



**Test Report**

No. 2321217-CH01

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: TCSD-TCMD**

Sample Received Date: **2/152011**

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:

Christina Crimi  
Assistant Laboratory Manager, Chemistry Laboratory

Veronica Marrero  
Report Writer, Chemistry Laboratory

*"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."*

**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	--	--

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."

Sample Description:

1. **Grey Insulation, Labeled TCSD-TCMD**
2. **Copper Conductor, Labeled TCSD-TCMD**

*\*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)	0.176 %	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. **TCSD-TCMD**

Note : 1. % = percentage by weight

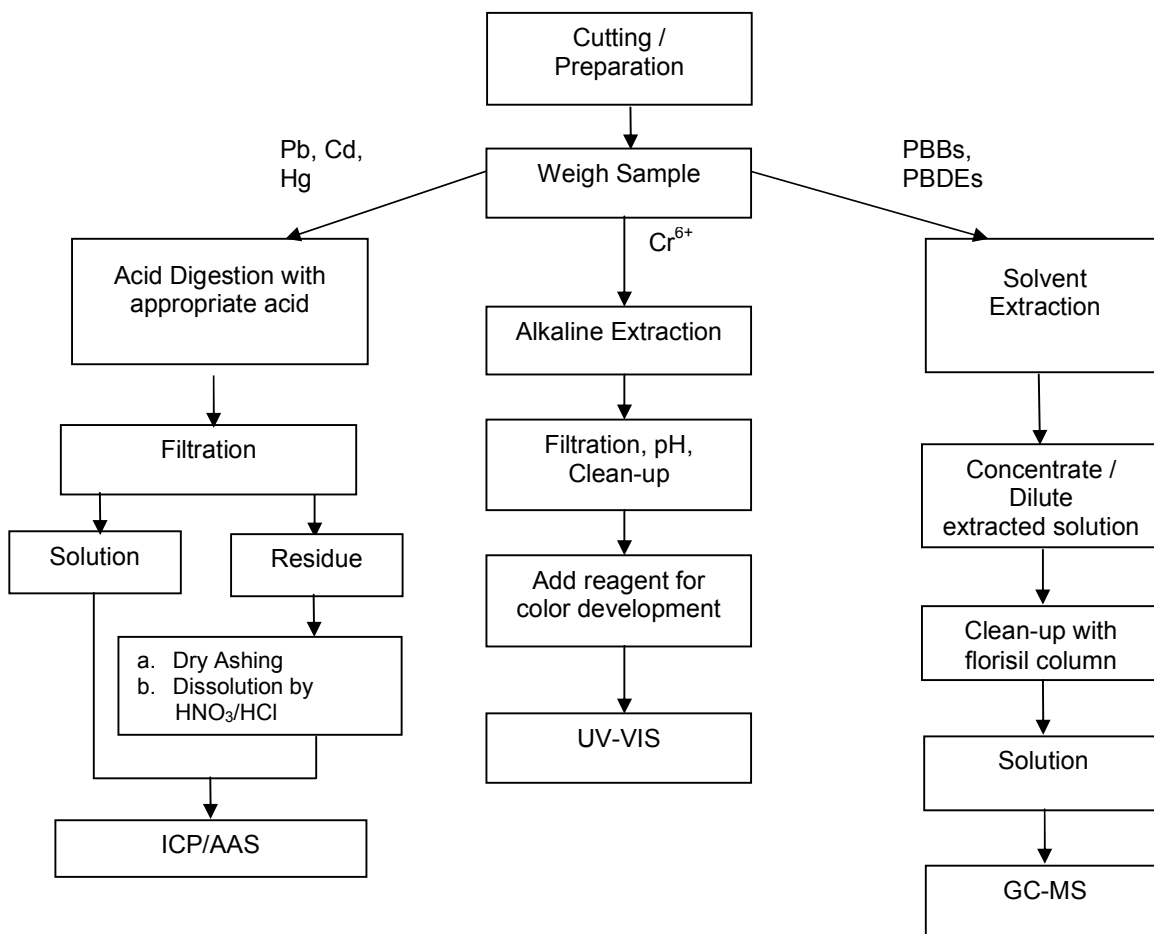
2. ND = not detected

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)

*"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."*

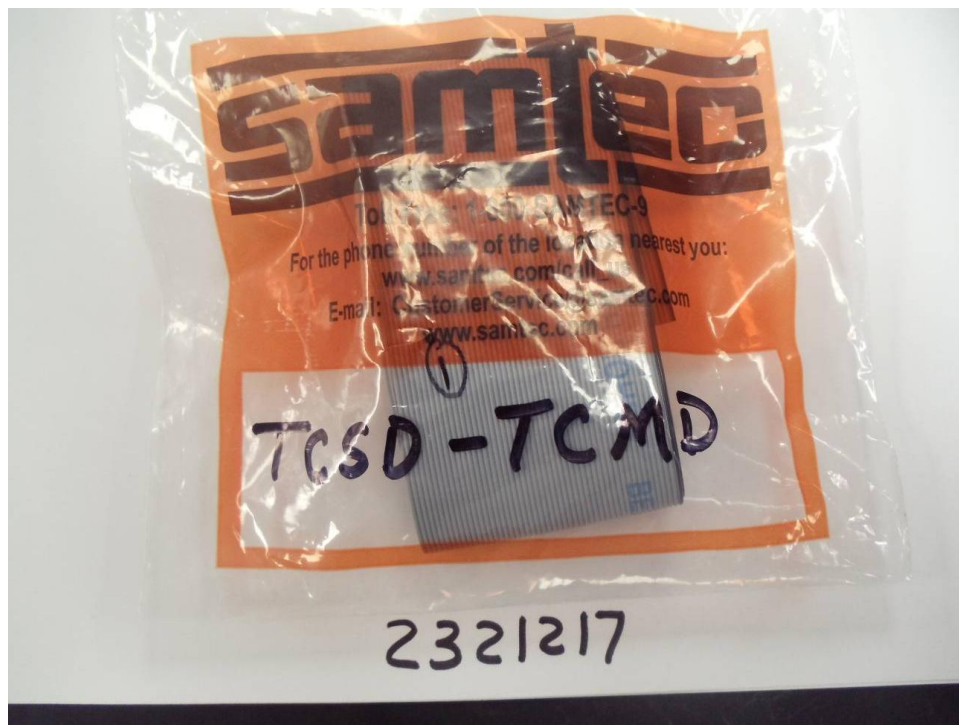
**Flowchart:**



- 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.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."

**Sample Photo:**



SGS authenticates the photo on the original report only  
\*\*\* End of Report \*\*\*

*"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."*