

Test Report

No. : CE/2008/74730 Date : 2008/07/18 Page : 1 of 8

TAIWAN UNION TECHNOLOGY CORPORATION
(TAIWAN UNION TECHNOLOGY CORPORATION (CHANGSHU))
803, PO AI ST., CHUPEI CITY, HSINCHU HSIEN 302, TAIWAN
(88, DONGNAN RD., CHANGSHU, JIANGSU, CHINA)



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

Sample Description : COPPER CLAD LAMINATE
Style/Item No. : TU-662
Sample Receiving Date : 2008/07/15
Testing Period : 2008/07/15 TO 2008/07/18

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

Conclusion : Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs are **compliant with** the limits of RoHS Directive 2002/95/EC and its subsequent amendments.

Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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Test Report

No. : CE/2008/74730 Date : 2008/07/18 Page : 2 of 8



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Test Result(s)

PART NAME NO.1 : COPPER COLORED LAMINATE

Test Item (s):	Unit	Method	MDL	Result	Limit
				No.1	
Cadmium (Cd)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Cadmium by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Lead by ICP-AES.	2	n.d.	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Mercury by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.	2	n.d.	1000
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative	-
Halogen	---	With reference to BS EN 14582:2007. Analysis was performed by IC method for F , Cl , Br, I content.	---	---	---
Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Fluorine content.	50	310	-
Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Chlorine content.	50	275	-
Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Bromine content.	50	27400	-

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Test Report

No. : CE/2008/74730 Date : 2008/07/18 Page : 3 of 8



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Test Item (s):	Unit	Method	MDL	Result	Limit
				No.1	
Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Iodine content.	50	n.d.	-
Sum of PBBs			-	n.d.	1000
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.	-
Sum of PBDEs			-	n.d.	1000
Monobromodiphenyl ether		With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of PBB and PBDE by GC/MS.	5	n.d.	-
Dibromodiphenyl ether			5	n.d.	-
Tribromodiphenyl ether			5	n.d.	-
Tetrabromodiphenyl ether			5	n.d.	-
Pentabromodiphenyl ether			5	n.d.	-
Hexabromodiphenyl ether			5	n.d.	-
Heptabromodiphenyl ether			5	n.d.	-
Octabromodiphenyl ether			5	n.d.	-
Nonabromodiphenyl ether			5	n.d.	-
Decabromodiphenyl ether			5	n.d.	-

- Note :
1. mg/kg = ppm
 2. n.d. = Not Detected
 3. MDL = Method Detection Limit
 4. " - " = Not Regulated
 5. " --- " = Not Conducted
 6. ** = Qualitative analysis (No Unit)
 7. Negative = Undetectable / Positive = Detectable

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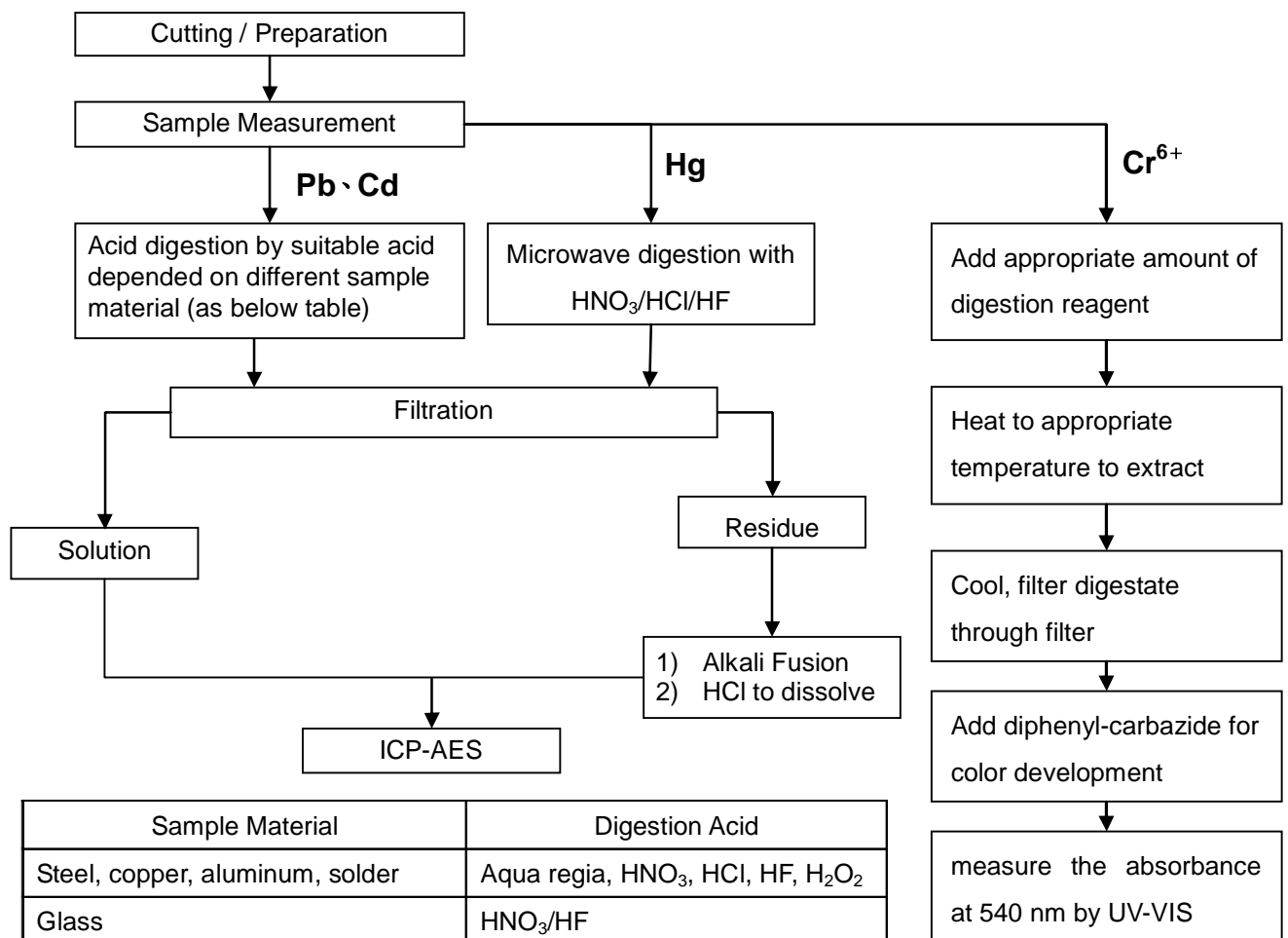
Test Report

No. : CE/2008/74730 Date : 2008/07/18 Page : 4 of 8

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- 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: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



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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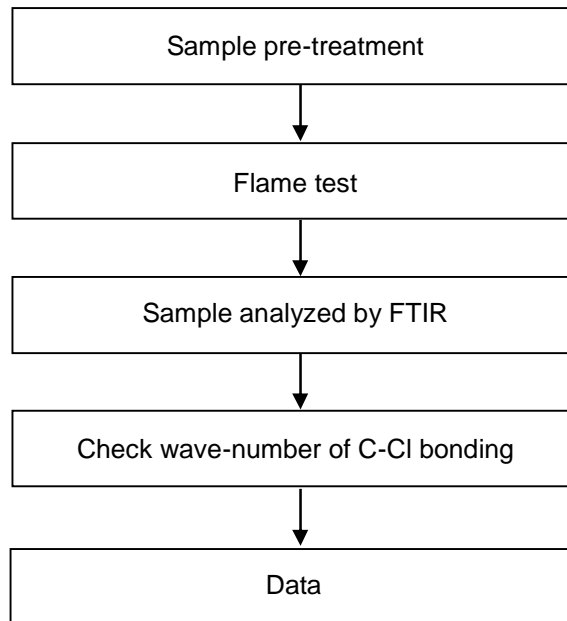
No. : CE/2008/74730 Date : 2008/07/18 Page : 5 of 8

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Analysis flow chart for determination of PVC in material

- 1) Name of the person who made measurement: Eva Chao
- 2) Name of the person in charge of measurement: Shinjyh Chen



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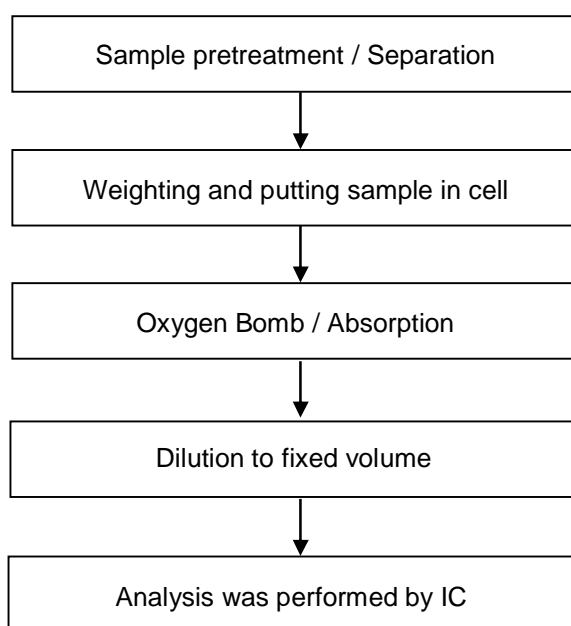
No. : CE/2008/74730 Date : 2008/07/18 Page : 6 of 8

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Analytical flow chart of halogen content

- 1) Name of the person who made measurement: Tin Lan
- 2) Name of the person in charge of measurement: Troy Chang



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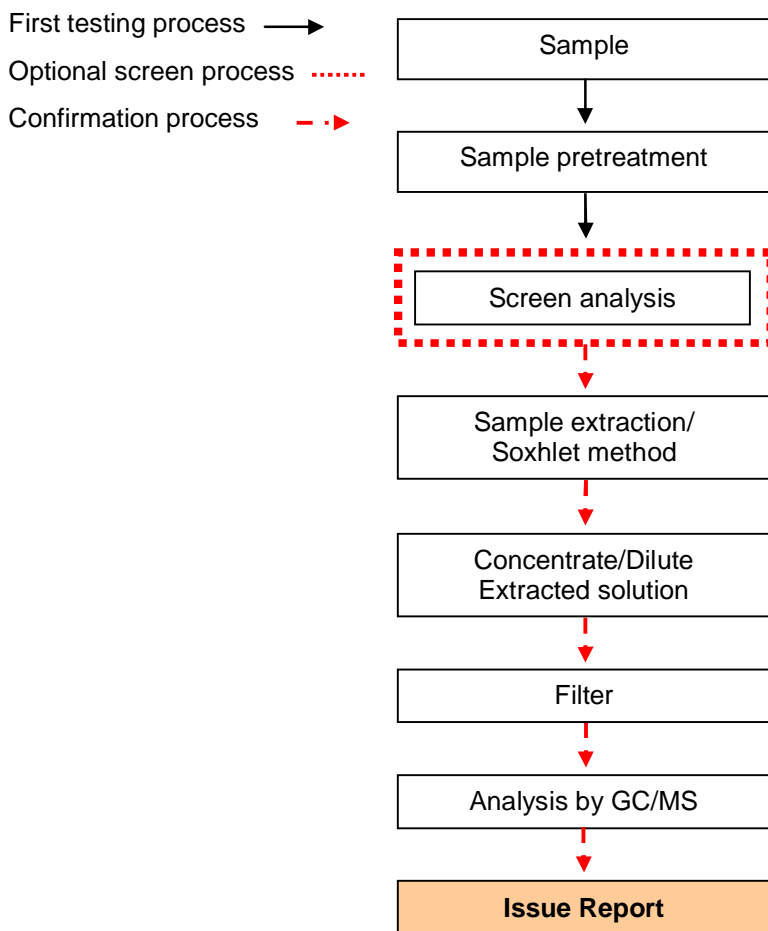
No. : CE/2008/74730 Date : 2008/07/18 Page : 7 of 8

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PBB/PBDE analytical FLOW CHART

- 1) Name of the person who made measurement: Roman Wong
- 2) Name of the person in charge of measurement: Shinjyh Chen



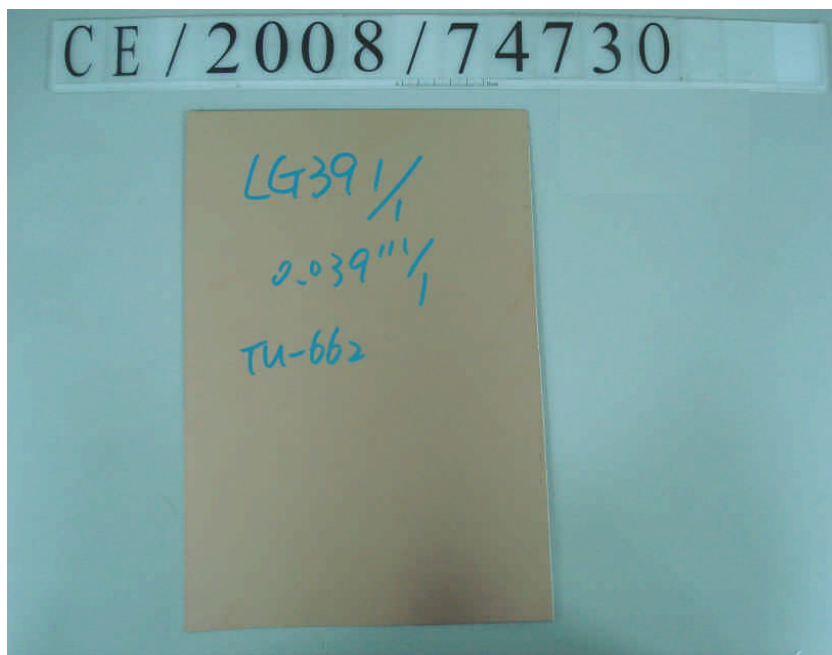
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** End of Report **

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