



**Test Report**

No. 2321217-CH03

Date: March 16, 2011

Page 1 of 5

**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:

**Ribbon Cable – PVC Insulation – Copper Conductors  
Color: Gray  
Sample/Style #: Sample Labeled: FFSD-FFMD**

Sample Received Date: **2/15/2011**

Testing Period: **2/23/2011 – 3/16/2011**

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
Phthalates	FAIL

Signed for and on behalf of SGS North America

Prepared By:

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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	2		
Cadmium (Cd)	ND	ND	20	100
Lead (Pb)	ND	ND	20	1000
Mercury (Hg)	ND	ND	20	1000
Hexavalent Chromium by spot test (Cr(VI))	Negative; bubbles observed – boiling water test performed	ND*	#	#
Hexavalent Chromium by boiling water extraction (Cr(VI))	Negative for presence of Hexavalent Chromium	ND*	#	#
<b>Sum of PBBs</b>	ND	ND	--	1000
Monobromobiphenyl	ND	ND	5	--
Dibromobiphenyl	ND	ND	5	--
Tribromobiphenyl	ND	ND	5	--
Tetrabromobiphenyl	ND	ND	5	--
Pentabromobiphenyl	ND	ND	5	--
Hexabromobiphenyl	ND	ND	5	--
Heptabromobiphenyl	ND	ND	5	--
Octabromobiphenyl	ND	ND	5	--
Nonabromobiphenyl	ND	ND	5	--
Decabromobiphenyl	ND	ND	5	--
<b>Sum of PBDEs</b>	ND	ND	--	1000
Monobromodiphenyl ether	ND	ND	5	--
Dibromodiphenyl ether	ND	ND	5	--
Tribromodiphenyl ether	ND	ND	5	--
Tetrabromodiphenyl ether	ND	ND	5	--
Pentabromodiphenyl ether	ND	ND	5	--
Hexabromodiphenyl ether	ND	ND	5	--
Heptabromodiphenyl ether	ND	ND	5	--
Octabromodiphenyl ether	ND	ND	5	--
Nonabromodiphenyl ether	ND	ND	5	--
Decabromodiphenyl ether ##	ND	ND	5	--
<b>Comment</b>	PASS	PASS	--	--

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**Sample Description:**

1. Grey Insulation, Labeled FFSD-FFMD
2. Copper Conductor, Labeled FFSD-FFMD

*\*Total Chromium analysis by ICP-OES was not detected in submitted sample. Therefore, Hexavalent Chromium determination using UV-Visible Spectroscopy was not performed.*

**Note :**

1. MDL = Method Detection Limit
2. ND = Not Detected = denoted less than reporting limit

Remark : 1. # = Negative means the absence of CrVI on the tested areas; Positive means the presence of CrVI on the tested areas. The detected CrVI concentration in the boiling-water-extraction solution is equal to or greater than 0.02 mg/kg with 50cm<sup>2</sup> sample surface area.

**2. Phthalates Content**

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

<b>Test item</b>	<b>1</b>	<b>Permissible Limit</b>
Dibutyl Phthalate (DBP)	ND	0.1%
Benzylbutyl Phthalate (BBP)	ND	0.1%
Bis-(2-ethylhexyl) Phthalate (DEHP)	ND	0.1%
Diisononyl Phthalate (DINP)	0.106 %	0.1%
Di-n-Hexyl Phthalate (DnHP)	ND	0.1%
Di-n-octyl Phthalate (DNOP)	ND	0.1%
Diisodecyl Phthalate (DIDP)	0.070 %	0.1%
<b>Conclusion</b>	<b>FAIL</b>	---

**Sample Description :**

1. FFSD-FFMD

Note : 1. % = percentage by weight

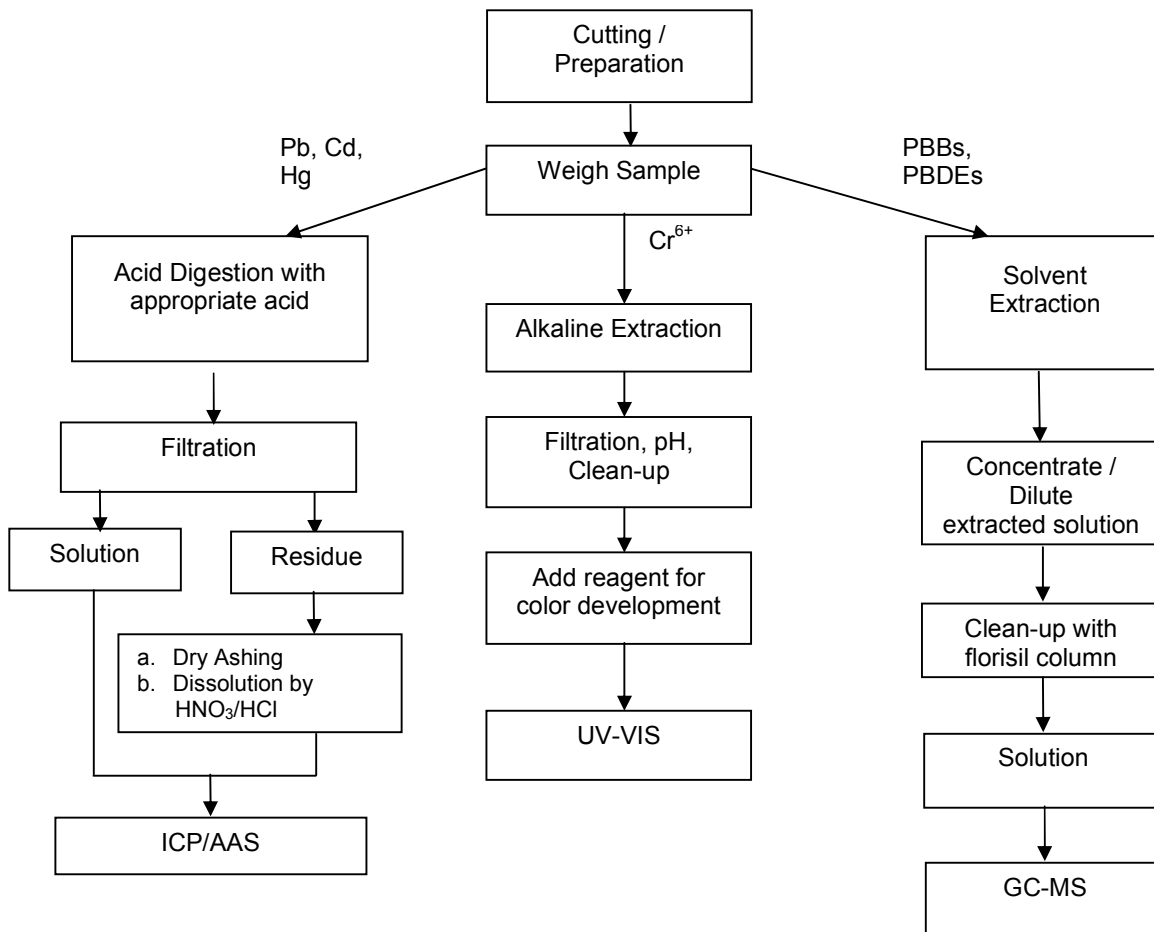
2. ND = not detected

3. Method Detection Limit for each of DBP, BBP, DEHP and DNOP = 0.003 % (0.015% by CPSC method)

4. Method Detection Limit for each of DINP and DIDP = 0.01 % (0.015% by CPSC method)

**Flowchart:**

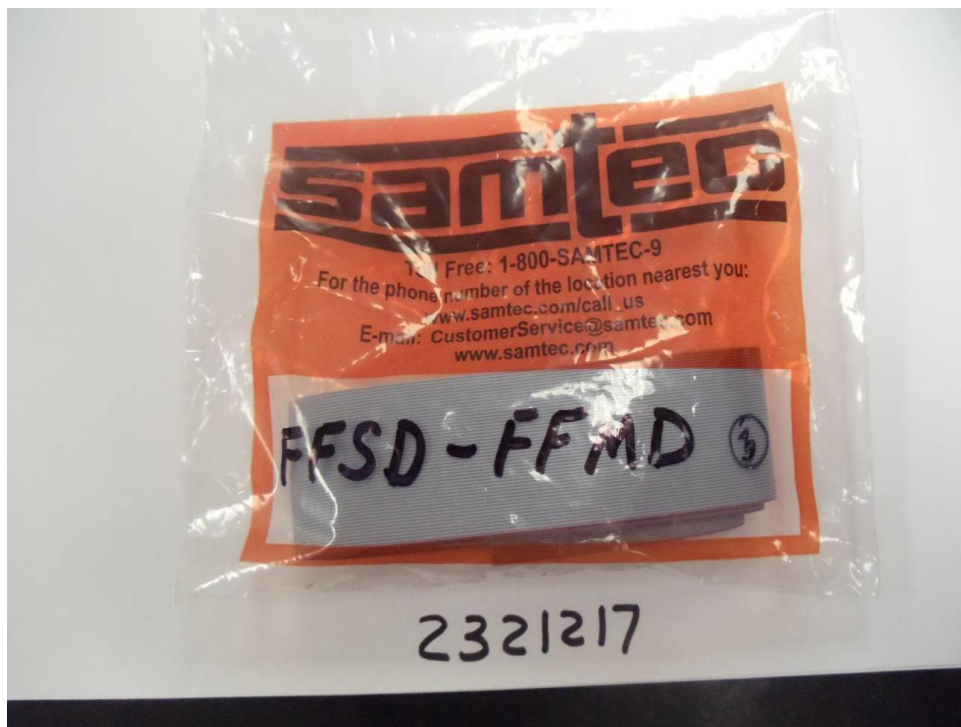
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- Note : 1. For Cr(VI), spot test is adopted for metal sample.  
 2. The Cd and Pb contents test on polymeric samples were dissolved totally by pre-conditioning method according to above flow chart.

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Sample Photo:



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

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