	27.52	28.61	28.97	27.37	26.86	23.25	22.65	23.05	24.70	23.60
26-28	27.37	28.82	29.93	27.68	26.71	22.20	23.10	23.25	27.50	23.30
30-32	27.17	28.55	28.44	27.88	26.22	22.30	23.20	23.35	31.65	23.20
34-36	26.87	28.99	28.04	27.88	26.45	22.10	23.75	23.50	27.15	23.55
38-40	27.21	28.36	27.61	28.90	26.64	22.60	23.10	23.90	30.25	23.55
42-44	27.37	28.48	27.56	28.99	26.12	22.30	23.50	23.55	26.25	23.30
46-48	27.08	28.38	28.45	28.17	26.68	22.50	23.40	24.35	34.85	23.95
50-52	26.52	27.82	26.92	27.16	26.03	22.55	23.35	22.50	28.75	22.65
Max	40.89	39.85	42.73	44.50	40.01	44.45	41.60	36.95	35.20	35.60
Min	26.11	27.27	26.92	27.16	26.03	22.10	22.65	22.50	23.00	22.65
Avg	32.69	33.39	33.80	34.08	32.40	29.27	29.33	28.72	30.26	28.91
Stdev	6.21	5.33	5.81	6.33	5.91	7.44	6.54	5.71	4.46	5.57

2004-05-11

Nippon Petrochemicals Co. LTD.
Xydar Business Group

TYPICAL PROPERTIES OF XYDAR® MG-350BPRL

Properties	Method	Unit	MG-350BPRL
Specific gravity 比重	ASTM D792	—	1.78
Tensile strength 引張破断強さ	ASTM D638	MPa	116
Elongation 引張破断伸び	ASTM D638	%	3.0
Flexural strength 曲げ強度	ASTM D790	MPa	160
Flexural modulus 曲げ弾性率	ASTM D790	GPa	13.3
Izod impact strength (unnotched) アイゾッド衝撃	ASTM D256	KJ/m²	42
DTUL 18.5 kgf/cm²	ASTM D648	℃	275
Oven Blister Test[1] 1mm dumbbell 60min	NPCC original	℃	310
Weld strength[2]	NPCC original	MPa	35

1) Minimum oven temperature of blister breaking out on the specimen.

2) Flexural strength of the center weld specimen (length 50mm, width 12.8mm, thickness 1mm)

The data shown in this paper are based on our laboratory data,, and not always directly applicable to your products used under different conditions.

Need more information? **Click Here** to go to the UL iQ™ for Plastics database

Component - Plastics **E91944**

JX NIPPON OIL & ENERGY CORP
3-1 YAKO 2-CHOME, KAWASAKI-KU, KAWASAKI-SHI KANAGAWA 210-8545 JP

MG-350(r3), LCP MG-350(r3)

Liquid Crystal Aromatic Polymer (LCAP), "Xydar", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
BK	0.17	V-0	-	-	130	130	130
NC, BK	0.30	V-0	-	-	130	130	130
	0.50	V-0	4	4	130	130	130
	0.75	V-0	4	4	130	130	130
	0.89	V-0	3	1	240	220	240
	1.5	V-0	1	1	240	240	240
	3.0	V-0	1	0	240	240	240

Comparative Tracking Index (CTI): **3**
Inclined Plane Tracking (IPT): **-**
Dielectric Strength (kV/mm): **45**
Volume Resistivity (10^X ohm-cm) : **12**
High-Voltage Arc Tracking Rate (HVTR): **0**
High Volt, Low Current Arc Resis (D495): **4**
Dimensional Stability (%): 0

r3 - Virgin and Regrind from 26-50% by weight inclusive have the same Flame at 0.5mm and Tensile Impact characteristics at 3.0mm.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1990-01-05
Last Revised: 2011-02-24

IEC and ISO Test Methods

Test Name	Test Method	Units	Thickness Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.17	V-0 (BK)
			0.30	V-0 (NC, BK)
			0.50	V-0 (NC, BK)
			0.75	V-0 (NC, BK)
			0.89	V-0 (NC, BK)
			1.5	V-0 (NC, BK)
			3.0	V-0 (NC, BK)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-2	kJ/m^2	-	-

測試報告
Test Report

號碼(No.) : CE/2014/24076　日期(Date) : 2014/03/05　頁數(Page) : 1 of 15

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 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)	:	JX NIPPON OIL & ENERGY CORPORATION SPECIALTY CHEMICALS & MATERIALS DIVISION ADVANCED MATERIALS DEPT.
樣品名稱(Sample Description)	:	LIQUID CRYSTAL POLYMER
樣品型號(Style/Item No.)	:	XYDAR MG-350BPRL
收件日期(Sample Receiving Date)	:	2014/02/20
測試期間(Testing Period)	:	2014/02/20 TO 2014/03/05

==========

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

結論(Conclusion) : 根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯及多溴聯苯醚的測試結果符合RoHS指令2002/95/EC的更新指令2011/65/EU之要求 (Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.)

SGS TAIWAN LTD
Troy Chang / Manager-Tech
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
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測試結果(Test Results)

測試部位(PART NAME)No.1 : 黑色塑膠粒 (BLACK 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	法規限值 (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		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: 2008方法，以UV-VIS檢測. / With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052方法，以感應耦合電漿原子發射光譜儀檢測. / With reference to US EPA Method 3052. Analysis was performed by ICP-AES.	2	n.d.	-
三氧化二銻 / Antimony trioxide (Sb_2O_3)*** (CAS No.: 1309-64-4)	mg/kg	參考US EPA 3052方法，以感應耦合電漿原子發射光譜儀檢測. / With reference to US EPA Method 3052. Analysis was performed by ICP-AES.***	-	n.d.	-
鈹 / Beryllium (Be)	mg/kg	參考US EPA 3052方法，以感應耦合電漿原子發射光譜儀檢測. / With reference to US EPA Method 3052. Analysis was performed by ICP-AES.	2	n.d.	-
聚氯乙烯 / PVC	**	以紅外光譜分析及焰色法檢測. / Analysis was performed by FTIR and FLAME Test.	-	Negative	-
五氯酚 / Pentachlorophenol (PCP) (CAS No.: 87-86-5)	mg/kg	參考US EPA 8041A方法，以氣相層析/質譜儀檢測. / With reference to US EPA 8041A method. Analysis was performed by GC/MS.	1	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) No.1	法規限值 (Limit)
中鏈氯化石蠟 / Medium-Chained Chlorinated Paraffins (C14-C17) (MCCP) (CAS No.: 85535-85-9)	mg/kg	參考US EPA 3540C: 1996方法，以氣相層析/質譜儀檢測. / With reference to US EPA 3540C: 1996 method. Analysis was performed by GC/MS.	50	n.d.	-
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3550C: 2007方法，以液相層析/質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
全氟辛酸 / PFOA (CAS No.: 335-67-1)	mg/kg		10	n.d.	-
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β- HBCDD, γ- HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	參考IEC 62321: 2008方法，以氣相層析/質譜儀檢測. / With reference to IEC 62321: 2008 method. Analysis was performed by GC/MS.	5	n.d.	-
鄰苯二甲酸甲苯基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	參考EN 14372，以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
鄰苯二甲酸二 (2-乙基己基)酯 / DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	參考EN 14372，以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	%	參考EN 14372，以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	%	參考EN 14372，以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-

測試報告
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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) No.1	法規限值 (Limit)
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%	參考EN 14372, 以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	參考EN 14372, 以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	%	參考EN 14372, 以氣相層析/質譜儀檢測. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
多溴聯苯總和 / Sum of PBBs	mg/kg	參考IEC 62321: 2008方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	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		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		5	n.d.	-
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5	n.d.	-
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		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.	-

測試報告
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ADVANCED MATERIALS DEPT.
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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) No.1	法規限值 (Limit)
鹵素 / Halogen					
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	805	-
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg		50	n.d.	-
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n.d.	-
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n.d.	-

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. **= Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. ***: 該物質是由銻之測試結果計算得知. 其MDL是針對銻之評估. (The substance was calculated by the test result of Antimony. The MDL was evaluated for Antimony.)

AX ＝ A × F

AX	A	F
三氧化二銻 / Antimony trioxide (Sb_2O_3)	銻 / Antimony	1.1971

PFOS參考資訊(Reference Information) : 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm)，在半成品、成品或零部件中不得超過0.1%(1000ppm)，在紡織品或塗層材料中不得超過1μg/㎡。

(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1μg/㎡.)

測試報告
Test Report

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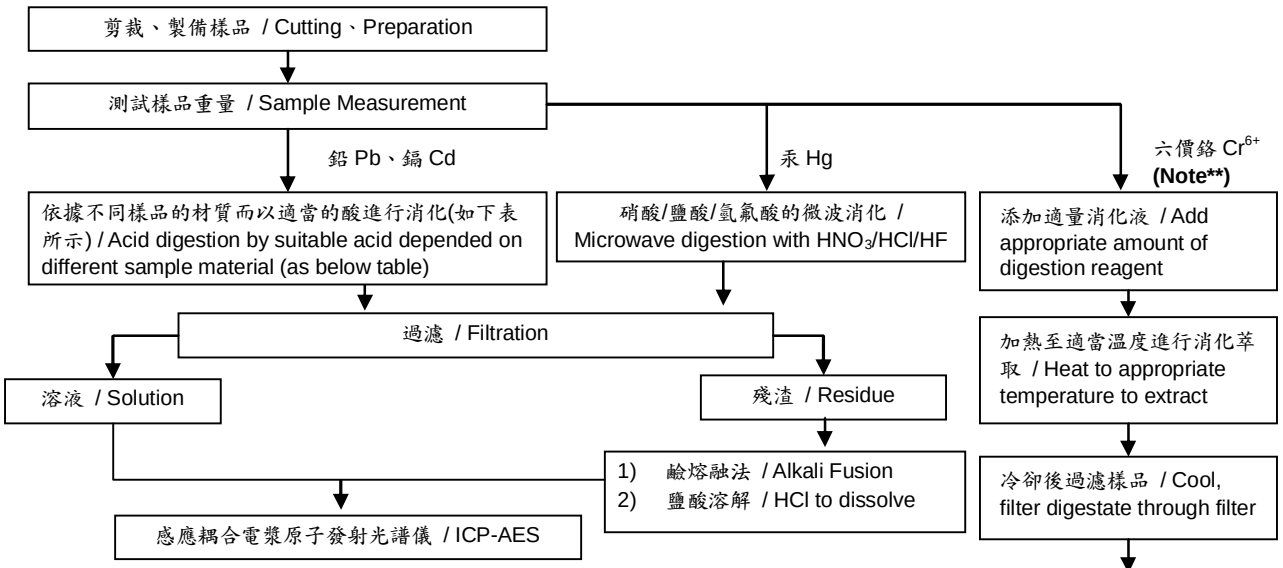
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

1) 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）
2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



樣品材質 / Sample Material	消化酸液種類 / Digestion Acid
鋼，銅，鋁，焊錫 / Steel, copper, aluminum, solder	王水，硝酸，鹽酸，氫氟酸，雙氧水 / Aqua regia, HNO_3, HCl, HF, H_2O_2
玻璃 / Glass	硝酸,氫氟酸 / HNO_3/HF
金，鉑，鈀，陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO_3
塑膠 / Plastic	硫酸，雙氧水，硝酸，鹽酸 / H_2SO_4, H_2O_2, HNO_3, HCl
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion

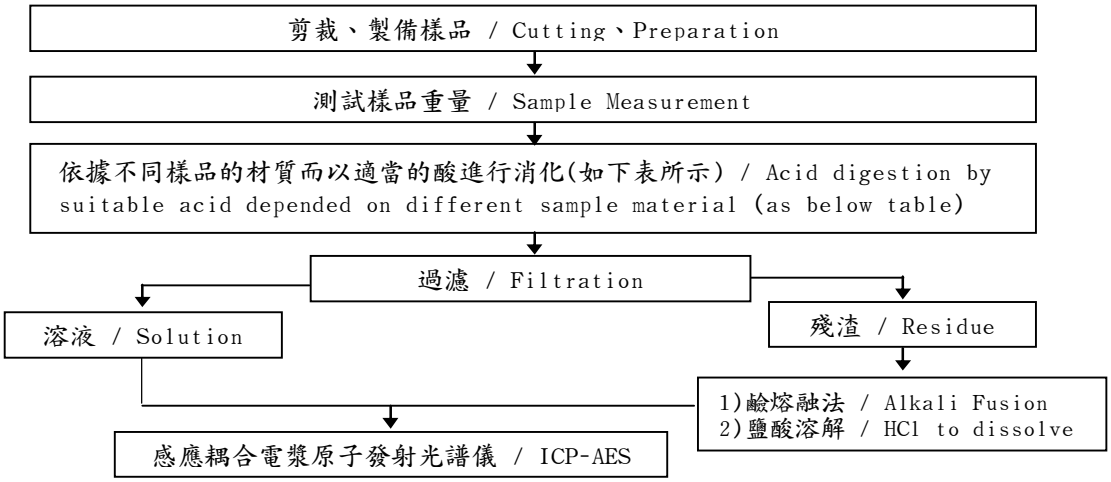
Note (For IEC 62321)**
(1) 針對非金屬材料加入鹼性消化液，加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃.
(2) 針對金屬材料加入純水，加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.

測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

1) 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.
2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

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



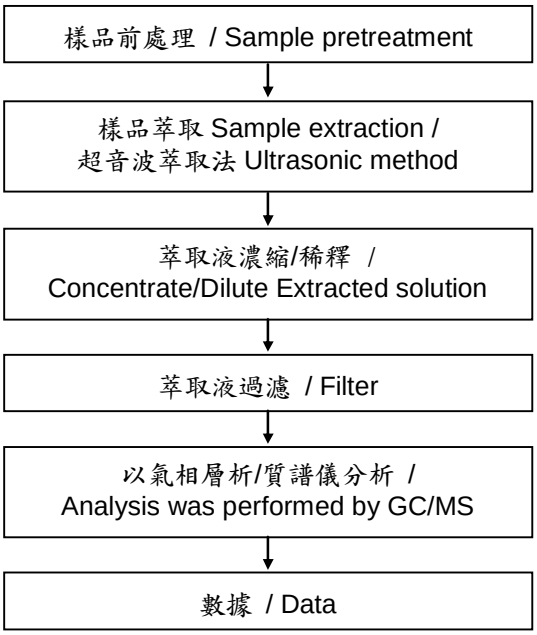
鋼,銅,鋁,焊錫 / Steel, copper, aluminum, solder	王水,硝酸,鹽酸,氫氟酸,雙氧水 / Aqua regia, HNO_3, HCl, HF, H_2O_2
玻璃 / Glass	硝酸,氫氟酸 / HNO_3/HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO_3
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H_2SO_4, H_2O_2, HNO_3, HCl
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion

測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

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

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

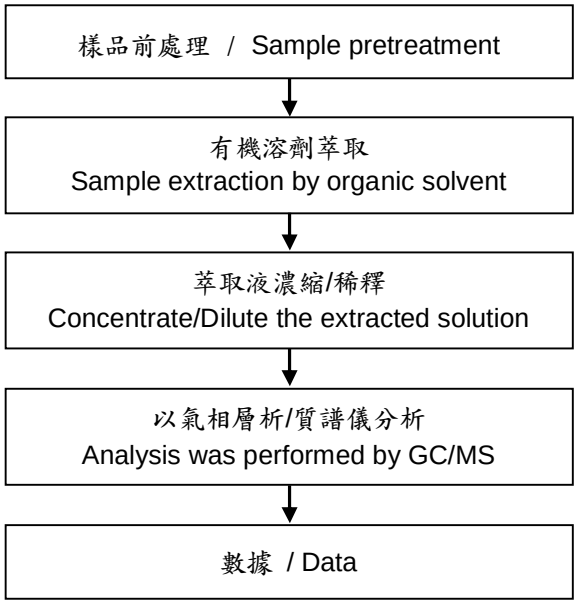


測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

氯化石蠟分析流程圖 / Chlorinated Paraffins analytical flow chart

- 測試人員：曾勃鈞 / Name of the person who made measurement: Barry Tseng
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

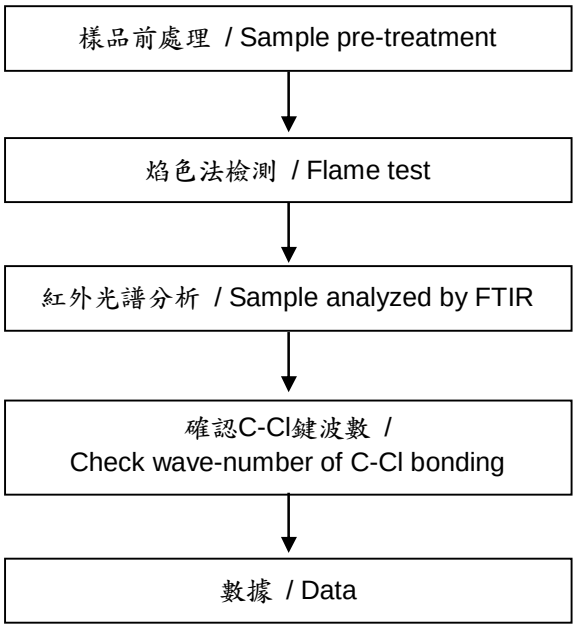


測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

聚氯乙烯物質判定分析流程圖 /
Analysis flow chart for determination of PVC in material

- 測試人員：陳君涵 / Name of the person who made measurement: Ginny Chen
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

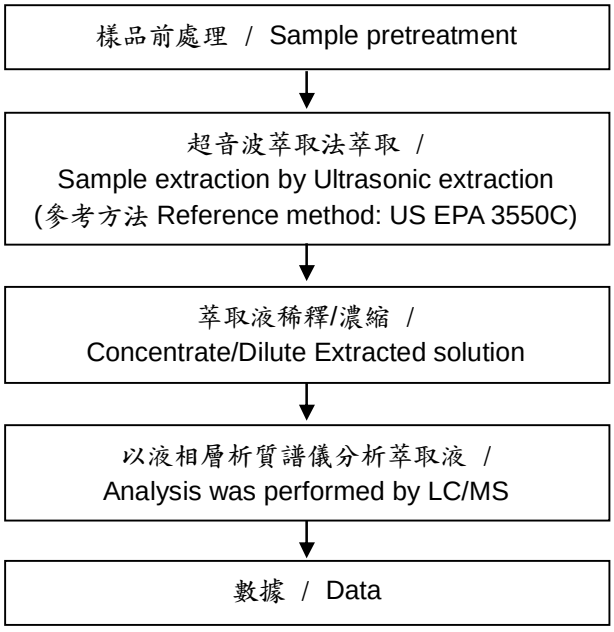


測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

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

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

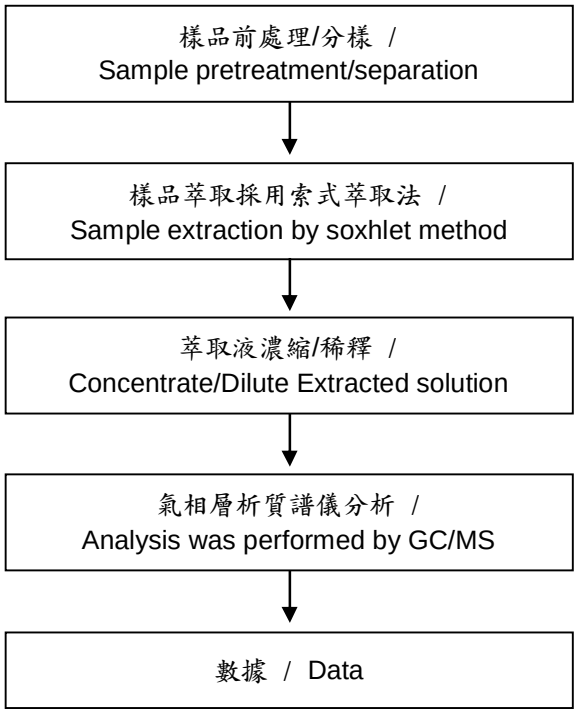


測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

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

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



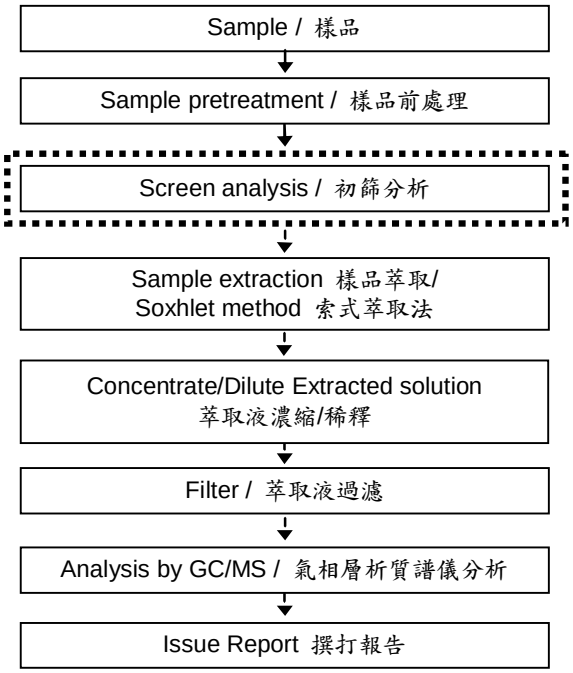
測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

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

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

初次測試程序 / First testing process ——→
選擇性篩檢程序 / Optional screen process ▪▪▪▪▪▪▪▪
確認程序 / Confirmation process ——·——·→

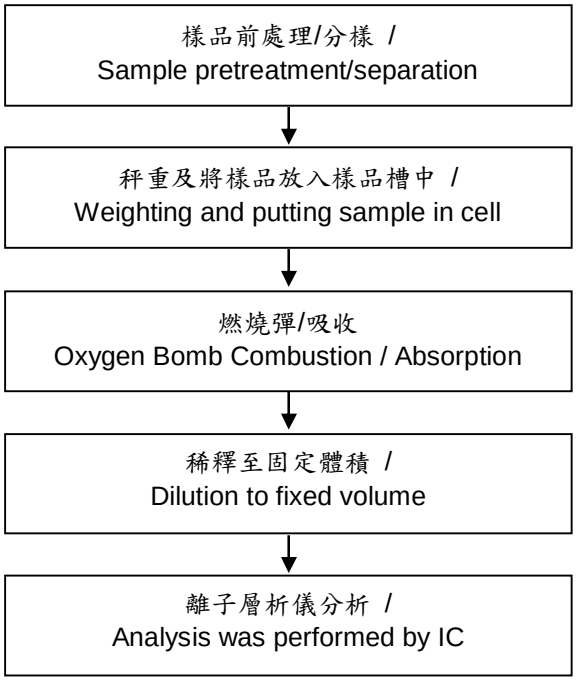


測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

鹵素分析流程圖 / Analytical flow chart of halogen content

- 測試人員：陳恩臻 / Name of the person who made measurement: Rita Chen
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



測試報告
Test Report

JX NIPPON OIL & ENERGY CORPORATION
SPECIALTY CHEMICALS & MATERIALS DIVISION
ADVANCED MATERIALS DEPT.
3-1, YAKO 2-CHOME, KAWASAKI－KU, KAWASAKI CITY 210-8545 JAPAN

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

CE/2014/24076

** 報告結尾 (End of Report) **

昆山市天申铜业五金机电有限公司

天中铜业

产品质量证明书

客户名称	产品名称	规格	状态	重量（kg）	执行标准
得意精密电子(苏州)有限公司	C2680	0.15*20.5	EH	36.5	JISH3100

化 学 成 分

元 素	Cu	Fe	Pb	Sb	Bi	P	Zn	杂质总和
规 范	64.0-68.0	<0.05	<0.03	<0.005	<0.002	<0.01	余量	<0.3
实 测	64.52	0.0083	0.0064	0.0014	0.0013	0.0016	余量	

机 械 性 能

项 目	硬度 Hv	抗拉强度 MPa	伸长率%
规 范	170-190	520-620	/
实 测	171	573	

尺 寸 公 差

项 目	厚 度	宽 度	长 度	侧 弯
规 范	±0.01	+0/-0.1	/	/
实 测	0.145	20.43	/	/
签证部门	质检部		日 期 2009-10-15	

无公章无效

Test Report

Report No. RHS05G011858001 Page 1 of 4

Applicant KUNSHAN TIANSHEN COPPER HARDWARE ELECTRICAL AND MECHANICAL CO., LTD.

Address NO. 328-3 DONGCHANG ROAD BACHENG TOWN KUNSHAN CITY

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

Sample Name	Brass
Part No.	C2680
Material	Cu、Zn
Sample Received Date	Apr. 11, 2014
Testing Period	Apr. 11, 2014 to Apr. 15, 2014

Test Requested As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)) in the submitted sample(s).

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Mercury(Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis

Test Result(s) Please refer to the following page(s).

Tested by Chen Lijuan Reviewed by Chen Kaimin

Approved by Su Hongwei Date Apr. 15, 2014

Su Hongwei
Senior Laboratory Manager

No. 1087211671

Test Report

Report No. RHS05G011858001

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	9 mg/kg	2 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium (Cr(VI))	Negative	/

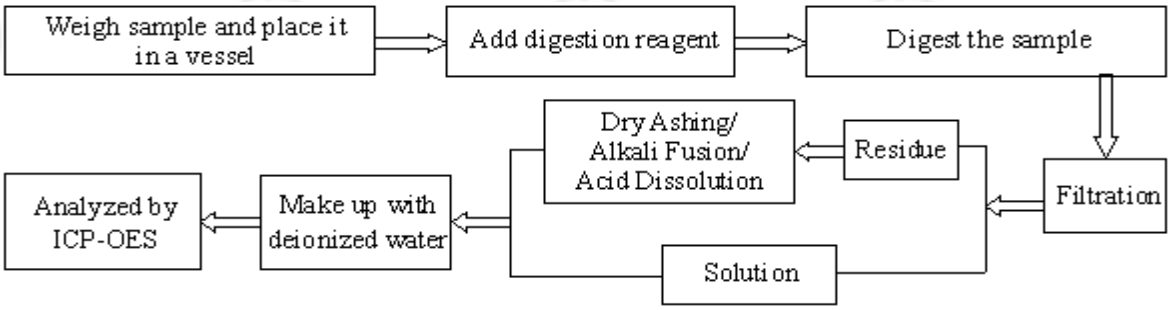
Tested Sample/Part Description Golden metal

Note: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm² sample surface area used.

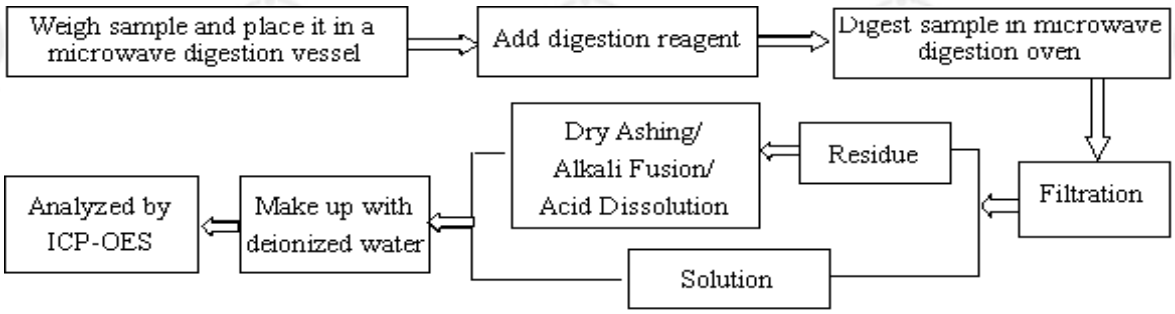
Test Report

Test Process

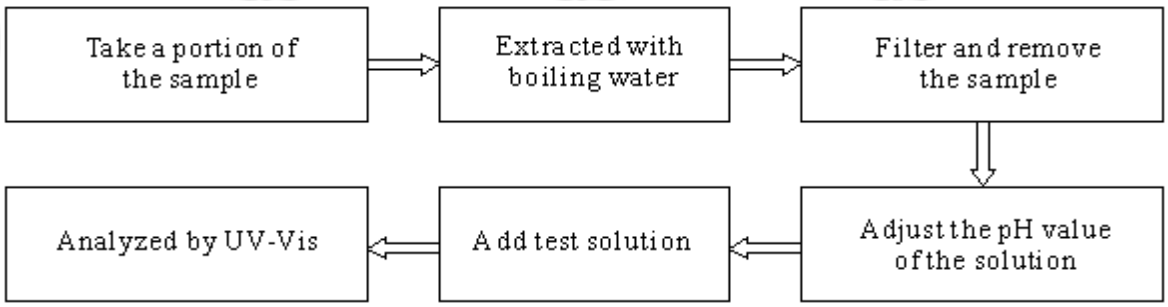
1. Lead(Pb), Cadmium(Cd)



2. Mercury(Hg)

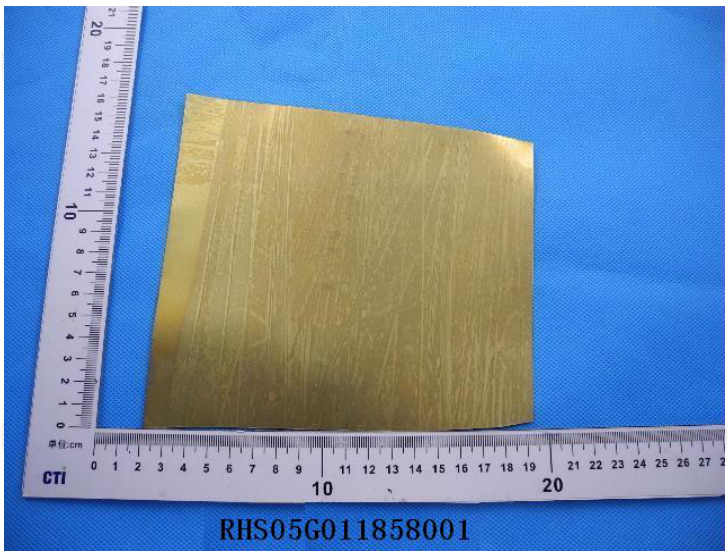


3. Hexavalent Chromium (Cr(VI))



Test Report

Photo(s) of the sample(s)



*** End of report ***

检测报告
Test Report

报告编号 **Report No.**	ECL01G022173001E ECL01G022173001E	第 1 页 共 6 页 Page 1 of 6

申请单位
Applicant 得意精密電子(蘇州)有限公司
LOTES(SUZHOU) CO.,LTD

地　　址
Address 江蘇省蘇州市相城經濟開發區漕湖大道26號
NO.26 CAOHU ROAD XIANGCHENG ECONOMIC DEVELOPMENT ZONE,SUZHOU CHINA

以下测试之样品及样品信息由申请者提供并确认
The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

样品名称 Sample Name	鍍層Au Ni Sn Coating material Au Ni Sn
材料名称 Material	C2680
样品接收日期 Sample Received Date	2014.10.28 Oct. 28, 2014
样品检测日期 Testing Period	2014.10.28-2014.10.31 Oct. 28, 2014 to Oct. 31, 2014
检测要求 **Test Requested**	根据客户要求，对所提交样品中的铅(Pb)，镉(Cd)，汞(Hg)，六价铬(Cr(VI))，全氟辛烷磺酸盐(PFOS)进行测试。 As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium(Cr(VI)), Perfluorooctane Sulfonates(PFOS) in the submitted sample(s).
检测依据/检测结果 **Test Method/Test Result(s)**	请参见下页。 Please refer to the following page(s).

主　　检
Tested by Chen Lijuan

批　　准
Approved by Su Hongwei
Su Hongwei
Senior Laboratory Manager

审　　核
Reviewed by Chen Kaimin

日　　期
Date 2014.10.31

No. R187778204

检测报告
Test Report

检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅(Pb) Lead (Pb)	参考IEC 62321-5:2013 Ed.1.0 Refer to IEC 62321-5:2013 Ed.1.0	ICP-OES
镉(Cd) Cadmium (Cd)	参考IEC 62321-5:2013 Ed.1.0 Refer to IEC 62321-5:2013 Ed.1.0	ICP-OES
汞(Hg) Mercury (Hg)	参考IEC 62321-4:2013 Ed.1.0 Refer to IEC 62321-4:2013 Ed.1.0	ICP-OES
六价铬(Cr(VI)) Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis
全氟辛烷磺酸盐(PFOS) Perfluorooctane Sulfonates(PFOS)	参考US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS

检测结果 Test Result(s)

测试项目 Test Item(s)	结果 Result	方法检测限 MDL
铅(Pb) Lead (Pb)	18 mg/kg	2 mg/kg
镉(Cd) Cadmium (Cd)	N.D.	2 mg/kg
汞(Hg) Mercury (Hg)	N.D.	2 mg/kg
六价铬(Cr(VI)) Hexavalent Chromium(Cr(VI))	阴性 Negative	/

测试项目 Test Item(s)	结果 Result	方法检测限 MDL
全氟辛烷磺酸盐(PFOS) Perfluorooctane Sulfonates(PFOS)	N.D.	5 mg/kg

测试样品/部位描述 金色/银白色镀层
Tested Sample/Part Description Golden/silver-white plating

检测报告
Test Report

注释: -N.D. = 未检出 (小于方法检测限).
-mg/kg=ppm=百万分之几.
-阴性表示不含有六价铬，即由表面积为 50cm^2 的样品所萃取出来的溶液中，测得六价铬的浓度小于 0.02mg/kg。

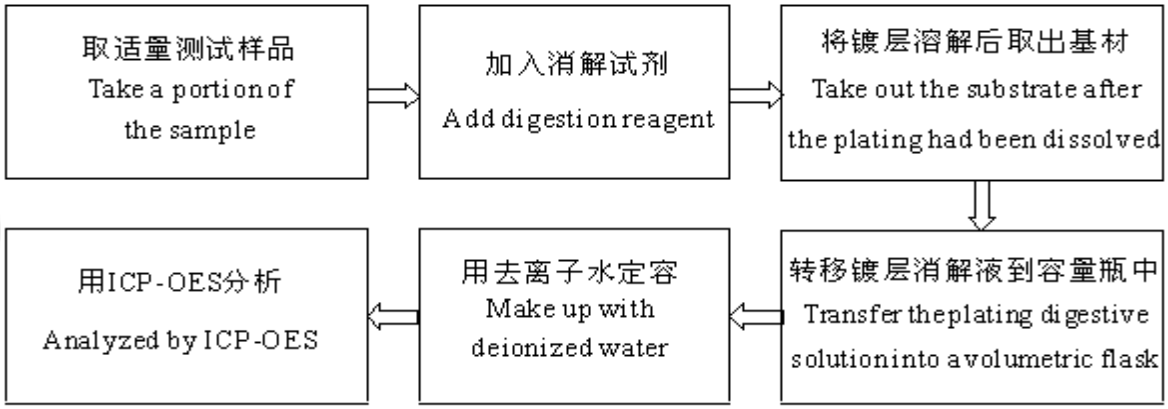
Note: -MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg= ppm =parts per million
-Negative = Absence of Cr (VI). The Cr (VI) concentration detected in the boiling water extraction solution is less than 0.02 mg/kg with 50cm^2 sample surface area used.

备注: 报告编号中"E"表示此报告为中英文对照版本。
Remark: The end sign of report number E represents the bilingual version.

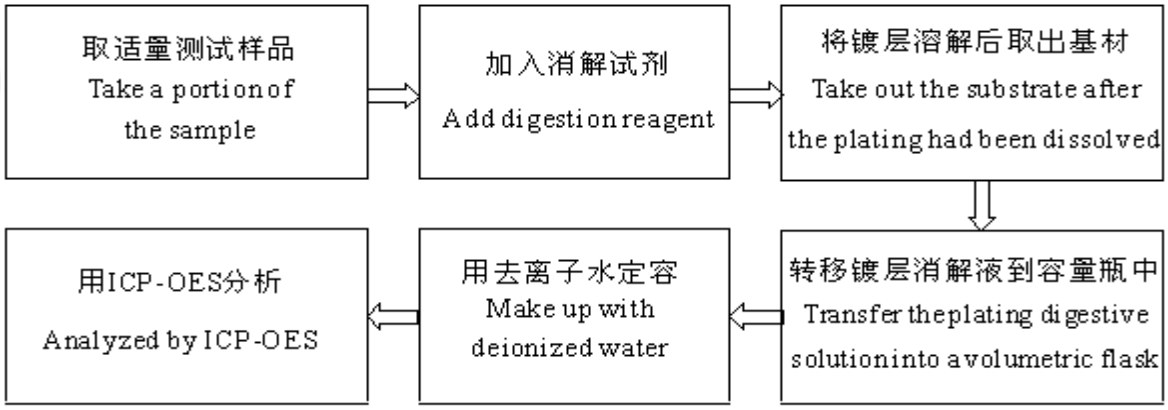
检测报告
Test Report

检测流程 Test Process

1. 铅(Pb)，镉(Cd)
Lead (Pb), Cadmium (Cd)

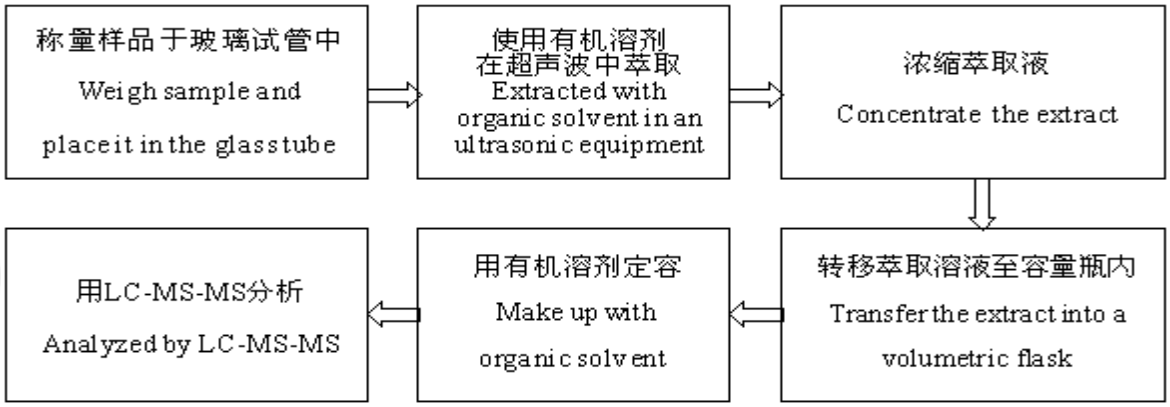


2. 汞(Hg)
Mercury (Hg)

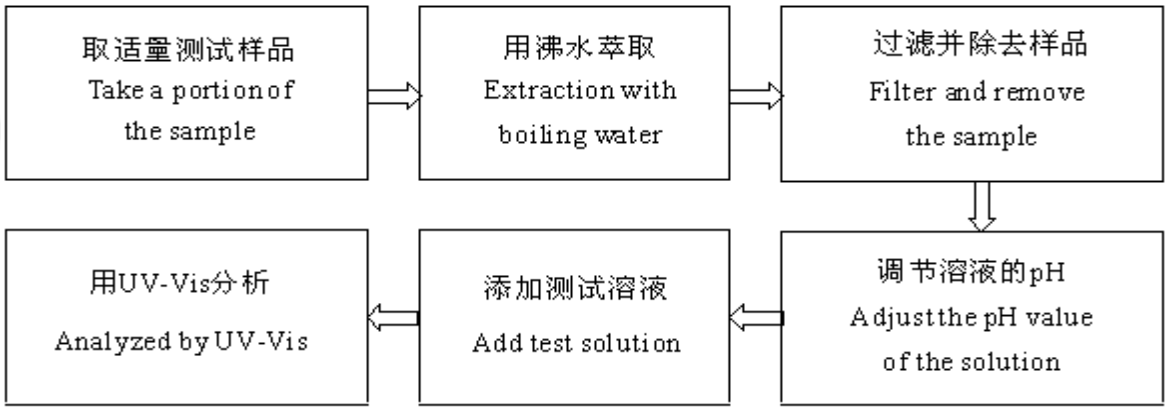


检测报告
Test Report

3. 全氟辛烷磺酸盐(PFOS)
Perfluorooctane Sulfonates(PFOS)



4. 六价铬(Cr(VI))
Hexavalent Chromium(Cr(VI))



检测报告
Test Report

样品图片
Photo(s) of the sample(s)

报告结束
*** End of report ***

检测报告
Test Report

报告编号 ECL01G022173002E
Report No. ECL01G022173002E

申请单位 得意精密電子(蘇州)有限公司
Applicant LOTES(SUZHOU) CO.,LTD

地 址 江蘇省蘇州市相城經濟開發區漕湖大道26號
Address NO.26 CAOHU ROAD XIANGCHENG ECONOMIC DEVELOPMENT ZONE,SUZHOU CHINA

以下测试之样品及样品信息由申请者提供并确认
The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

样品名称 Sample Name	鍍層 Ni Sn Coating material Ni Sn
材料名称 Material	C2680
样品接收日期 Sample Received Date	2014.10.28 Oct. 28, 2014
样品检测日期 Testing Period	2014.10.28-2014.10.31 Oct. 28, 2014 to Oct. 31, 2014
检测要求 **Test Requested**	根据客户要求，对所提交样品中的铅(Pb)，镉(Cd)，汞(Hg)，六价铬(Cr(VI))，全氟辛烷磺酸盐(PFOS)进行测试。 As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium(Cr(VI)), Perfluorooctane Sulfonates(PFOS) in the submitted sample(s).
检测依据/检测结果 **Test Method/Test Result(s)**	请参见下页。 Please refer to the following page(s).

主 检
Tested by Chen Lijuan

批 准
Approved by Su Hongwei

Su Hongwei
Senior Laboratory Manager

审 核
Reviewed by Chen Kaimin

日 期
Date 2014.10.31

No. R187778204

检测报告
Test Report

检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅(Pb) Lead (Pb)	参考IEC 62321-5:2013 Ed.1.0 Refer to IEC 62321-5:2013 Ed.1.0	ICP-OES
镉(Cd) Cadmium (Cd)	参考IEC 62321-5:2013 Ed.1.0 Refer to IEC 62321-5:2013 Ed.1.0	ICP-OES
汞(Hg) Mercury (Hg)	参考IEC 62321-4:2013 Ed.1.0 Refer to IEC 62321-4:2013 Ed.1.0	ICP-OES
六价铬(Cr(VI)) Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis
全氟辛烷磺酸盐(PFOS) Perfluorooctane Sulfonates(PFOS)	参考US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS

检测结果 Test Result(s)

测试项目 Test Item(s)	结果 Result	方法检测限 MDL
铅(Pb) Lead (Pb)	26 mg/kg	2 mg/kg
镉(Cd) Cadmium (Cd)	N.D.	2 mg/kg
汞(Hg) Mercury (Hg)	N.D.	2 mg/kg
六价铬(Cr(VI)) Hexavalent Chromium(Cr(VI))	阴性 Negative	/

测试项目 Test Item(s)	结果 Result	方法检测限 MDL
全氟辛烷磺酸盐(PFOS) Perfluorooctane Sulfonates(PFOS)	N.D.	5 mg/kg

测试样品/部位描述 银色镀层
Tested Sample/Part Description Silvery plating

检测报告
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注释: -N.D. = 未检出 (小于方法检测限).
-mg/kg=ppm=百万分之几.
-阴性表示不含有六价铬，即由表面积为 50cm^2 的样品所萃取出来的溶液中，测得六价铬的浓度小于 0.02mg/kg。

Note: -MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg= ppm =parts per million
-Negative = Absence of Cr (VI). The Cr (VI) concentration detected in the boiling water extraction solution is less than 0.02 mg/kg with 50cm^2 sample surface area used.

备注: 报告编号中"E"表示此报告为中英文对照版本。
Remark: The end sign of report number E represents the bilingual version.

检测报告
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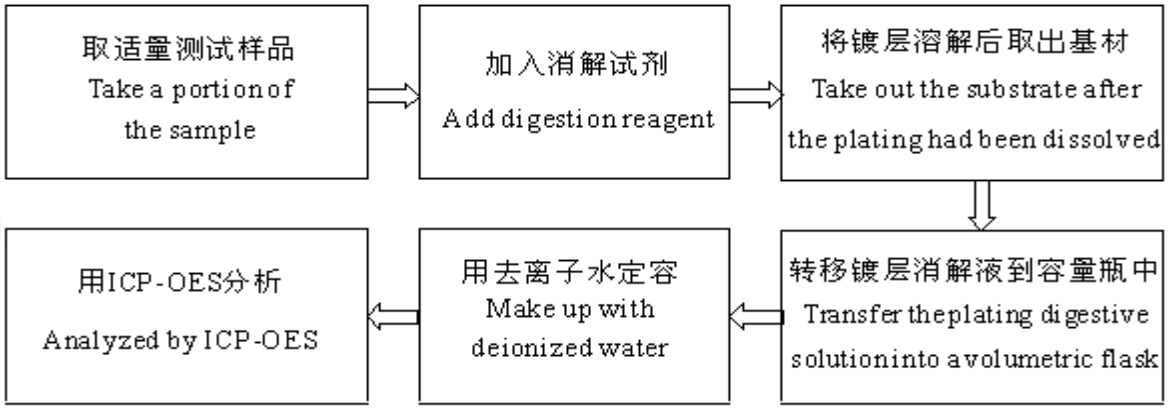
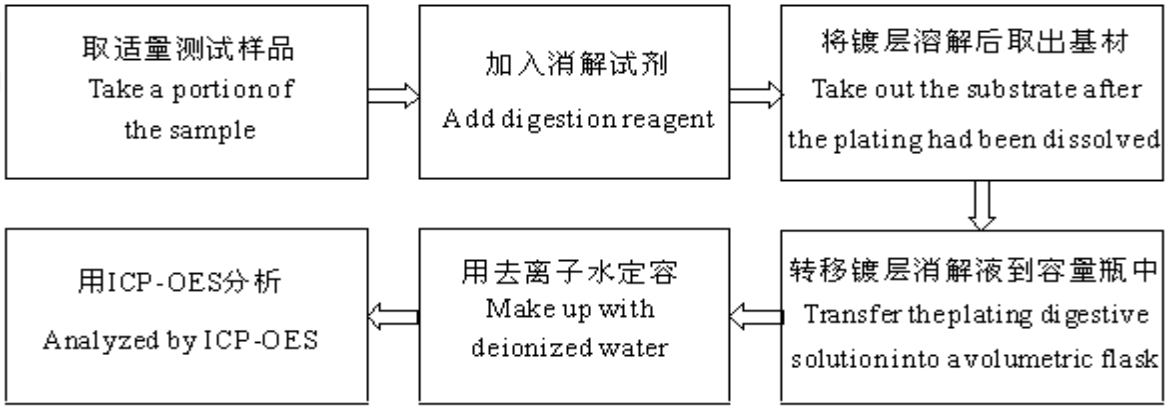
检测流程 Test Process

1. 铅(Pb)，镉(Cd)
Lead (Pb), Cadmium (Cd)



2. 汞(Hg)
Mercury (Hg)



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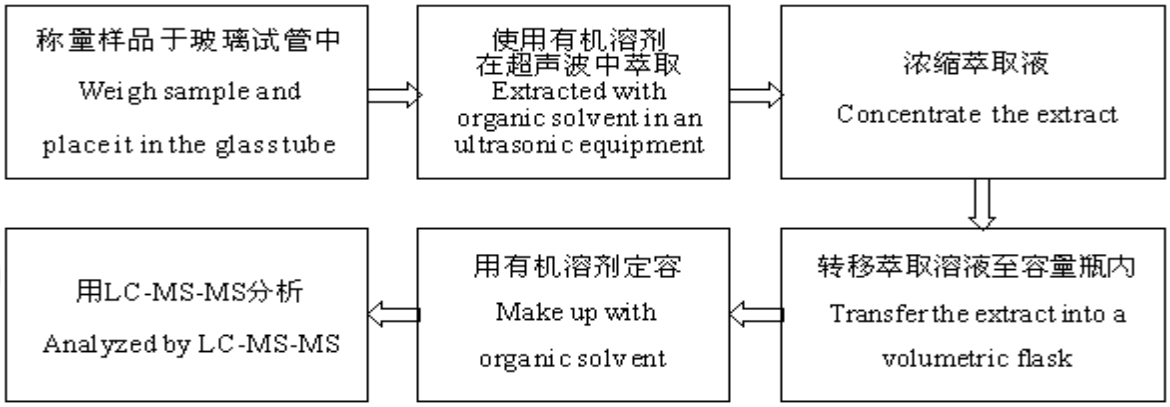
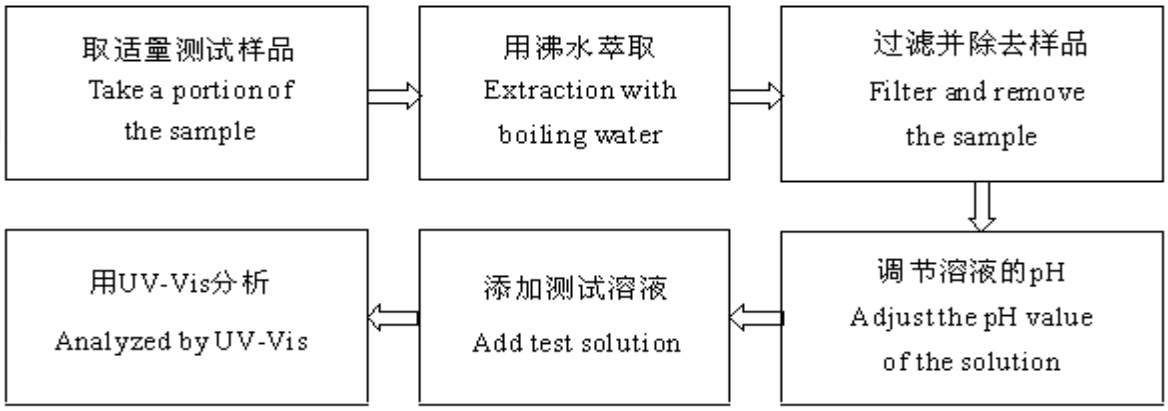
3. 全氟辛烷磺酸盐(PFOS)
Perfluorooctane Sulfonates(PFOS)



4. 六价铬(Cr(VI))
Hexavalent Chromium(Cr(VI))



检测报告
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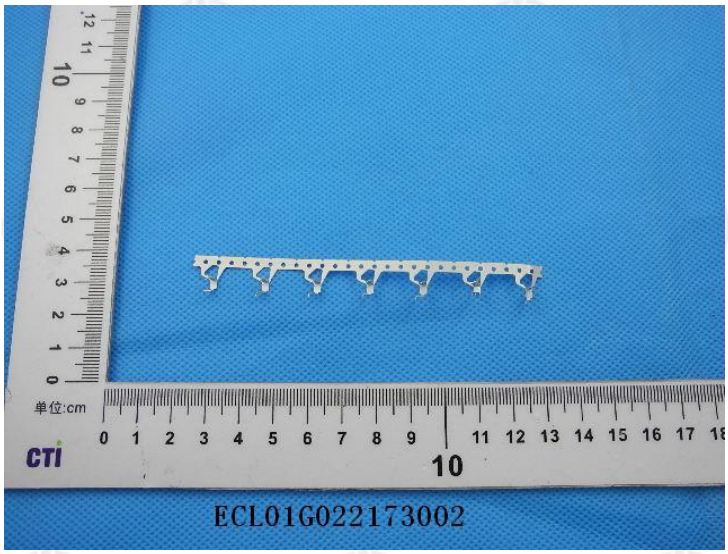
样品图片
Photo(s) of the sample(s)



报告结束
*** End of report ***

Test Report

NO.：I09042023504D Date：2014.09.11

Applicant： Shanghai Hua Ken Electronics Technology Co.,Ltd.

Address： Room 802, No.99, Feng Pu Avenue, Fengxian District, Shanghai China

The following sample(s) was/were submitted and identified on behalf of the client as：

Sample Name： Industrial Print ink

Sample Model： HI-68K

Sample Received Date： 2014.09.04

Test Period： 2014.09.04 To 2014.09.11

Reference Methods： IEC62321 Edition 1.0：2008 method：Regulated Substances Content of test process with Electrical & Electronic Products

(1) Lead Analysis is performed by AAS

(2) Cadmium Analysis is performed by AAS

(3) Mercury Analysis is performed by ICP-OES

(4) Hexavalent Chromium Analysis is performed by UV-Vis

(5) PBBs and PBDEs Analysis is performed by GC-MS

EN 14582：2007 method,F, Cl, Br, I Analysis is performed by IC

EPA8061A:1996 method,Phthalate Analysis is performed by GC-MS

EPA8270D：2007 method,HBCDD Analysis is performed by GC-MS

Test Result： Please refer to next page(s)

Approved by： zhang Dongxi

Code: r7fq503z

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Test Report NO.：I09042023504D Date：2014.09.11

Test Result (Unit：mg/kg)

Test Item	MDL	Test Result	RoHS Limit
Lead (Pb)	1	N.D.	1000
Cadmium (Cd)	1	N.D.	100
Mercury (Hg)	1	N.D.	1000
Hexavalent Chromium (Cr^{6+})	1	N.D.	1000
PBBs	—	—	1000
Bromobiphenyl	5	N.D.	—
Dibromobiphenyl	5	N.D.	—
Tribromobiphenyl	5	N.D.	—
Tetrabromobiphenyl	5	N.D.	—
Pentabromobiphenyl	5	N.D.	—
Hexabromobiphenyl	5	N.D.	—
Heptabromobiphenyl	5	N.D.	—
Octabromobiphenyl	5	N.D.	—
Nonabromobiphenyl	5	N.D.	—
Decabromobiphenyl	5	N.D.	—
PBDEs	—	—	1000
Bromodiphenyl ether	5	N.D.	—
Dibromodiphenyl ether	5	N.D.	—
Tribromodiphenyl ether	5	N.D.	—
Tetrabromodiphenyl ether	5	N.D.	—
Pentabromodiphenyl ether	5	N.D.	—
Hexabromodiphenyl ether	5	N.D.	—
Heptabromodiphenyl ether	5	N.D.	—
Octabromodiphenyl ether	5	N.D.	—
Nonabromodiphenyl ether	5	N.D.	—
Decabromodiphenyl ether	5	N.D.	—

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Test Result (Unit：mg/kg)

Test Item	Test Result
HBCDD	Not Detected(＜5)
DBP	Not Detected(＜50)
BBP	Not Detected(＜50)
DEHP	Not Detected(＜50)
DIBP	Not Detected(＜50)

Test Result (Unit：mg/kg)

Test Item	MDL	Test Result
F	50	N.D.
Cl	50	N.D.
Br	50	N.D.
I	50	N.D.

Note： (1) mg/kg = ppm
(2) "—" = Does not stipulate
(3) N.D. = Not Detected (＜MDL)
(4) MDL = Method Detection Limit
(5) The most allowable limit value reference to RoHS Directive 2011/65/EU Annex Ⅱ

Photo：

Pony authenticate the photo on original report only

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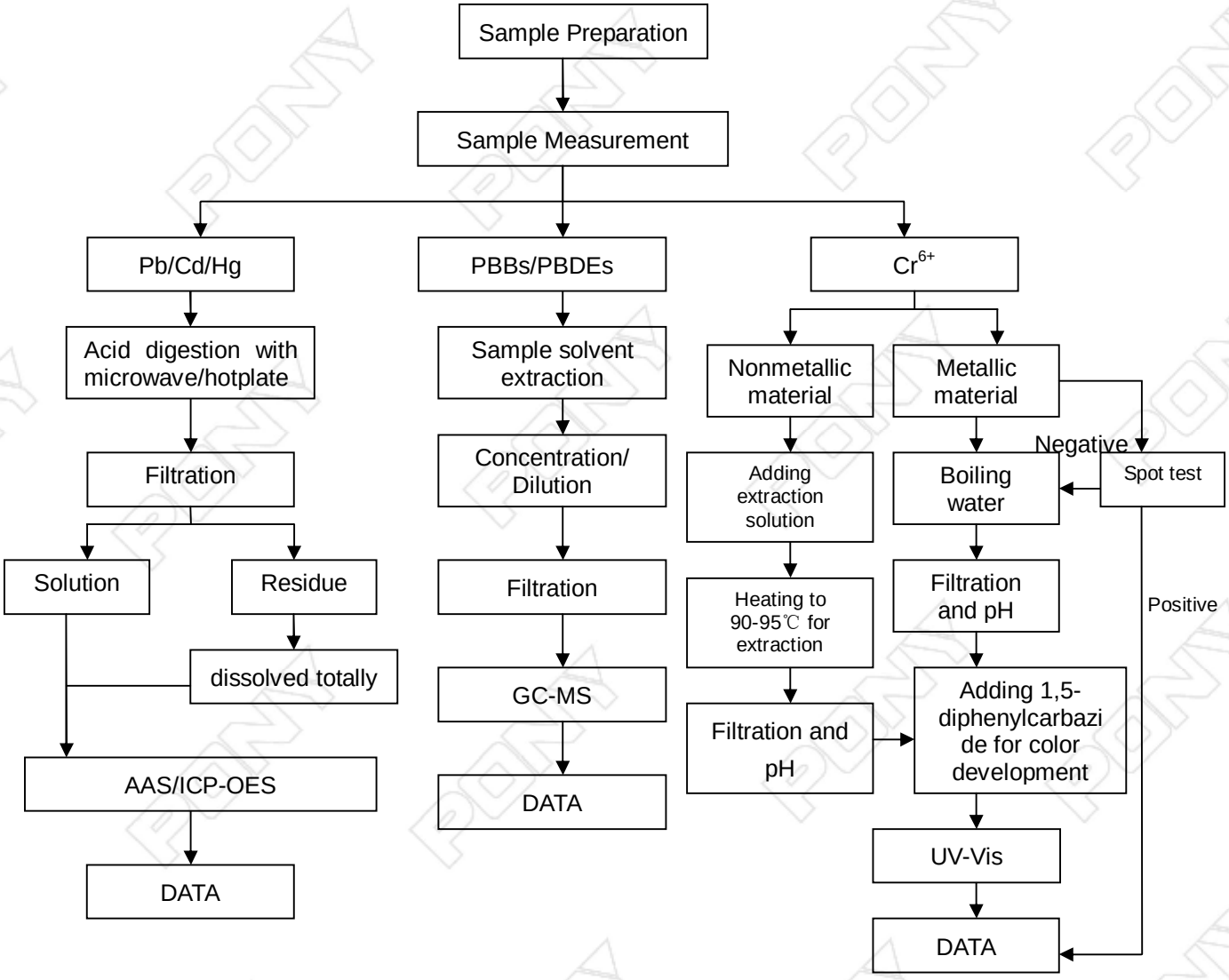
Measurement Flow-chart

Tested by：Zhao Ting
Checked by：Cao Jia
Person in charge of the lab：Zhang Daiqin
These Samples Were Dissolved Totally By Pre-conditioning Method According To Below Flow Chart. (Cr^{6+} And PBBs/PBDEs Test Method Excluded)



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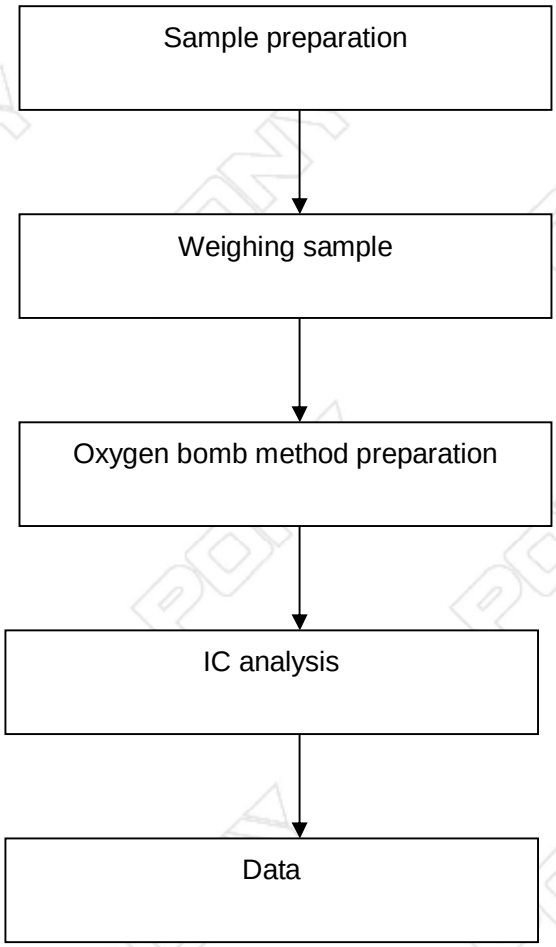
Halogen measurement flow-chart

Tested by：Zhang Tianyu
Checked by：Cao Jia
Person in charge of the lab：Zhang Daiqin



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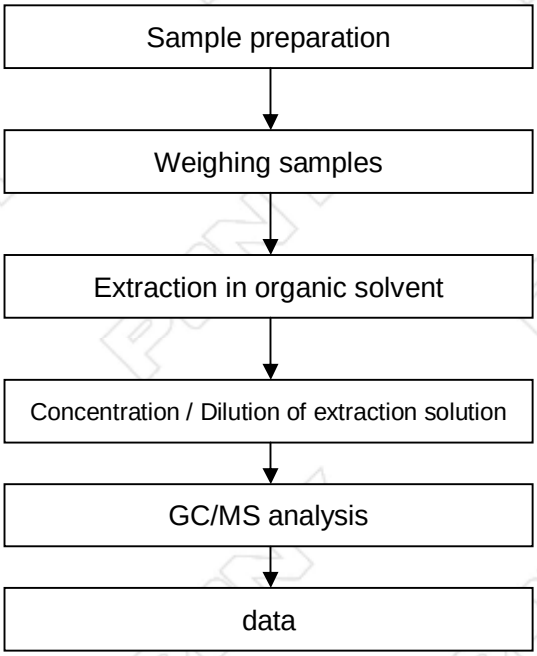
Phthalate Measurement Flow-chart

Tested by：Fan Suping
Checked by：Cao Jia
Person in charge of the lab：Zhang Daiqin



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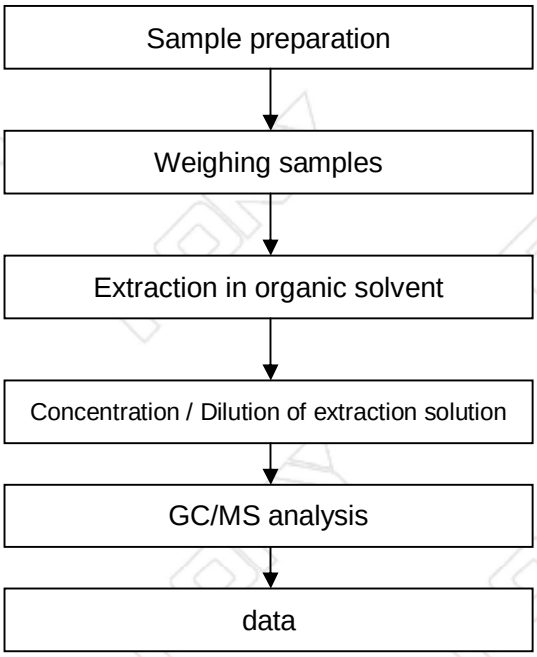
HBCDD Flow Chart

Tested by：Ji Erjie
Checked by：Cao Jia
Person in charge of the lab：Zhang Daiqin



End of Report

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