

Approval Sheet

I Produc	et Type	I .	WLAN Antenna
ı Model	Number	I.	Crete DA05
1 Revisio	n	I	X00
1 Part N	o. / Yageo / WLAN Antenna	I	CAN4313573012501B

Yageo (Taiwan) Ltd.

16, West 3rd Street, N.E.P.Z Kaohsiung, 811 Taiwan, R.O.C

Yageo Electronics (China) Co, Ltd

No. 10, Zhu Yuan Road, Suzhou New District, Suzhou, PRC

Multi Band Antenna with					Sept. 20, 06
		CAN4313573012501B		R01	Oct. 03, 06
Cable & Connector.				R02	Oct. 20, 06
BY / Teresa	Chang	DATE /	Sept. 20, 2006		

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<u>1. Specifications</u>

1.1 Specifications for Antennas

Encourse Device (CII-)	2.40 ~ 2.50 for 802.11b/g	
Frequency Range (GHz)	5.15 ~ 5.875 for 802.11a	
VCWD	2.50 for 2.4GHz band	
VSWR	2.50 for 5.0GHz band	
Deals Cain (dDi)	1.75 dBi for 2.4GHz band	
Peak Gain (dBi)	1.75 dBi for 5.0GHz band	
MiniPCI Connector	Hirose U.FL (or Compatible)	
Impedance	50Ω	
Operating Temperature	-40~90°C	
Maximum Power	1W	
Polarization	Linear	
Radiation Pattern	Omni-directional	

1.2 Antenna Dimension / Cable Length / Cable Diameter

Product	Crete / DA05 Antenna	
WLAN Antenna Cable	Length=85 mm, Color=Gray, OD=1.13mm	

1.3 Packing Spec.

Product	For Example
Inner Tray	60
Carton Box	265*100



1.4 Antenna Picture



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2. Test Methodology

2.1 Test Equipment

The equipment for the antenna measurement we used is as follows.

A. Agilent 8753ET / 8719D Network Analyzer to measure the VSWR and input impedance.

B. Three-dimensional anechoic chamber to measure the gain

(Standard dipole and horn were used to calibrate the chamber)

- C. Digital caliper to measure the dimensions.
- D. Climatic chamber for mechanical tests.

2.2 Test Setup

2.2.1 Frequency Range

2.40 ~ 2.50GHz, 5.15 ~ 5.875GHz

2.2.2 Antenna Configuration

The antenna basically has two parts; the stamping and the cable assembly with the connector on one side. The detailed drawing is attached.

2.2.3 VSWR

The VSWR is measured with Agilent 8753ET / 8719D network analyzer. All the measurements are performed with the customer provided fixture. Figure 1 shows the schematic diagram for measuring VSWR.

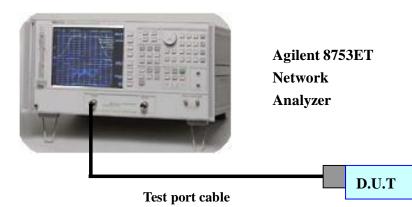


Figure 1. The schematic diagram for measuring VSWR

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2.2.4 Radiation Pattern and Gain

The radiation pattern must have the omni-directional characteristic in both positions. The radiation pattern measurements are performed in the threedimensional anechoic chamber. The chamber provides less than -30dB reflectivity from 800MHz through 8GHz. The chamber is calibrated using both standard dipole and horn antenna. The gain here is expressed as dBi that standardizes the isotropic antenna. The gain measurements are also performed in the same chamber described previously. Figure 2 shows the schematic diagram for measuring radiation pattern and gain.

2D Anechoic Chamber

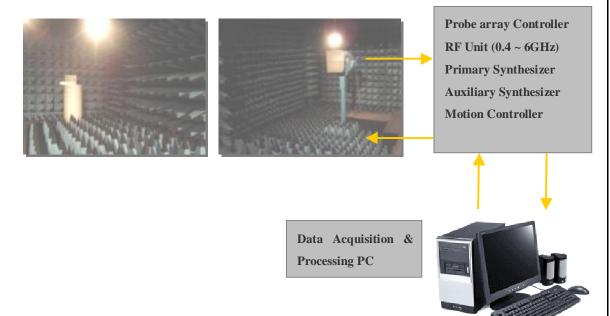


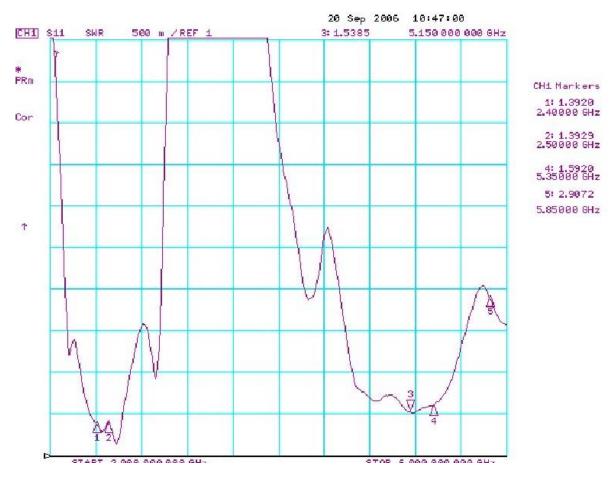
Figure 2. The schematic diagram for measuring radiation pattern and gain

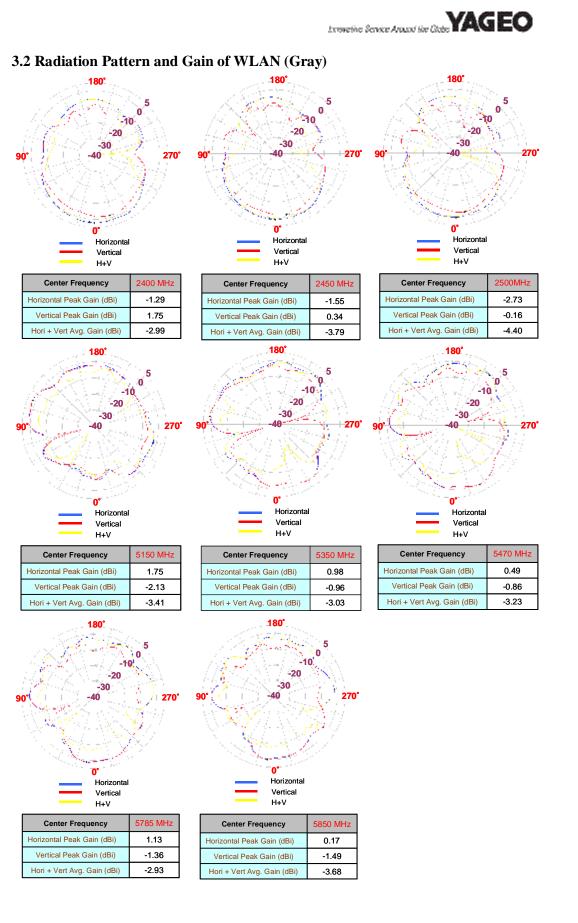


3. Performance Data

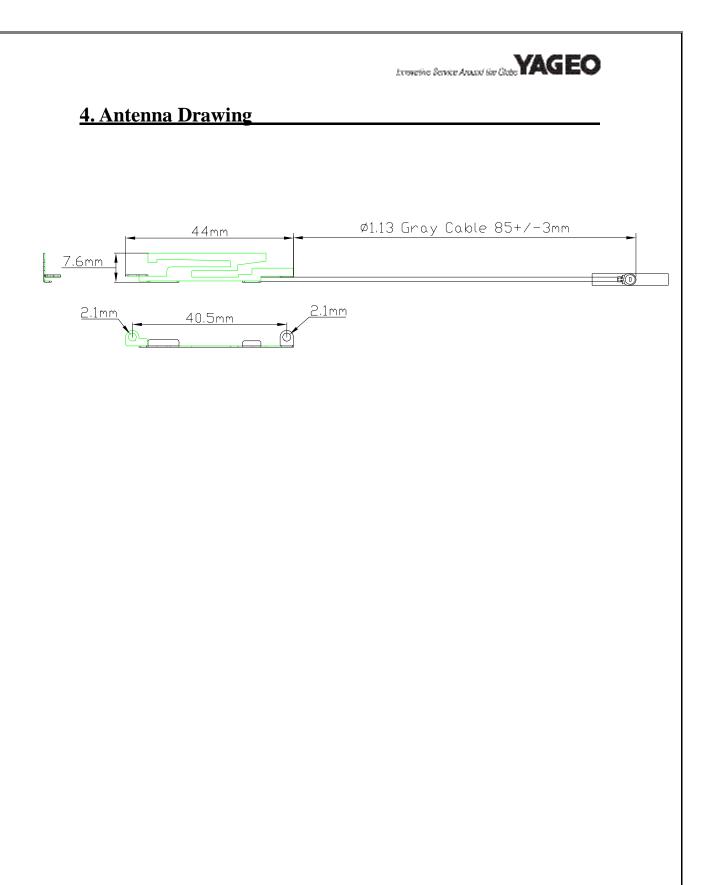
3. VSWR Measurement

VSWR of WLAN (Gray)





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IEC	IEC			
384-10/ CECC 32 100 CLAUSE	60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.12	4(Na)	Rapid change of temperature	-40 °C (30 minutes) to +90 °C (30 minutes); 5 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 40 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 90 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

5. Reliability Data For Antenna Patch (Reference To IEC)

6. Ordering Information: Yageo Ordering P/N Code

The antennas may be ordered by using the Yageo P/N ordering code. These code numbers can be determined by the following rules:

CAN<u>43</u>13 5 <u>43</u> <u>01 250 1B</u> F C MS T A P

F. Family Code

CAN43 = Antenna

C. Packing Type Code

13 = Bulk (1000 pcs)

M. Materials Code

5 = High Frequency Material

S. Size/Series Code

43 = KH3 Antenna

T. Tolerance/Cable

01 = Full MIMO

A. Working Frequency

252 = 2.45/5 GHz Dual Band

P. Packing 1B = 1000 pcs packing

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7. Revision Control

Document Revision	Date	Content	Remark
R00	Sept. 20, 2006	New Issued	N/A
R01	Oct. 03, 2006	Revise information of cable length.	N/A
R02	Oct.20, 2006	Adding SGS Test Report	N/A

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9. SGS Documents

SGS Report of Metal Body



TEST REPORT

REPORT NO KA/2008/80675 DATE: 2005/06/13 PAGE: 1 OF 2

THE FOLLOWING MERCHANDISE WAS(WERE) SUBMITTED ON BEHALF OF THE CLIENT AND IDENTIFIED AS :

CLIENT : Yageo Corporation

CLIENT	: Yageo Corporation.
	: 16,West 3rd,N.E.P.Z. P.O. Box 35-106 Kaohsiung, Taiwan, R.O.C.,
PRODUCT DESCRIPTION	: METAL (PHOSPHOR BRONZE).
STYLE/ITEM NO.	: MASS PRODUCTION TYPE.
SAMPLE	: AS ATTACHED PHOTO.
TESTING DATE	: 2006/6/12 TO 2006/6/13.
SAMPLE RECEIVED	: 2006/06/12.

WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST ITEM(S)	UNIT	METHOD	MDL	RESULT
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3060B or other acid digestion.	2	550

NOTE: (1) n.d. = not detected (2) ppm = mg/kg

(2) ppm = mg/kg

(3) MDL = Method Detection Limit

(4) Any unauthorized alteration forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law.

Richard Kug// Supervisor Signed for and on behalf of SGS Taiwan Limited

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SGS Report of Metal Body (Continue)



TEST REPORT

REPORT NO.KA/2006/60875B-01 DATE: 2006/06/19 PAGE: 1 OF 3

THE FOLLOWING MERCHANDISE WAS(WERE) SUBMITTED ON BEHALF OF THE CLIENT AND IDENTIFIED AS :

CLIENT	: Yageo Corporation.
	: 16,West 3rd,N.E.P.Z. P.O. Box 35-106 Kaohslung,Taiwan,R.O.C.
PRODUCT DESCRIPTION	: METAL (PHOSPHOR BRONZE).
STYLE/ITEM NO.	: MASS PRODUCTION TYPE.
SAMPLE	: AS ATTACHED PHOTO.
TESTING DATE	: 2006/6/12 TO 2006/6/19.
SAMPLE RECEIVED	: 2006/06/12.
WE HAVE TESTED THE SAMPL	E(5) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST ITEM(S)	UNIT	METHOD	MDL	RESULT
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122 :2001 or other acid digestion.	2	n.d.
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	n.d.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	n.d.
PBBs(Polybrominated biphenyls)			-	
Monobromobiphenyl	<u>%</u>		0.0005	n.d.
Dibromobiphenyl	%	1 Г	0.0005	n.d.
Tribromobiphenyl	- 96		0.0005	n.d.
Tetrabromobiphenvi	%	With reference to USEPA3540C or	0.0005	n.d.
Pentabromobiphenyl	36	USEPA3560C. Analysis was performed by	0.0005	n.d.
Hexabromobiphenyl	96	HPLC/DAD, LC/MS or GC/MS. (prohibited by -	0.0005	n.d.
Heptabromobiphenyl	%	2002/96/EC (RoHS), 83/264/EEC, and	0.0005	n.d.
Octabromobiphenyl	%	76/769/EEC)	0.0005	n.d.
Nonabromobiphenyl	%		0.0005	n.d.
Decabromobiphenyl	%		0.0005	n.d.



Kueilan Chen / Asst. Supervisor Sign for and on behalf of SGS Taiwan Limited

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 SE5 Tolwan (td)
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SGS Report of Metal Body (Continue)



TEST REPORT

REPORT NO.KA/2006/60875B-01 DATE: 2006/06/19

	PAGE: 2 OF 3					
TEST ITEM(S)	UNIT	METHOD	MDL	RESULT		
PBOEs(Polybrominated biphenyl ethers)			-			
Monobromobiphenyl ether	%		0.0005	n.d.		
Dibromobiphenyl ether	%	With reference to USEPA3540C or	0.0005	n.d.		
Tribromobiphenyl ether	%		0.0005	n.d.		
Tetrabromobiphenyl ether	%		0.0005	n.d.		
Pentabromobiphenyl ether	%	USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by	0.0005	n.d.		
Hexabromobiphenyl ether	%	2002/95/EC (RoHS), 83/264/EEC, and	0.0005	n.d.		
Heptabromobiphenyl ether	94	78/789/EEC)	0.0005	n.d.		
Octabromobiphenyl ether %	- 24		0.0005	n.d.		
Nonabromobiphenyl ether	94		0.0005	n.d.		
Decabromobiphenyl ether	94		0.0005	n.d.		

NOTE: (1) n.d. = not detected

(2) ppm = mg/kg(3) MDL = Method Detection Limit

(4) Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law.



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Investive Service Around the Date YAGEO

SGS Report of Solder



TEST REPORT

REPORT NO.KA/2005/91321/A-1 DATE: 2005/9/29 PAGE: 1 OF 3

THE FOLLOWING MERCHANDISE WAS(WERE) SUBMITTED AND IDENTIFIED BY THE CLIENT AS :

CLIENT		YAGEO CORPORATION NANTZE BRANCH. 16.WEST 3RD, N.E.P.Z. P.O. BOX 35-106 KAOHSIUNG, TAIWAN, R.O.C
PRODUCT DESCRIPTION SAMPLE	:	SOLDER. AS ATTACHED PHOTO.
TESTING DATE	:	2005/9/22 TO 2005/9/29 .
SAMPLE RECEIVED	:	2005/09/22.

WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	n.d.
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	n.d.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	n.d.
Nickel (Ni)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	501
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	282
PBBs(Polybrominated biphenyls)				
Monobromobiphenyl	%		0.0005	n.d.
Dibromobiphenyl	%		0.0005	n.d.
Tribromobiphenyl	%	With reference to USEPA3540C or	0.0005	n.d.
Tetrabromobiphenyl	%	USEPA3550C. Analysis was performed by	0.0005	n.d.
Pentabromobiphenyl	%	HPLC/DAD, LC/MS or GC/MS. (prohibited by	0.0005	n.d.
Hexabromobiphenyl	96	2002/95/EC (RoHS), 83/264/EEC, and	0.0005	n.d.
Heptabromobiphenyl	96	76/769/EEC)	0.0005	n.d.
Octabromobiphenyl	%	10/100/220)	0.0005	n.d.
Nonabromobiphenyl	%		0.0005	n.d.
Decabromobiphenyl	96		0.0005	n.d.



Kueifon Chen

Kueilan Chen / Asst. Supervisor Sign for and on behalf of SGS Taiwan Limited

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SGS Report of Solder (Continue)



TEST REPORT

REPORT NO.KA/2005/91321/A-1 DATE: 2005/9/29

			PAGE: 2 OF 3	
TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
PBDEs(Polybrominated biphenyl ethers)				
Monobromobiphenyl ether	%		0.0005	n.d.
Dibromobiphenyl ether	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS). 83/264/EEC, and	0.0005	n.d.
Tribromobiphenyl ether	%		0.0005	n.d.
Tetrabromobiphenyl ether	%		0.0005	n.d.
Pentabromobiphenyl ether	%		0.0005	n.d.
Hexabromobiphenyl ether	%		0.0005	n.d.
Heptabromobiphenyl ether	%	76/769/EEC)	0.0005	n.d.
Octabromobiphenyl ether	%	TOTOBIEEC)	0.0005	n.d.
Nonabromobiphenyl ether	%		0.0005	n.d.
Decabromobiphenyl ether	%		0.0005	n.d.

NOTE : 1. n.d. = not detected. 2. DET. LMT = DETECTION LIMIT.

<END>

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SGS Report of Solder (Continue)



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REPORT NO.KA/2005/91321/A-1 DATE: 2005/9/29 PAGE: 3 OF 3



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SGS Report of I-Pex Connector



TEST REPORT

REPORT NO.KA/2005/A1103 DATE: 2005/10/31 PAGE: 1 OF 3

THE FOLLOWING MERCHANDISE WAS(WERE) SUBMITTED AND IDENTIFIED BY THE CLIENT AS :

CLIENT	•	YAGEO CORPORATION NANTZE BRANCH. 18,WEST 3RD,N.E.P.Z. P.O. BOX 35-108 KAOHSIUNG, TAIWAN R.O.C
PRODUCT DESCRIPTION	•	I-PEX CONNECTOR.
SAMPLE TESTING DATE		AS ATTACHED PHOTO. 2005/10/24 TO 2005/10/31.
SAMPLE RECEIVED		2005/10/24 10 2005/10/31.

------WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122 :2001 or other acid digestion.	2	n.d.
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	n.d.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	n.d.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	n.d.
PBBs(Polybrominated biphenyls)				
Monobromobiphenyl	%		0.0005	n.d.
Dibromobiphenyl	%	With reference to USEPA3540C or	0.0005	n.d.
Tribromobiphenyl	%		0.0005	n.d.
Tetrabromobiphenyl	%		0.0005	n.d.
Pentabromobiphenyl	%	USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by	0.0005	n.d.
Hexabromobiphenyl	%	2002/95/EC (RoHS), 83/264/EEC, and	0.0005	n.d.
Heptabromobiphenyl	%	76/769/EEC)	0.0005	n.d.
Octabromobiphenyl	%	(UNUMEEC)	0.0005	n.d.
Nonabromobiphenyl	%		0.0005	n.d.
Decabromobiphenyl	%		0.0005	n.d.



fueilan Chen

Kueilan Chen / Asst. Supervisor Sign for and on behalf of SGS Taiwan Limited

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SGS Taiwan Ltd.	No. 208, Chung Hwa 2*4	Road, San Ming District, Kaohsiung, Taiwan	(高雄市三民區中華二路208號	
台灣檢驗科技股份有限公司	t (886-7) 323-0920	f (886-7) 315-7484	www.sgs.com.tw	
			Mamber of the SGS Group	



SGS Report of I-Pex Connector (Continue)

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TEST REPORT

REPORT NO.KA/2005/A1103 DATE: 2005/10/31

			PAGE: 2 OF 3	
TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
PBDEs(Polybrominated biphenyl ethers)				
Monobromobiphenyl ether	%		0.0005	n.d.
Dibromobiphenyl ether	%		0.0005	n.d.
Tribromobiphenyl ether	%	With reference to USEPA3540C or	0.0005	n.d.
Tetrabromobiphenyl ether	%	USEPA3550C. Analysis was performed by – HPLC/DAD, LC/MS or GC/MS. (prohibited by – 2002/95/EC (RoHS), 83/264/EEC, and –	0.0005	n.d.
Pentabromobiphenyl ether	%		0.0005	n.d.
Hexabromobiphenyl ether	%		0.0005	n.d.
Heptabromobiphenyl ether	%	76/769/EEC)	0.0005	n.d.
Octabromobiphenyl ether	%	TorrowEEC)	0.0005	n.d.
Nonabromobiphenyl ether	%		0.0005	n.d.
Decabromobiphenyl ether	%		0.0005	n.d.

NOTE : 1. n.d. = not detected. 2. DET. LMT = DETECTION LIMIT.

<END>

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SGS Report of I-Pex Connector (Continue)

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REPORT NO.KA/2005/A1103 DATE: 2005/10/31 PAGE: 3 OF 3



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 SGS Taiwan Ltd.
 No. 208, Chung Hwa 2*4 Road, San Ming District, Kaohsiung, Taiwan / 高雄市三民區中華二路 208號

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SGS Report of Gray Cable (Continue)



YAGEO CORPORATION 16,WEST 3TH, N.E.P.Z. P.O. BOX 35-106 KAOHSIUNG, TAIWAN, R.O.C.

Report No. : KA/2006/81967 Date : 2006/8/25 Page : 1 of 4

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

Style/Item No. Style/Item No. Sample Received Testing Date

Sample Description : ANTENNA CABLE(GRAY COLOR) : NISSEI : 2006/08/23 : 2006/08/23 TO 2006/8/25

Test Result(s)

: - Please see the next page(s) -

Katherine Ho / Supervisor Signed for and on behalf of SGS Taiwan Limited

TW 3752752

 SDS Taiwan Ltd.
 Na. 208, Chung Hwa 2nd Read Son Min District Kashsiung, Taiwan./高段を三民區中茶二路208號 1(886-7) 323 0920
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SGS Report of Gray Cable (Continue)



Test Report

YAGEO CORPORATION 16,WEST 3TH, N.E.P.Z. P.O. BOX 35-106 KAOHSIUNG, TAIWAN, R.O.C.

Report No. : KA/2006/81967 Date : 2006/8/25 Page : 2 of 4

Test Result(s)

PART NAME NO.1	: GRAY JACKET(OUTER CLADDING)
PART NAME NO.2	: COPPER ALLOY AXLE INSIDE CABLE
PART NAME NO.3	: INSULATOR(INNER CLADDING)

Test Item (s)	Unit	Method	MDL		Result	
Test Rem (s)	Unit	method	MDL	No.1	No.2	No.3
Cadmium (Cd)		With reference to EN 1122; method B:2001. Analysis was performed by ICP-AES.	2	N.D.	N.D.	N.D.
Chromium VI (Cr+6)		With referece to US EPA 3060A. Analysis was performed by UV-VIS (US EPA 7196A)	2	N.D.	N.D.	N.D.
Mercury (Hg)			2	N.D.	N.D.	N.D.
Lead (Pb)			2	N.D.	11.1	N.D.
PBBs(Polybrominated biphenyls)						
Monobromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Dibromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Tribromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Tetrabromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Pentabromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Hexabromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Heptabromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Octabromobiphenyl	mg/kg	with GC/MS	5	N.D.	N.D.	N.D.
Nonabromobiphenyl	mg/kg		5	N.D.	N.D.	N.D.
Decabromobiphenyl	mg/kg	kg With reference to US EPA 3052. Analysis was performed by ICP-AES. kg With reference to US EPA 3050B. Analysis was performed by ICP-AES. kg kg	5	N.D.	N.D.	N.D.
Total PBBs(Polybrominated biphenyls)/Sum of above	mg/kg (ppm)		•	N.D.	N.D.	N.D.

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SGS Report of Gray Cable (Continue)



Test Report

YAGEO CORPORATION

16,WEST 3TH, N.E.P.Z. P.O. BOX 35-106 KAOHSIUNG, TAIWAN, R.O.C.

Report No. : KA/2006/81967 Date : 2006/8/25 Page : 3 of 4 ENDERGED CONDENSE OF

MDL 5 5 5 5 5 5 5	No.1 N.D. N.D. N.D. N.D. N.D.	Result No.2 N.D. N.D. N.D. N.D. N.D.	No.3 N.D. N.D. N.D.
5 5 5 5	N.D. N.D. N.D. N.D.	N.D. N.D. N.D.	N.D. N.D.
5 5 5 5	N.D. N.D. N.D. N.D.	N.D. N.D. N.D.	N.D. N.D.
5 5 5	N.D. N.D. N.D.	N.D. N.D.	N.D.
5	N.D. N.D.	N.D.	
5	N.D.		N.D.
		N.D.	
5			N.D.
	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.
-	N.D.	N.D.	N.D.
	N.D.	N.D.	N.D.
	-	- N.D.	- N.D. N.D.

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

- (2) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
- (3) MDL = Method Detection Limit
- (4) Decabromobiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.
- (5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
- (6) " " = Not Regulated
- (7) " --- " = Not Applicable
- (8) Sample was totally digested for Pb, Cd, Hg.

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SGS Report of Gray Cable



Test Report

YAGEO CORPORATION 16,WEST 3TH, N.E.P.Z. P.O. BOX 35-106 KAOHSIUNG, TAIWAN, R.O.C.

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SGS Report of Protective Tube



TEST REPORT

REPORT NO.KA/2005/91332 DATE: 2005/9/29 PAGE: 1 OF 7

THE FOLLOWING MERCHANDISE WAS(WERE) SUBMITTED AND IDENTIFIED BY THE CLIENT AS :

CLIENT

PRODUCT DESCRIPTION SAMPLE TESTING DATE SAMPLE RECEIVED YAGEO CORPORATION NANTZE BRANCH.
 10,WEST 3RD, N.E.P.Z. P.O. BOX 35-108 KAOHSIUNG, TAIWAN, R.O.C..
 PROTECTION TUBE.
 AS ATTACHED PHOTO.
 2005/9/22 TO 2005/9/29.

E	RECEIVED	:	20	05/0	9/2	2.	
							_

WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
Asbestos				
Anthrophyllite(CAS NO.017068-78- 9)		As per NIOSH 9000 method. Analysis was performed by XRD.		n.d.
Crocidolite(CAS NO.012001-28-4)		As per NIOSH 9000 method. Analysis was performed by XRD.		n.d.
Amosite(CAS NO.012172-73-5)		As per NIOSH 9000 method. Analysis was performed by XRD.		n.d.
Tremolite(CAS NO.014567-73-8)		As per NIOSH 9000 method. Analysis was performed by XRD.		n.d.
Chrysotile(CAS NO.012001-29-5)		As per NIOSH 9000 method. Analysis was performed by XRD.		n.d.
Actinolite(CAS NO.013768-00-8)		As per NIOSH 9000 method. Analysis was performed by XRD.		n.d.
Chlorinated Paraffin (C10~C13) (CAS NO:010871-28-2)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by GC/MS or GC/ECD.	0.01	n.d.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	n.d.
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	n.d.
Formaldehyde(CAS No:000050-00- 0)	ppm	With reference to DIN 53315 & USEPA 8315A. Analysis was performed by HPLC/DAD/MS	0.2	n.d.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	n.d.
Mirex(CAS NO:002385-85-5)	ppm	Analysis was performed by GC/MS.	4	n.d.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	n.d.



fueifor Chen

Kueilan Chen / Asst. Supervisor Sign for and on behalf of SGS Taiwan Limited

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SGS Report of Protective Tube (Continue)



TEST REPORT

REPORT NO.KA/2005/91332 DATE: 2005/9/29

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TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
PBBs(Polybrominated biphenyls)				3 - 3 14)
Monobromobiphenyl	%		0.0005	n.d.
Dibromobiphenyl	%	1 1	0.0005	n.d.
ribromobiphenyl	%	With reference to USEPA3540C or	0.0005	n.d.
etrabromobiphenyl	%	USEPA3550C. Analysis was performed by	0.0005	n.d.
Pentabromobiphenyl	%	HPLC/DAD, LC/MS or GC/MS. (prohibited by	0.0005	n.d.
lexabromobiphenyl	%	2002/95/EC (RoHS), 83/264/EEC, and	0.0005	n.d.
leptabromobiphenyl	%		0.0005	n.d.
Octabromobiphenyl	%	76/769/EEC)	0.0005	n.d.
Vonabromobiphenyl	%		0.0005	n.d.
Decabromobiphenyl	%	1 1	0.0005	n.d.
PBDEs(Polybrominated biphenyl				
ethers)				
Ionobromobiphenyl ether	%		0.0005	n.d.
Dibromobiphenyl ether	%] [0.0005	n.d.
Tribromobiphenyl ether	%	With reference to USEPA3540C or	0.0005	n.d.
etrabromobiphenyl ether	%		0.0005	n.d.
Pentabromobiphenyl ether	%	USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by	0.0005	n.d.
lexabromobiphenyl ether	%		0.0005	n.d.
Heptabromobiphenyl ether	%	2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	n.d.
Octabromobiphenyl ether	%		0.0005	n.d.
Vonabromobiphenyl ether	%	1 [0.0005	n.d.
Decabromobiphenyl ether	%	1 1	0.0005	n.d.
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/MS or GC/ECD.	0.5	n.d.
Polychlorinated Naphthalene	ppm	Analysis was performed by GC/MS.	5	n.d.
CTs(Polychlorinated Terphenyls)	ppm	Analysis was performed by GC/MS or GC/ECD.	0.5	n.d.
PVC (CAS No:9002-86-2)		FTIR/ATR AND FLAME TEST		NEGATIVE
Organic-TIN compounds				
Tributyl Tin(TBT)	ppm	With reference to 89/677/EEC & DIN 38407. Analysis was performed by GC/FPD.	0.03	n.d.
riphenyl Tin(TPT)(CAS NO:000668-34-8)	ppm	With reference to 89/677/EEC & DIN 38407. Analysis was performed by GC/FPD.	0.03	n.d.
CFC's(Hydrogenated hlorofiuorocarbons)		With reference to US EPA 8260.		
lydrochlorofluorocarbon-21(CAS lo.:000075-43-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-22(CAS No.:000075-45-6)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-31(CAS No.:000593-70-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.

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SGS Report of Protective Tube (Continue)



TEST REPORT

DATE: 2005/9/29 PAGE: 3 OF 7 TEST ITEM(S) UNIT METHOD DET. LMT RESULT Hydrochlorofluorocarbon-121(CAS Analysis was performed by GC/MS. [HCFC's ppm n.d. 1 (Hydrogenated chlorofluorocarbons) No.:000354-14-3) Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-122(CAS ppm 1 n.d. No.:000354-21-2) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon 123(CAS Analysis was performed by GC/MS. [HCFC's 1 ppm n.d No.:000306-83-1) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-124(CAS Analysis was performed by GC/MS. [HCFC's 1 n.d. ppm No.:002837-89-0) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-131(CAS Analysis was performed by GC/MS. [HCFC's ppm 1 n.d. No.:000359-28-4) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-132b(CAS Analysis was performed by GC/MS. [HCFC's ppm 1 n.d. No.:000471-43-2) (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-133a(CAS ppm 1 n.d. No.:000075-88-7) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-141b(CAS Analysis was performed by GC/MS. [HCFC's ppm 1 n.d. (Hydrogenated chlorofluorocarbons)] No.:001717-00-6) Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-142b ppm 1 n.d. (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-221 ppm 1 n.d. (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-222(CAS Analysis was performed by GC/MS. [HCFC's ppm 1 n.d. No.:000422-30-0) (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-223 ppm 1 n d (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS, [HCFC's Hydrochlorofluorocarbon-224 1 n.d. ppm (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-Analysis was performed by GC/MS. [HCFC's ppm 1 n.d. 225ca(CAS No.:000422-56-0) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-Analysis was performed by GC/MS. [HCFC's ppm 1 n.d 225cb(CAS No.:000507-55-1) (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-226(CAS Analysis was performed by GC/MS. [HCFC's ppm 1 n.d. (Hydrogenated chlorofluorocarbons) No.:000431-87-8) Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-231 1 n.d. ppm (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-232 ppm 1 n.d. (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-233 ppm 1 n.d. (Hydrogenated chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's Hydrochlorofluorocarbon-234 ppm 1 n.d. (Hydrogenated chlorofluorocarbons)] Hydrochlorofluorocarbon-235(CAS Analysis was performed by GC/MS. [HCFC's ppm 1 n.d No.:013838-16-9) (Hydrogenated chlorofluorocarbons)]

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SGS Report of Protective Tube (Continue)



TEST REPORT

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TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
Hydrochlorofluorocarbon-241	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-242	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	ે જે તે	n.d.
Hydrochlorofluorocarbon-243(CAS No.:000338-75-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-244	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-251	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-252	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-253(CAS No.:000354-06-1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-261(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-262(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
Hydrochlorofluorocarbon-271	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	n.d.
CFCs(Chlorofluorocarbons) & HALON		With reference to US EPA 8260.		
Chiorofluorocarbon-11(CAS No:000075-69-4)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-12(CAS No:000075-71-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-113(CAS No:000076-13-1)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-114(CAS No:000076-14-2)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chiorofluorocarbon-115(CAS No:000076-15-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons))	1	n.d.
HALON-1211	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
HALON-1301	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
HALON-2402	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-13(CAS No:000075-72-9)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-111(CAS No:000354-56-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.

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TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT
Chlorofluorocarbon-112(CAS No:000076-12-0)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	(1	n.d.
Chlorofluorocarbon-211(CAS No:135401-87-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-212(CAS No:076564-99-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-213(CAS No:060285-54-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-214(CAS No:002268-46-4)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-215(CAS No:000076-17-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-216(CAS No:001652-80-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Chlorofluorocarbon-217(CAS No:000422-86-6)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Carbon Tetrachloride	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
Methyl Chloroform	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	n.d.
AZO		As per LMBG 8202-2		
1):4-AMINODIPHENYL (CAS NO.92-67-1)	ppm	Analysis was performed by GC/MS.	3	n.d.
2):BENZIDINE (CAS NO.92-87-5)	ppm	Analysis was performed by GC/MS.	3	n.d.
3):4-CHLORO-O-TOLUIDINE (CAS NO.95-69-2)	ppm	Analysis was performed by GC/MS.	3	n.d.
4):2-NAPHTHYLAMINE (CAS NO.91-59-8)	ppm	Analysis was performed by GC/MS.	3	n.d.
5):O-AMINO-AZOTOLUENE (CAS NO.97-56-3)	ppm	Analysis was performed by GC/MS.	3	n.d.
6):2-AMINO-4-NITROTOLUENE (CAS NO.99-55-8)	ppm	Analysis was performed by GC/MS.	3	n.d.
7):P-CHLOROANILINE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	n.d.
8):2,4-DIAMINOANIŠOLE (CAS NO.615-05-4)	ppm	Analysis was performed by GC/MS.	3	n.d.
9):4,4- DIAMINODIPHENYLMETHANE (CAS NO.101-77-9)	ppm	Analysis was performed by GC/MS.	3	n.d.
10):3,3-DICHLOROBENZIDINE (CAS NO.91-94-1)	ppm	Analysis was performed by GC/MS.	3	n.d.

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SGS Report of Protective Tube (Continue)



TEST REPORT

DATE: 2005/9/29 PAGE: 6 OF 7 TEST ITEM(S) DET. LMT UNIT METHOD RESULT 11):3.3-DIMETHOXYBENZIDINE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.119-90-4) 12):3,3-DIMETHYLBENZIDINE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.119-93-7) 13):3,3-DIMETHYL-4,4-DIAMINODIPHENYLMETHA ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.838-88-0) 14):P-CRESIDINE(2-METHOXY-5-METHYLANILINE) ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.120-71-8) 15):4.4-METHYLENE-BIS-Analysis was performed by GC/MS. (2-CHLORANILINE) ppm 3 n.d. (CAS NO.101-14-4) 16):4.4-OXYDIANILINE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.101-80-4) 17):4.4-THIODIANILINE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.139-65-1) 18):O-TOLUIDINE 3 ppm Analysis was performed by GC/MS. n.d. (CAS NO.95-53-4) 19):2-4-TOLUYLENDIAMINE Analysis was performed by GC/MS. 3 n.d. ppm (CAS NO.95-80-7) 20):2,4,5-TRIMETHYLANILINE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.137-17-7) 21):O-ANISIDINE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.90-04-0) 22):P-AMINOAZOBENZENE ppm Analysis was performed by GC/MS. 3 n.d. (CAS NO.60-09-3) Halogen As per EN14582 method B. ----------Filling the oxygen and absorb solution in the flash and take sample in the flask and burn it, the Halogen-Chiorine (CI)(CAS ppm 50 n.d No:007782-50-5) absorb solution was analyzed by IC method. Filling the oxygen and absorb solution in the flast Halogen-Fluorine (F)(CAS and take sample in the flask and burn it, the ppm 50 n.d. No:007782-41-4) absorb solution was analyzed by IC method. Filling the oxygen and absorb solution in the flask Halogen-Bromine (Br)(CAS and take sample in the flask and burn it, the ppm 50 n.d. No:007726-95-6) absorb solution was analyzed by IC method.

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SGS Report of Protective Tube (Continue)

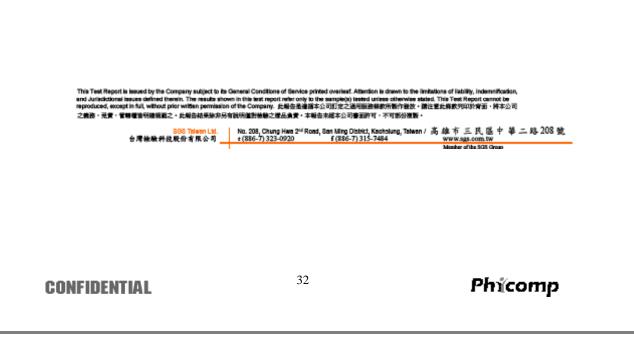


TEST REPORT

			REPORT NO.KA/2005/91332 DATE: 2005/9/29 PAGE: 7 OF 7		
TEST ITEM(S)	UNIT	METHOD	DET. LMT	RESULT	
Halogen-lodine (I)(CAS No:007553- 56-2)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	n.d.	

NOTE : 1. n.d. = not detected. 2. DET. LMT = DETECTION LIMIT.

<END>



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SGS Report of Mylar



Test Report

HOPE DISTRIBUTION INC. 10F, NO. 111, SEC. 1, KEELUNG RD., TAIPEI, TAIWAN Report No. : CE/2005/95657 Date : 2005/10/03 Page : L of 15

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

Type of Product		POLYESTER FILM
Style/Item No	:	S10
Manufacturer/Vendor	:	TORAY
Country of Origin	:	JAPAN
Sample Received	:	2005/09/23
Testing Date	:	2005/09/28 TO 2005/10/03

<u>Test Result</u>

: - Please see the next page -

Operation Manager

Signed for and on behalf of SGS TAIWAN LTD.

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SGS Report of Mylar (Continue)



Test Report

HOPE DISTRIBUTION INC. 10F, NO. 111, SEC. 1, KEELUNG RD., TAIPEI, TAIWAN Report No. : CE/2005/95657 Date : 2005/10/03 Page : 2 of 15

Test Result

PART NAME NO.1

: TRANSPARENT PLASTIC (PLEASE REFER TO THE PHOTO ATTACHED)

			MDI	Result
Test Item (s):	Unit Method		MDL	No.1
Asbestos				
Anthrophyllite(CAS NO.017068-78-9)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	94	Negative
Crocidolite(CAS NO.012001- 28-4)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	2	Negative
Amosite(CAS NO.012172-73- 5)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	57	Negative
Tremolite(CAS NO.014567- 73-8)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	2	Negative
Chrysotile(CAS NO.012001- 29-5)	żż	As per NIOSH 9000 method. Analysis was performed by XRD.	1	Negative
Actinolite(CAS NO.013768- 00-8)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	12	Negative

		W. 11	MDI	Result
Test Item (s):	Unit	Method	MDL	No.1
AZO		As per LMBG 8202-2		2
4-AMINODIPHENYL (CAS NO.92-67-1)	ppm	Analysis was performed by GC/MS.	3	N.D.
BENZIDINE (CAS NO.92- 87-5)	ppm	Analysis was performed by GC/MS.	3	N.D.
4-CHLORO-O-TOLUIDINE (CAS NO.95-69-2)	ppm	Analysis was performed by GC/MS.	3	N.D.
2-NAPHTHYLAMINE (CAS NO.91-59-8)	ppm	Analysis was performed by GC/MS.	3	N.D.
O-AMINOAZOTOLUENE (CAS NO.97-56-3)	ppm	Analysis was performed by GC/MS.	3	N.D.

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SGS Report of Mylar (Continue)



Test Report

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T (1)	Unit Method		MDY	Result	
Test Item (s):			MDL	No.1	
2-AMINO-4-NITROTOLUENE (CAS NO.99-55-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	
P-CHLOROANILINE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	
2,4-DIAMINOANISOLE (CAS NO.615-05-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	
4,4- DIAMINODIPHENYLMETHA NE (CAS NO.101-77-9)	ppm	Analysis was performed by GC/MS.	3	N.D.	
3,3-DICHLOROBENZIDINE (CAS NO.91-94-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	
3,3-DIMETHOXYBENZIDINE (CAS NO.119-90-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	
3,3-DIMETHYLBENZIDINE (CAS NO.119-93-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	
3,3-DIMETHYL-4,4- DIAMINODIPHENYLMETHA NE (CAS NO.838-88-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	
P-CRESIDINE(2-METHOXY- 5-METHYLANILINE) (CAS NO.120-71-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	
4,4-METHYLENE-BIS-(2- CHLORANILINE) (CAS NO.101-14-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	
4,4-OXYDIANILINE (CAS NO.101-80-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	
4,4-THIODIANILINE (CAS NO.139-65-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	
O-TOLUIDINE (CAS NO.95- 53-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	
2,4-TOLUYLENDIAMINE (CAS NO.95-80-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	
2,4,5-TRIMETHYLANILINE (CAS NO.137-17-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	
O-ANISIDINE (CAS NO.90- 04-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	
P-AMINOAZOBENZENE (CAS NO.60-09-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	

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SGS Report of Mylar (Continue)



Test Report

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Test Item (s):	Unit	Method	MDL	Result
Test Rem (s):	onic method		MDL	No.1
CFC's(Chlorofluorocarbons)		With reference to US EPA 8260.		
Group I				
Chlorofluorocarbon-11(CAS No:000075-69-4)	ppm	Analysis was performed by GC/MS.(CFC's(Chlorofluoroc arbons))	1	N.D.
Chlorofluorocarbon-12(CAS No:000075-71-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-113(CAS No:000076-13-1)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-114(CAS No:000076-14-2)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-115(CAS No:000076-15-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Group III				
Chlorofluorocarbon-13(CAS No:000075-72-9)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-111(CAS No:000354-56-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-112(CAS No:000076-12-0)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-211(CAS No:135401-87-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-212(CAS No:076564-99-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-213(CAS No:060285-54-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-214(CAS No:002268-46-4)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.

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SGS Report of Mylar (Continue)



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Test Item (s):	Unit	Nethod	MDL	Result
		NI PO DOGO	DATION.	No.1
Chlorofluerocarbon-215(CAS No:000076-17-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chiorofluerocarbon-216(CAS No:001652-80-8)	թթու	Analysis was performed by GC/MS. [CFC s (Chiorofluorocarbons)]	1	N.D.
Chlorofluorocarbon 217(CAS No:000422-85-6)	թթո	Analysis was performed by GC/MS. [CFC's (Chierofluorocarbons)]	I	N.D.

Test Item (s):	Unit Method	MDL	Result	
rest item (s):	onic	Mechod	MDL	No. 1
Chlorinated Paraffin (C10~C13) (CAS NO:010871 26-2)		With reference to USEPA3540C or USEPA3550C, Analysis was performed by GC/MS or GC/ECD.	0.01	N.D.

Test Item (s):	Iloit	Unit Nethod	MDL	Result
	ome	Mechod		No. 1
Formaldehyde(CAS No:000050-00-0)		With reference to DIN 53315 & USRPA 8315A, Analysis	0.2	N.D.
		was performed by HFLC/DAD/MS		

Test Item (s):	Unit	Method	MDL	Result
	Unit	Mernaa	DATE:	No. 1
Halon		With reference to US EPA 8260.		
Halon-1211	րթո	Analysis was performed by GC/MS. [CFC's (Chierofluorocarbons)]	1	N. D.
Halon-1301	рри	Analysis was performed by GC/MS, [CFC's (Chlorofluorocarbons)]	1	N.D.
Halon 2402	րթո	Analysis was performed by GC/MS. [CEC's (Chierofluorocarbons)]	I	N.D.

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T 1 1 1				Result
Test Item (s):	Unit	Method	MDL	No.1
HCFC'a(Hydrogenated chlorofluorocarkons)		With reference to US KPA 8250.		
Hydrochlorofluorocarbon 21(CAS No.:000075-43-4)	ppm	Analysis was performed by GC/MS. [HCRC's (Hydrogenated chlorethiorecarbons)]	1	N.D.
Hydrochiorofluorocarbon- 22(CAS No.:000075-45-6)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Ilydrochiorofluorocarbon- 31(CAS No.:000593-70-4)	ppm	Analysis was performed by GC/MS. [HCPC's (Hydrogenated chlorefluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon 121(CAS No.:000354-14-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorefluerocarbons)]	1	N.D.
liydrochlorofuorocarbon- 122(CAS No.:000294-21-2)	ppm	Analysis was performed by GC/MS. [HCKC's (Hydrogenated chlorothiorocarbons)]	1	N.D.
Hydrochlorofluorocarbon- 123(CAS No.:000306 83 1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorolluorocarbon- 124(CAS No.:002837-89-0)	Inform:	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorefluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon- 131(CAS No.:000359-28-4)	ppm	Analysis was performed by GC/MS. [IICPC's (Hydrogenated chlorefluorocarbons)]	1	N.D.
Hydrochiorofluorocarbon- 131b(CAS No.:000471-43-2)	hbu	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

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		N 14 1		Result
Test Item (s):	Unit	Method	MDL	No.1
Hydrochlorofluorocarbon 133a(CAS No.:000075-88-7)	ppm	Analyzis was performed by GC/MS. [HCFC's	L	N.D.
		(Hydrogenated chlorofluorocarbons)]		
Hydrochlorofluorocarbon- 141b(CAS No.:001717-00-5)	phur.	Analysis was performed by GC/MS. [IICFC's	1	N.D.
		(Hydrogenated chlerofluorocarbons)]		
Hydrochlorofluorocarbon- 221	phu	Analysis was performed by GC/MS. [HCFC's (Hydrogenated	1	N.D.
		chlorofluorocarbons)]		
Hydrochlorofluorocarbon- 222(CAS No.:000422 30 0)	ppm	Analyzis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon 223	ppm	Analysis was performed by GC/MS. [HCFC's [Hydrogenated	1	N.D.
Hydrochlorofluorocarbon- 224	hhar	chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's (Hydrogenated	1	N.D.
Hydrochlorofluorocarbon- 225ca(CAS No.:000422-56- 0]	ppm	chlorofluorocarbons)] Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon- 225cb(CAS No.:000507-55 1]	ppm	Analyzis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	L	N.D.
Hydrochlorofluorocarbon 226(CAS No.:000431-87-8)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorecarbons)]	1	N.D.
Hydrochlorofluorocarbon- 251	hhu	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

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The set The set of the	The la	Martine	MDI	Result
Test Item (s):	Unit	Method	MDL	No.1
Hydrochloroffuorocarbon- 202	hhm	Analysis was performed by GC/MS. [HCRC's	1	N.D.
		(Hydrogenated		
		chiorefluorocarbons)]		
Hydrochlorofluorocarbon 233	ppm	Analysis was performed by GC/MS. [HCFC's	1	N.D.
		(Hydrogen atod		
		chlorefluorocarbons)]		
Hydrochlorofluorocarbon-	ppm	Analysis was performed by	1	N.D.
234		GC/MS. [HCFC's		
		(Hydrogenated		
		chlorofluorocarbons)]		
Hydrochlorofluorocarbon-	ppm	Analysis was performed by	1	N.D.
235(CAS No.:013838-16-9)		GC/MS. [HCFC's		
		(Hydrogenated		
		chlorofluorocarbons)]		
Hydrochlorofluorocarteen-	bbua	Analysis was performed by	1	N.D.
241		GC/MS. [HCFC's		
		(Hydrogenated		
		chlorofluorocarbons)]		
Hydrochlorofluorocarbon-	ppm	Analysis was performed by	1	N.D.
242		GC/MS. [HCFC's		
		(Hydrogenated		
		chiorofluorocarbons)]		
Hydrochlorofluorocarbon- 243(CAS No.:000338-75-0)	madel	Analysis was performed by GC/MS. [HCPC's	1	N.D.
		(Hydrogenated		
		chiorofluorocarbons)]		
Hydrochlorofluorocarbon- 244	ppm	Analysis was performed by GC/MS. [HCFC's	1	N.D.
		(Hydrogenated		
		chiorofluorocarbons)]		
Hydrochlorofluorocarbon-	ppm	Analysis was performed by	1	N.D.
251		GC/MS. [HCFC's		
		(Hydrogenated		
		chiorofluorocarbons)]		
Hydrochlorofluorocarbon-	ppm	Analysis was performed by	1	N.D.
252		GC/MS. [IICI/C's		
		(Hydrogenated		
	1	chlorofluorocarbons)]		

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To an Inour (a).	Hale	Method	MDL	Result
Test Item (s):	Unit	Method	MDL	No.1
Hydrochlorofluorocarbon- 253(CAS No.:000354-05-1)	Ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.12.
Hydrochlorofluorocarbon- 261(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCEC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorefluorocarbon- 262(CAS No.:000420-97-3)	hhur	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofbioracarboos)]	1	N.D.
l lydrochlorofluorocarbon- 271	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
				Result
Test Item (s):	Unit	Method	MDL	No.1
1,1,1-trichoroethane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS.	1	N.D.
Test Item (s):	Umit	Method	MDL	Result No.1
Carbon tetrachloride	ppm	With reterence to US EPA 8260. Analysis was performed by GC/MS/HEADSPACE.	1	N.D.
m . t . ()		N	MAR	Result
Test Item (s):	Unit	Method	MDL	No.1
Organic-tin coumpounds				
Triphenyl Tin(TPT)(CAS NO:000558-34-8)	ppm	With reference to 89/677/EEC & DIN 38407. Analysis was performed by COVERD	0.03	N.D.

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GC/FFD.

CZEPD.

With reference to

89/677/EEC & DIN 38407. Analysis was performed by

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ppm

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Tributyl Tin(TBT)

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0.03

N.D.



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	Unit Method	MDL	Result	
Test Item (s):			No.1	
PCBs(Polychlorinated Biphenyts)(CAS NO:001335- 36-3)		With reference to USEPA 8082A. Analysis was performed by GC/MS or GC/ICCD.	0.5	N.D.

Test Item (s):	Unit	Method	MDL	Result No.1
Polychlorinated Naphthalene		With reference to USEPA 8081B. Analysis was performed by GC/MB.	5	N.D.

Test Item (s): Un	11	Unit Method	MDL	Result
	Unin			No.1
PUTs(Polychlormated Terphenyls)		Analysis was performed by GC/MS or GC/ICD.	0.5	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
Monobromobiphenyl	%		0.0005	N.D.
Dibromobiphenyl	96		0.0005	N.D.
Tribromokiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%	With reference to	0.0005	N.D.
Pentabromobiphenyl	56	USEPA3540C or	0.0005	N.D.
Hexabromobiphenyl	%	USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS, (prohibited by 2002/95/RC (RoHS), 83/254/EEC, and /6/769/EEC)	0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octobromobiphenyl	96		0.0005	N.D.
Nonabromobiphenyl	56		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs (Polybrominated	%	1	-	N.D.
biphenyls)/Sum of above				

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Test Item (s):		N	MDL	Result
	Unit	Method		No.1
Monobromobiphenyl ether	%		0.0005	N.D.
Dibromobiphenyl ether	%	1	0.0005	N.D.
Tribromobiphenyl ether	%	1	0.0005	N.D.
Tetrabromobiphenyl ether	%	With reference to	0.0005	N.D.
Pentabromobiphenyl ether	%	USEPA3540C or	0.0005	N.D.
Hexabromobiphenyl ether	%	USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC	0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%	(RoHS), 83/264/EEC, and	0.0005	N.D.
Decabromobiphenyl ether	%	76/769/EEC)	0.0005	N.D.
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	%			N.D.

Test Item (s):	Unit		MBI	Result
		Method	MDL	No.1
Halogen		As per EN14582 method B.		
Halogen-Chlorine (Cl)(CAS No:007782-50-5)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.
Halogen-Fluorine (F)(CAS No:007782-41-4)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.
Halogen-Bromine (Br)(CAS No:007726-95-6)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.

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Test Item (s):	Unit	Method	MDI.	Result No.1
Halogen-Iodine (I)(CAS No:007553-56-2)	ppm	Filling the oxygen and absorb solution in the flask and take cample in the flack and burn it, the absorb solution was analyzed by IC method.	50	N.D.

Tant Itan a (a)a	The	Mathed	MDI	Result
Test Item (s): Unit	Mcthod	MDL	No.1	
FVC (CAS №:9002-86-2)		Analysis was performed by FTIR/ATR and Pyrolyzer- GC/MS.	-	Negative

Test Item (s):	Unit	Method	MDL,	Result No.1
Chromium VI (Cr+6)	ppm	UV VIS after reference to US ICPA 3050A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	hina	ICP-ARS after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	րթու	ICP-ARS after reference to US EPA 3050B or other acid digestion.	2	N.D.

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

(2) **ppm =** mg/kg

- (3) MDL = Method Detection Limit
- (4) " " = No Regulation

(5) " --- " = Not Applicable

(6) * = Results shown are of the adjusted analytical results

(7) ** = Qualitative analysis (No Unit)

- (8) Negative = Undetectable / Positive = Detectable
- (9) The MDL is 5ppm for the single compound of CP

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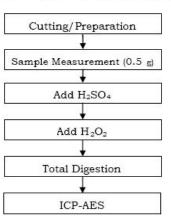
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These samples were dissolved totally by pre-conditioning method according to below flow chart.

Flow Chart of Digestion for Plastic - EN1122 for Cd (without residue)



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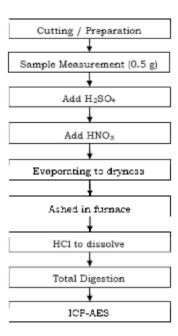
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These samples were dissolved totally by pre-conditioning method according to below flow chart.

Flow Chart of Digestion for Plastic -Wet Decomposition for Pb (without residue)



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