



Test Report

No. 2340509-CH31

Date: March 22, 2011

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Samtec Inc.
520 Park East Blvd
New Albany, IN 47151
United States

Attn: Dick Bowyer

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

Polyimide Film – Kapton
Color: Dark Amber
Sample/Style #: Sample Labeled: Kapton

Sample Received Date: **3/9/2011**

Testing Period: **3/10/2011 – 3/18/2011**

Test Requested : Please refer to the result summary.

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

Result Summary :

Test Requested	Conclusion
European Directive 2002/95/EC (RoHS) and its subsequent amendments	PASS
European Regulation (EC) No. 1907/2006 (REACH) Annex XVII and its amendments – Phthalates content (Formerly Directive 2005/84/EC)	PASS
Diisobutyl phthalate (DIBP) content	PASS
To determine the halogen content (Cl, Br) of the submitted sample(s).	See test results

Signed for and on behalf of SGS North America

Prepared By:

Cyrus Chan
Laboratory Manager, Chemistry Laboratory

Veronica Marrero
Report Writer, Chemistry Laboratory

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1. Test results by chemical method:

Cadmium, Lead, Mercury, Hexavalent Chromium, Polybromobiphenyl (PBB) and Polybromodiphenyl ether (PBDE) content

Method : With reference to IEC 62321:2008. Lead, Cadmium and Mercury were analyzed by Inductively Coupled Argon Plasma Spectrometry, Chromium (VI) was analyzed by UV-Visible Spectroscopy and PBB, PBDE were analyzed by Gas Chromatography – Mass Spectrometry (GC-MS).

Test Item	Result (mg/kg)	Detection Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Cadmium (Cd)	ND	20	100
Lead (Pb)	ND	20	1000
Mercury (Hg)	ND	20	1000
Hexavalent Chromium (Cr(VI))	ND	20	1000
Sum of PBBs	ND	--	1000
Monobromobiphenyl	ND	5	--
Dibromobiphenyl	ND	5	--
Tribromobiphenyl	ND	5	--
Tetrabromobiphenyl	ND	5	--
Pentabromobiphenyl	ND	5	--
Hexabromobiphenyl	ND	5	--
Heptabromobiphenyl	ND	5	--
Octabromobiphenyl	ND	5	--
Nonabromobiphenyl	ND	5	--
Decabromobiphenyl	ND	5	--
Sum of PBDEs	ND	--	1000
Monobromodiphenyl ether	ND	5	--
Dibromodiphenyl ether	ND	5	--
Tribromodiphenyl ether	ND	5	--
Tetrabromodiphenyl ether	ND	5	--
Pentabromodiphenyl ether	ND	5	--
Hexabromodiphenyl ether	ND	5	--
Heptabromodiphenyl ether	ND	5	--
Octabromodiphenyl ether	ND	5	--
Nonabromodiphenyl ether	ND	5	--
Decabromodiphenyl ether ##	ND	5	--
Comment	PASS	--	--

Sample Description:

1. **Kapton**

Note :

1. ND = Not Detected = denoted less than reporting limit

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Remark : 1. ## = The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008.

2. European Regulation (EC) No. 1907/2006 (REACH) Annex XVII and its amendments – Phthalate content

Method : With reference to CPSC-CH-C1001-09.3. Analysis was performed by Gas Chromatography / Mass Spectrometry.

Test Item	Result (%)	Detection Limit (%)	Permissible Limit (%)
	1		
Dibutyl Phthalate (DBP)	ND	0.015	--
Benzylbutyl Phthalate (BBP)	ND	0.015	--
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	0.015	--
DBP + BBP + DEHP	< 0.05	--	0.1
Diisononyl Phthalate (DINP)	ND	0.015	--
Di-n-octyl Phthalate (DNOP)	ND	0.015	--
Diisodecyl Phthalate (DIDP)	ND	0.015	--
DINP + DNOP + DIDP	< 0.05	--	0.1
Comment	PASS	--	--

Sample Description :

1. **Kapton**

Note : 1. % = percentage by weight
 2. ND = Not Detected
 3. < = less than

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3. Diisobutyl phthalate (DIBP) content

Method : With reference to CPSC-CH-C1001-09.3. Analysis was performed by Gas Chromatography / Mass Spectrometry.

Test Item	Result (%)		Detection Limit (%)
	1		
Diisobutyl phthalate (DIBP)	ND		0.015

Sample Description :

1. **Kapton**

Note : 1. % = percentage by weight
2. ND = Not Detected

4. Halogen Results :

Test Items	Unit	Method	Method Detection Limit	1
Halogen – Chlorine (Cl) CAS # 007782-50-5	mg/kg	BS EN 14582:2007	50	ND
Halogen – Bromine (Br) CAS # 007726-95-6	mg/kg	BS EN 14582:2007	50	74 ppm

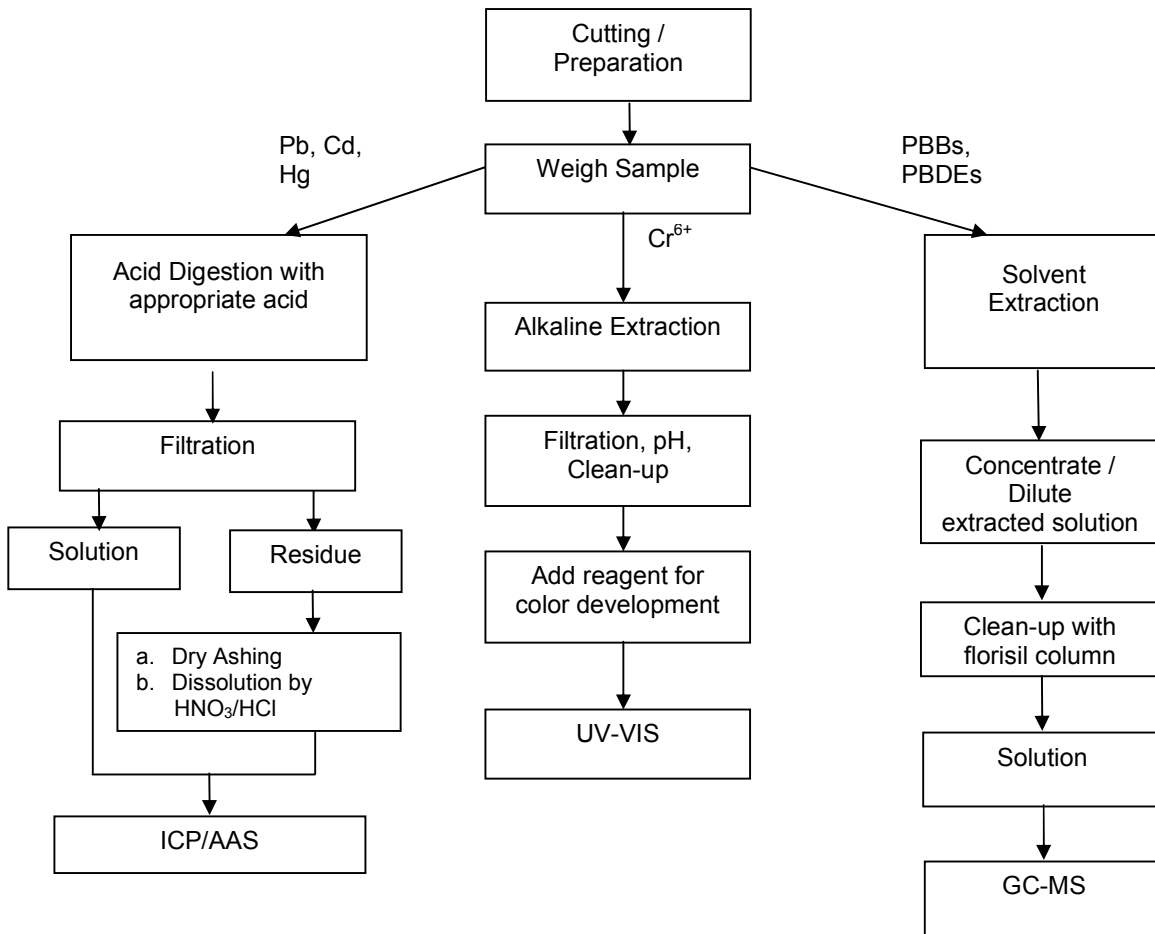
Sample Description:

1. **Kapton**

Note: 1. mg/kg = ppm
2. ND = Not Detected, reported when the reading is less than the detection limit value.

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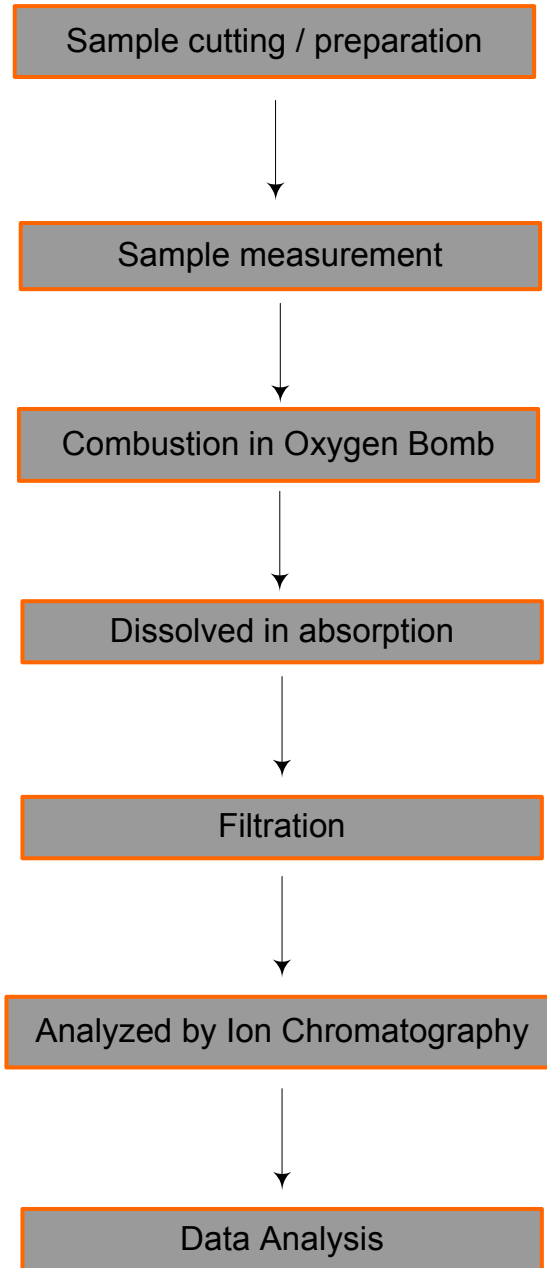
Flowchart for ROHS Testing:



- Note : 1. For Cr(VI), spot test is adopted for metal sample.
 2. The Cd, Pb and Hg contents test on polymeric samples were dissolved totally by pre-conditioning method according to above flow chart.

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Halogen Testing Flow Chart



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Sample Photo:

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*** End of Report ***

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