



Certificate of non-use of The Controlled Substances

Company name Littelfuse, LP (Subsidiary of Littelfuse, Inc.)

Product Covered Thyristor TO-220 L Package (Isolated)

Issue Date June 15, 2007

It is hereby certified by Littelfuse, LP, that there is neither RoHS (EU Directive 2002/95/EC)-restricted substance nor such use, for materials to be used for unit parts, for packing/package materials, and for additives and the like in the manufacturing processes.

In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/package materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by

< Product Engineer, Littelfuse, L.P.>

(1) Parts, sub-materials and unit parts

This document covers Thyristor TO-220L Package (isolated TO-220) series products manufactured by Littelfuse, L.P. Actual values in this report are taken from Q6025L6 and the result is generally applicable to all Thyristor TO-220 L Package.

Please see page 2 for the complete list of part number covered by this report.

< Homogeneous Materials used >

Please see figure and table 1 on page 3 and table 2 on page 4 of this document.

(2) The analytical data on all measurable substances

Please see annex 1 through 13, attached to this document

Remarks :

1. Pb (lead) contained in die bonding solder (item 8 on page 3) and passivation glass (item 7) to be categorized as exempt in RoHS Annex 5 and 7.

Please refer to Annex 14 of this report for the extract of the applicable exemptions of RoHS (EU Directive 2002/95/EC)



Littelfuse Part Number covered by this report

Standard (Catalog) Part Number								
D2015L	L6004L6	Q2030LH5	Q5006LH4	Q6010L4	Q8006LH4	S0503LS2	S2010LS3	S6006L
D2020L	L6004L8	Q4004L3	Q5006LT	Q6010L5	Q8006LT	S0503LS3	S2012L	S6006LS2
D2025L	L6006L5	Q4004L4	Q5006LTH	Q6010LH5	Q8008L5	S0506L	S2015L	S6006LS3
D4015L	L6006L6	Q4004L5	Q5008L4	Q6010LT	Q8008LH4	S0506LS2	S2020L	S6008L
D4020L	L6006L7	Q4004LT	Q5008L5	Q6010LTH	Q8010L4	S0506LS3	S2025L	S6008LS2
D4025L	L6006L8	Q4006L4	Q5008LH4	Q6012LH5	Q8010L5	S0508L	S4003LS1	S6008LS3
D6015L	L6006L9	Q4006L5	Q5008LT	Q6015L5	Q8010LH5	S0508LS2	S4003LS2	S6010L
D6020L	L6008L6	Q4006LH4	Q5008LTH	Q6015L6	Q8012LH5	S0508LS3	S4003LS3	S6010LS2
D6025L	L6008L7	Q4006LT	Q5010L4	Q6015L9	Q8015L5	S0510L	S4006L	S6010LS3
D8010L	L6008L8	Q4006LTH	Q5010L5	Q6015LT	Q8015L6	S0510LS2	S4006LS2	S6012L
D8015L	L6008L9	Q4008L4	Q5010LH5	Q6015LTH	Q8015L9	S0510LS3	S4006LS3	S6015L
D8020L		Q4008L5	Q5010LT	Q6016LH3	Q8016LH3	S0512L	S4008L	S6020L
D8025L	Q2004L3	Q4008LH4	Q5010LTH	Q6016LH4	Q8016LH4	S0515L	S4008LS2	S6025L
	Q2004L4	Q4008LT	Q5012LH5	Q6016LH6	Q8016LH6	S0520L	S4008LS3	S7006L
L2004L3	Q2004L5	Q4008LTH	Q5015L5	Q6025L6	Q8025L6	S0525L	S4010L	S8006L
L2004L5	Q2004LT	Q4010L4	Q5015L6	Q6025L6A	Q8025L9	S1003LS2	S4010LS2	S8008L
L2004L6	Q2006L4	Q4010L5	Q5015L9	Q6025L6B	Q8025LX	S1003LS3	S4010LS3	S8010L
L2004L8	Q2006L5	Q4010LH5	Q5015LT	Q6025L9	QK004L4	S1006L	S4012L	S8015L
L2006L5	Q2006LH4	Q4010LT	Q5015LTH	Q6025LX	QK006L5	S1006LS2	S4015L	S8020L
L2006L6	Q2006LT	Q4010LTH	Q5016LH3	Q6030LH5	QK006LH4	S1006LS3	S4020L	S8025L
L2006L7	Q2008L4	Q4012LH5	Q5016LH4	Q7004L4	QK008L5	S1008L	S4025L	SK006L
L2006L8	Q2008L5	Q4015L5	Q5016LH6	Q7004L5	QK008LH4	S1008LS2	S5015L	SK008L
L2008L6	Q2008LH4	Q4015L6	Q5025L6	Q7006L5	QK010L4	S1008LS3	S5020L	SK010L
L2008L7	Q2008LT	Q4015L9	Q5025L6A	Q7006LH4	QK010L5	S1010L	S6003LS1	SK015L
L2008L8	Q2010L4	Q4015LT	Q5025L9	Q7008L5	QK010LH5	S1010LS2	S6003LS2	SK020L
L2008L9	Q2010L5	Q4015LTH	Q5025LX	Q7008LH4	QK012LH5	S1010LS3	S6003LS3	SK025L
L4004L3	Q2010LH5	Q4016LH3	Q6004L3	Q7010L5	QK015L5	S1012L		
L4004L5	Q2010LT	Q4016LH4	Q6004L4	Q7010LH5	QK016LH3	S1015L		
L4004L6	Q2012LH5	Q4016LH6	Q6004L5	Q7012LH5	QK016LH4	S1025L	SPECIAL DEVICE P/N	
L4004L8	Q2015L5	Q4025L6	Q6004LT	Q7015L5	QK016LH6	S2003LS1	Any Special P/N that has base standard P/N listed in this table	
L4006L5	Q2015L6	Q4025L6A	Q6006L4	Q7015L6	QK025L6	S2003LS2		
L4006L6	Q2015L9	Q4025L6B	Q6006L5	Q7015L9	QK010L4	S2003LS3		
L4006L7	Q2015LT	Q4025L9	Q6006LH4	Q7016LH3	QK010L5	S2006L		
L4006L8	Q2015LTH	Q4025LX	Q6006LT	Q7016LH4		S2006LS2		
L4008L6	Q2016LH3	Q4030LH5	Q6006LTH	Q7016LH6	S0303LS3	S2006LS3	OPTIONAL SUFFIX	
L4008L7	Q2016LH4	Q5004L3	Q6008L4	Q7025L6	S0312L	S2008L	Any Part Number listed here may be followed by suffix for packing options, such as "RP" or lead form options such as "LB", "51", "58", etc.	
L4008L8	Q2016LH6	Q5004L4	Q6008L5	Q7025L6A	S0315L	S2008LS2		
L4008L9	Q2025L6	Q5004LT	Q6008LH4	Q8004L4	S0320L	S2008LS3		
L6004L3	Q2025L6A	Q5006L4	Q6008LT	Q8004L5	S0325L	S2010L		
L6004L5	Q2025L9	Q5006L5	Q6008LTH	Q8006L5	S0503LS1	S2010LS2		

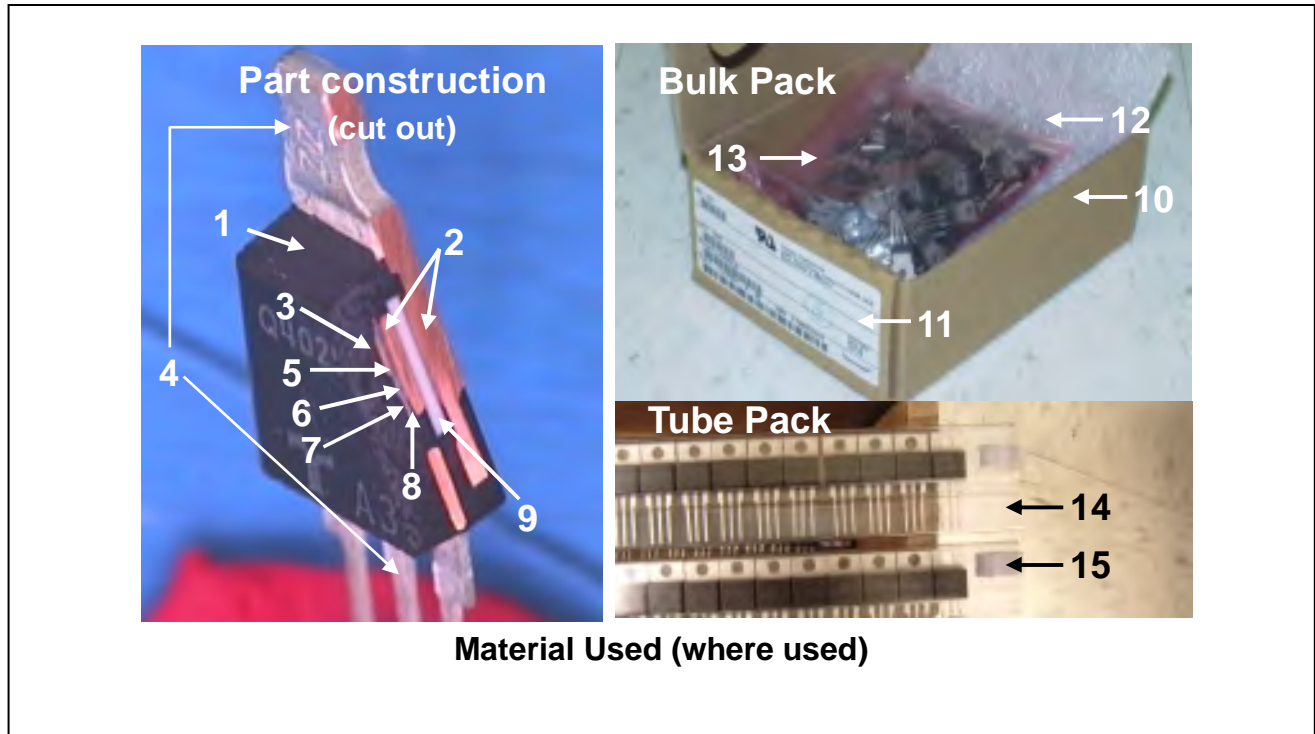


Table 1: Homogeneous Material Used

#	Description	Name of Material	Type	Analysis data
1	Molding compound	epoxy resin	plastic	annex 1
2	Lead frame	copper alloy	metal	annex 2
3	Preform	copper alloy	metal	annex 3 TO-220 uses the same copper material as DO-214. ICP report is from DO-214 Material.
4	Matte-Tin plating	Tin	metal	annex 4, tested as plating cathode
5	Silicon die	silicon	metal	annex 5, tested as Nickel-plated wafer.
6	Nickel electrode	nickel	metal	
7	Passivation glass	glass	glass	annex 6. Pb in this glass is exempted by RoHS Annex 5.
8	Die bonding solder	solder	metal	annex 7. Pb in this solder is exempted by RoHS Annex 7.
9	Substrate	alumina	ceramic	annex 8
10	Cardboard Box	cardboard	paper	annex 9, tested with label TO-220 uses the same paper material as DO-214. ICP report is from DO-214 Material.
11	Product Label	paper	paper	annex 9, tested with box
12	Poly Tubing Bag	polyethylene	plastic	annex 10
13	Packing Foam	polystyrene	plastic	annex 11
14	Packing Tube	PVC	plastic	annex 12
15	End Plug	rubber	rubber	annex 13

Table 2: RoHS-regulated substance in raw materials

Components	Analysis Result						
	Weight (typical)	Cd Cadmium	Cr Chromium	Hg Mercury	Pb Lead	PBB	PBDE
As Component Total (Values of Q6025L6* ¹ , as representative of Thyristor, TO-220L Package)	2,200mg	< 2ppm	< 2ppm	< 2ppm	<10 ppm* ² (1.3%* ³)	< 5 ppm	< 5 ppm
Epoxy Resin compound (mixture of phenolix resin, epoxy resin, filler and Sb ₂ O ₃ as fire retardant) See Annex 1 for the detail.	537mg	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	<5 ppm
Lead frame / Preform (Copper Alloy, C14420 / CDA110) See Annex 2 & 3 for the detail.	1,535mg	< 2ppm	< 2ppm	< 2ppm	< 2ppm	---	---
Outside lead finish (Matte-Tin plated, Sn 100%) See Annex 4 for the detail.	40mg	< 1ppm	< 1ppm	< 0.5ppm	58ppm* ⁴	---	---
Silicon Die (Silicon + Ni electrode) See Annex 5 for the detail.	18mg	< 2ppm	< 2ppm	< 2ppm	52ppm* ⁴	---	---
Passivation Glass See Annex 6 for the detail.	0.7mg	< 2ppm	< 2ppm	< 2ppm	39% * ⁵	---	---
Die Bonding Solder (Pb/Sn=90/10) See Annex 7 for the detail.	33mg	< 2ppm	< 2ppm	< 2ppm	90% * ⁶	---	---
Ceramic Substrate (Al ₂ O ₃) See Annex 8 for the detail.	57mg	< 2ppm	< 2ppm	< 2ppm	< 2ppm	---	---
Packing Materials (Box, Plastic bag, Tube) See Annex 9-13 for the detail	---	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	< 5ppm

- *1 Other products may contain equal or less amount of Pb as Q6025L6 value shown here, but not more than the value shown here.
- *2 Less than 10ppm Pb content overall, excluding Pb from the die bonding solder and the passivation glass on the silicon die.
- *3 1.3wt% or 30mg of Pb (lead) content overall, including the RoHS-exempted use of Pb
- *4 Pb (lead) contained in outside finish and Nickel-plated silicon wafer is not exempted from restriction by RoHS, but considered as process contamination. Littelfuse does not add Pb (lead) intentionally.
- *5 Pb (lead) contained in passivation glass is exempted from restriction by RoHS Annex 5.
- *6 Pb (lead) contained in die bonding solder is exempted from restriction by RoHS Annex 7, first item.

Please refer to Annex 14 of this report for the applicable exemptions of RoHS (EU Directive 2002/95/EC)

Annex 1: Analysis Result of Molding Compound (Page 1 of 4)



Test Report

Report No. : CE/2006/91634 Date : 2006/09/13 Page: 1 of 4
 LITTELFUSE INC. 
 800 E. NORTHWEST HWY, DES PLAINES, IL 60016

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

Sample Description	:	MOLDING COMPOUND LS-168
Style/Item No.	:	1003010-15
Manufacturer/Supplier Name	:	LITTELFUSE INC.
Country of Destination	:	TAIWAN
Country of Origin	:	USA
Sample Received	:	2006/09/06
Testing Period	:	2006/09/06 TO 2006/09/13

Test Requested : With reference to the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.
 (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.
 (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.
 (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
 (5) With reference to US EPA 3540C, Analysis was performed by GC/MS and screening via US EPA 3550C with HPLC/DAD/MS.

Test Result(s) : - Please see the next page(s) -




Carter Yeh, M.P., Operation Manager
 Signed for and on behalf of
SGS TAIWAN LTD.

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No. 15, Wu-Hua Road, Wu-Hua Science Zone, Taichung, Taiwan, R.O.C.
 Date: 2006/09/13 Issue: 1/2006/09/13 www.sgs.com

Annex 1: Analysis Result of Molding Compound (Page 2 of 4)



Test Report

Report No : LR/2006/91634 Date : 2006/09/13

LITTELFUSE INC.

800 E. NORTHWEST HWY, DES PLAINES, IL 60016

Page: 2 of 4

XXXXXXXXXXXXXXXXXXXX

Test Result(s)

Test results by chemical method (16a) (mg/kg)

Test Item (s)	Method (Refer to)	Result	MDL
		No. 1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	8.0	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2
Total PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Total PBBEs(PBDEs)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Total of Mono to Nona(Note 5)		n.d.	-

Test Part Description

PART NAME NO.1 : BLACK LUMP

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Annex 1: Analysis Result of Molding Compound (Page 3 of 4)

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Test Report

Report No : CE/2006/91634 Date : 2006/09/13
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800 E. NORTHWEST HWY, DES PLAINES, IL 60016

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Note: (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
(2) n.d. = N.D. = ND = Not Detected
(3) MDL = Method Detection Limit
(4) Sample was totally digested for Pb, Cd, Hg
(5) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
(6) "n.r." = Not Regulated

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Annex 1: Analysis Result of Molding Compound (Page 4 of 4)

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LITTELFUSE INC. 
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Annex 2: Analysis Result of Lead frame (Page 1 of 3)



Test Report

Report No. : CE/2006/91756 Date : 2006/09/12 Page: 1 of 3
 LITTELFUSE INC. 
 800 E. NORTHWEST HWY, DES PLAINES, IL 60016

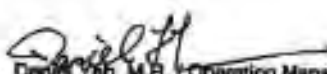
The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	LEAD FRAME
Part No	:	7001004-05
Manufacturer/Supplier Name	:	LITTELFUSE INC.
Country of Destination	:	TAIWAN
Country of Origin	:	USA
Sample Received	:	2006/9/6
Testing Period	:	2006/9/6 TO 2006/09/12

Test Requested : With reference to the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.
 (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.
 (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.
 (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.


Test Result(s) : Please see the next page(s)



Daniel Yeh, M.P. / Operation Manager
 Signed for and on behalf of
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Annex 2: Analysis Result of Lead frame (Page 2 of 3)



Test Report

Report No : CE/2006/91756 - Date : 2006/09/12
 LITTELFUSE INC.
 800 E. NORTHWEST HWY, DES PLAINES, IL 60016

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Test Result(s)
 Test results by chemical method (Unit) mg/kg

Test Item (s)	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description
 PART NAME NO.1 : COPPER COLORED METAL

Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(ug/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg

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Annex 2: Analysis Result of Lead frame (Page 3 of 3)

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Test Report

Report No : CE/2006/91766 Date : 2006/09/12 Page: 3 of 3
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Annex 3: Analysis Result of Preform (Page 1 of 3)



Test Report

Report No. : CE/2006/91765 Date : 2006/09/12 Page: 1 of 3
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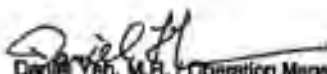
The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	PREFORM
Part No	:	71D1814-00
Manufacturer/Supplier Name	:	LITTELFUSE INC.
Country of Destination	:	TAIWAN
Country of Origin	:	USA
Sample Received	:	2006/9/6
Testing Period	:	2006/9/6 TO 2006/09/12

Test Requested : With reference to the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.
 (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.
 (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.
 (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.

Test Result(s) : Please see the next page(s)




Denise Yeh, M.P. / Operation Manager
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Annex 3: Analysis Result of Preform (Page 2 of 3)




Test Report

Report No : CE/2006/91765 Date : 2006/09/12

LITTELFUSE INC.

800 E. NORTHWEST HWY, DES PLAINES, IL 60016

Page: 2 of 3



Test Result(s)

Test results by chemical method (Unit: mg/kg)

Test Item (s)	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description

PART NAME NO.1 : COPPER COLORED METAL

Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(ug/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg

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Annex 3: Analysis Result of Preform (Page 3 of 3)

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Annex 4: Analysis Result of Tin plating cathode (page 1 of 3)


	
Test Report	
Report No : 05/2006/96119	Date : 2006/09/29
LITTELFUSE INC.	
800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
Page 1 of 3	
	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: TIN PLATING CATHODE BALL
Style/Item No	: TIN PLATING CATHODE BALL
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/09/22
Testing Period	: 2006/09/22 TO 2006/09/29
<hr/>	
Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	: Please see the next page(s)
	
Daniel Yen, M.P., Operation Manager	
Signed for and on behalf of	
SGS TAIWAN LTD.	
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Annex 4: Analysis Result of Tin plating cathode (page 2 of 3)



Test Report

Report No : OE/2006/96119 Date : 2006/09/29
 LITTELFUSE INC.
 800 E. NORTHWEST HWY. DES PLAINES, IL 60016

Page: 2 of 3


Test Result(s)

Test results by chemical method (Unit: mg/kg)

Test Item (s)	Method (Refer to)	Result	MDL
		No. 1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	58.2	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description

PART NAME NO.1 : SILVER COLORED TIN BALL

Note - (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg

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 6700 S. W. High Road, Walnut Creek, CA 94598, USA, Tel: 925-938-7100

Annex 4: Analysis Result of Tin plating cathode (page 3 of 3)

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Test Report

Report No : CE/2006/96119 Date : 2006/09/29 Page: 3 of 3
LITTELFUSE INC. 
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

CE / 2006 / 96119



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8086-21, 22002223 8086-21 2284 3237 www.sgs.com.tw

Annex 5: Analysis Result of Ni-plated Wafer (Page 1 of 3)



Test Report

Report No. : CE/2006/91815A Date : 2006/09/14
 LITTELFUSE INC.
 800 EAST NORTHWEST HIGHWAY DES PLAINES,
 IL 60016

Page: 1 of 3


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

Sample Description	:	SILICON WAFER ELECTRODE
Style/Item No	:	71D1505xx
Manufacturer/Supplier Name	:	LITTELFUSE INC.
Country of Destination	:	TAIWAN
Country of Origin	:	USA
Sample Received	:	2006/09/07
Testing Period	:	2006/09/07 TO 2006/09/14

Test Requested	:	With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	:	<ol style="list-style-type: none"> (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	:	Please see the next page(s)



Denise Yen, M.R., Operation Manager
 Signed for and on behalf of
SGS TAIWAN LTD.

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June 15, 2007

Littelfuse, L.P.


Annex 5-1

Annex 5: Analysis Result of Ni-plated Wafer (Page 2 of 3)



Test Report

Report No.: CE/2006/91815A Date: 2006/09/14
 LITTELFUSE INC.
 800 EAST NORTHWEST HIGHWAY DES PLAINES,
 IL 60016

Page: 2 of 3


Test Result(s)

Test results by chemical method (Unit): mg/kg

Test Item (s)	Method (Refer to)	Result	MDL
		No. 1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	32.4	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description

PART NAME NO. 1 : SILICON WAFER WITH NICKEL ELECTRODE

Note: (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(ug/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg
 (5) The report number of CE/2006/91815 is invalid.

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 Fax: +39 0444 999122 - Email: info@sgs.com


Annex 5: Analysis Result of Ni-plated Wafer (Page 3 of 3)


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Test Report

Report No : CE/2006/91815A Date : 2006/09/14
LITTELFUSE INC.
800 EAST NORTHWEST HIGHWAY DES PLAINES,
IL 60016

Page: 3 of 3






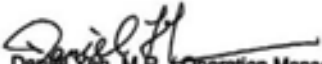


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886-21-22002223 886-21-2299-3227 www.sgs.com.tw

Annex 6: Analysis Result of Passivation Glass (Page 1 of 3)

	
Test Report	No. : CE/2007/24376 Date : 2007/03/01 Page : 1 of 3
LITTELFUSE INC. 800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: PASSIVATION GLASS
Style/Item No.	: 110233600
Facility	: TECCOR
Sample Receiving Date	: 2007/2/25
Testing Period	: 2007/2/25 TO 2007/03/01


Test Requested	: In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products. <ul style="list-style-type: none">(1) Determination of Cadmium by ICP-AES.(2) Determination of Lead by ICP-AES.(3) Determination of Mercury by ICP-AES.(4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.(5) Determination of PBB and PBDE by GC/MS.
Test Result(s)	: Please refer to next page(s).
 Daniel Yen, M.P., Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 6: Analysis Result of Passivation Glass (Page 2 of 3)



Test Report No. : CE/2007/24376 Date : 2007/03/01 Page : 2 of 3

LITTELFUSE INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	359000	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
Sum of PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Sum of PBDEs (Mono to Nona) (Note 4)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Sum of PBDEs (Mono to Deca)		n.d.	-

TEST PART DESCRIPTION:
NO.1 : WHITE GLASS POWDER

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. "-" = Not Regulated

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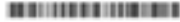

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Annex 6: Analysis Result of Passivation Glass (Page 3 of 3)

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Test Report No. : CE/2007/24376 Date : 2007/03/01 Page : 3 of 3

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886-2-22969339 886-2-2299-3237 www.sgs.com.tw

Annex 7: Analysis Result of Die Bonding Solder (Page 1 of 3)

	
Test Report	No. : CE/2007/24393 Date : 2007/03/01 Page : 1 of 3
LITTELFUSE, INC. 800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: SOLDER PASTE
Style/Item No.	: 410284408
Facility	: TECCOR
Sample Receiving Date	: 2007/02/16
Testing Period	: 2007/02/16 TO 2007/03/01

Test Requested	: In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products. <ul style="list-style-type: none">(1) Determination of Cadmium by ICP-AES.(2) Determination of Lead by ICP-AES.(3) Determination of Mercury by ICP-AES.(4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.
Test Result(s)	: Please refer to next page(s).
  Daniel Yen, M.R. - Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 7: Analysis Result of Die Bonding Solder (Page 2 of 3)



Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

No. : CE/2007/24393 Date : 2007/03/01 Page : 2 of 3



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2

TEST PART DESCRIPTION:
NO.1 : DK. GRAY SOLDER PASTE

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit

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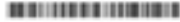

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Annex 7: Analysis Result of Die Bonding Solder (Page 3 of 3)

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Test Report No. : CE/2007/24393 Date : 2007/03/01 Page : 3 of 3

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016



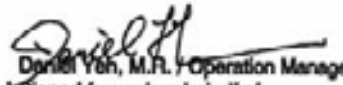



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Annex 8: Analysis Result of Ceramic Substrate (Page 1 of 5)

	
Test Report	No. : CE/2007/61086 Date : 2007/06/13 Page : 1 of 5
LITTELFUSE INC. 800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: CERAMIC SUBSTRATE
Style/Item No.	: 4100310-00
Facility	: TECCOR
Sample Receiving Date	: 2007/06/06
Testing Period	: 2007/06/06 TO 2007/06/13
=====	
Test Requested	: In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products. (1) Determination of Cadmium by ICP-AES. (2) Determination of Lead by ICP-AES. (3) Determination of Mercury by ICP-AES. (4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry. (5) Determination of PBB and PBDE by GC/MS.
Test Result(s)	: Please refer to next page(s).
  Daniel Yeh, M.P., Operation Manager Signed for and on behalf of SGS TAIWAN LTD. Chemical Laboratory - Taipei	
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Annex 8: Analysis Result of Ceramic Substrate (Page 2 of 5)


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Test Report

LITTELFUSE INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

No. : CE/2007/61086 Date : 2007/06/13

Page : 2 of 5



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	17	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
Sum of PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Sum of PBDEs (Mono to Nona) (Note 4)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tr bromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Sum of PBDEs (Mono to Deca)		n.d.	-

TEST PART DESCRIPTION:
NO.1 : WHITE / GRAY CERAMIC SUBSTRATE

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. "-" = Not Regulated

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Annex 8: Analysis Result of Ceramic Substrate (Page 3 of 5)

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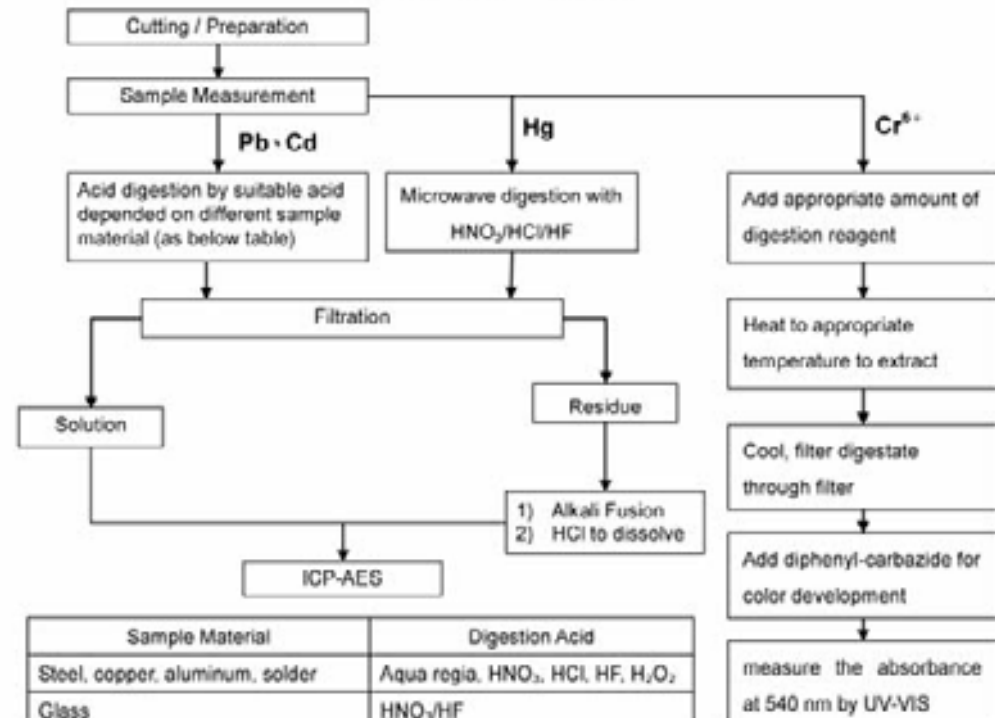
Test Report

No. : CE/2007/61086 Date : 2007/06/13 Page : 3 of 5

LITTELFUSE INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr6+ test method excluded)
- 2) Name of the person who made measurement: Troy Chang
- 3) Name of the person in charge of measurement: Daniel Yeh



```

graph TD
    A[Cutting / Preparation] --> B[Sample Measurement]
    B --> C[Pb, Cd]
    B --> D[Hg]
    B --> E[Cr6+]
    C --> F[Acid digestion by suitable acid  
depended on different sample  
material (as below table)]
    D --> G[Microwave digestion with  
HNO3/HCl/HF]
    E --> H[Add appropriate amount of  
digestion reagent]
    F --> I[Filtration]
    G --> I
    H --> J[Heat to appropriate  
temperature to extract]
    I --> K[Solution]
    I --> L[Residue]
    L --> M["1) Alkali Fusion  
2) HCl to dissolve"]
    K --> N[ICP-AES]
    M --> N
    J --> O[Cool, filter digestate  
through filter]
    O --> P[Add diphenyl-carbazide for  
color development]
    P --> Q[measure the absorbance  
at 540 nm by UV-VIS]
    
```

Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

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Annex 8: Analysis Result of Ceramic Substrate (Page 4 of 5)

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Test Report

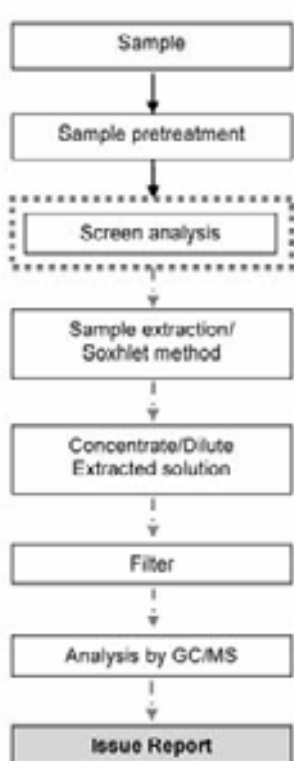
LITTELFUSE INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

No. : CE/2007/61086 Date : 2007/06/13 Page : 4 of 5



PBB/PBDE analytical FLOW CHART

First testing process	→	
Optional screen process	⋯⋯⋯	
Confirmation process	- - - - -	



```

graph TD
    A[Sample] --> B[Sample pretreatment]
    B --> C[Screen analysis]
    C -.-> D[Sample extraction/Soxhlet method]
    D --> E[Concentrate/Dilute Extracted solution]
    E --> F[Filter]
    F --> G[Analysis by GC/MS]
    G --> H[Issue Report]
    
```

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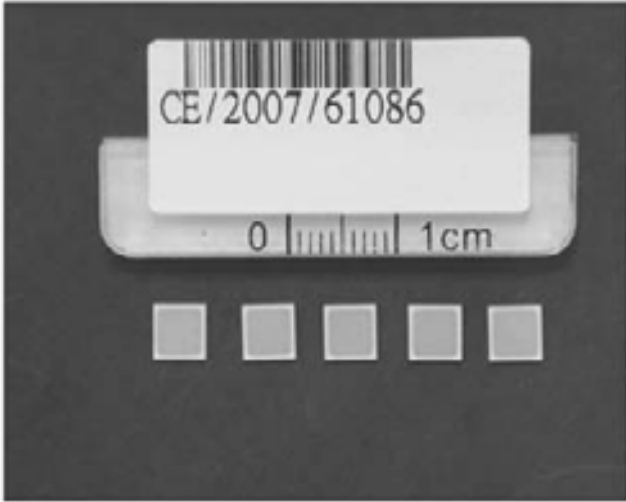
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t(886 2) 22065555-6886 2) 2206-3237 www.sgs.com.tw

Annex 8: Analysis Result of Ceramic Substrate (Page 5 of 5)

SGS

Test Report No : CE/2007/61086 Date : 2007/06/13 Page : 5 of 5

LITTELFUSE INC.
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Annex 9: Analysis Result of Packing Box (Page 1 of 4)



Test Report

Report No. : CE/2006/91606 Date : 2006/09/13

LITTELFUSE INC.

800 E. NORTHWEST HWY, DES PLAINES, IL 60016

Page: 1 of 4



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

Sample Description	: REEL BOX
Style/Item No	: 110203200
Manufacturer/Supplier Name	: LITTELFUSE INC
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/09/06
Testing Period	: 2006/09/06 TO 2006/09/13

Test Requested : With reference to the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method :

- (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.
- (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.
- (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.
- (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
- (5) With reference to US EPA 3540C. Analysis was performed by GC/MS and screening via US EPA 3550C with HPLC/DAD/MS.

Test Result(s) : - Please see the next page(s) -




Carter Yeh, M.P., Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.


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Annex 9: Analysis Result of Packing Box (Page 2 of 4)



Test Report

Report No : LR/2006/91606- Date : 2006/09/13 Page: 2 of 4
 LITTELFUSE INC. 
 800 E. NORTHWEST HWY, DES PLAINES, IL 60016

Test Result(s)
 Test results by chemical method (Unit) (mg/kg)

Test Item (s)	Method (Refer to)	Result	MDL
		No. 1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2
Total PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Total PBBEs(PBDEs)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Total of Mono to Nona(Note 5)		n.d.	-

Test Part Description
 PART NAME NO.1 : BROWN CARTON WITH BLACK PRINTING

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Annex 9: Analysis Result of Packing Box (Page 4 of 4)

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Test Report

Report No : CE/2006/91636 Date : 2006/09/13 Page: 4 of 4
LITTELFUSE INC. 
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**CE / 2006
/ 91636**

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Annex 10: Analysis Result of Poly Tubing Bag (Page 1 of 4)

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Test Report

Report No. : CE/2006/91635 Date : 2006/09/13 Page: 1 of 4
LITTELFUSE INC.
800 E. NORTHWEST HWY, DES PLAINES, IL 60016

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

Sample Description : POLY TUBING BAG
Style/Item No : 110428901
Manufacturer/Supplier Name : LITTELFUSE INC.
Country of Destination : TAIWAN
Country of Origin : USA
Sample Received : 2006/09/06
Testing Period : 2006/09/06 TO 2006/09/13

Test Requested : With reference to the RoHS Directive 2002/95/EC, and its amendment directives.


Test Method : (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.
(2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.
(3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.
(4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
(5) With reference to US EPA 3540C, Analysis was performed by GC/MS and screening via US EPA 3550C with HPLC/DAD/MS.

Test Result(s) : - Please see the next page(s) -


Daniel Yeh, M.P., Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.


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Annex 10: Analysis Result of Poly Tubing Bag (Page 2 of 4)



Test Report

Report No : LR/2006/91635 Date : 2006/09/13 Page: 2 of 4

LITTELFUSE INC. 

800 E. NORTHWEST HWY, DES PLAINES, IL 60016

Test Result(s)

Test results by chemical method (Unit) mg/kg

Test Item (s)	Method (Refer to)	Result	MDL
		No. 1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2
Total PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Total PBBEs(PBDEs)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Total of Mono to Nona(Note 5)		n.d.	-

Test Part Description
PART NAME NO.1 : TRANSPARENT-PINK PLASTIC BAG


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www.sgs.com

Annex 10: Analysis Result of Poly Tubing Bag (Page 3 of 4)

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Test Report

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LITTELFUSE INC. 
800 E. NORTHWEST HWY, DES PLAINES, IL 60016

Note: (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
(2) n.d. = N.D. = ND = Not Detected
(3) MDL = Method Detection Limit
(4) Sample was totally digested for Pb, Cd, Hg
(5) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
(6) "N" = Not Regulated

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Annex 10: Analysis Result of Poly Tubing Bag (Page 4 of 4)

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Report No : CE/2006/91635 Date : 2006/09/13 Page: 4 of 4
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Annex 11: Analysis Result of Packing Foam (Page 2 of 4)

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Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

No. : CE/2007/24383
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Test Result(s)

PART NAME NO.1 : PINK FOAM MATERIAL

PASS

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
94/62/EC (Heavy metal content)	---	---	---	---	---
Cadmium (Cd)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Cadmium by ICP-AES.	2	n.d.	-
Lead (Pb)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Lead by ICP-AES.	2	n.d.	-
Mercury (Hg)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Mercury by ICP-AES.	2	n.d.	-
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Hexavalent Chromium by UV/Vis Spectrometry.	2	n.d.	-
Total Lead+Cadmium+Mercury+Hexavalent Chromium Cr(VI)	mg/kg	Total Lead+Cadmium+Mercury+Hexavalent Chromium Cr(VI) (94/62/EC)	-	n.d.	100

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
Sum of PBBs	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of PBB and PBDE by GC/MS.	-	n.d.	-
Monobromobiphenyl			5	n.d.	-
Dibromobiphenyl			5	n.d.	-
Tribromobiphenyl			5	n.d.	-
Tetrabromobiphenyl			5	n.d.	-
Pentabromobiphenyl			5	n.d.	-
Hexabromobiphenyl			5	n.d.	-
Heptabromobiphenyl			5	n.d.	-
Octabromobiphenyl			5	n.d.	-
Nonabromobiphenyl			5	n.d.	-
Decabromobiphenyl			5	n.d.	-

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Annex 11: Analysis Result of Packing Foam (Page 3 of 4)

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Test Report

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800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

No. : CE/2007/24383
Date : 2007/03/01
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Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
Sum of PBDEs (Mono to Nona) (Note 4)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of PBB and PBDE by GC/MS.	-	n.d.	-
Monobromobiphenyl ether			5	n.d.	-
Dibromobiphenyl ether			5	n.d.	-
Tribromobiphenyl ether			5	n.d.	-
Tetrabromobiphenyl ether			5	n.d.	-
Pentabromobiphenyl ether			5	n.d.	-
Hexabromobiphenyl ether			5	n.d.	-
Heptabromobiphenyl ether			5	n.d.	-
Octabromobiphenyl ether			5	n.d.	-
Nonabromobiphenyl ether			5	n.d.	-
Decabromobiphenyl ether			5	n.d.	-
Sum of PBDEs (Mono to Deca)			-	n.d.	-

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. "---" = Not Conducted
6. "- " = Not Regulated

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Annex 11: Analysis Result of Packing Foam (Page 4 of 4)

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Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

No. : CE/2007/24383
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Annex 12: Analysis Result of Packing Tube (page 1 of 4)



Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016


No. : CE/2007/24382
Date : 2007/03/01
Page : 1 of 4


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

Sample Description	:	LOADING TUBE
Style/Item No.	:	110148600
Facility	:	TECCOR
Sample Receiving Date	:	2007/02/16
Testing Period	:	2007/02/16 TO 2007/03/01

=====

Test Result(s) : Please refer to next page(s).


Daniel Yen, M.P. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

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Annex 12: Analysis Result of Packing Tube (page 2 of 4)

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Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

No. : CE/2007/24382
Date : 2007/03/01
Page : 2 of 4



Test Result(s)

PART NAME NO.1 : TRANSPARENT PLASTIC TUBE

PASS


Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
94/62/EC (Heavy metal content)	---	---	---	---	---
Cadmium (Cd)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Cadmium by ICP-AES.	2	n.d.	-
Lead (Pb)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Lead by ICP-AES.	2	n.d.	-
Mercury (Hg)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Mercury by ICP-AES.	2	n.d.	-
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Hexavalent Chromium by UV/Vis Spectrometry.	2	n.d.	-
Total Lead+Cadmium+Mercury+Hexavalent Chromium Cr(VI)	mg/kg	Total Lead+Cadmium+Mercury+Hexavalent Chromium Cr(VI) (94/62/EC)	-	n.d.	100

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
Sum of PBBs	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of PBB and PBDE by GC/MS.	-	n.d.	-
Monobromobiphenyl			5	n.d.	-
Dibromobiphenyl			5	n.d.	-
Tribromobiphenyl			5	n.d.	-
Tetrabromobiphenyl			5	n.d.	-
Pentabromobiphenyl			5	n.d.	-
Hexabromobiphenyl			5	n.d.	-
Heptabromobiphenyl			5	n.d.	-
Octabromobiphenyl			5	n.d.	-
Nonabromobiphenyl			5	n.d.	-
Decabromobiphenyl			5	n.d.	-

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Annex 12: Analysis Result of Packing Tube (page 3 of 4)



Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

No. : CE/2007/24382
Date : 2007/03/01
Page : 3 of 4



Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
Sum of PBDEs (Mono to Nona) (Note 4)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of PBB and PBDE by GC/MS.	-	n.d.	-
Monobromobiphenyl ether			5	n.d.	-
Dibromobiphenyl ether			5	n.d.	-
Tribromobiphenyl ether			5	n.d.	-
Tetrabromobiphenyl ether			5	n.d.	-
Pentabromobiphenyl ether			5	n.d.	-
Hexabromobiphenyl ether			5	n.d.	-
Heptabromobiphenyl ether			5	n.d.	-
Octabromobiphenyl ether			5	n.d.	-
Nonabromobiphenyl ether			5	n.d.	-
Decabromobiphenyl ether			5	n.d.	-
Sum of PBDEs (Mono to Deca)					-

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. "---" = Not Conducted
6. "- " = Not Regulated

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Annex 12: Analysis Result of Packing Tube (page 4 of 4)

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Test Report

LITTELFUSE, INC.
800 E NORTHWEST HIGHWAY DES PLAINES, IL 60016

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Annex 13: Analysis Result of End Plug (Page 1 of 3)

	
Test Report	No. : CE/2007/24377 Date : 2007/03/01 Page : 1 of 3
LITTELFUSE INC. 800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: END PLUG
Style/Item No.	: 410287500
Facility	: TECCOR
Sample Receiving Date	: 2007/02/16
Testing Period	: 2007/02/16 TO 2007/03/01
=====	
Test Requested	: In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products. <ul style="list-style-type: none">(1) Determination of Cadmium by ICP-AES.(2) Determination of Lead by ICP-AES.(3) Determination of Mercury by ICP-AES.(4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.(5) Determination of PBB and PBDE by GC/MS.
Test Result(s)	: Please refer to next page(s).
  Daniel Yen, M.R. / Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 13: Analysis Result of End Plug (Page 2 of 3)



Test Report No. : CE/2007/24377 Date : 2007/03/01 Page : 2 of 3

LITTELFUSE INC. 

800 E. NORTHWEST HWY. DES PLAINES, IL 60016

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
Sum of PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Sum of PBDEs (Mono to Nona) (Note 4)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Sum of PBDEs (Mono to Deca)		n.d.	-

TEST PART DESCRIPTION:
 NO.1 : GRAY RUBBER END PLUG

Note : 1. mg/kg = ppm
 2. n.d. = Not Detected
 3. MDL = Method Detection Limit
 4. According to 2005/717/EC DecaBDE is exempt.
 5. "-" = Not Regulated

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SGS

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LITTELFUSE INC.
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**** End of Report ****

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Annex 14: Applicable RoHS exemptions

