## Part composition table/data table

\* 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.

2018/12/5 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:	t name: Aluminum Electrolytic Capacitors													
	Ratings and	RoHS			Raw material store	Th	e main constituent	Remarks						
Part name type name, etc.	type name, etc.	Compliant	Composition part name	Country of origin		Material name/Type	Data No. of ICP measurement etc	. Issued date	( SONY GB NO.)					
Aluminum Electrolytic	Miniature Type	Yes 🖬 No 🗆	Anode foil	Japan	SHOWA DENKO K.K	Aluminum	JP/2018/061391 1	2018/7/12						
Capacitor		Yes 🗰 No 🗀	Cathode foil	Japan	SHOWA DENKO K.K	Aluminum	JP/2018/061396 2	2018/7/12						
		Yes 🏧 No 🗔	Electrolysis paper	Japan	NIPPON KODOSHI CORPORATION	Cellulose	30 SIGEN-87-1-2 3	2018/8/3						
		Yes 🔳 No 🗔	Affixing	Japan	NITTO DENKO K.K	PP	KA/2018/70057 4	2018/7/10						
		Yes 🔳 No 🗋	Lead Wire(Surface plating)	Korea	KISTRON CO.,LTD	Tin	AYAA17-64721 5	2017/12/20						
		Yes 🗰 No 🗀	Lead Wire(Groundwork plating)	Korea	KISTRON CO.,LTD	Copper	AYAA17-64720 5	2017/12/20						
		Yes 🖩 No 🗆	Lead Wire(Iron core)	Korea	KISTRON CO.,LTD	Iron	AYAA17-64715 5	2017/12/20						
		Yes 📓 No 🗔	Aluminum Wire	Japan	KISTRON CO.,LTD	Aluminum	AYAA17-64719 6	2017/12/20						
		Yes 🖩 No 🗋	Rubber end Seal	Japan	KOZATO KIZAI CO.,LTD.	IIR	CRSSA/13473-1/18 CRSSA/13473-2/18 7	2018/9/28						
		Yes 🔳 No 🗋	Paste	Japan	NICHICON	$\gamma$ -Butyrolacton	TSNEC1800763701 8	2018/5/8						
		Yes 🔳 No 🗖	Paste	Japan	NICHICON	Ethylene glycol	TSNEC1800763702 8	2018/5/8						
		Yes 🔤 No 🗆	Aluminum Case		MITSUBISHI ALUMINUM CO.,LTD.	Aluminum	KA/2018/B1690 9	2018/11/23						
							Yes 🖬 No 🗇	Sleeve	Japan	SAKAI KASEI KOGYO CO.,LTD.	PET	TSNEC1801160808 10	2018/6/26	Brown
		Yes 📓 No 🗆	Sleeve	Japan	SAKAI KASEI KOGYO CO.,LTD.	PET	TSNEC1801160809 10	2018/6/26	Black					
		Yes 💹 No 🗔	Sleeve	Japan	SAKAI KASEI KOGYO CO.,LTD.	PET	TSNEC1801160810 10	2018/6/26	Blue					
		Yes 🗰 No 🗆	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 PAGE: 1 OF 5

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 分析項目	;	SELECTED TEST(S) AS REQUESTED BY CLIENT. 分析項目は顧客の要求によります。
TEST METHOD(S) 分析方法		WITH REFERENCE TO LATEST EDITION OF IEC62321 FOR RoHS 6 SUBSTANCES. 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。



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

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REPORT NO. JP/2018/061391

DATE: July 12,2018

PAGE: 2 OF 5

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.	IEG62321-5: 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/cnł	N.D.	IEC62321-7-1: 2015	UV/VIS	0.01
Polybrominated biphenyls(PBBs)					
Monobromobiphonyl	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.	12002021 0.2010	407.110	5
Heptabromobiphenyl	mg/kg	N.D.			5
Octabromobiphenyl	mg/kg	N.D.			5
Nonabromobiphenyi	mg/kg	N.D.			5
Decabromobiphenyl	mg/kg	N.D.			5
Polybrominated diphonyl ethers(PBDEs)			· · ·		
Monobromodiphanyl ether	mg/kg	N.D.			5
Dibromodiphenyl ether	mg/kg	N.D.			5 5
Tribromodiphenyl ether	mg/kg	N.D.			
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.	1E002321 4. 2015	00/100	5 5 5 5
Heptabromodiphenyl ether	mg/kg	N.D.			5
Octabromodiphenyl ether	mg/kg	N.D.			
Nonebromodiphenyl ether	mg/kg	N.D.			5
Decabromodiphenyl ether	mg/kg	N.D.	14 Mar	•	5
PHTHALATES			****	-	
DIBUTYL PHTHALATE(DBP)	mg/kg	N.D.	1EC62321-8: 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	QC/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 12cm.

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REPORT NO. JP/2018/061391

DATE: July 12,2018

NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

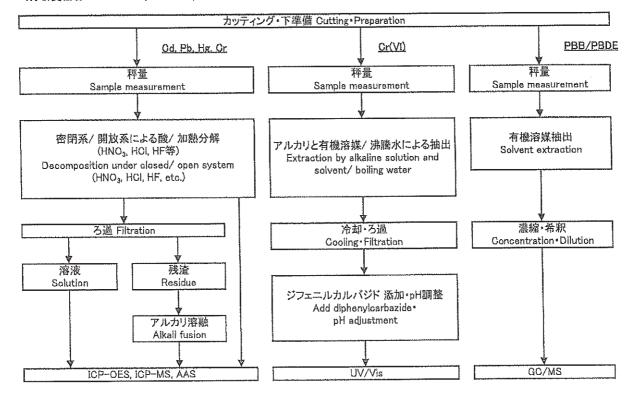
#### 分析フローチャート MEASUREMENT FLOW CHART

#### 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 balow 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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REPORT NO, JP/2018/061391

DATE: July 12,2018

12,2018 PAGE

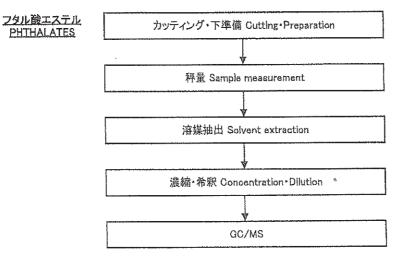
PAGE: 4 OF 5

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



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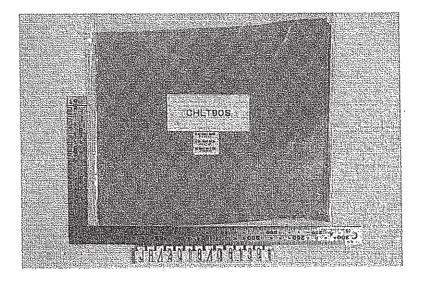
DATE: July 12,2018

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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Data No.2 Cathode foil

TEST REPORT

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REPORT NO. JP/2018/061396 DATE: J

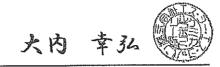
DATE: July 12,2018 PAGE: 1 OF 5

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 分析項目	-	SELECTED TEST(S) AS REQUESTED BY CLIENT. 分析項目は顧客の要求によります。
TEST METHOD(S) 分析方法		WITH REFERENCE TO LATEST EDITION OF IEC62321 FOR RoHS 6 SUBSTANCES. 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) 分析結果	:	PLEASE REFER TO THE NEXT PAGE(S). 以下のページをご参照願います。



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

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REPORT NO, JP/2018/061396

DATE: July 12,2018

PAGE: 2 OF 5

NICHIGON 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.	JEG62321-5: 2013	ICP-OES	2
MERCURY(Hg)	mg/kg	N,D,	IEC62321-4: 2013	ICP-OES	2
CHROMIUM VI(Cr(VI))	µg/cmੈ	N.D.	IEG62321-7-1: 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.	10002321-012015	007 100	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.	IEG62321-6; 2015	GC/MS	5 5
Hexabromodiphenyl ether	mg/kg	N,D,	1EG62321~0, 2010	007 WIG	
Heptabromodiphenyl ether	mg/kg	N.D.			5 5
Octabromodiphenyl ether	mg/kg	N,D,			5
Nonebromodiphenyl ether	mg/kg	N.D.			5
Decabromodiphenyl ather	mg/kg	N.D.			5
PHTHALATES					
DIBUTYL PHTHALATE(DBP)	mg/kg	N.D.	1EC62321-8: 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,		TRUMENT, N	MDL = Method Detection Limit		

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

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DATE: July 12,2018

NICHICON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

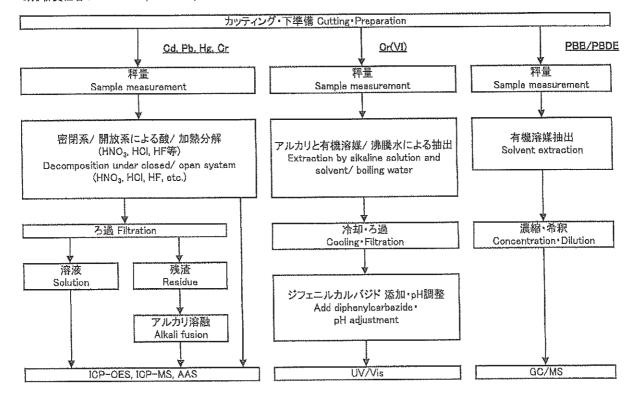
#### 分析フローチャート MEASUREMENT FLOW CHART

#### 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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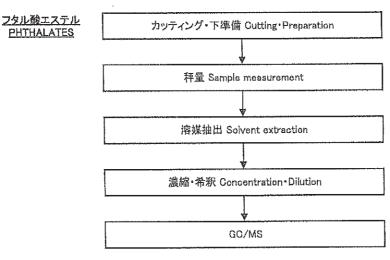
DATE: July 12,2018 PAGE: 4 OF 5

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



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REPORT NO. JP/2018/061396

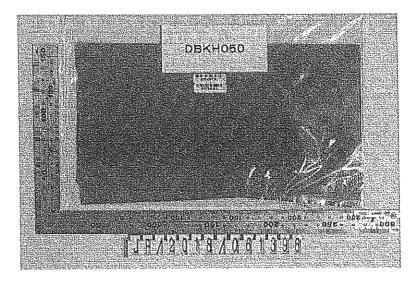
DATE: July 12,2018

PAGE: 5 OF 5

NICHIGON HI-TECH FOIL CORPORATION OHMACHI FACTORY

8224-1 YASHIRO OHMACHI-SHI NAGANO JAPAN

#### SAMPLE IMAGE



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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	e 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 茶 学

Director: Manabu Mori

### ATTACHMENTS

## Testing Flow Chart (Cr, Cd, Pb, Hg)

Sample weighing; 200mg

↓ Acid decomposition with microwave ↓

Solution

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Sample measurement; ICP-AES: Cr, Cd, Pb

; CV-AAS: Hg

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DATA

## **Testing Flow Chart (Br)**

Sample weighing; 1~100mg

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Combustion

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Dissolved in the absorption solution

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Sample measurement; IC: Br

↓ DATA

## **Testing Flow Chart (DEHP, BBP, DBP, DIBP)**

Sample weighing; 500mg

↓ Solvent extraction and concentrated

↓ Sample measurement; GC-MS: DEHP, BBP, DBP, DIBP

### ↓ DATA

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





Data No.4 Affixing



Chemical Laboratory - Kao, SGS Talwan Ltd.

# **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.

ţ

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	1	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 Charig Ph.D. Signed for and on behal SGS Taiwan Limited

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# **Test Report**

No.: KA/2018/70057

Date : 2018/07/10

Page : 2 of 7

NITTO DENKO CORPORATION

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

#### Test Result(s)

TRANSPARENT ADHESIVE TAPE PART NAME No.1 :

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			5	n.d.
Dibromobiphenyl		With reference to IEC 62321-6:2015 and performed by GC/MS.	5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromoblphenyl			5	n.d.
Pentabromobiphenyl	mg/kg		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			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015 and performed by GC/MS.	5	n.d.
Hexabromodiphenyl ether		henormen på gounor	5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodlphenyl ether			5	n.d.
Nonabromodiphenyl ether			5	n.d.
Decabromodiphenyl ether			5	n.d.

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# **Test Report**

No. : KA/2018/70057

Date : 2018/07/10

Page: 3 of 7

NITTO DENKO CORPORATION

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

Test Item(s)	Unit	Method	MDL	Result
i sot tterit(s)	•			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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No.: KA/2018/70057

Date: 2018/07/10

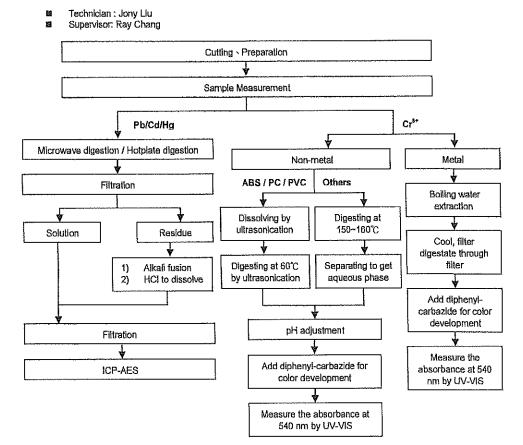
Page: 4 of 7

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)



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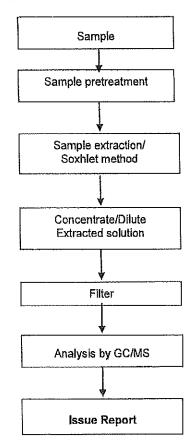
Page: 5 of 7

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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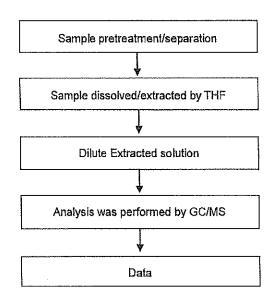
Page: 6 of 7

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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# **Test Report**

No. : KA/2018/70057

Date : 2018/07/10

Page: 7 of 7

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. \*



\*\* End of Report \*\*



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
<b>Received Date</b>	: 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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## Test Report No. F690101/LF-CTSAYAA17-64721

-64721.001	

Sample No. Sample Description Item No./Part No. Materials

: AYAA17-: Sn Plating layer : N/A

: N/A

liems	Unit	Test Method	MDL	Results
Cadmlum (Cď)	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 82321-5:2013 (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 Chromlum (Cr VI)*	µg/cm²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

(1) N.D. = Not detected.(<MDL) NOTE:

(2) mg/kg = ppm

F401 Version4

- (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 ug/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 ug/cm2). The coating Is considered a non-CrVI based coating.
  - c. The result between 0.10 ug/cm2 and 0.13 ug/cm2 is considered to be inconclusive unavoidable coating variations may influence the determination.

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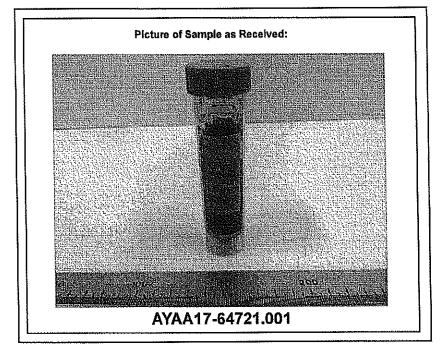
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## Test Report No. F690101/LF-CTSAYAA17-64721

issued Date : 2017. 12. 20

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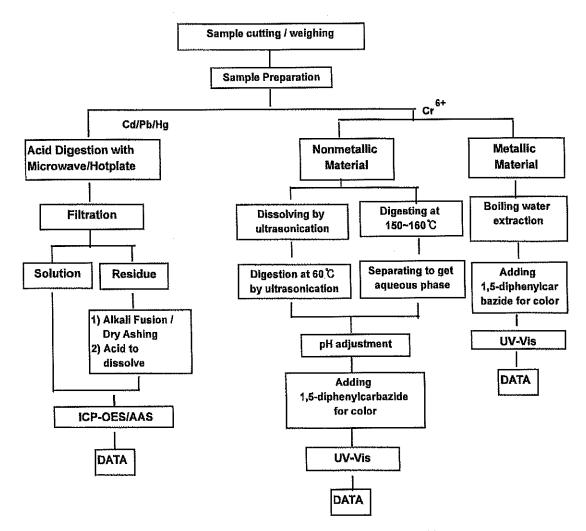
F401 Version4

Test Report No. F690101/LF-CTSAYAA17-64721

Issued Date : 2017. 12. 20

Page 4 of 4





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)

SGS Korea Co., Ltd.

Jeff Jang / Chemical Lab Mgr

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E I I

# Test Report No. F690101/LF-CTSAYAA17-64720

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

est Items	Unit	Test Method	MDL	Results
Cadmlum (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 Chromlum (Cr VI)*	µg/cm²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

(1) N.D. = Not detected.(<MDL) NOTE:

(2) mg/kg = ppm

F401 Version4

- (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 ug/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 ug/cm2). The coating is considered a non-CrVI based coating.
  - c. The result between 0.10 ug/cm2 and 0.13 ug/cm2 is considered to be inconclusive unavoidable coating variations may influence the determination.

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Issued Date : 2017. 12, 20

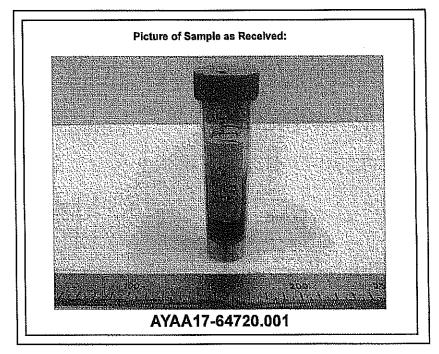
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# Test Report No. F690101/LF-CTSAYAA17-64720

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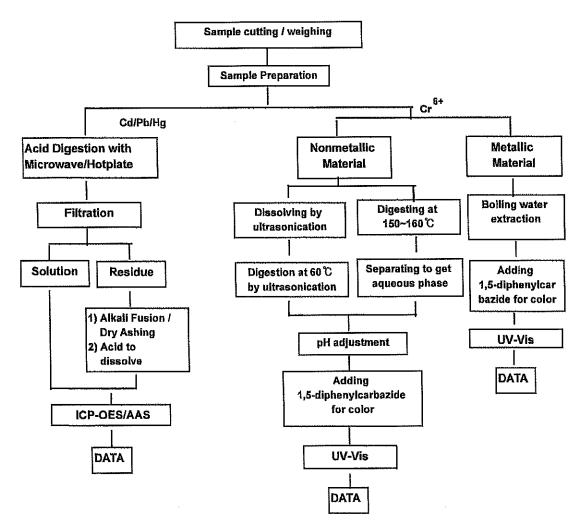


Test Report No. F690101/LF-CTSAYAA17-64720

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Page 4 of 4





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)
<b>Received Date</b>	; 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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## Test Report No. F690101/LF-CTSAYAA17-64715

; N/A

Sample No. Sample Description Item No./Part No. Materials

: AYAA17-64715.001 ; Fe Wire

: 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/cm²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

Issued Date : 2017. 12. 20

(1) N.D. = Not detected.(<MDL) NOTE:

- (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 ug/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 ug/cm2). The coating is considered a non-CrVI based coating.
    - c. The result between 0.10 ug/cm2 and 0.13 ug/cm2 is considered to be inconclusive unavoidable coating variations may influence the determination.

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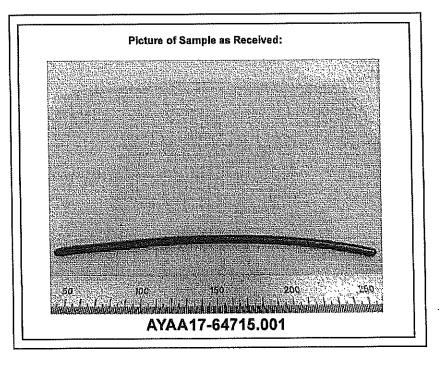


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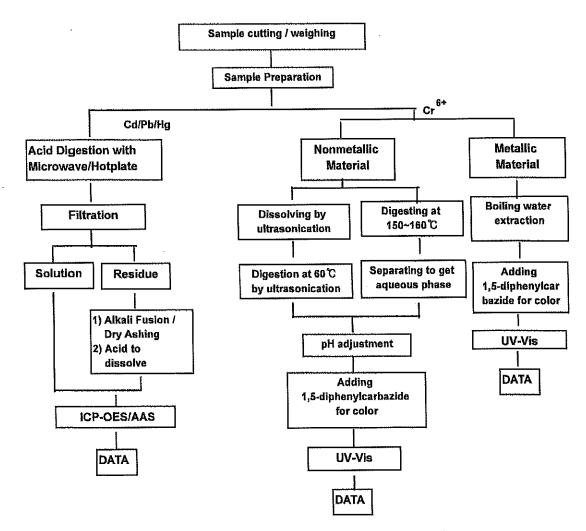
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Test Report No. F690101/LF-CTSAYAA17-64715

Issued Date : 2017. 12. 20

Page 4 of 4





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

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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:-	
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SGS File No. Product Name	: AYAA17-64719 : Aluminum Wire(99.92)		
Item No./Part No.	; TCAAB		
<b>Received Date</b>	; 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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## 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		

Test litems	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/cm²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-Vis)	0.1	N.D.

(1) N.D. = Not detected.(<MDL) NOTE:

(2) mg/kg = ppm

F401 Version4

- (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 ug/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 ug/cm2). The coating is considered a non-CrVI based coating.
  - c. The result between 0.10 ug/cm2 and 0.13 ug/cm2 is considered to be inconclusive unavoidable coating variations may influence the determination.

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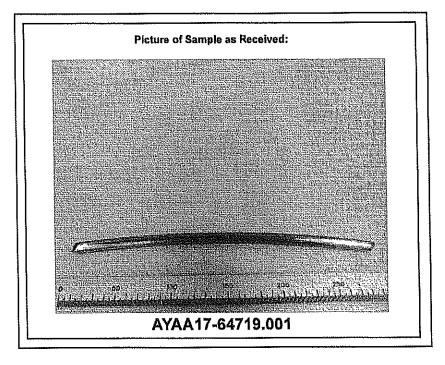
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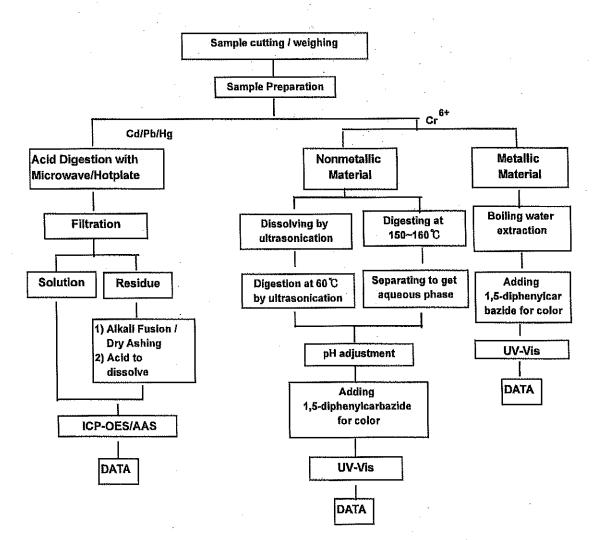
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### Test Report No. F690101/LF-CTSAYAA17-64719

Issued Date : 2017, 12, 20

Page 4 of 4





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

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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 Lot No. Sample Receiving Date Testing Period		RI-2200 080110 21/09/2018 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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CHEE TUCK CHOON SECTION HEAD IKM No, M/3983/6401/12/14

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No. CRSSA/13473-1/18 Date : 28/09/2018 CRS Ref. CRSSA/18/2481/Kozato

Page: 2 of 5

Test results:

Test Part Description :

Sample Description	4 1	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	-
Tetrabromobiphenyi	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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CHEE TUCK CHOON SECTION HEAD IKM No. M/3983/6401/12/14

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# **Test Report**

#### No. CRSSA/13473-1/18 Date : 28/09/2018 CRS Ref. CRSSA/18/2481/Kozato

Page: 3 of 5

Sum of PBDEs	mg/kg	With reference to IEC 62321-6:2015	N.D.	-	1000
		(Determination of PBDE by GC-MS)			
Manahramadinhanul other	mallea	With reference to IEC 62321-6:2015	N.D.	5	
Monobromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	14.0.	5	-
		With reference to IEC 62321-6:2015	ND	5	
Dibromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.	3	-
		With reference to IEC 62321-6:2015	ND		
Tribromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.	5	-
		With reference to IEC 62321-6:2015	NID	5	
Tetrabromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.		-
		With reference to IEC 62321-6:2015	ND		
Pentabromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.	5	-
		With reference to IEC 62321-6:2015	N.D.	5	-
Hexabromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)			
		With reference to IEC 62321-6:2015	NUD	5	-
Heptabromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.		
		With reference to IEC 62321-6:2015	ND	5	
Octabromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.		-
		With reference to IEC 62321-6:2015	ND		
Nonabromodiphenyl ether	mg/kg	(Determination of PBDE by GC-MS)	N.D.	5	-
Decabromodiphenyl ether	#	With reference to IEC 62321-6:2015	ND	F	-
	mg/kg	(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	t		ISSA/13473-1/18 ef. CRSSA/18/2481/Kozat	Date : 28/09/2018 o	Page: 4 of 5
Test Part Descript	lon :				
Sample Description Lot No.	1	:	RI-2200 080110		
			KOZATO KIZAI CO., L CRSSA/13473-1/18	TD	
		20 10 50 50 10 10 10 10 10 10 10 10 10 10 10 10 10	10 eq 20 40 30 50 10 100 50 60 10 eq 20 40 30 50 10 100 50 60	10 60 60 40 30 20 10 200 90 80	

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Test Report No. CRSSA/13473-1/18 CRS Ref. CRSSA/18/24	-
1. <u>DETERMINATION OF CADMIUM CONTENT BY</u> <u>IEC 62321-5 2013</u> 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. <u>DETERMINATION OF MERCURY CONTENT BY</u> <u>IEC 62321-4 2013/AMD1 2017</u> Sample Receiving and Registration	2. <u>DETERMINATION OF LEAD CONTENT BY</u> <u>IEC 62321-5 2013</u> 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 4a. <u>DETERMINATION OF HEXAVALENT CHROMIUM</u> <u>BY IEC 62321-7-2 2017 (Other Materials)</u> Sample Preparation
Cut sample in small pleces Weight sample (0.1-0.5g) into digestion vessel Acid digestion (Microwave) "Totally Dissolved" Filtration Analyses by ICP	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. <u>DETERMINATION OF PBB/PBDE WITH GC-MS</u> <u>BY IEC 62321-6 2015</u> Cut sample In small pieces Weight sample (0.5-4.0g) into extraction thimble Soxhiet Extraction with Toluene Filter through 0.45 um 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 Lot No. Sample Receiving Date Testing Period	:	RI-2200 080110 21/09/2018 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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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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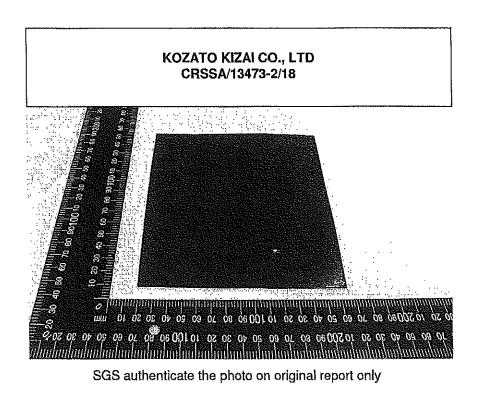
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Test Report	No. CRSSA/13473-2/18 CRS Ref. CRSSA/18/2481/Kozato	Date : 28/09/2018	Page 3 of 4

## **Test Part Description :**

Sample Description	:	RI-2200
Lot No.	:	080110



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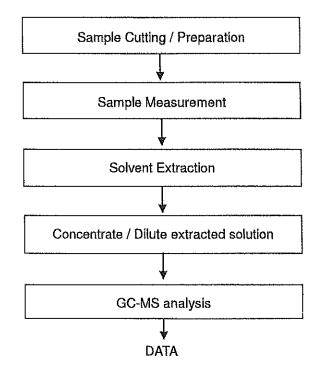
No. CRSSA/13473-2/18 CRS Ref. CRSSA/18/2481/Kozato

Date : 28/09/2018

Page 4 of 4

#### Flowchart for Phthalates Measurement

Method: IEC62321



\*\*\*\*End of Report\*\*\*\*

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Data No.8 Paste

# **Test Report**

No. TSNEC1800763701

Date: 08 May 2018

Page 1 of 5

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. :	ТР18-003093 - ТЈ
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.

has

Reabeca Zhou Approved Signatory



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Member of the SGS Group (SGS SA)



# **Test Report**

Test Results :

Test Part Description :

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

No. TSNEC1800763701

Date: 08 May 2018

Page 2 of 5

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.

				~~ /
<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	MDL	<u>001</u>
Cadmlum (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
Decabromoblphenyl		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. TSNEC1800763701		Date: 08 May 2018	
Test Item(s)	Limit	<u>Unit</u>	MDL	<u>001</u>
Pentabromodlphenyl 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
Decabromodlphenyl 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
Disobutyl 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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Page 3 of 5



**Test Report** 

No. TSNEC1800763701

Date: 08 May 2018

Page 4 of 5

# **ATTACHMENTS**

# Pb/Cd/Hg/Cr<sup>6+</sup>/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. (Cr<sup>6+</sup> and PBBs/PBDEs /Phthalates test method excluded)

Sample Preparation Sample Measurement <mark>∲ C</mark>r<sup>6+</sup> Pb/Cd/Hg PBBs/PBDEs/Phthalates Acid digestion with Sample solvent Nonmetallic Metallic microwave / extraction material material hotplate ABS/PC/PVC Others **Boiling water** Concentration/ ₽ Filtration **Dilution of** extraction Dissolving by Digesting at extraction solution 150~160°C ultrasonication Adding 1,5-Solution Residue Filtration diphenylcarba Digesting at Separating to zide for color ₽ 60°C by get aqueous development 1) Alkali Fusion / phase ultrasonication GC-MS **Dry Ashing** Å 2) Acid to dissolve UV-Vis. DATA pH adjustment DATA **ICP-OES/AAS** Adding 1,5diphenylcarbazide for color development DATA UV-Vis t DATA



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# Test Report No. TSNEC1800763701 Date: 08 May 2018 Page 5 of 5 Sample photo: TSNEC1800763701. Image: 100 mark Image: 100 mark

SGS authenticate the photo on original report only

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Data No.8 Paste

Test Report

No. TSNEC1800763702

Date: 08 May 2018

Page 1 of 5

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 SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

has

Reabeca Zhou Approved Signatory



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Page 2 of 5



# **Test Report**

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.

No. TSNEC1800763702

Date: 08 May 2018

Test Item(s)	Limit	<u>Unit</u>	<u>MDL</u>	<u>002</u>
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
Hexabromobiphenyi	-	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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No. TSNEC1800763702		Date: 08 May 2018		8
Limit	<u>Unit</u>	MDL	<u>002</u>	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
м	mg/kg	5	ND	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
	Limit - - - - - - 1000 1000 1000	Limit Unit - mg/kg - mg/kg - mg/kg - mg/kg - mg/kg - mg/kg 1000 mg/kg 1000 mg/kg	Limit         Unit         MDL           -         mg/kg         5           1000         mg/kg         50           1000         mg/kg         50           1000         mg/kg         50	Limit         Unit         MDL         002           -         mg/kg         5         ND           1000         mg/kg         50         ND           1000         mg/kg         50         ND           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

Page 4 of 5

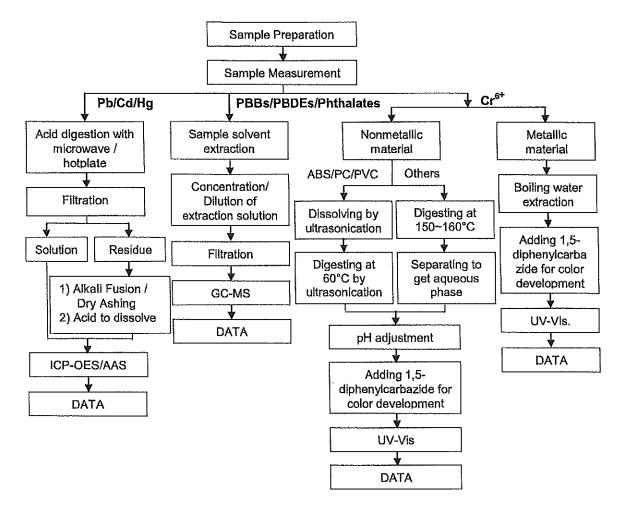
# **ATTACHMENTS**

# Pb/Cd/Hg/Cr<sup>6+</sup>/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

 These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs /Phthalates test method excluded)





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**Test Report** 

Sample photo:

# No. TSNEC1800763702 Date: 08 May 2018 TSNE01800763702

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HE OLYO

TSN18-007637.002

\*\*\* End of Report \*\*\*



Page 5 of 5



# Data No.9 Alumiunm Case



Chemical Laboratory - Kao., SGS Taiwan Ltd.

# **Test Report**

# No. : KA/2018/B1690

Date : 2018/11/23

Page: 1 of 6

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 :

JP Reference No. Sample Receiving Date Testing Period Sample Submitted By	JP/2018/111016 2018/11/19 2018/11/19 TO 2018/11/ MITSUBISHI CHEMICA	
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Test Ronuestori	As specified by client w	th reference to RoHS Directive 2011/65/ELLAnney II to determine

**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.



Signed for and on behalk of Signed Taiwan Limited

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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

#### Test Result(s)

PART NAME No.1 : SILVER COLORED METAL SHEET

Test Item(s)	Unit	Method	MDL	Result	Limit
	Unit			No.1	
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 by UV-VIS.	0.10	n.d.	
Sum of PBBs		· · · · · · · · · · · · · · · · · · ·	<del>شمید ایر من ایر با ایر با سر و در بر در بر بر</del>	n.d.	1000
Monobromobiphenyl	1		5	n.d.	-
Dibromobiphenyl	-		5	n.d.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Tribromobiphenyl	1		5	n.d.	-
Tetrabromobiphenyl		With reference to IEC 62321-6: 2015 and performed by GC/MS.	5	n.d.	-
Pentabromobiphenyl	mg/kg		5	n.d.	-
Hexabromobiphenyl		and performed by OCANG.	5	n.d.	-
Heptabromobiphenyl	-		5	n.d.	-
Octabromobiphenyl			5	n.d.	-
Nonabromobiphenyl			5	n.d.	-
Decabromobiphenyl	,		5	n.d.	-
Sum of PBDEs			<b>H</b>	n.d.	1000
Monobromodiphenyl ether			5	n.d.	-
Dibromodiphenyl ether	7		5	n.d.	+
Tribromodiphenyl ether			5	n.d.	-
Tetrabromodiphenyl ether			5	n.d.	-
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321-6: 2015 and performed by GC/MS.	5	n.d.	-
Hexabromodiphenyl ether		and performed by Bonnio.	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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台灣植發科技股份有限公司	1 + 868 (07)301 2121	f + 886 (07)3010807	&way.tw.sgr.com
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No.9



Chemical Laboratory - Kao., SGS Taiwan Ltd.

# Test Report

No. : KA/2018/B1690

Date : 2018/11/23

Page: 3 of 6

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 µg/cm<sup>2</sup>. 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 μg/cm²). The coating is considered a non-Cr(VI) based coating
  - c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive unavoidable coating variations may influence the determination.

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**Test Report** 

#### Chemical Laboratory - Kao., SGS Taiwan Ltd.

No. : KA/2018/B1690

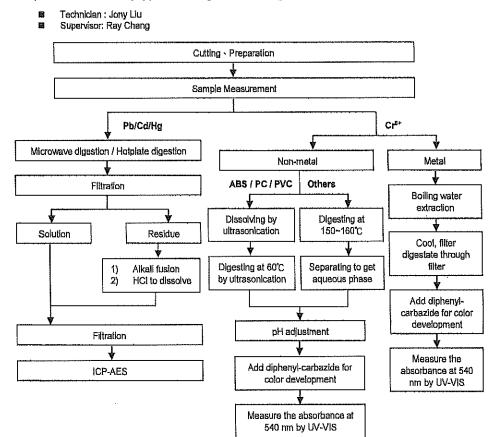
Date : 2018/11/23

Page: 4 of 6

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. (Cr<sup>4+</sup> test method excluded)



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#### Chemical Laboratory - Kao., SGS Taiwan Ltd.

**Test Report** 

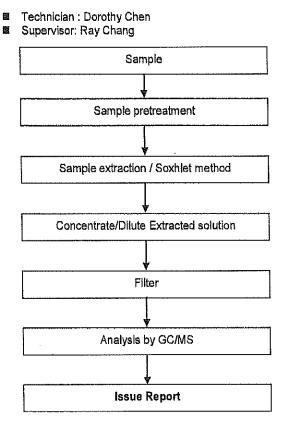
No. : KA/2018/B1690

Date : 2018/11/23

Page: 5 of 6

MITSUBISHI CHEMICAL CORPORATION 1-1, MARUNOUCHI 1-CHOME, CHIYODA-KU, TOKYO 100-8251, JAPAN

#### **PBB/PBDE analytical FLOW CHART**



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Test Report

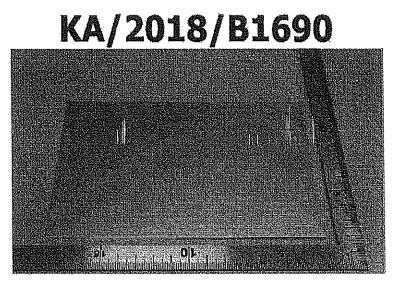
No. : KA/2018/B1690

Date : 2018/11/23

Page: 6 of 6

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. \*



\*\* End of Report \*\*

No.9



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.

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Reabeca Zhou Approved Signatory



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# **Test Report**

No. TSNEC1801160808

Date: 26 Jun 2018

Page 2 of 5

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.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>008</u>
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
Hexabromobiphenyi	-	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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Page 3 of 5



Test Report	No. TSNEC1801160808			Date: 26 Jun 2018	
<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>008</u>	
Pentabromodiphenyl ether	-	mg/kg	5	ND	
Hexabromodiphenyl ether	м	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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**Test Report** 

No. TSNEC1801160808

Date: 26 Jun 2018

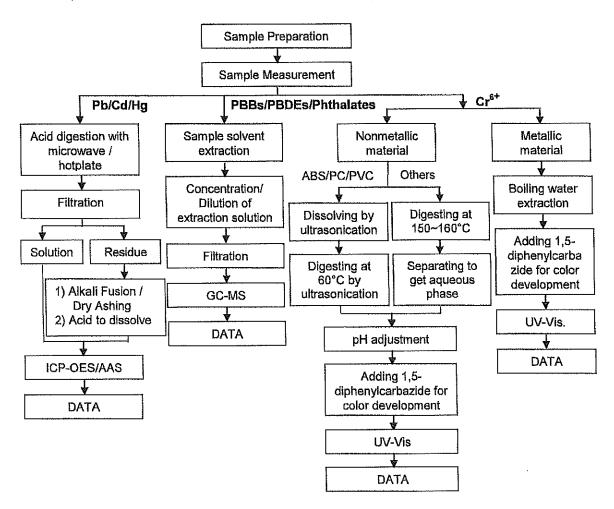
Page 4 of 5

# **ATTACHMENTS**

# Pb/Cd/Hg/Cr<sup>6+</sup>/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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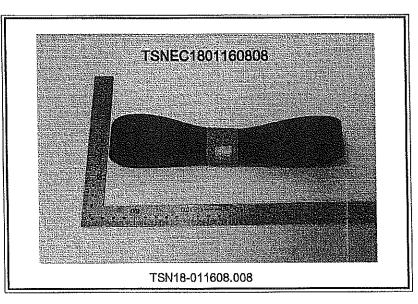
# **Test Report**

No. TSNEC1801160808

Date: 26 Jun 2018

Page 5 of 5

Sample photo:



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Data No.10 (Sleeve)

# Test Report

No. TSNEC1801160809

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-BLACK

SGS Job No. :	ТР18-004930 - ТЈ
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 Dilsobutyl 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.

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Reabeca Zhou Approved Signatory



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# **Test Report**

No. TSNEC1801160809

Date: 26 Jun 2018

Page 2 of 5

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.

	l investe	Linit	MDI	000
<u>Test Item(s)</u>	Limit	Unit	MDL	<u>009</u>
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
Tribramobiphenyl	-	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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Page 3 of 5



Test Report	No, TSNEC1801160809			Date: 26 Jun 2018	
Test Item(s)	Limit	<u>Unit</u>	<u>MDL</u>	<u>009</u>	
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

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(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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**Test Report** 

No. TSNEC1801160809

Date: 26 Jun 2018

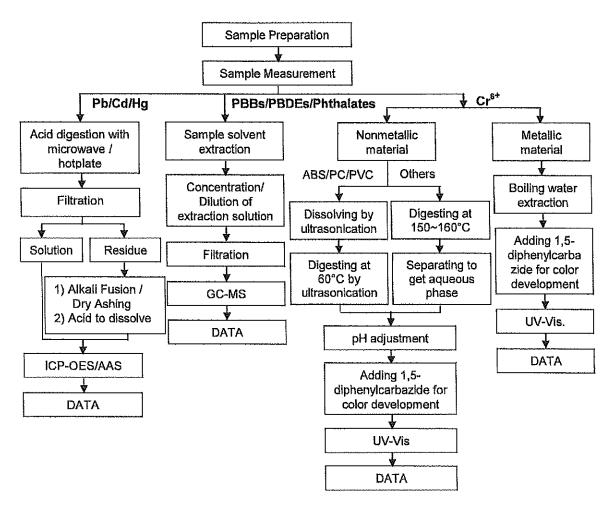
Page 4 of 5

# **ATTACHMENTS**

# Pb/Cd/Hg/Cr<sup>6+</sup>/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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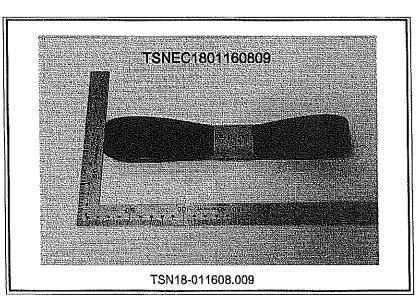
# **Test Report**

No. TSNEC1801160809

Date: 26 Jun 2018

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Sample photo:



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Data No.10 (Sleeve)

# **Test Report**

No. TSNEC1801160810

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-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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or email: <u>CN.Descheek@sps.cem</u> |SGS Manslon, No.41, The 5th Avenue TEDA, Tianjin, China 300457 t (68-22) 55288000 1 (68-22) 25295252 www.sgsgroup.com.cn 中國 - 天津市经济技术开发区第五大街41号SGS大厦 邮编: 300457 t (66-22) 65288000 1 (66-22) 25205252 e sgs.chine@sgs.com



# **Test Report**

No. TSNEC1801160810

Date: 26 Jun 2018

Page 2 of 5

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.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>010</u>
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
Monobromobiphenyi	-	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	м	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Page 3 of 5



Test Report	No. TSNEC1801160810			Date: 26 Jun 2018	
<u>Test Item(s)</u>	Limit	<u>Unit</u>	<u>MDL</u>	<u>010</u>	
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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**Test Report** 

No, TSNEC1801160810

Date: 26 Jun 2018

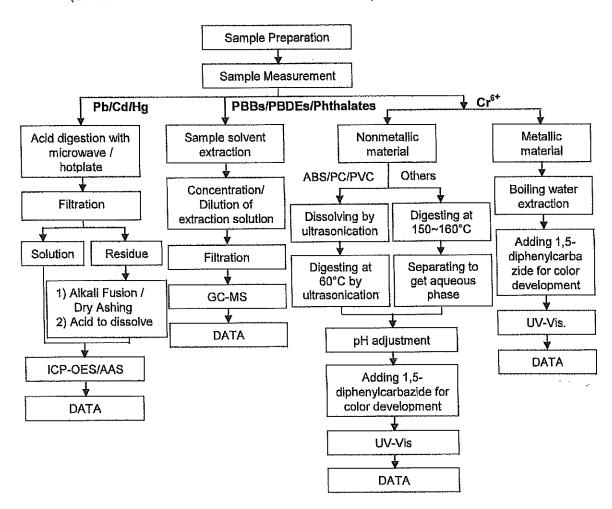
Page 4 of 5

# **ATTACHMENTS**

# Pb/Cd/Hg/Cr<sup>6+</sup>/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.

(Cr<sup>6+</sup> and PBBs/PBDEs /Phthalates test method excluded)





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# **Test Report** No. TSNEC1801160810 Date: 26 Jun 2018 Page 5 of 5 Sample photo: TSNEC1801160810

TSN18-011608.010

SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*



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Data No.11 Sleeve Print Ink

# TEST REPORT

REPORT NO. JP/2018/040267 DATE: April 18,2018

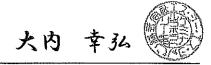
PAGE: 1 OF 5

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 Pringting Ink_OPI				
CLIENT REF.NO :	148				
SAMPLE RECEIVED	2018/04/06				
TESTING DATE :	2018/04/06 TO 2018/04/18				
TEST REQUESTED : 分析項目	SELECTED TEST(S) AS REQUESTED BY CLIENT. 分析項目は顧客の要求によります。				
TEST METHOD(S)   : 分析方法	WITH REFERENCE TO LATEST EDITION OF IEC62321 FOR RoHS 6 SUBSTANCES. 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)    : 分析結果	PLEASE REFER TO THE NEXT PAGE(S). 以下のページをご参照願います。				



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

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DATE: April 18,2018

PAGE: 2 OF 5

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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.		GC/MS*	5		
Dibromobichenyi	mg/kg	N.Ð.			5		
Tribromobiphenyl	mg/kg	N.D.			5		
Tetrabromobiphenyl	mg/kg	' N.D.			5		
Pentabromobiphenyl	mg/kg	N.D.	IEC62321-6: 2015		5		
Hexabromobiphenyl	mg/kg	N.D.	EC02321-0.2013		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.		GC/MS*	5		
Dibromodiphonyl 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/		5. 5		
Hexabromodiphenyl ether	mg/kg	N.D.					
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		IEC62321-8: 2017	GC/MS*	50		
NOTES: mg/kg = nom N.D. = Not Detected INST. = INSTRUMENT, MDL = Method Detection Limit							

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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5-8-12 HONGO KASHIWARA-SHI OSAKA JAPAN

#### 分析フローチャート MEASUREMENT FLOW CHART

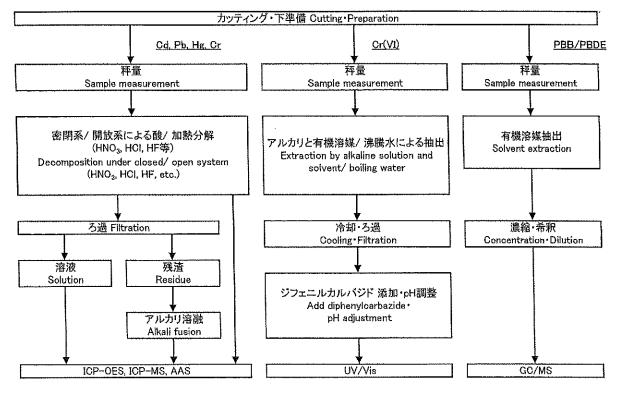
1)酸分解前処理において試料を完全分解しています。

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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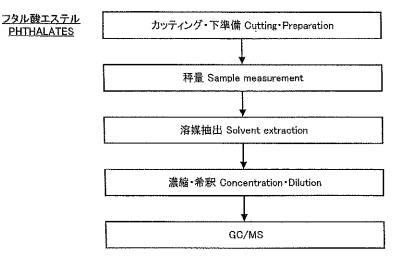
PAGE: 4 OF 5

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)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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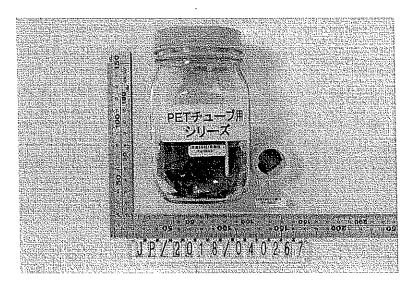
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SAMPLE IMAGE



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