

Part composition table/data table

2018/12/5

- ★ It reports on elements of parts which compose a capacitor goods as follows.
 ★ It is made to compare with following material No. and the ICP data is appended.

Name of the company : NICHICON (OHNO) CORPORATION

・Part number: AQ, AS, CA, CP, CS, CY, LD, PA, PB, PH, PJ, PM, PS, PT, PV, PW, PX, PZ, TT, VC series (Goods for environment / Brown PET sleeve Type)
 DB, EP, GB, HC, HD, HE, HM, HN, HV, HW, HZ, KL, RS, RU, RY, RZ, TM, VK, VP, VR, VY, VZ series (Goods for environment / Black PET sleeve Type)
 BT series (Goods for environment / Blue PET sleeve Type)

・Part name: Aluminum Electrolytic Capacitors

Part name	Ratings and type name, etc.	RoHS Compliant	Composition part name	Country of origin	Raw material store purchased	The main constituent			Remarks (SONY GB NO.)	
						Material name/Type	Data No. of ICP measurement etc.	Issued date		
Aluminum Electrolytic Capacitor	Miniature Type	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Anode foil	Japan	SHOWA DENKO K.K	Aluminum	JP/2018/061391	1	2018/7/12	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Cathode foil	Japan	SHOWA DENKO K.K	Aluminum	JP/2018/061396	2	2018/7/12	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Electrolysis paper	Japan	NIPPON KODOSHI CORPORATION	Cellulose	30 SIGEN-87-1-2	3	2018/8/3	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Affixing	Japan	NITTO DENKO K.K	PP	KA/2018/70057	4	2018/7/10	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Lead Wire(Surface plating)	Korea	KISTRON CO.,LTD	Tin	AYAA17-64721	5	2017/12/20	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Lead Wire(Groundwork plating)	Korea	KISTRON CO.,LTD	Copper	AYAA17-64720	5	2017/12/20	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Lead Wire(Iron core)	Korea	KISTRON CO.,LTD	Iron	AYAA17-64715	5	2017/12/20	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Aluminum Wire	Japan	KISTRON CO.,LTD	Aluminum	AYAA17-64719	6	2017/12/20	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Rubber end Seal	Japan	KOZATO KIZAI CO.,LTD.	IR	CRSSA/13473-1/18 CRSSA/13473-2/18	7	2018/9/28	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Paste	Japan	NICHICON	γ-Butyrolacton	TSNEC1800763701	8	2018/5/8	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Paste	Japan	NICHICON	Ethylene glycol	TSNEC1800763702	8	2018/5/8	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Aluminum Case	Japan	MITSUBISHI ALUMINUM CO.,LTD.	Aluminum	KA/2018/B1690	9	2018/11/23	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Sleeve	Japan	SAKAI KASEI KOGYO CO.,LTD.	PET	TSNEC1801160808	10	2018/6/26	Brown
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Sleeve	Japan	SAKAI KASEI KOGYO CO.,LTD.	PET	TSNEC1801160809	10	2018/6/26	Black
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Sleeve	Japan	SAKAI KASEI KOGYO CO.,LTD.	PET	TSNEC1801160810	10	2018/6/26	Blue
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Sleeve Print Ink	Japan	OSAKA PRINTING INK MFG CO.,LTD.	Ink	JP/2018/040267	11	2018/4/18	(GBNo.I0220001)



Data No.1 Anode foil

TEST REPORT

REPORT NO. JP/2018/061391

DATE: July 12, 2018

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NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CLIENT AS:
以下のサンプルは顧客により提供され、顧客に代わって確認を行いました:

SAMPLE DESCRIPTION : CHLT90S

CLIENT REF.NO :

SAMPLE RECEIVED : 2018/06/25

TESTING DATE : 2018/06/25 TO 2018/07/11

TEST REQUESTED : SELECTED TEST(S) AS REQUESTED BY CLIENT.
分析項目 : 分析項目は顧客の要求によります。

TEST METHOD(S) : WITH REFERENCE TO LATEST EDITION OF IEC62321 FOR RoHS 6 SUBSTANCES.
分析方法 : OTHER CHEMICALS WERE TESTED BY EACH APPROPRIATE METHOD.
RoHS6物質の分析は最新版のIEC62321を参照しました。
それ以外の化学物質についてはそれぞれに最適な方法で分析を行いました。

TEST RESULT(S) : PLEASE REFER TO THE NEXT PAGE(S).
分析結果 : 以下のページをご参照願います。

大内 幸弘



Yukihiro Ouchi / Quality Manager
SGS Japan Inc., Chemical Laboratory

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SGS Japan Inc. | YBP East Tower 12F, 134 Godo-cho Hodogaya-ku Yokohama 240-0005, Japan
t +81(0) 45 330 1100 f +81(0) 45 330 1108 URL: www.jp.sgs.com

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TEST REPORT

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NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

TEST RESULT(S)

ITEM(S)	UNIT	RESULT	METHOD	INST./PLACE	MDL
CADMIUM(Cd)	mg/kg	N.D.	IEC62321-5: 2013	ICP-OES	2
LEAD(Pb)	mg/kg	N.D.	IEC62321-5: 2013	ICP-OES	2
MERCURY(Hg)	mg/kg	N.D.	IEC62321-4: 2013	ICP-OES	2
CHROMIUM VI(Cr(VI))	μg/cm ²	N.D.	IEC62321-7-1: 2015	UV/VIS	0.01
Polybrominated biphenyls(PBBs)					
Monobromobiphenyl	mg/kg	N.D.			5
Dibromobiphenyl	mg/kg	N.D.			5
Tribromobiphenyl	mg/kg	N.D.			5
Tetrabromobiphenyl	mg/kg	N.D.			5
Pentabromobiphenyl	mg/kg	N.D.	IEC62321-6: 2015	GC/MS	5
Hexabromobiphenyl	mg/kg	N.D.			5
Heptabromobiphenyl	mg/kg	N.D.			5
Octabromobiphenyl	mg/kg	N.D.			5
Nonabromobiphenyl	mg/kg	N.D.			5
Decabromobiphenyl	mg/kg	N.D.			5
Polybrominated diphenyl ethers(PBDEs)					
Monobromodiphenyl ether	mg/kg	N.D.			5
Dibromodiphenyl ether	mg/kg	N.D.			5
Tribromodiphenyl ether	mg/kg	N.D.			5
Tetrabromodiphenyl ether	mg/kg	N.D.			5
Pentabromodiphenyl ether	mg/kg	N.D.	IEC62321-6: 2015	GC/MS	5
Hexabromodiphenyl ether	mg/kg	N.D.			5
Heptabromodiphenyl ether	mg/kg	N.D.			5
Octabromodiphenyl ether	mg/kg	N.D.			5
Nonabromodiphenyl ether	mg/kg	N.D.			5
Decabromodiphenyl ether	mg/kg	N.D.			5
PHTHALATES					
DIBUTYL PHTHALATE(DBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50
DI(2-ETHYLHEXYL) PHTHALATE(DEHP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50
BUTYLBENZYL PHTHALATE(BBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50
DIISOBUTYL PHTHALATE(DIBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50

NOTES: mg/kg = ppm, N.D. = Not Detected, INST. = INSTRUMENT, MDL = Method Detection Limit

REMARK: Cr(VI) has been tested with regard to the surface area of 12cm².

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NICHIOON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

分析フローチャート MEASUREMENT FLOW CHART

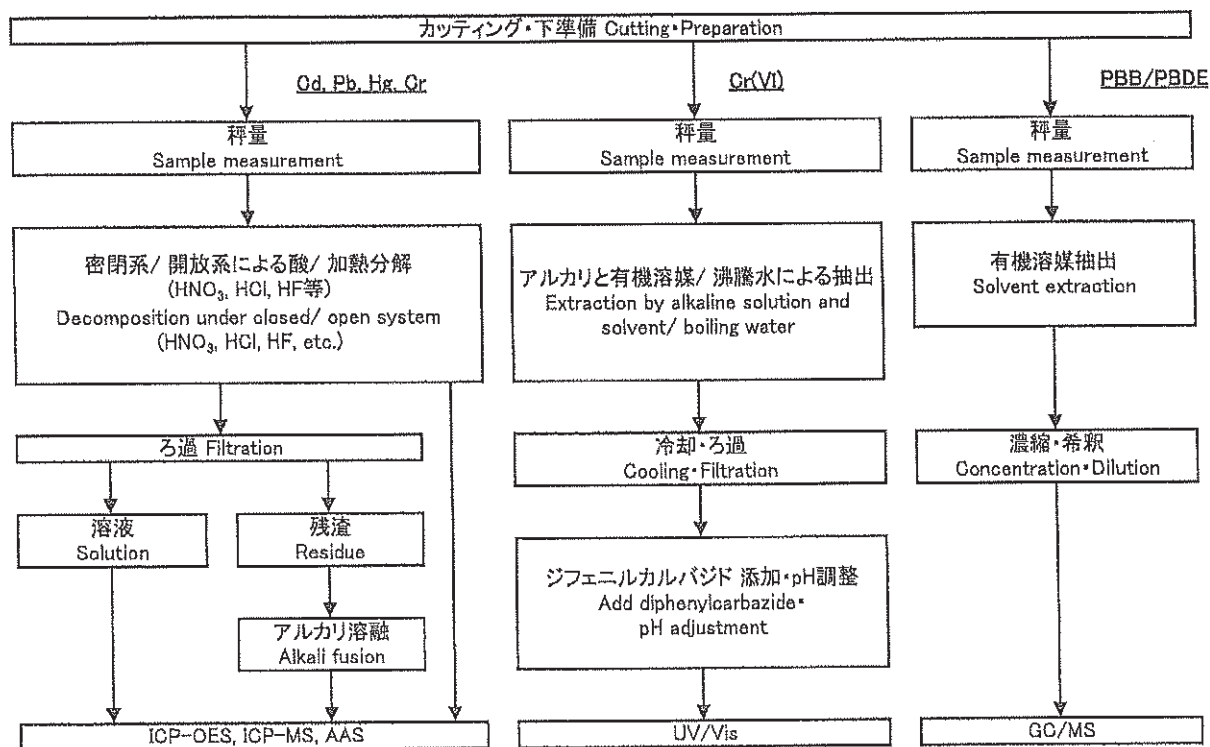
1) 酸分解前処理において試料を完全分解しています。

The sample was dissolved/ decomposed totally by acid pre-conditioning method according to below flow chart.

2) Cd, Pb, Hg, Cr, Cr(VI), PBB/PBDE

分析担当者 Name of the person in charge of measurement: 及川 聡子 Satoko Oikawa

3) 分析責任者 Name of the person responsible for measurement: 大谷 真由美 Mayumi Otani



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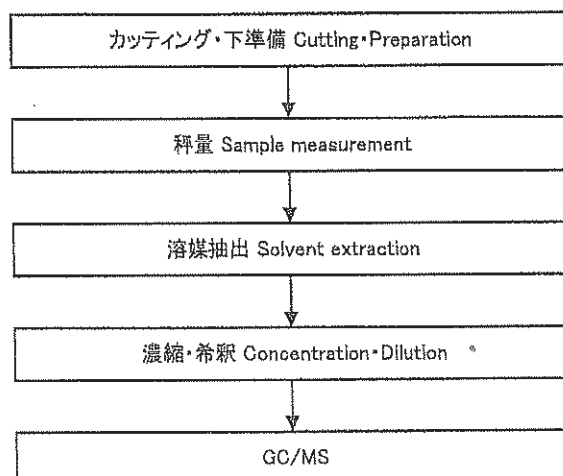
NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

分析フローチャート MEASUREMENT FLOW CHART

1)分析担当者 Name of the person in charge of measurement: 及川 聡子 Satoko Oikawa

2)分析責任者 Name of the person responsible for measurement: 大谷 真由美 Mayumi Otani

フタル酸エステル
PHTHALATES

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8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

[illegible]

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Data No.2 Cathode foil

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DATE: July 12, 2018

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NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CLIENT AS:
以下のサンプルは顧客により提供され、顧客に代わって確認を行いました:

SAMPLE DESCRIPTION : DBKH050

CLIENT REF.NO :

SAMPLE RECEIVED : 2018/06/25

TESTING DATE : 2018/06/25 TO 2018/07/11

TEST REQUESTED : SELECTED TEST(S) AS REQUESTED BY CLIENT.
分析項目 分析項目は顧客の要求によります。

TEST METHOD(S) : WITH REFERENCE TO LATEST EDITION OF IEC62321 FOR RoHS 6 SUBSTANCES.
分析方法 OTHER CHEMICALS WERE TESTED BY EACH APPROPRIATE METHOD.
RoHS6物質の分析は最新版のIEC62321を参照しました。
それ以外の化学物質についてはそれぞれに最適な方法で分析を行いました。

TEST RESULT(S) : PLEASE REFER TO THE NEXT PAGE(S).
分析結果 以下のページをご参照願います。

大内 章弘



Yukihiko Ouchi / Quality Manager
SGS Japan Inc., Chemical Laboratory

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NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

TEST RESULT(S)

ITEM(S)	UNIT	RESULT	METHOD	INST./PLACE	MDL
CADMIUM(Cd)	mg/kg	N.D.	IEC62321-5: 2013	ICP-OES	2
LEAD(Pb)	mg/kg	N.D.	IEC62321-5: 2013	ICP-OES	2
MERCURY(Hg)	mg/kg	N.D.	IEC62321-4: 2013	ICP-OES	2
CHROMIUM VI(Cr(VI))	μg/cm ²	N.D.	IEC62321-7-1: 2015	UV/VIS	0.01
Polybrominated biphenyls(PBBs)					
Monobromobiphenyl	mg/kg	N.D.			5
Dibromobiphenyl	mg/kg	N.D.			5
Tri bromobiphenyl	mg/kg	N.D.			5
Tetrabromobiphenyl	mg/kg	N.D.			5
Pentabromobiphenyl	mg/kg	N.D.	IEC62321-6: 2015	GC/MS	5
Hexabromobiphenyl	mg/kg	N.D.			5
Heptabromobiphenyl	mg/kg	N.D.			5
Octabromobiphenyl	mg/kg	N.D.			5
Nonabromobiphenyl	mg/kg	N.D.			5
Decabromobiphenyl	mg/kg	N.D.			5
Polybrominated diphenyl ethers(PBDEs)					
Monobromodiphenyl ether	mg/kg	N.D.			5
Dibromodiphenyl ether	mg/kg	N.D.			5
Tri bromodiphenyl ether	mg/kg	N.D.			5
Tetrabromodiphenyl ether	mg/kg	N.D.			5
Pentabromodiphenyl ether	mg/kg	N.D.	IEC62321-6: 2015	GC/MS	5
Hexabromodiphenyl ether	mg/kg	N.D.			5
Heptabromodiphenyl ether	mg/kg	N.D.			5
Octabromodiphenyl ether	mg/kg	N.D.			5
Nonabromodiphenyl ether	mg/kg	N.D.			5
Decabromodiphenyl ether	mg/kg	N.D.			5
PHTHALATES					
DIBUTYL PHTHALATE(DBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50
DI(2-ETHYLHEXYL) PHTHALATE(DEHP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50
BUTYLBENZYL PHTHALATE(BBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50
DIISOBUTYL PHTHALATE(DIBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS	50

NOTES: mg/kg = ppm, N.D. = Not Detected, INST. = INSTRUMENT, MDL = Method Detection Limit

REMARK: Cr(VI) has been tested with regard to the surface area of 12cm².

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NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

分析フローチャート MEASUREMENT FLOW CHART

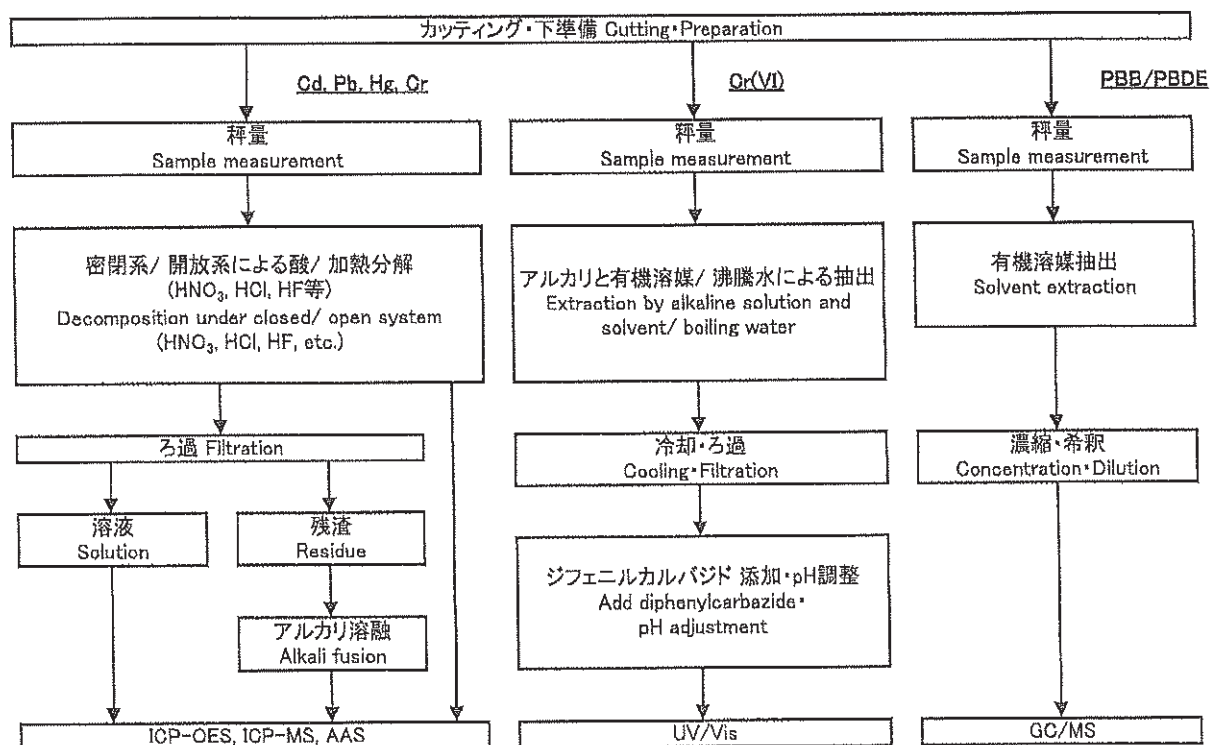
1) 酸分解前処理において試料を完全分解しています。

The sample was dissolved/ decomposed totally by acid pre-conditioning method according to below flow chart.

2) Cd, Pb, Hg, Cr, Cr(VI), PBB/PBDE

分析担当者 Name of the person in charge of measurement: 及川 聡子 Satoko Oikawa

3) 分析責任者 Name of the person responsible for measurement: 大谷 真由美 Mayumi Otani



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JP



TEST REPORT

REPORT NO. JP/2018/061396

DATE: July 12, 2018

PAGE: 4 OF 5

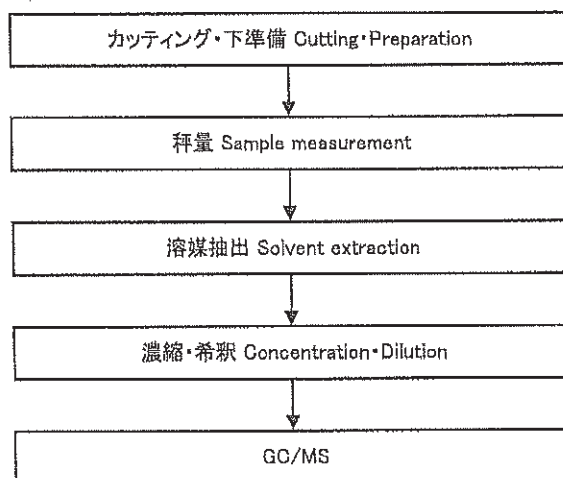
NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

分析フローチャート MEASUREMENT FLOW CHART

- 1)分析担当者 Name of the person in charge of measurement: 及川 聡子 Satoko Oikawa
 2)分析責任者 Name of the person responsible for measurement: 大谷 真由美 Mayumi Otani

フタル酸エステル
PHthalATES



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REPORT NO. JP/2018/061396

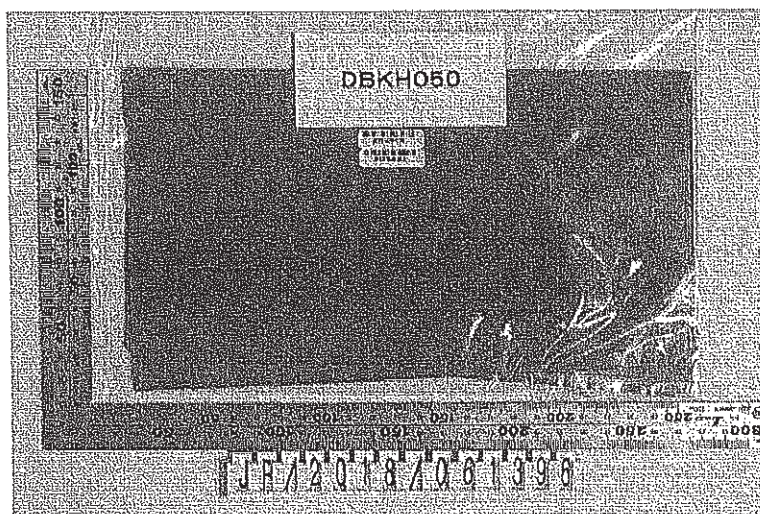
DATE: July 12, 2018

PAGE: 5 OF 5

NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

SAMPLE IMAGE



<END>

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No.3 Electrolysis paper



Ref. No. 30 SIGEN-87-1-2 (1/1)

KOCHI PREFECTURAL INDUSTRIAL TECH. CTR.

3992-3, Nunoshida, Kochi-city, Kochi, 781-5101, JAPAN

Date: Aug. 3, 2018

To NIPPON KODOSHI CORPORATION

648, Hirooka-Kami, Haruno-cho, Kochi-city, Kochi, 781-0395, JAPAN

TEST REPORT

1. Received : Jul. 10, 2018
2. Sample : Electrolytic Capacitor Separator Non Wood fibers Grade:MR5D4W
3. Item : Chromium(Cr), Cadmium(Cd), Lead(Pb), Mercury(Hg),
Phthalates(DEHP,BBP,DBP,DIBP), Bromine(Br)

The result of requested test is as follows.

	Result (mg/kg)	LOQ (mg/kg)		Result (mg/kg)	LOQ (mg/kg)
Cr	N.D.	*5	DEHP	N.D.	50
Cd	N.D.	*5	BBP	N.D.	50
Pb	N.D.	10	DBP	N.D.	50
Hg	N.D.	4	DIBP	N.D.	50
Br	N.D.	*5			

*Information value of chemical fiber

- NOTE: 1. LOQ = limit of quantitation
2. N.D. = Not detected. (< LOQ)
3. Test method

Cr, Cd, Pb: IEC62321-5:2013, ICP-AES (Seiko Instruments Vista-Pro)

Hg: IEC62321-4:2013, CV-AAS (Nippon Instruments RA-3)

Br: IEC62321-3-2:2013, C-IC (Thermo Fisher Scientific ICS-1600)

DEHP, BBP, DBP, DIBP: IEC62321-8:2017, GC-MS (JEOL JMS-Q1000GC Mk II)

4. Test Period: Jul. 10, 2018 to Jul. 27, 2018

Name of the person who made measurement: Takashi Sumida, Yuka Okazaki, Yuya Yano, Masanobu Suzuki

Name of the person in charge of measurement: Manabu Mori

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-END-

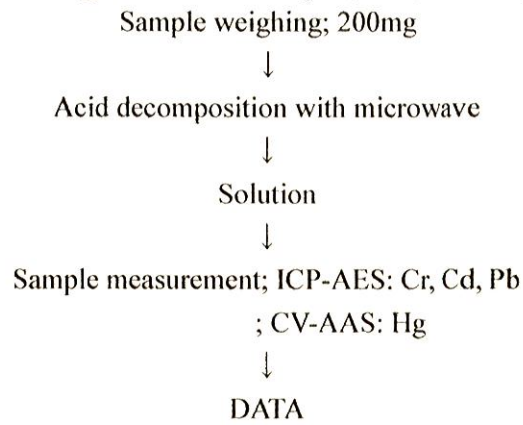
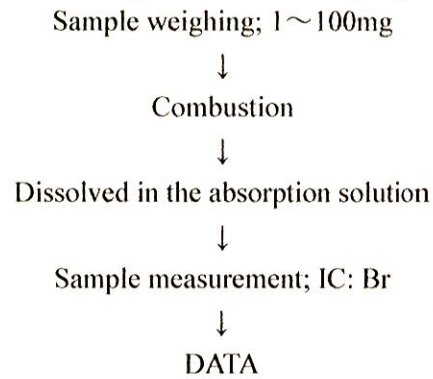
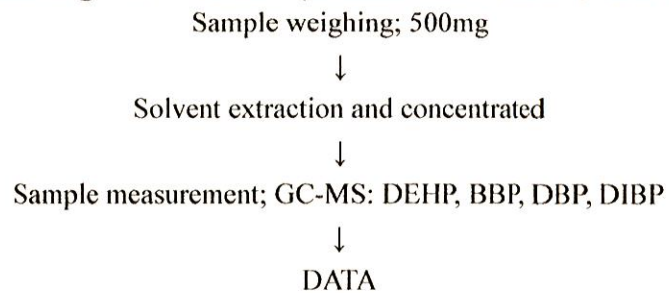
KOCHI PREFECTURAL INDUSTRIAL TECHNOLOGY CENTER

Approved by

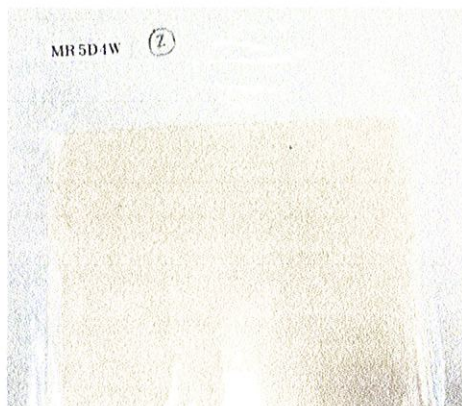
森 学

Director: Manabu Mori

ATTACHMENTS

Testing Flow Chart (Cr, Cd, Pb, Hg)**Testing Flow Chart (Br)****Testing Flow Chart (DEHP, BBP, DBP, DIBP)**

Sample photo: Electrolytic Capacitor Separator Non Wood fibers
Grade:MR5D4W





Data No.4 Affixing

Chemical Laboratory - Kao, SGS Taiwan Ltd.

署名は有効です

For Question Please
Contact SGS
www.sgs.com.tw

Test Report

No. : KA/2018/70057

Date : 2018/07/10

Page : 1 of 7

NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

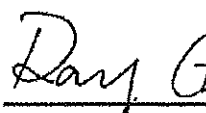
The following sample(s) was/were submitted and identified by/on behalf of the applicant as :


Sample Description : ADHESIVE TAPE
Style/Item No. : NO.3703F
Sample Receiving Date : 2018/07/02
Testing Period : 2018/07/02 TO 2018/07/10
Sample Submitted By : NITTO DENKO (TAIWAN) CORPORATION

Test Requested :

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.

Test Result(s) : Please refer to next page(s).


Ray Chang Ph.D. / Manager - Tech
Signed for and on behalf of
SGS Taiwan Limited



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Test Report

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NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

Test Result(s)

PART NAME No.1 : TRANSPARENT ADHESIVE TAPE

Test Item(s)	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321-7-2:2017 and performed by UV-VIS.	8	n.d.
Sum of PBBs			-	n.d.
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 and performed by GC/MS.	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.
Sum of PBDEs			-	n.d.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 and performed by GC/MS.	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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NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

Test Item(s)	Unit	Method	MDL	Result
				No.1
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	50	n.d.
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	50	n.d.
BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	50	n.d.
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	50	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated

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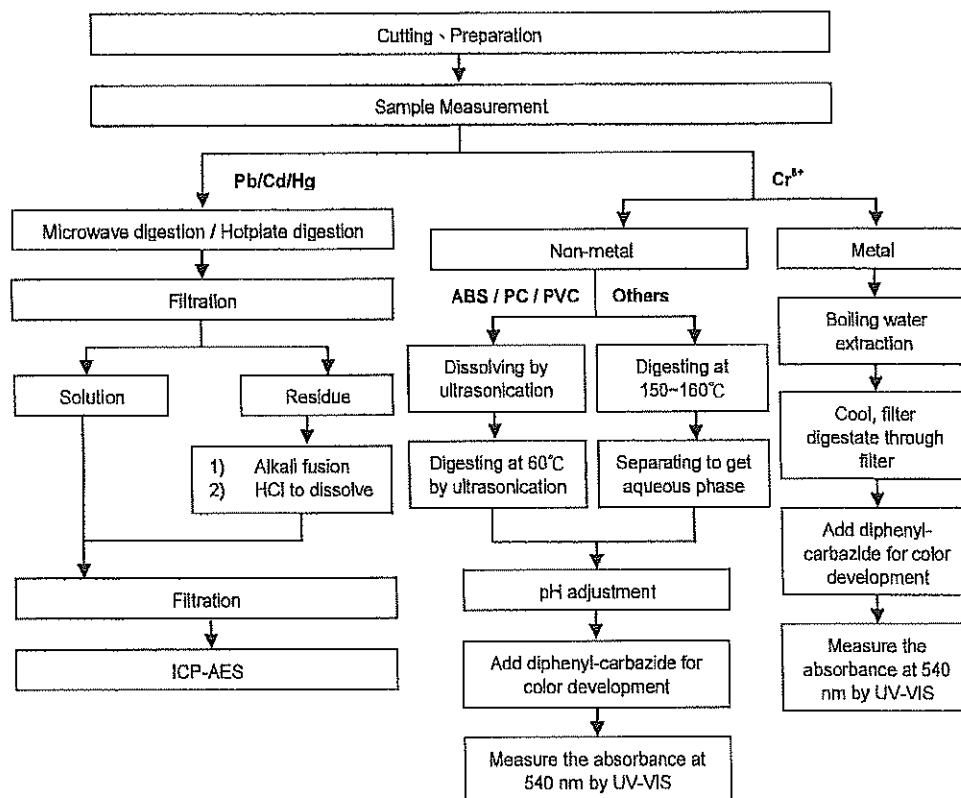
NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

- Technician : Jony Liu
- Supervisor: Ray Chang



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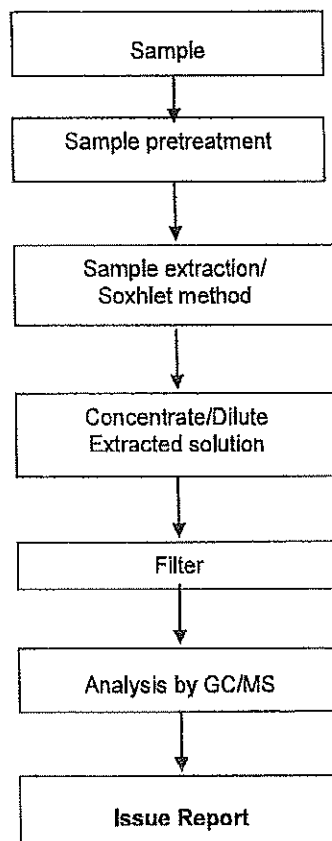
NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

PBB/PBDE analytical FLOW CHART

1) Name of the person who made measurement: Dorothy Chen

2) Name of the person in charge of measurement: Ray Chang



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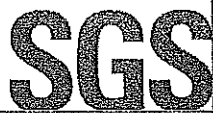
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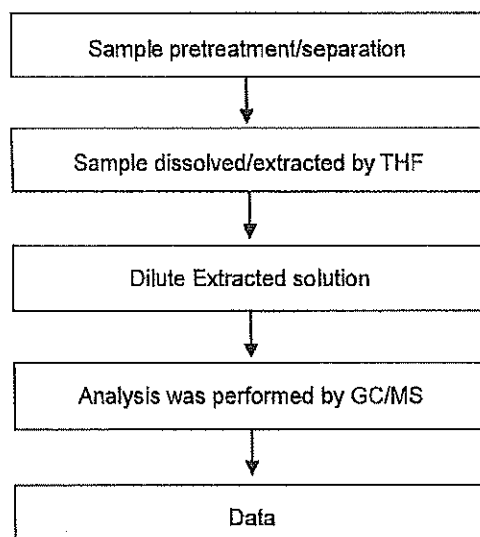
NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

Analytical flow chart of phthalate content

- Name of the person who made measurement: Dorothy Chen
- Name of the person in charge of measurement: Ray Chang

【Test method: IEC 62321-8】



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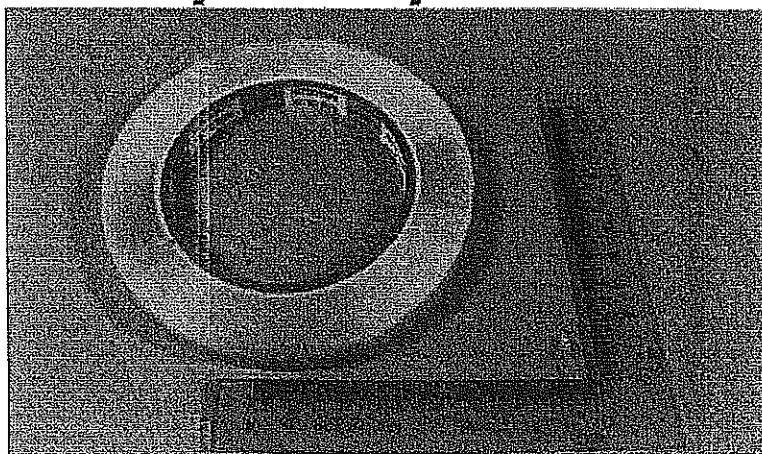
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NITTO DENKO CORPORATION

18, HIRAYAMA, NAKAHARA, TOYOHASHI, AICHI, 441-3194, JAPAN.

* The tested sample / part is marked by an arrow if it's shown on the photo. *

KA/2018/70057



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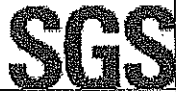
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SGS Taiwan Ltd.
台灣檢驗科技股份有限公司No. 81, Kei-Fa Road, Nanzh Export Processing Zone, Kaohsiung, Taiwan /
t + 886 (0)7301 2121

f + 886 (0)73019867

高雄南橋加工出口區開發路81號
www.tw.sgs.com

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Data No.5 Lead Wire
(Surface plating)

Test Report No. F690101/LF-CTSAYAA17-64721

Issued Date : 2017. 12. 20

Page 1 of 4

KISTRON CO., LTD.

37, Sandan-ro 68beon-gil
Danwon-gu Ansan-si, Gyeonggi-do
Korea



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

SGS File No. : AYAA17-64721
Product Name : Sn Plating layer
Item No./Part No. : N/A
Client Reference Data : TPC (TPCH) Wire, TCA (TCAH) Wire, TCO (TCOH) Wire, TSBC (TSBCH) Wire, HTPC, TDA, TPNC, TCAAB
Received Date : 2017. 12. 07
Test Period : 2017. 12. 07 to 2017. 12. 20
Report Comments : By the applicant's request, item No.s/part No.s & client reference information are stated/added on report.
Test Results : For further details, please refer to following page(s)

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Jeff Jang / Chemical Lab Mgr

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322, The O valley, 76, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117
t +82 (0)31 4808 000 f +82 (0)31 4808 058 <http://www.sgsgroup.kr>

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Test Report No. F690101/LF-CTSAYAA17-64721

Issued Date : 2017. 12. 20

Page 2 of 4

Sample No. : AYAA17-64721.001
 Sample Description : Sn Plating layer
 Item No./Part No. : N/A
 Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Lead by ICP-OES)	5	52.7
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI)*	µg/cm ²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

- NOTE:
- (1) N.D. = Not detected.(<MDL)
 - (2) mg/kg = ppm
 - (3) MDL = Method Detection Limit
 - (4) - = No regulation
 - (5) Negative = Undetectable / Positive = Detectable
 - (6) ** = Qualitative analysis (No Unit)
 - (7) * = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.

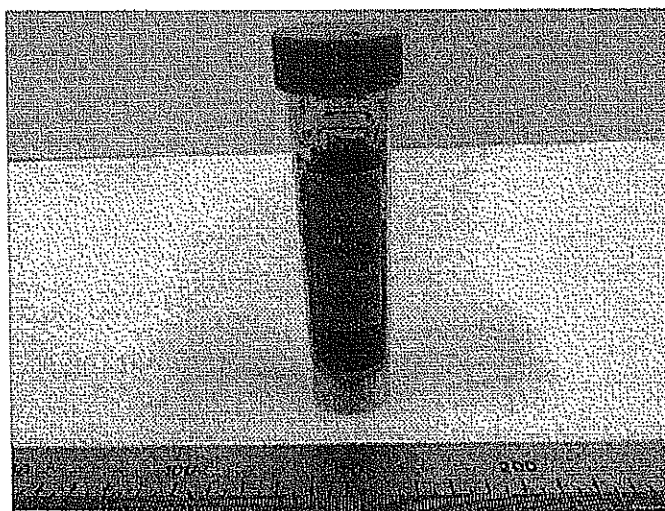
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Test Report No. F690101/LF-CTSAYAA17-64721

Issued Date : 2017. 12. 20

Page 3 of 4

Picture of Sample as Received:



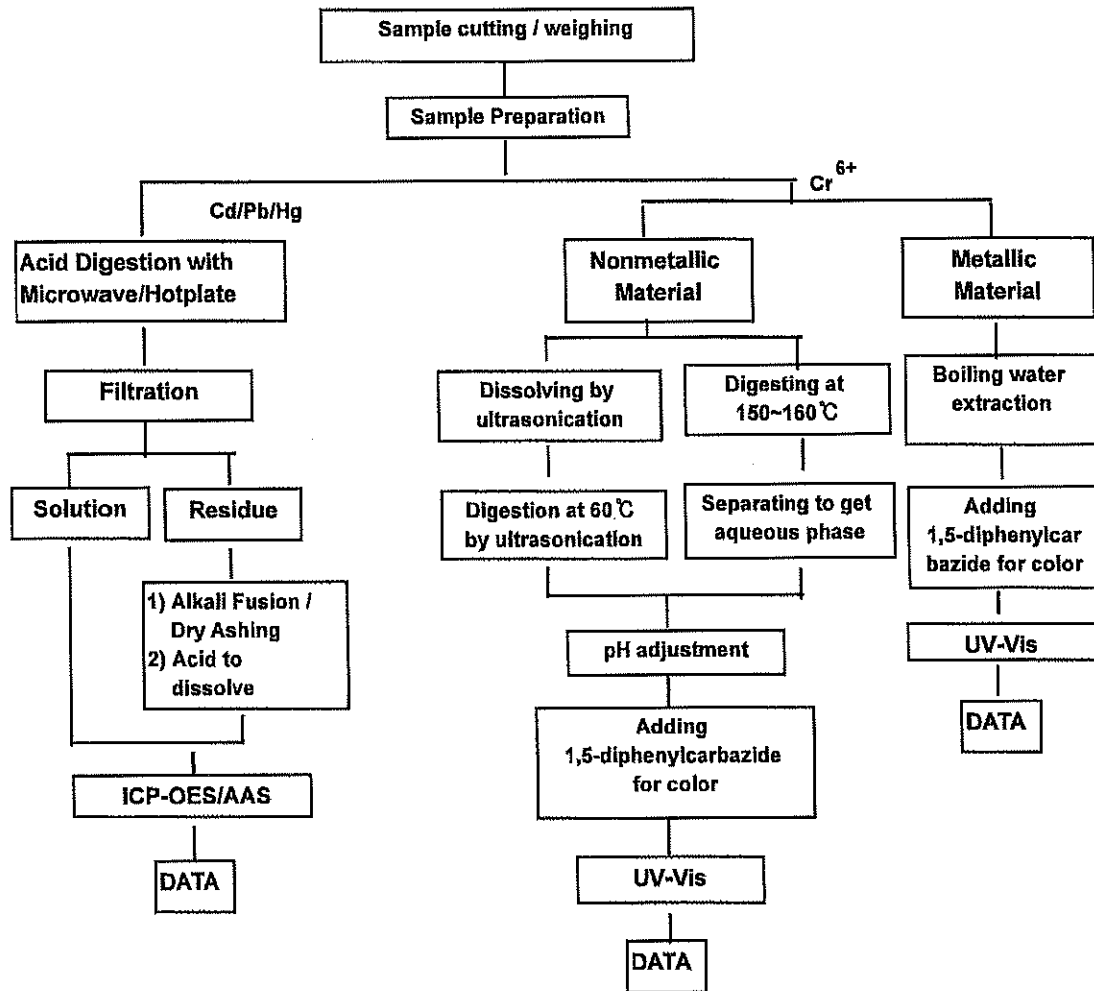
AYAA17-64721.001

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Test Report No. F690101/LF-CTSAYAA17-64721

Issued Date : 2017. 12. 20

Page 4 of 4

Testing Flow Chart for RoHS: Cd/Pb/Hg/Cr⁶⁺ Testing


The samples were dissolved totally at the acid digestion step of the above flow chart for Cd,Pb,Hg
 Section Chief : Minkyu Park

*** End of Report ***

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Data No.5 Lead Wire
(Groundwork plating)

Test Report No. F690101/LF-CTSAYAA17-64720

Issued Date : 2017. 12. 20

Page 1 of 4

KISTRON CO., LTD.

37, Sandan-ro 68beon-gil
Danwon-gu Ansan-si, Gyeonggi-do
Korea



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

SGS File No. : AYAA17-64720
Product Name : Cu Plating layer
Item No./Part No. : N/A
Client Reference Data : CPS, CCS Wire, TPC (TPCH) Wire, TPC(B) (TPCH(B)) Wire, TPC(C) (TPCH(C))Wire, APC (APCH) Wire, NPC (NPCH), NPS (NPSH), TPNC, ULTRAI(C)
Received Date : 2017. 12. 07
Test Period : 2017. 12. 07 to 2017. 12. 20
Report Comments : By the applicant's request, Item No.s/part No.s & client reference information are stated/added on report.
Test Results : For further details, please refer to following page(s)

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Jeff Jang / Chemical Lab Mgr

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SGS Korea Co., Ltd.

322, The O valley, 78, I.S-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117
t +82 (0)31 4908 000 f +82 (0)31 4808 059 <http://www.sgsgroup.kr>

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Test Report No. F690101/LF-CTSAYAA17-64720

Issued Date : 2017. 12. 20

Page 2 of 4

Sample No. : AYAA17-64720.001
Sample Description : Cu Plating layer
Item No./Part No. : N/A
Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Lead by ICP-OES)	5	16.2
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI)*	µg/cm ²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

- NOTE:
- (1) N.D. = Not detected. (<MDL)
 - (2) mg/kg = ppm
 - (3) MDL = Method Detection Limit
 - (4) - = No regulation
 - (5) Negative = Undetectable / Positive = Detectable
 - (6) ** = Qualitative analysis (No Unit)
 - (7) * = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.

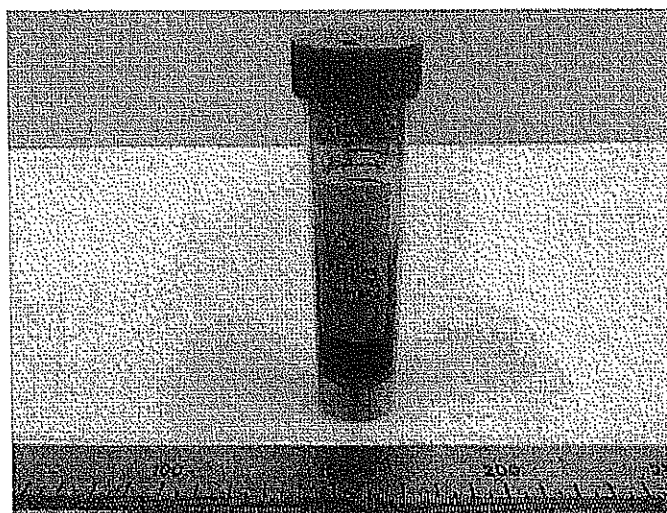
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Test Report No. F690101/LF-CTSAYAA17-64720

Issued Date : 2017. 12. 20

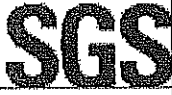
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Picture of Sample as Received:



AYAA17-64720.001

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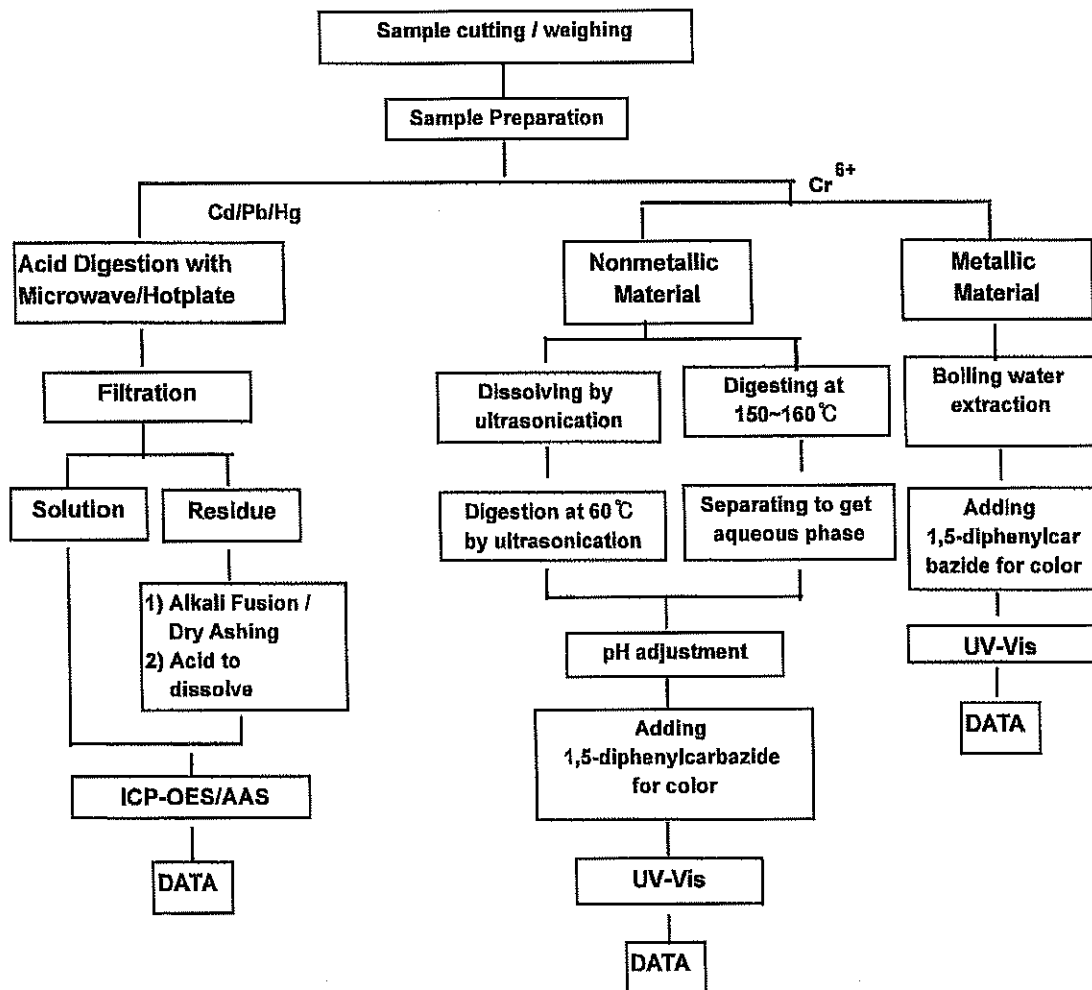


Test Report No. F690101/LF-CTSAYAA17-64720

Issued Date : 2017. 12. 20

Page 4 of 4

Testing Flow Chart for RoHS: Cd/Pb/Hg/Cr⁶⁺ Testing



The samples were dissolved totally at the acid digestion step of the above flow chart for Cd,Pb,Hg
Section Chief : Minkyu Park

*** End of Report ***

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Data No.5 Lead Wire
(Iron core)

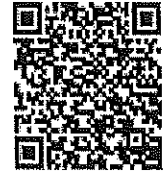
Test Report No. F690101/LF-CTSAYAA17-64715

Issued Date : 2017. 12. 20

Page 1 of 4

KISTRON CO., LTD.

37, Sandan-ro 68beon-gil
Danwon-gu Ansan-si, Gyeonggi-do
Korea



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

SGS File No. : AYAA17-64715
Product Name : Fe Wire
Item No./Part No. : N/A
Client Reference Data : CPS, CCS Wire, TPC (TPCH) Wire, TPC(B) (TPCH(B)) Wire, TPC(C) (TPCH(C))Wire, APC (APCH) Wire, NPC (NPCH), NPS (NPSH), TPNC, ULTRAI(C)
Received Date : 2017. 12. 07
Test Period : 2017. 12. 07 to 2017. 12. 20
Report Comments : By the applicant's request, item No.s/part No.s & client reference information are stated/added on report.
Test Results : For further details, please refer to following page(s)

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322, The O valley, 76, 1.S-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117
t +82 (0)31 4608 000 f +82 (0)31 4608 058 <http://www.sgsgroup.kr>

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Test Report No. F690101/LF-CTSAYAA17-64715

Issued Date : 2017. 12. 20

Page 2 of 4

Sample No. : AYAA17-64715.001
 Sample Description : Fe Wire
 Item No./Part No. : N/A
 Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Lead by ICP-OES)	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI)*	µg/cm ²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

NOTE: (1) N.D. = Not detected, (<MDL)
 (2) mg/kg = ppm
 (3) MDL = Method Detection Limit
 (4) - = No regulation
 (5) Negative = Undetectable / Positive = Detectable
 (6) ** = Qualitative analysis (No Unit)
 (7) * = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.

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322, The O valley, 76, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117
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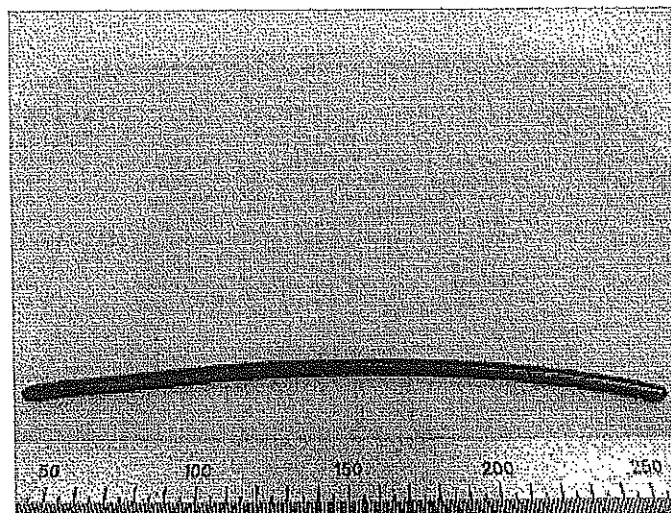
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Test Report No. F690101/LF-CTSAYAA17-64715

Issued Date : 2017. 12. 20

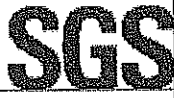
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Picture of Sample as Received:



AYAA17-64715.001

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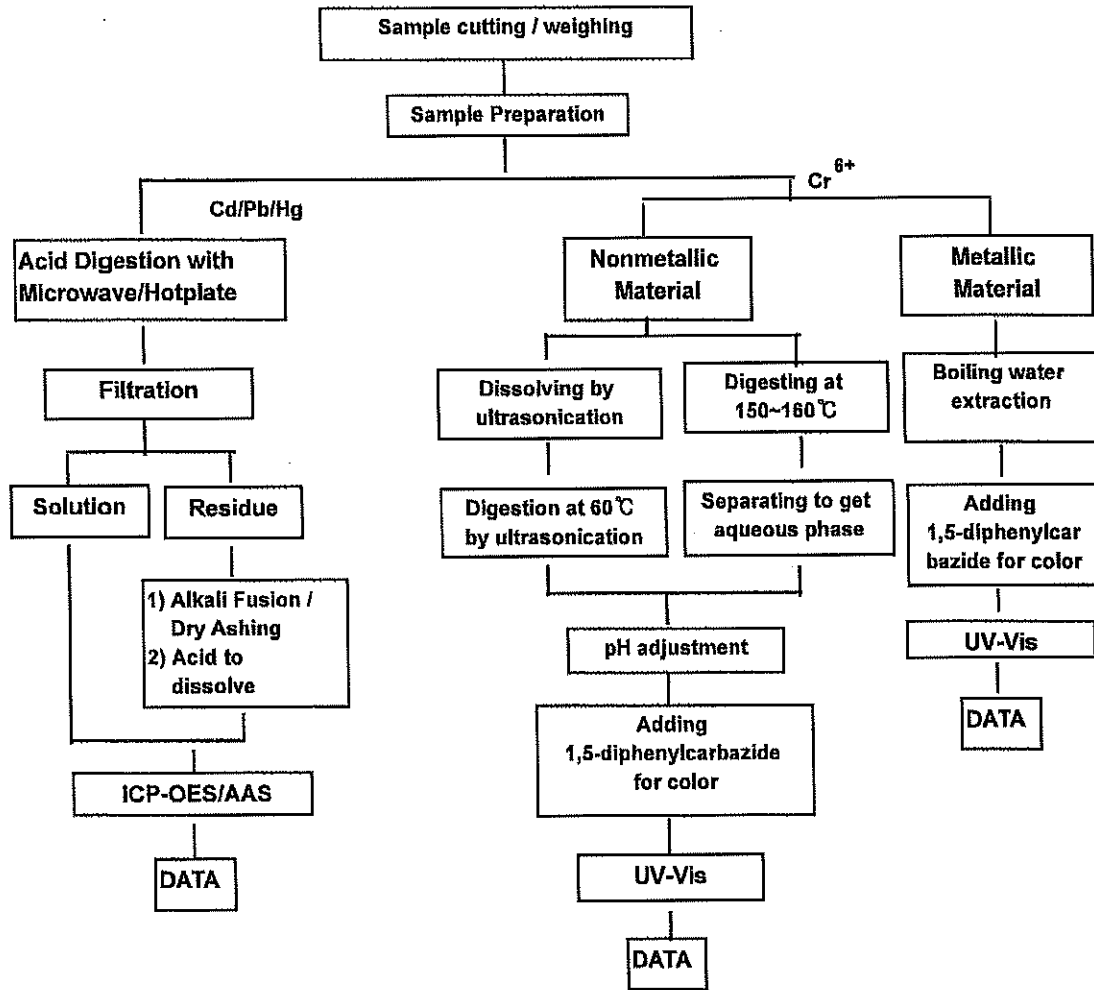


Test Report No. F690101/LF-CTSAYAA17-64715

Issued Date : 2017. 12. 20

Page 4 of 4

Testing Flow Chart for RoHS: Cd/Pb/Hg/Cr⁶⁺ Testing



The samples were dissolved totally at the acid digestion step of the above flow chart for Cd,Pb,Hg
Section Chief : Minkyu Park

*** End of Report ***

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Data No.6 Aluminum Wire

Test Report No. F690101/LF-CTSAYAA17-64719

Issued Date : 2017. 12. 20

Page 1 of 4

KISTRON CO., LTD.

37, Sandan-ro 68beon-gil
Danwon-gu Ansan-si, Gyeonggi-do
Korea



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

SGS File No. : AYAA17-64719
Product Name : Aluminum Wire(99.92)
Item No./Part No. : TCAAB
Received Date : 2017. 12. 07
Test Period : 2017. 12. 07 to 2017. 12. 20
Report Comments : By the applicant's request, Item No.s/part No.s & client reference information are stated/added on report.
Test Results : For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr

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SGS Korea Co., Ltd.

322, The O valley, 76, L8-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117
T +82 (0)31 4908 000 F +82 (0)31 4609 059 <http://www.sgskorea.co.kr>

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Test Report No. F690101/LF-CTSAYAA17-64719

Issued Date : 2017. 12. 20

Page 2 of 4

Sample No. : AYAA17-64719.001
Sample Description : Aluminum Wire(99.92)
Item No./Part No. : TCAAB
Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Lead by ICP-OES)	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI)*	µg/cm ²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

- NOTE:
- (1) N.D. = Not detected.(<MDL)
 - (2) mg/kg = ppm
 - (3) MDL = Method Detection Limit
 - (4) - = No regulation
 - (5) Negative = Undetectable / Positive = Detectable
 - (6) ** = Qualitative analysis (No Unit)
 - (7) * = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.

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F401 Version4

SGS Korea Co., Ltd.

 322, The O valley, 78, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117
 t +82 (0)31 4808 000 f +82 (0)31 4808 059 <http://www.sgskorea.kr>

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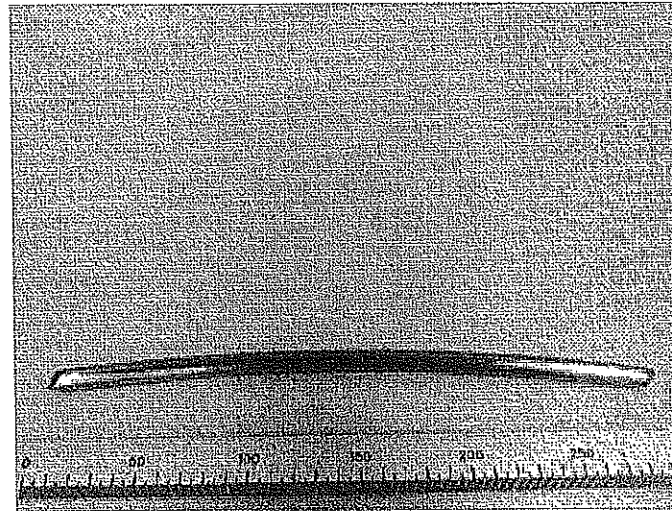


Test Report No. F690101/LF-CTSAYAA17-64719

Issued Date : 2017. 12. 20

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Picture of Sample as Received:



AYAA17-64719.001

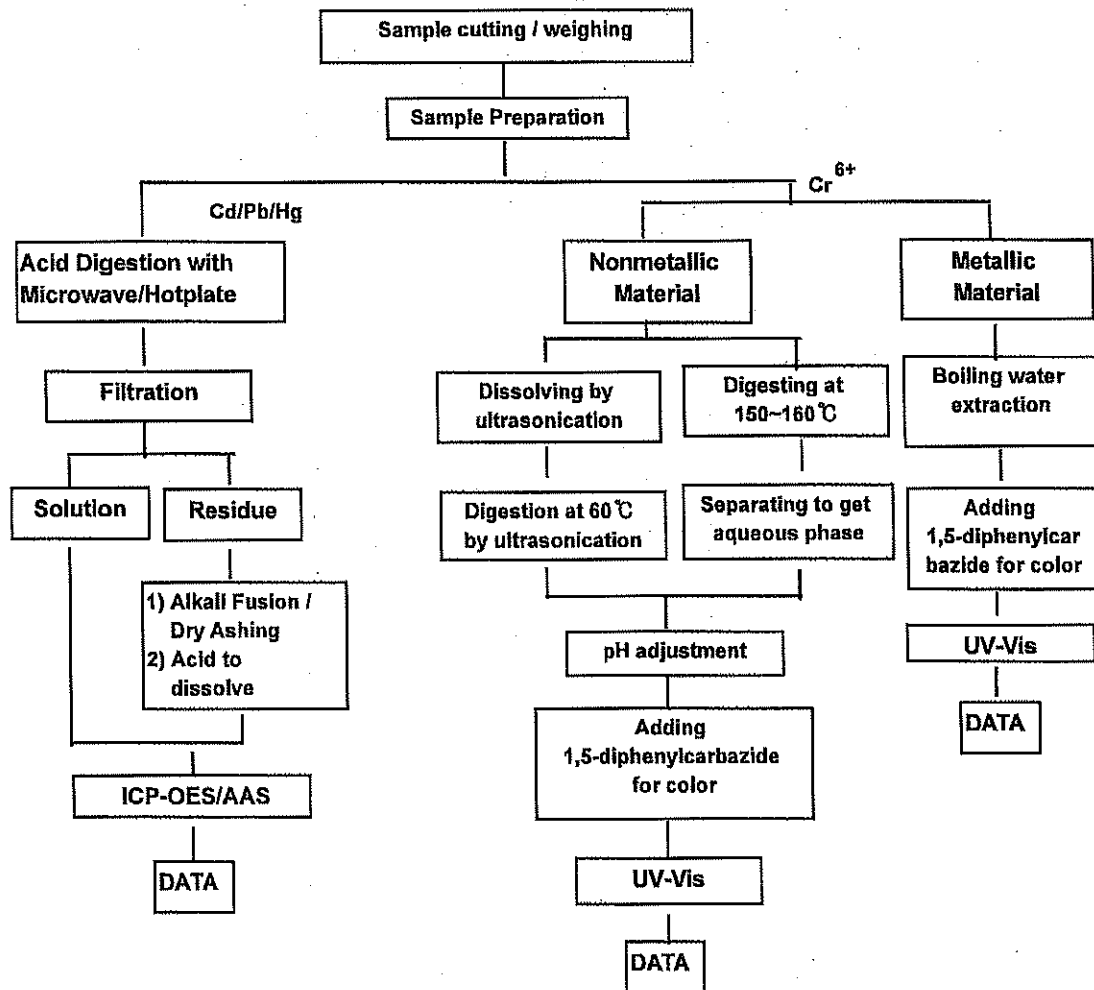
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Test Report No. F690101/LF-CTSAYAA17-64719

Issued Date : 2017. 12. 20

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Testing Flow Chart for RoHS: Cd/Pb/Hg/Cr⁶⁺ Testing

The samples were dissolved totally at the acid digestion step of the above flow chart for Cd,Pb,Hg
Section Chief : Minkyu Park

*** End of Report ***

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Data No.7 (Rubber end seal)

Test Report

No. CRSSA/13473-1/18

Date : 28/09/2018

Page: 1 of 5

CRS Ref. CRSSA/18/2481/Kozato

KOZATO KIZAI CO., LTD
39-7 KAMAKURA 1-CHOME,
KATSUSHIKA-KU TOKYO, 125-0053 JAPAN

The following merchandise was (were) submitted and identified by the client as:

Sample Description	:	RI-2200
Lot No.	:	080110
Sample Receiving Date	:	21/09/2018
Testing Period	:	21/09/2018 to 28/09/2018

Test Requested	:	Selected test(s) as requested by client
Test Method	:	Please refer to next page(s).
Test Results	:	Please refer to next page(s).
Analysts	:	Tan Mei Ann & Gan Wan Han

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SECTION HEAD
IKM No. M/3983/6401/12/14

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Test Report

No. CRSSA/13473-1/18
CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

Page: 2 of 5

Test results:

Test Part Description :

Sample Description : RI-2200
Lot No. : 080110

RoHS Directive 2011/65/EU Annex II

Test Item(s):	Unit	Test Method	Results	MDL	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd by ICP-OES)	N.D.	2	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Pb by ICP-OES)	N.D.	2	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013/AMD 1:2017 (Determination of Hg by ICP-OES)	N.D.	2	1000
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC 62321-7-2:2017 (Determination of CrVI by UV-Vis)	N.D.	8	1000
Sum of PBBs	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	-	1000
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Dibromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Tribromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Pentabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Hexabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Heptabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Octabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Nonabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-
Decabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	N.D.	5	-

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Test Report

No. CRSSA/13473-1/18

Date : 28/09/2018

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CRS Ref. CRSSA/18/2481/Kozato

Sum of PBDEs	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	N.D.	5	-

Note : (a) mg/kg = ppm ; (0.1wt% = 1000ppm)
(b) N.D. = Not Detected
(c) MDL = Method Detection Limit
(d) - = not regulated

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Test Report

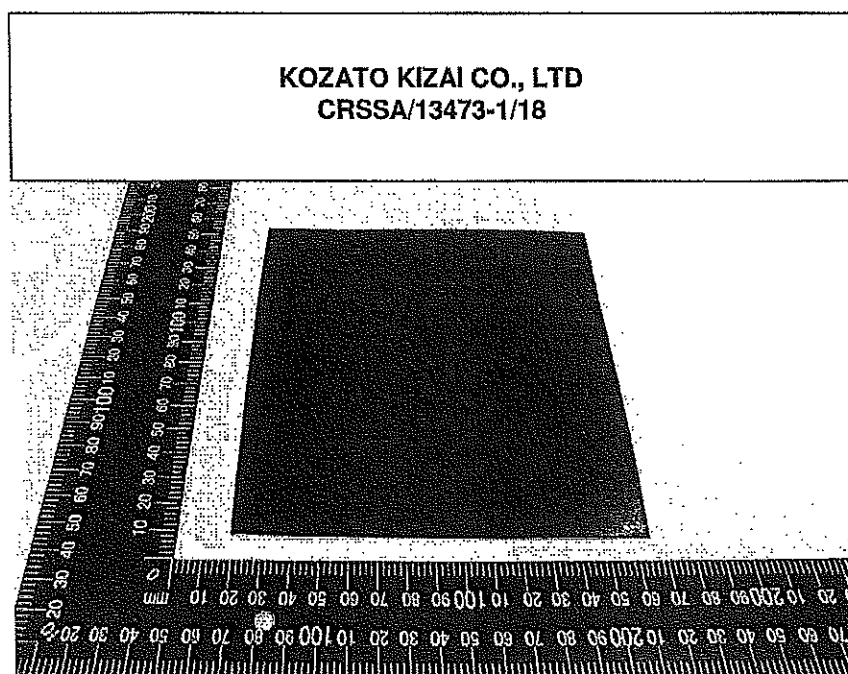
No. CRSSA/13473-1/18
CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

Page: 4 of 5

Test Part Description :

Sample Description : RI-2200
Lot No. : 080110



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Test Report

No. CRSSA/13473-1/18

Date : 28/09/2018

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CRS Ref. CRSSA/18/2481/Kozato

1. DETERMINATION OF CADMIUM CONTENT BY

IEC 62321-5 2013

Sample Receiving and Registration
↓
Cut sample in small pieces
↓
Weight sample (0.2-0.5g) into digestion vessel
↓
Acid digestion (Microwave)
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

2. DETERMINATION OF LEAD CONTENT BY

IEC 62321-5 2013

Sample Receiving and Registration
↓
Cut sample in small pieces
↓
Weight sample (0.2-0.5g) into digestion vessel
↓
Acid digestion (Microwave)
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

3. DETERMINATION OF MERCURY CONTENT BY

IEC 62321-4 2013/AMD1 2017

Sample Receiving and Registration
↓
Cut sample in small pieces
↓
Weight sample (0.1-0.5g) into digestion vessel
↓
Acid digestion (Microwave)
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

4a. DETERMINATION OF HEXAVALENT CHROMIUM

BY IEC 62321-7-2 2017 (Other Materials)

Sample Preparation
↓
Digestion at 150~160 °C
↓
Separating To Obtain Aqueous Phase
↓
pH Adjustment
↓
Add Diphenyl-Carbazide for Color Development
↓
Analyses by UV- Spectrophotometer (540 nm)

4b. DETERMINATION OF HEXAVALENT CHROMIUM BY IEC 62321-7-2 2017 (Soluble Polymers)

Sample Preparation
↓
Add Digestion Solution
↓
Ultrasonicate Sample
↓
pH Adjustment
↓
Add Diphenyl-Carbazide for Color Development
↓
Analyses by UV- Spectrophotometer (540 nm)

5. DETERMINATION OF PBB/PBDE WITH GC-MS BY IEC 62321-6 2015

Cut sample in small pieces
↓
Weight sample (0.5-4.0g) into extraction thimble
↓
Soxhlet Extraction with Toluene
↓
Filter through 0.45 µm membrane filter
↓
Analyses by GC-MS (with appropriate dilution)

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Test Report

No. CRSSA/13473-2/18
CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

Page 1 of 4


KOZATO KIZAI CO., LTD
39-7 KAMAKURA 1-CHOME,
KATSUSHIKA-KU TOKYO, 125-0053 JAPAN

The following merchandise was (were) submitted and identified by the client as:

Sample Description	:	RI-2200
Lot No.	:	080110
Sample Receiving Date	:	21/09/2018
Testing Period	:	21/09/2018 to 28/09/2018

Test Requested	:	Selected test(s) as requested by client
Test Method	:	Please refer to next page(s).
Test Results	:	Please refer to next page(s).
Analyst	:	Gan Wan Han

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Test Report

No. CRSSA/13473-2/18
CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

Page 2 of 4

Test result:

Test Part Description :

Sample Description : RI-2200
Lot No. : 080110

RoHS Directive 2011/65/EU Annex II (amended by Directive (EU) 2015/863)

Test Item(s):	Unit	Test Method	Results	MDL	Limit
Bis (2-ethylhexyl) phthalate (DEHP) (CAS No. 117-81-7)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	N.D.	50	1000
Butyl benzyl phthalate (BBP) (CAS No. 85-68-7)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	N.D.	50	1000
Dibutyl phthalate (DBP) (CAS No. 84-74-2)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	N.D.	50	1000
Diisobutyl phthalate (DIBP) (CAS No. 84-69-5)	mg/kg	With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	N.D.	50	1000

Note : (a) mg/kg = ppm ; (0.1wt% = 1000ppm)

(b) N.D. = Not Detected

(c) MDL = Method Detection Limit

(d) - = Not regulated

(e) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.

(f) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(g) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.

(h) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

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Test Report

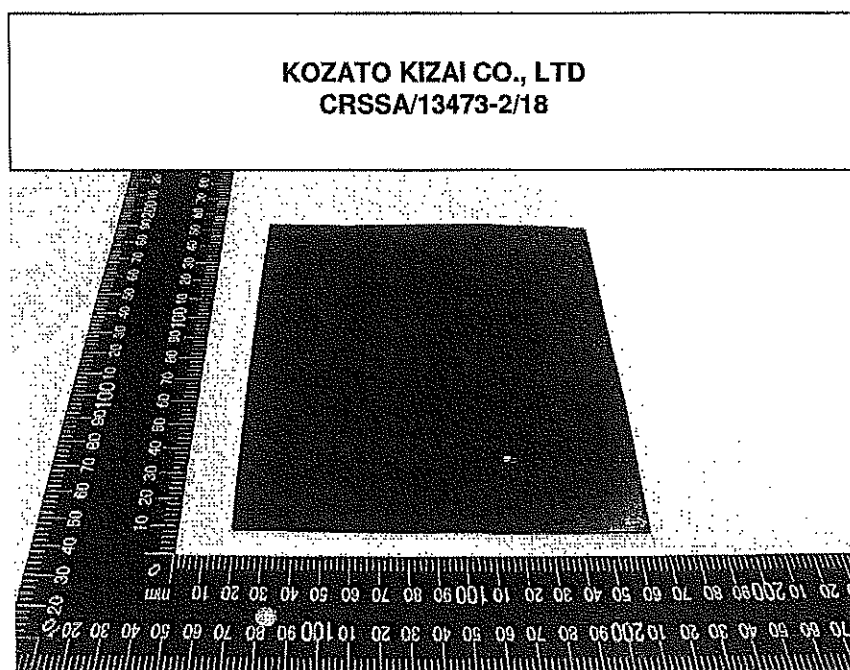
No. CRSSA/13473-2/18
CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

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Test Part Description :

Sample Description : RI-2200
Lot No. : 080110



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Test Report

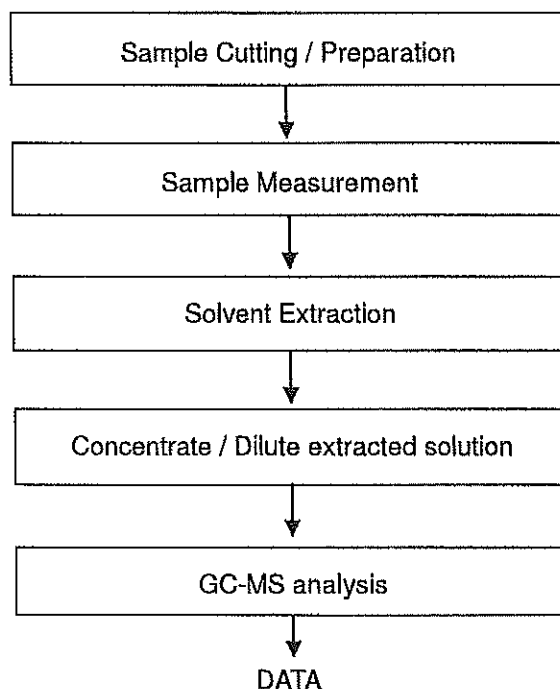
No. CRSSA/13473-2/18
CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

Page 4 of 4

Flowchart for Phthalates Measurement

Method: IEC62321



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IKM No. M/3983/6401/12/14

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Data No.8 Paste

Test Report

No. TSNEC1800763701

Date: 08 May 2018

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NICHICON CORPORATION

KARASUMADORI OIKE-AGARU, NAKAGYO-KU

KYOTO 5250053

JAPAN

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

SGS Job No. : TP18-003093 - TJ

Model No. : GAMMA-BUTYROLACTONE

Lot No. : 1804LB22

Date of Sample Received : 28 Apr 2018

Testing Period : 28 Apr 2018 - 08 May 2018

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

Reabeca Zhou
Approved Signatory



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Test Report

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN18-007637.001	yellow transparent liquid

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Item(s)	Limit	Unit	MDL	001
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
- (4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.
- (5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Result shown is of the total weight of wet sample



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Test Report

No. TSNEC1800763701

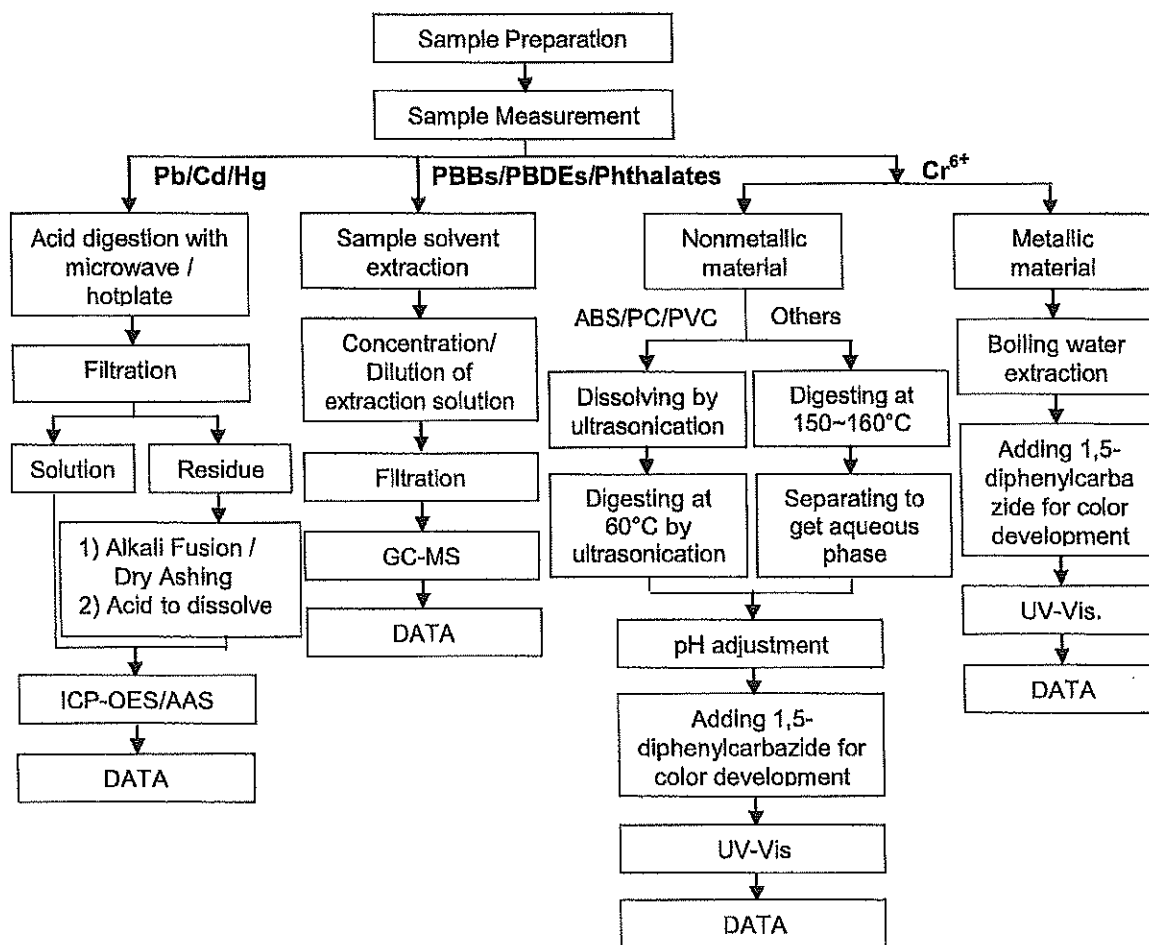
Date: 08 May 2018

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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Cathy Zhang/Crystal Wang/Ann Wang/Cyhan Chen
- 2) Name of the person in charge of testing: Aaron Wang/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs /Phthalates test method excluded)



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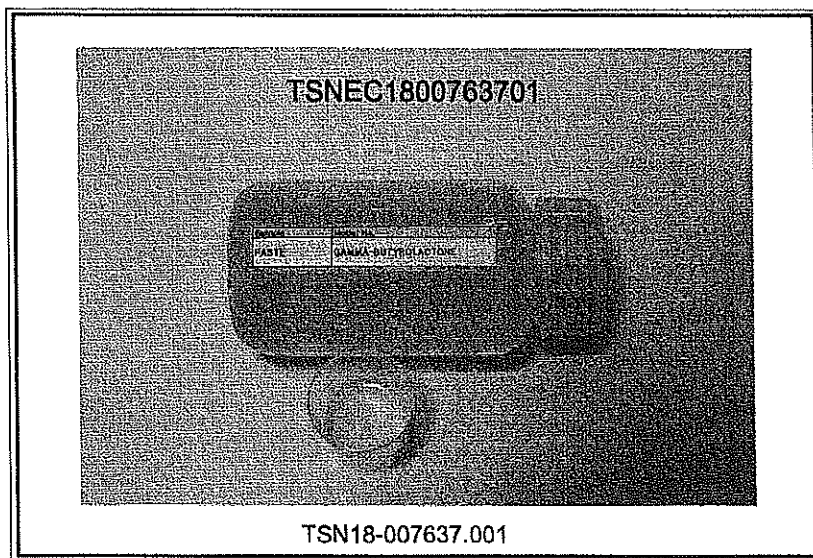
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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***



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Data No.8 Paste

Test Report

No. TSNEC1800763702

Date: 08 May 2018

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NICHICON CORPORATION

KARASUMADORI OIKE-AGARU, NAKAGYO-KU

KYOTO 5250053

JAPAN

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

SGS Job No. : TP18-003093 - TJ

Model No. : ETHYLENE GLYCOL

Lot No. : 1804C5

Date of Sample Received : 28 Apr 2018

Testing Period : 28 Apr 2018 - 08 May 2018

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
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Reabeca Zhou
Approved Signatory



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Test Report

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN18-007637.002	transparent liquid

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-VIs and GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report

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Test Item(s)	Limit	Unit	MDL	002
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.

(3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.

(5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Result shown is of the total weight of wet sample



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Test Report

No. TSNEC1800763702

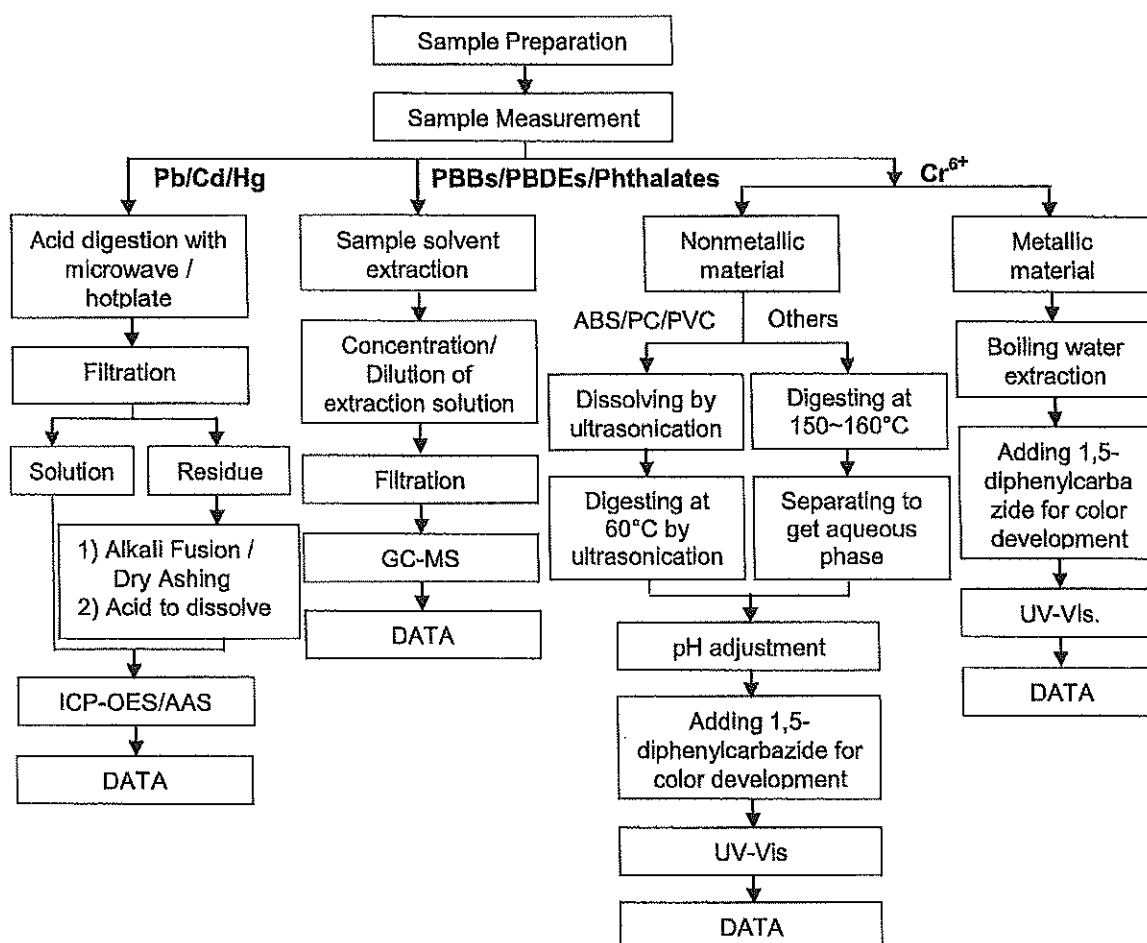
Date: 08 May 2018

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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Cathy Zhang/Crystal Wang/Ann Wang/Cyhan Chen
- 2) Name of the person in charge of testing: Aaron Wang/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs /Phthalates test method excluded)



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SGS

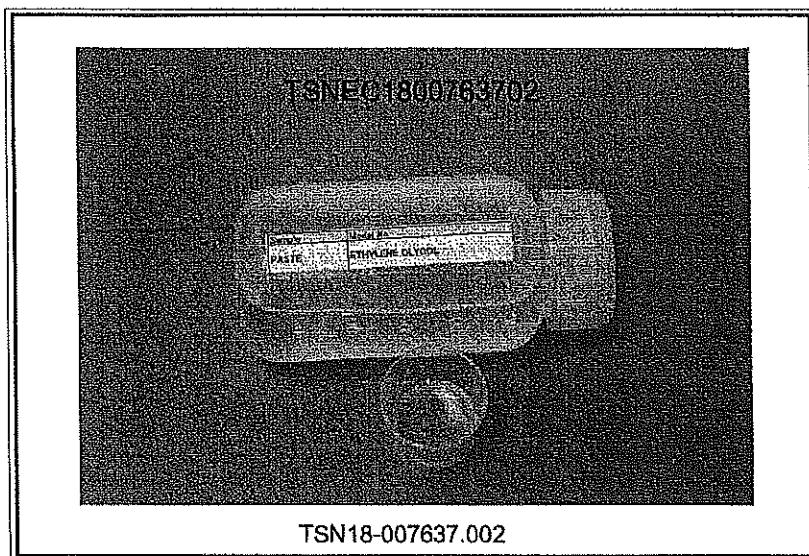
Test Report

No. TSNEC1800763702

Date: 08 May 2018

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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***



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Data No.9 Aluminium Case

署名は有効です

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Test Report

No. : KA/2018/B1690

Date : 2018/11/23

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MITSUBISHI CHEMICAL CORPORATION

1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

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

Sample Description : ALUMINIUM 1100-H16(FOR ALSET Y4)
JP Reference No. : JP/2018/111016
Sample Receiving Date : 2018/11/19
Testing Period : 2018/11/19 TO 2018/11/23
Sample Submitted By : MITSUBISHI CHEMICAL CORPORATION

Test Requested : As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample.

Test Result(s) : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II.


Ray Chang Ph.D. Manager - Tech
Signed for and on behalf of
SGS Taiwan Limited



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t + 886 (0)7301 2121

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Test Report

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MITSUBISHI CHEMICAL CORPORATION

1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

Test Result(s)

PART NAME No.1 : SILVER COLORED METAL SHEET

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	8.39	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)(#2)	µg/cm²	With reference to IEC 62321-7-1:2015 and performed by UV-VIS.	0.10	n.d.	-
Sum of PBBs			-	n.d.	1000
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6: 2015 and performed by GC/MS.	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.	-
Sum of PBDEs			-	n.d.	1000
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6: 2015 and performed by GC/MS.	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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MITSUBISHI CHEMICAL CORPORATION

1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. (#2) =
 - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$.
The sample coating is considered to contain Cr(VI)
 - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10 $\mu\text{g}/\text{cm}^2$).
The coating is considered a non-Cr(VI) based coating
 - c. The result between 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$ is considered to be inconclusive - unavoidable coating variations may influence the determination.

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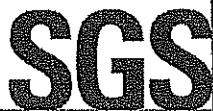
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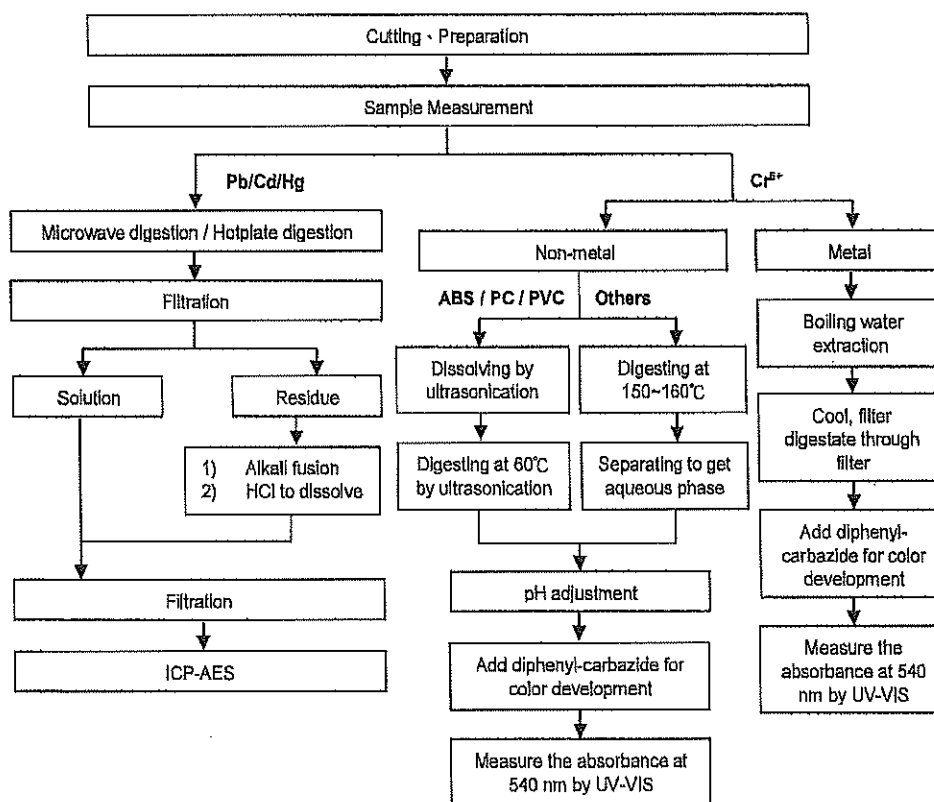
MITSUBISHI CHEMICAL CORPORATION

1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

- Technician : Jony Liu
- Supervisor : Ray Chang



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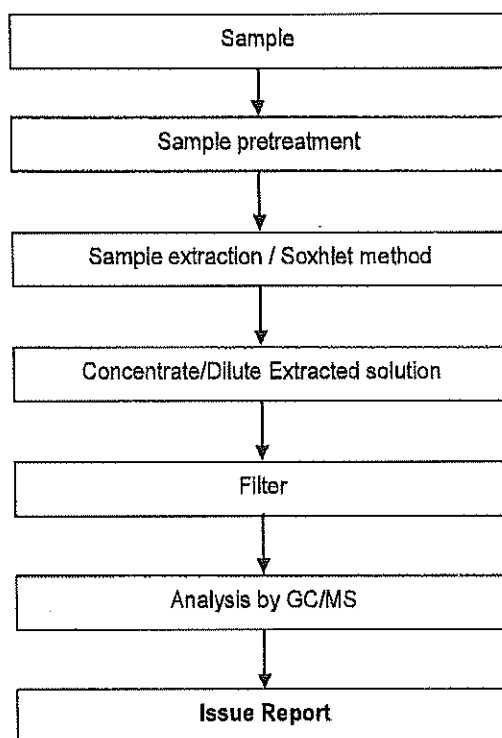
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MITSUBISHI CHEMICAL CORPORATION

1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

PBB/PBDE analytical FLOW CHART

- Technician : Dorothy Chen
- Supervisor: Ray Chang



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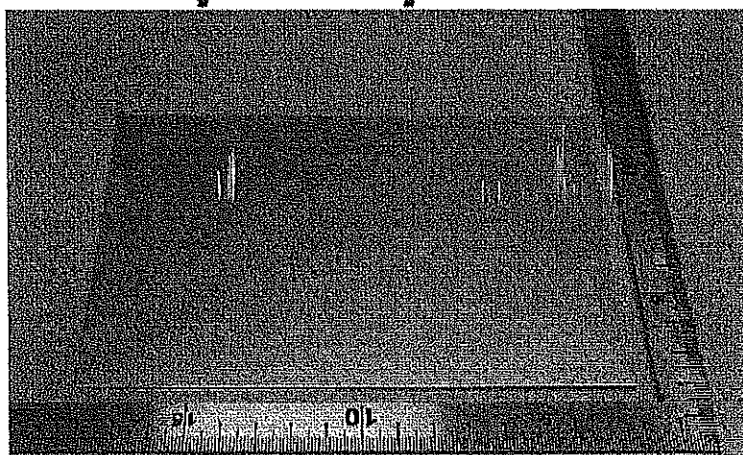
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MITSUBISHI CHEMICAL CORPORATION

1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

KA/2018/B1690



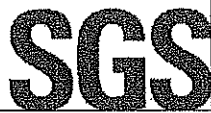
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Data No.10 (Sleeve)

Test Report

No. TSNEC1801160808

Date: 26 Jun 2018

Page 1 of 5

SAKAI KASEI KOGYO CO.,LTD.

15,NOZIRI-CHO HIGASHI-KU SAKAI-CITY
OSAKA 599-8116
JAPAN

The following sample(s) was/were submitted and identified on behalf of the clients as : PET TUBE P-BROWN

SGS Job No. : TP18-004930 - TJ

Main Substance : PET 90%

Supplier : SAKAI KASEI KOGYO CO.,LTD.

Date of Sample Received : 21 Jun 2018

Testing Period : 21 Jun 2018 - 26 Jun 2018

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP) , Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

Reabeca Zhou
Approved Signatory

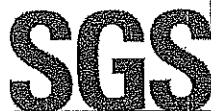


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Test Report

No. TSNEC1801160808

Date: 26 Jun 2018

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN18-011608.008	brown plastic tape

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	008
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report

No. TSNEC1801160808

Date: 26 Jun 2018

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Test Item(s)	Limit	Unit	MDL	008
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.

(3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.

(5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.



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Chemical Laboratory

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Test Report

No. TSNEC1801160808

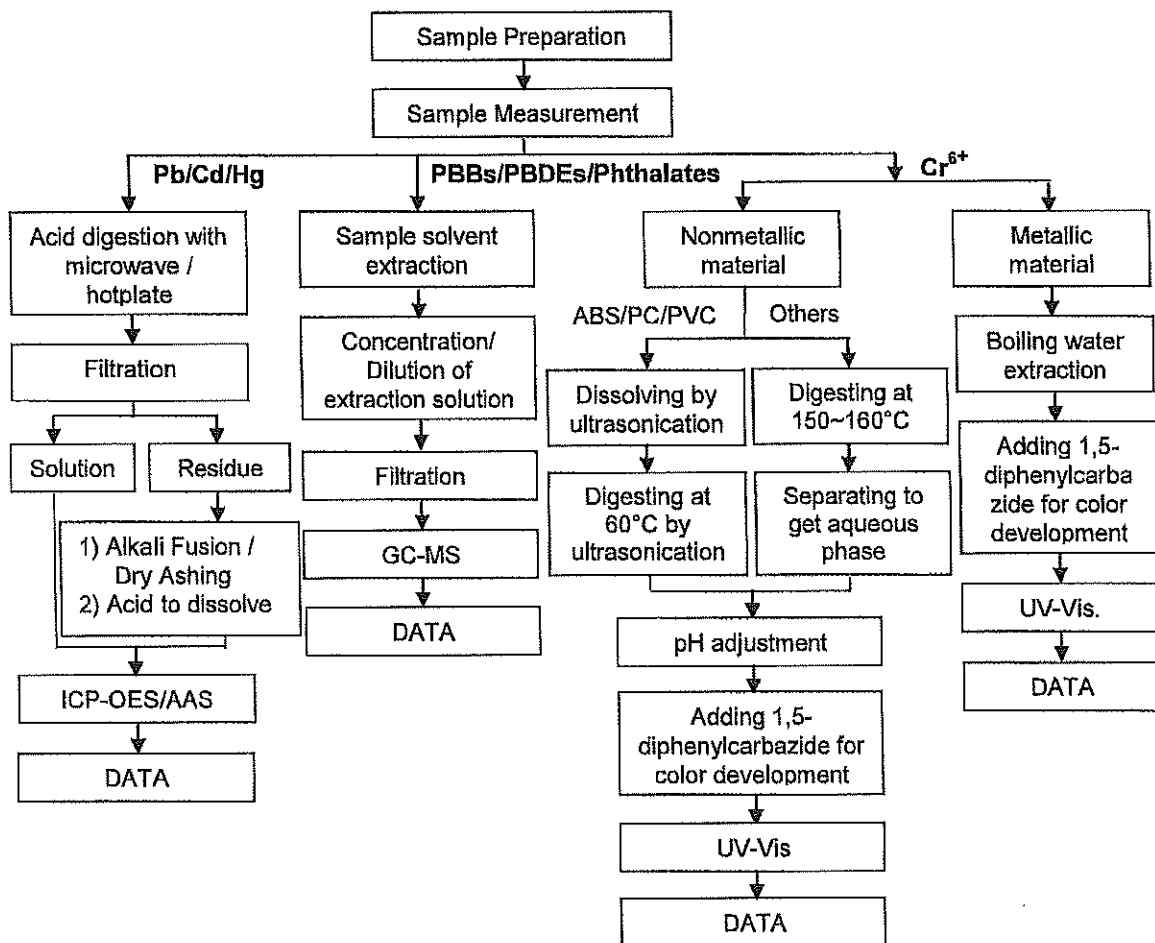
Date: 26 Jun 2018

Page 4 of 5

ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Cathy Zhang/Crystal Wang/Lesser Wang/Cyhan Chen
- 2) Name of the person in charge of testing: Aaron Wang/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs /Phthalates test method excluded)



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Chemical Laboratory

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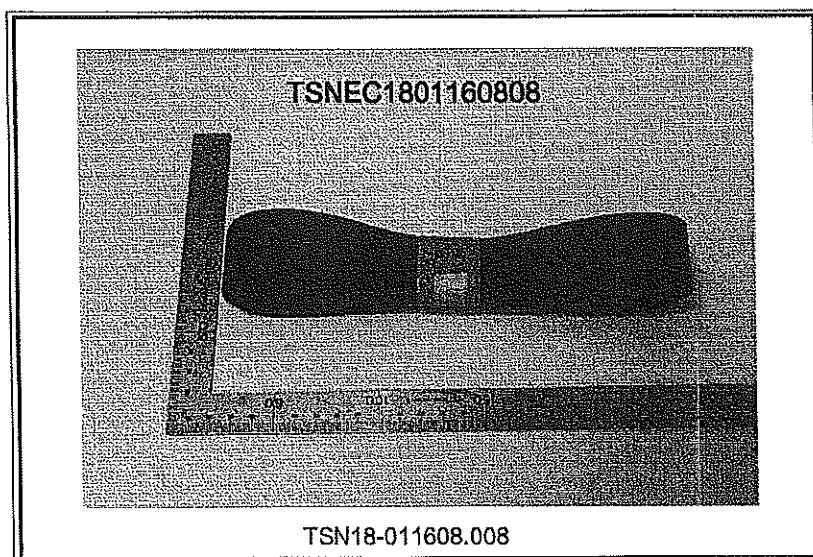
Test Report

No. TSNEC1801160808

Date: 26 Jun 2018

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Sample photo:



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Data No.10 (Sleeve)

Test Report

No. TSNEC1801160809

Date: 26 Jun 2018

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SAKAI KASEI KOGYO CO.,LTD.

15,NOZIRI-CHO HIGASHI-KU SAKAI-CITY
OSAKA 599-8116
JAPAN

The following sample(s) was/were submitted and identified on behalf of the clients as : PET TUBE P-BLACK

SGS Job No. : TP18-004930 - TJ

Main Substance : PET 90%

Supplier : SAKAI KASEI KOGYO CO.,LTD.

Date of Sample Received : 21 Jun 2018

Testing Period : 21 Jun 2018 - 26 Jun 2018

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

Reabeca Zhou
Approved Signatory



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Test Report

No. TSNEC1801160809

Date: 26 Jun 2018

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN18-011608.009	black plastic tape

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	009
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report

No. TSNEC1801160809

Date: 26 Jun 2018

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Test Item(s)	Limit	Unit	MDL	009
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.

(3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.

(5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.



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No. TSNEC1801160809

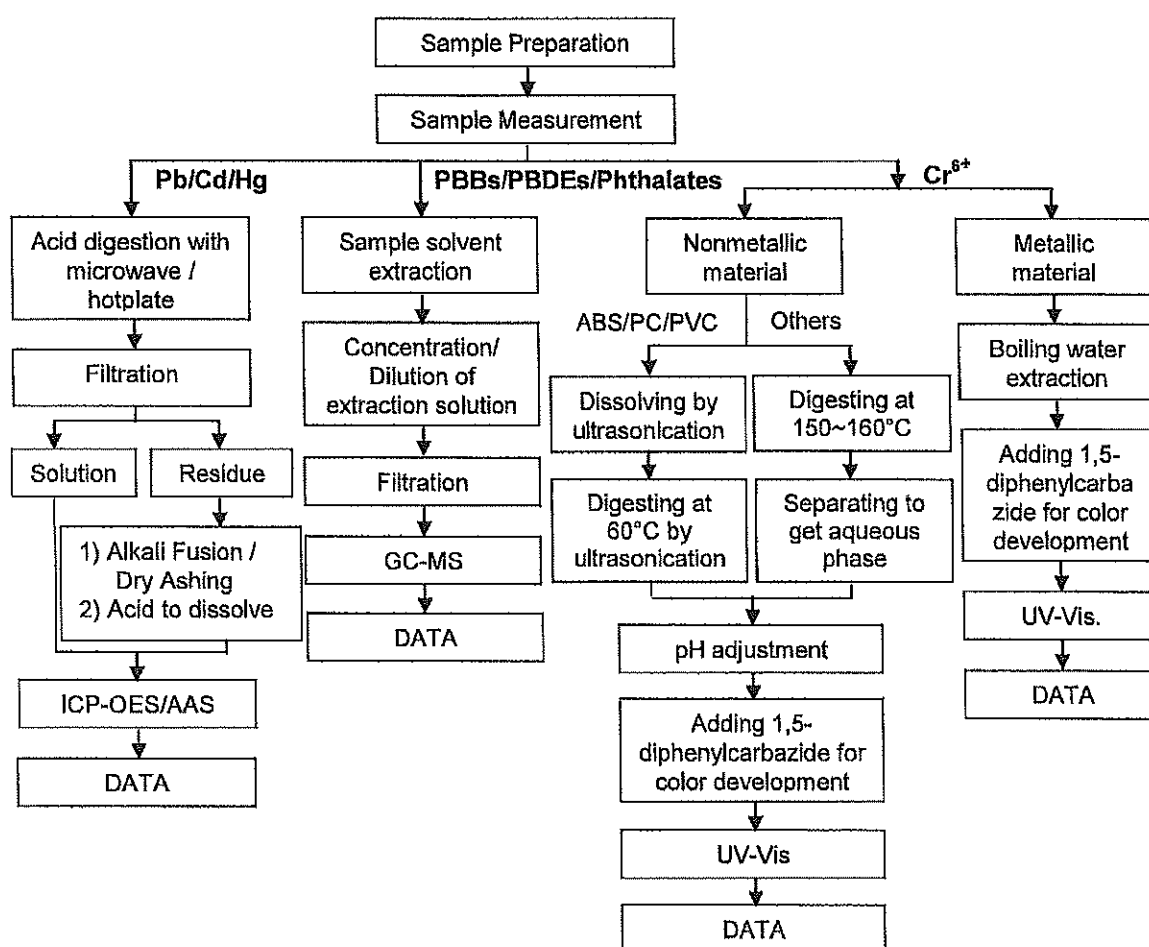
Date: 26 Jun 2018

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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Cathy Zhang/Crystal Wang/Lesser Wang/Cyhan Chen
- 2) Name of the person in charge of testing: Aaron Wang/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs /Phthalates test method excluded)



SGS Chemical Laboratory
Inspection & Testing Services

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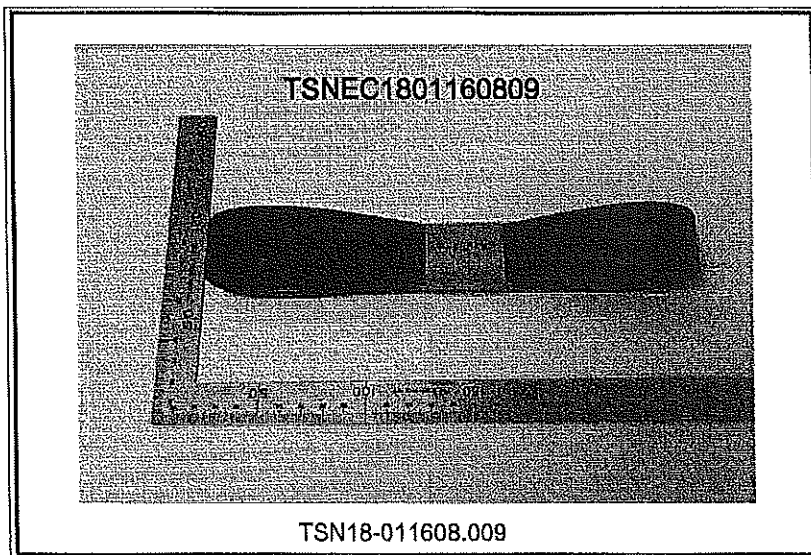
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No. TSNEC1801160809

Date: 26 Jun 2018

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Data No.10 (Sleeve)

Test Report

No. TSNEC1801160810

Date: 26 Jun 2018

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SAKAI KASEI KOGYO CO.,LTD.

15,NOZIRI-CHO HIGASHI-KU SAKAI-CITY
OSAKA 599-8116
JAPAN

The following sample(s) was/were submitted and identified on behalf of the clients as : PET TUBE P-BLUE

SGS Job No. : TP18-004930 - TJ

Main Substance : PET 90%

Supplier : SAKAI KASEI KOGYO CO.,LTD.

Date of Sample Received : 21 Jun 2018

Testing Period : 21 Jun 2018 - 26 Jun 2018

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

Reabeca Zhou
Approved Signatory

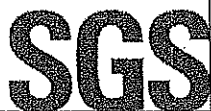


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Test Report

No. TSNEC1801160810

Date: 26 Jun 2018

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN18-011608.010	blue plastic tape

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	010
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report

No. TSNEC1801160810

Date: 26 Jun 2018

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Test Item(s)	Limit	Unit	MDL	010
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.

(3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.

(5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.



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Chemical Laboratory

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Test Report

No. TSNEC1801160810

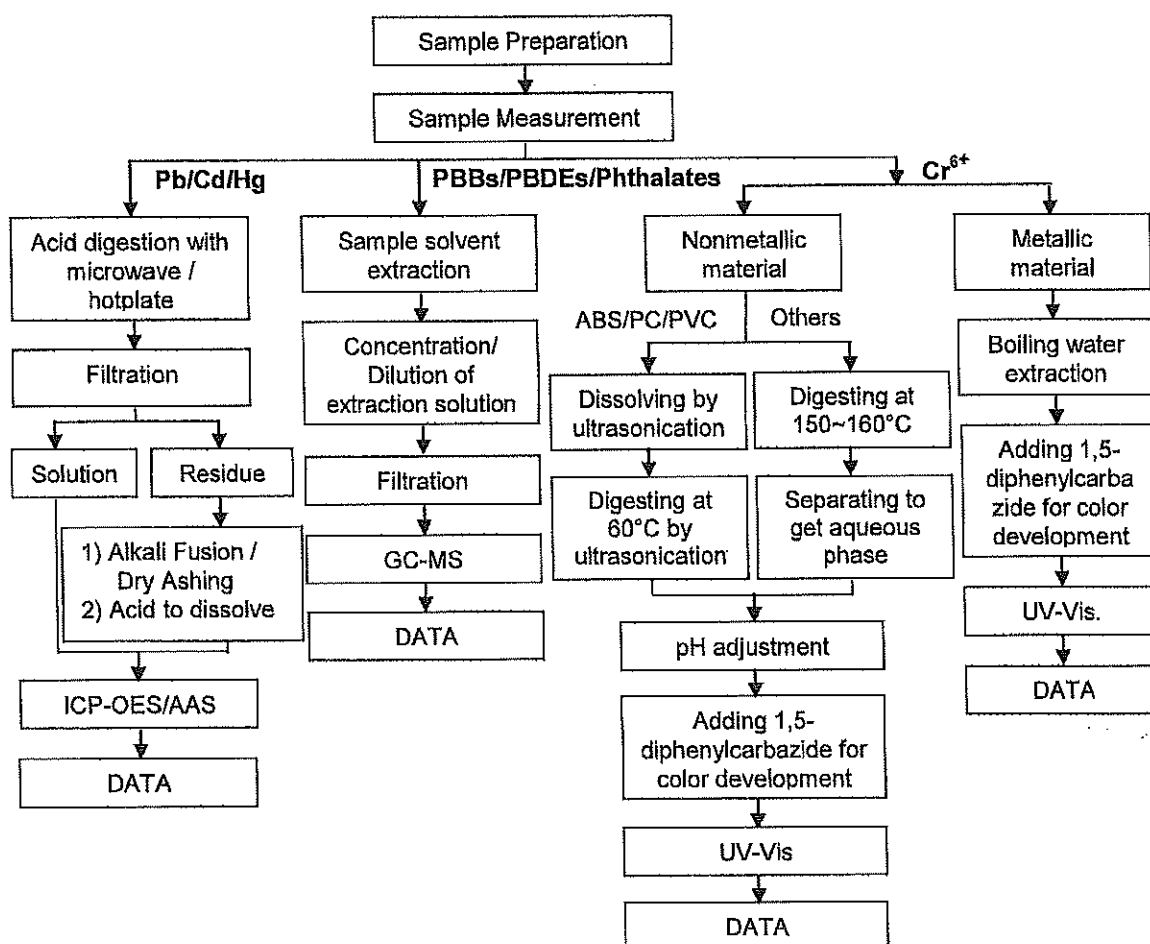
Date: 26 Jun 2018

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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Cathy Zhang/Crystal Wang/Lesser Wang/Cyhan Chen
- 2) Name of the person in charge of testing: Aaron Wang/Rex Zhu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs /Phthalates test method excluded)



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Chemical Laboratory

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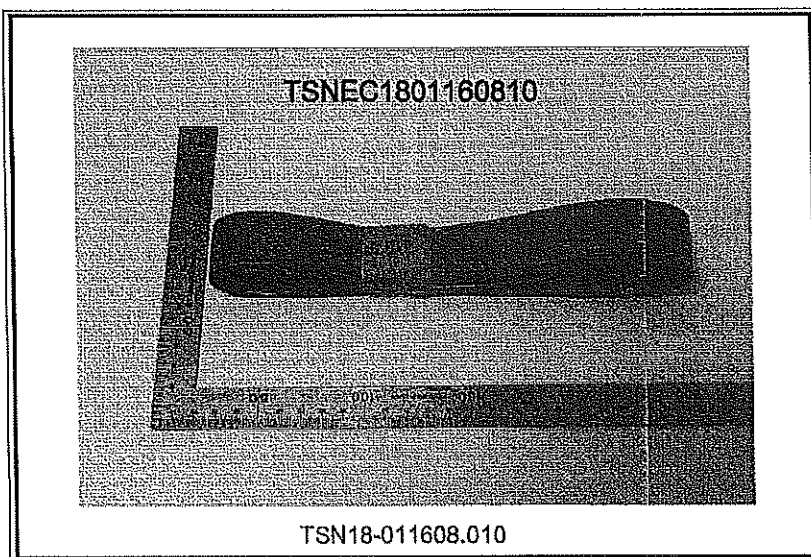
Test Report

No. TSNEC1801160810

Date: 26 Jun 2018

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Sample photo:



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*** End of Report ***



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Data No.11 Sleeve Print Ink

TEST REPORT

REPORT NO. JP/2018/040267

DATE: April 18, 2018

PAGE: 1 OF 5

THE OSAKA PRINTING INK MFG. CO., LTD.

5-8-12 HONGO KASHIWARA-SHI OSAKA JAPAN

THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CLIENT AS:

以下のサンプルは顧客により提供され、顧客に代わって確認を行いました:

SAMPLE DESCRIPTION : PET TUBE SERIES _Gravure Printing Ink_OPI

CLIENT REF.NO : 148

SAMPLE RECEIVED : 2018/04/06

TESTING DATE : 2018/04/06 TO 2018/04/18

TEST REQUESTED : SELECTED TEST(S) AS REQUESTED BY CLIENT.
分析項目 : 分析項目は顧客の要求によります。

TEST METHOD(S) : WITH REFERENCE TO LATEST EDITION OF IEC62321 FOR RoHS 6 SUBSTANCES.
分析方法 : OTHER CHEMICALS WERE TESTED BY EACH APPROPRIATE METHOD.
RoHS6物質の分析は最新版のIEC62321を参照しました。
それ以外の化学物質についてはそれぞれに最適な方法で分析を行いました。

TEST RESULT(S) : PLEASE REFER TO THE NEXT PAGE(S).
分析結果 : 以下のページをご参照願います。

大内 幸弘



Yukihiro Ouchi / Quality Manager
SGS Japan Inc., Chemical Laboratory

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5-8-12 HONGO KASHIWARA-SHI OSAKA JAPAN

TEST RESULT(S)

ITEM(S)	UNIT	RESULT	METHOD	INST./PLACE	MDL
CADMIUM(Cd)	mg/kg	N.D.	IEC62321-5: 2013	ICP-OES*	2
LEAD(Pb)	mg/kg	N.D.	IEC62321-5: 2013	ICP-OES*	2
MERCURY(Hg)	mg/kg	N.D.	IEC62321-4: 2013	ICP-OES*	2
CHROMIUM VI(Cr(VI))	mg/kg	N.D.	IEC62321-7-2: 2017	UV/VIS	8
Polybrominated biphenyls(PBBs)					
Monobromobiphenyl	mg/kg	N.D.	IEC62321-6: 2015	GC/MS*	5
Dibromobiphenyl	mg/kg	N.D.			5
Tribromobiphenyl	mg/kg	N.D.			5
Tetrabromobiphenyl	mg/kg	N.D.			5
Pentabromobiphenyl	mg/kg	N.D.			5
Hexabromobiphenyl	mg/kg	N.D.			5
Heptabromobiphenyl	mg/kg	N.D.			5
Octabromobiphenyl	mg/kg	N.D.			5
Nonabromobiphenyl	mg/kg	N.D.			5
Decabromobiphenyl	mg/kg	N.D.			5
Polybrominated diphenyl ethers(PBDEs)					
Monobromodiphenyl ether	mg/kg	N.D.	IEC62321-6: 2015	GC/MS*	5
Dibromodiphenyl ether	mg/kg	N.D.			5
Tribromodiphenyl ether	mg/kg	N.D.			5
Tetrabromodiphenyl ether	mg/kg	N.D.			5
Pentabromodiphenyl ether	mg/kg	N.D.			5
Hexabromodiphenyl ether	mg/kg	N.D.			5
Heptabromodiphenyl ether	mg/kg	N.D.			5
Octabromodiphenyl ether	mg/kg	N.D.			5
Nonabromodiphenyl ether	mg/kg	N.D.			5
Decabromodiphenyl ether	mg/kg	N.D.			5
PHthalATES					
DIBUTYL PHthalATE(DBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS*	50
DI(2-ETHYLHEXYL) PHthalATE(DEHP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS*	50
BUTYLBENZYL PHthalATE(BBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS*	50
DIISOBUTYL PHthalATE(DIBP)	mg/kg	N.D.	IEC62321-8: 2017	GC/MS*	50

NOTES: mg/kg = ppm, N.D. = Not Detected, INST. = INSTRUMENT, MDL = Method Detection Limit

REMARK: * = The test has been conducted in association with SGS Taiwan Ltd.

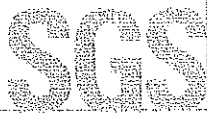
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TEST REPORT

REPORT NO. JP/2018/040267

DATE: April 18, 2018

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THE OSAKA PRINTING INK MFG. CO., LTD.

5-8-12 HONGO KASHIWARA-SHI OSAKA JAPAN

分析フローチャート MEASUREMENT FLOW CHART

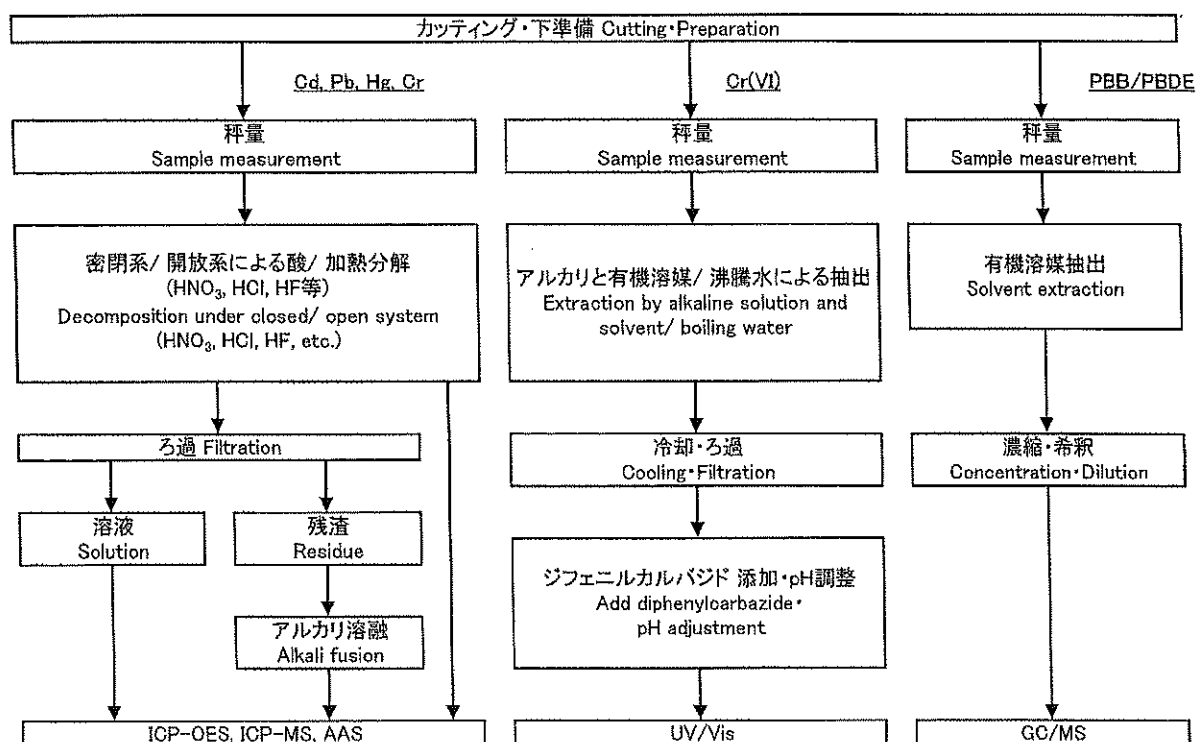
1) 酸分解前処理において試料を完全分解しています。

The sample was dissolved/ decomposed totally by acid pre-conditioning method according to below flow chart.

2) Cd, Pb, Hg, Cr, Cr(VI), PBB/PBDE

分析担当者 Name of the person in charge of measurement: 及川 聡子 Satoko Oikawa

3) 分析責任者 Name of the person responsible for measurement: 大谷 真由美 Mayumi Otani



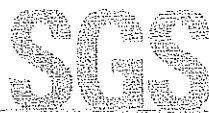
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DATE: April 18, 2018

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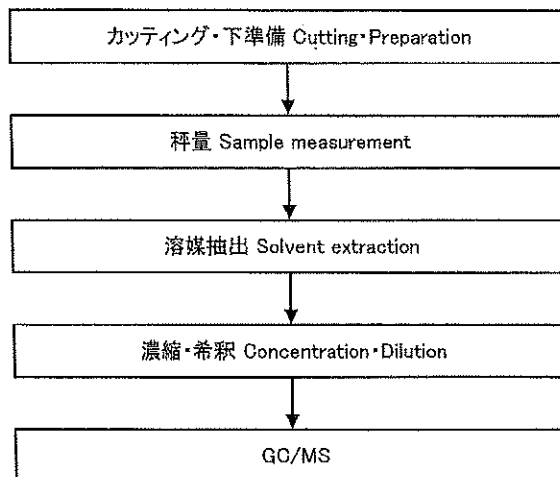
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分析フローチャート MEASUREMENT FLOW CHART

1) 分析担当者 Name of the person in charge of measurement: 及川 聡子 Satoko Oikawa

2) 分析責任者 Name of the person responsible for measurement: 大谷 真由美 Mayumi Otani

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SAMPLE IMAGE



<END>

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