

## Test Report

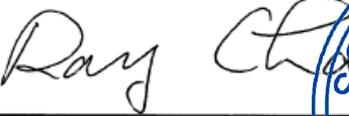
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ROGERS CORPORATION  
245 WOODSTOCK ROAD, WOODSTOCK, CT. 06281, USA

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

Sample Description : POLYURETHANE WITH FAL  
Color : BLACK  
Style/Item No. : 4790-79TS1-09021-04P  
Sample Receiving Date : 2014/11/14  
Testing Period : 2014/11/14 TO 2014/11/24  
Sample Submitted By : ROGERS CORPORATION

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

  
  
**Ray Chang / Asst. Manager**  
**Signed for and on behalf of**  
**SGS Taiwan Limited**  
**Chemical Laboratory-Kaohsiung**

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# Test Report

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## Test Result(s)

PART NAME NO.1 : POLYURETHANE

Test Item (s):	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
<b>Sum of PBBs</b>	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
Monobromobiphenyl	mg/kg		5	n.d.
Dibromobiphenyl	mg/kg		5	n.d.
Tribromobiphenyl	mg/kg		5	n.d.
Tetrabromobiphenyl	mg/kg		5	n.d.
Pentabromobiphenyl	mg/kg		5	n.d.
Hexabromobiphenyl	mg/kg		5	n.d.
Heptabromobiphenyl	mg/kg		5	n.d.
Octabromobiphenyl	mg/kg		5	n.d.
Nonabromobiphenyl	mg/kg		5	n.d.
Decabromobiphenyl	mg/kg		5	n.d.
<b>Sum of PBDEs</b>	mg/kg		With reference to IEC 62321: 2008 and performed by GC/MS.	-
Monobromodiphenyl ether	mg/kg	5		n.d.
Dibromodiphenyl ether	mg/kg	5		n.d.
Tribromodiphenyl ether	mg/kg	5		n.d.
Tetrabromodiphenyl ether	mg/kg	5		n.d.
Pentabromodiphenyl ether	mg/kg	5		n.d.
Hexabromodiphenyl ether	mg/kg	5		n.d.
Heptabromodiphenyl ether	mg/kg	5		n.d.
Octabromodiphenyl ether	mg/kg	5		n.d.
Nonabromodiphenyl ether	mg/kg	5		n.d.
Decabromodiphenyl ether	mg/kg	5	n.d.	

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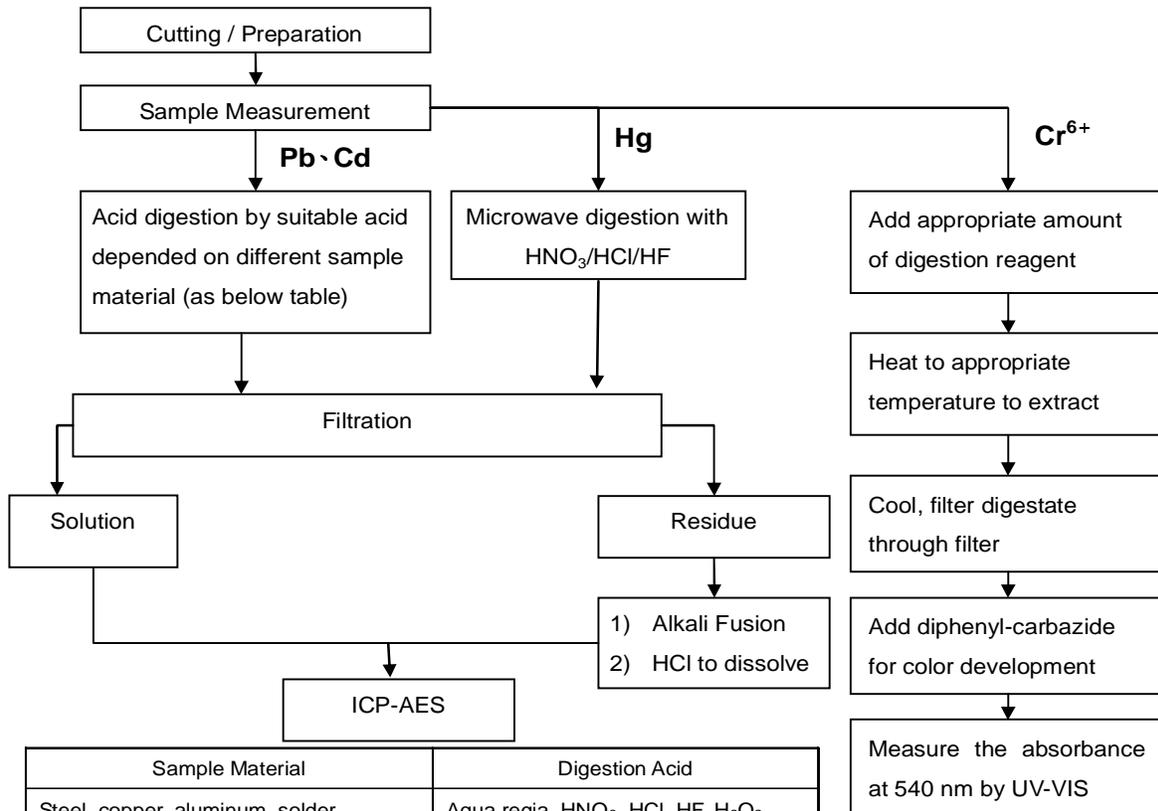
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Test Item (s):	Unit	Method	MDL	Result
				No.1
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	With reference to IEC 62321: 2008 method. Analysis was performed by GC/MS.	5	n.d.
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
BBP (Butyl benzyl phthalate) (CAS No.: 85-68-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
<b>Halogen</b>				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	192
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.

- Note :
1. mg/kg = ppm ; 0.1wt% = 1000ppm
  2. n.d. = Not Detected
  3. MDL = Method Detection Limit
  4. " - " = Not Regulated

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- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) Name of the person who made measurement: Jony Liu
- 3) Name of the person in charge of measurement: Ray Chang



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

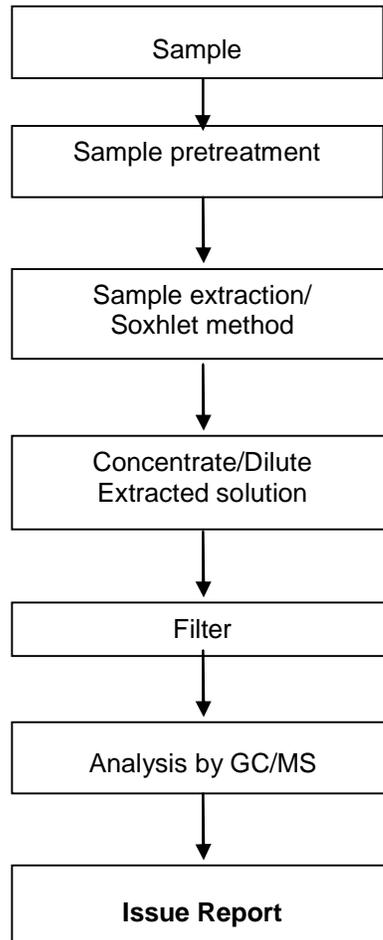
**Note\*\* :** (1) For non-metallic material, add alkaline digestion reagent and heat to 90~95 °C.  
(2) For metallic material, add pure water and heat to boiling.

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## PBB/PBDE analytical FLOW CHART

- 1) Name of the person who made measurement: Dorothy Chen
- 2) Name of the person in charge of measurement: Ray Chang

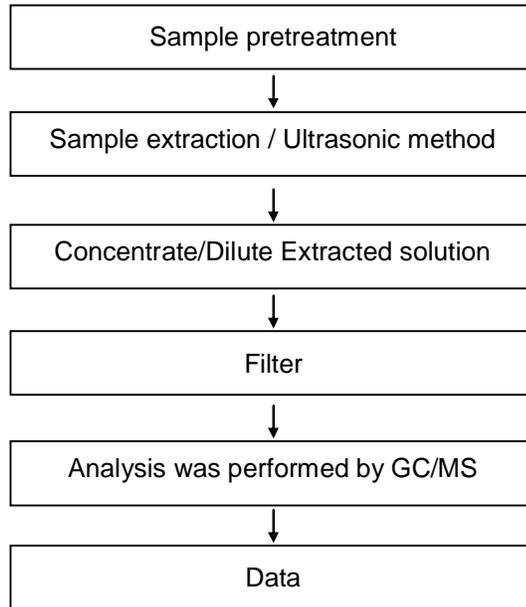


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### HBCDD analytical flow chart

- Name of the person who made measurement: Dorothy Chen
- Name of the person in charge of measurement: Ray Chang

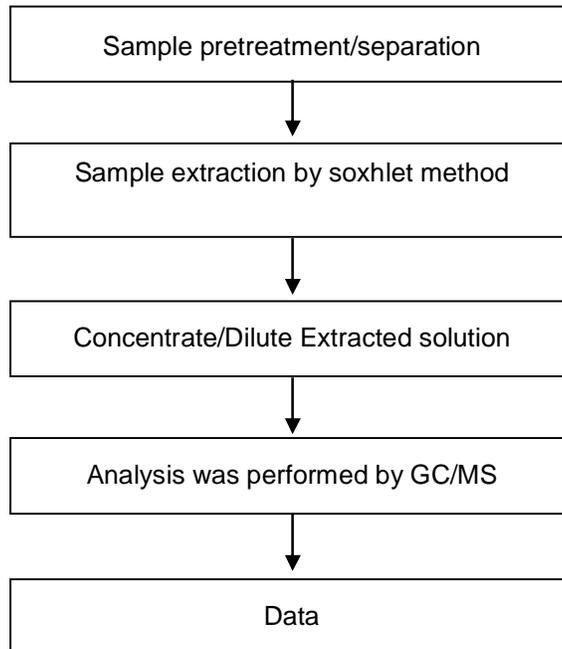


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## Analytical flow chart of phthalate content

- 1) Name of the person who made measurement: Dorothy Chen
- 2) Name of the person in charge of measurement: Ray Chang

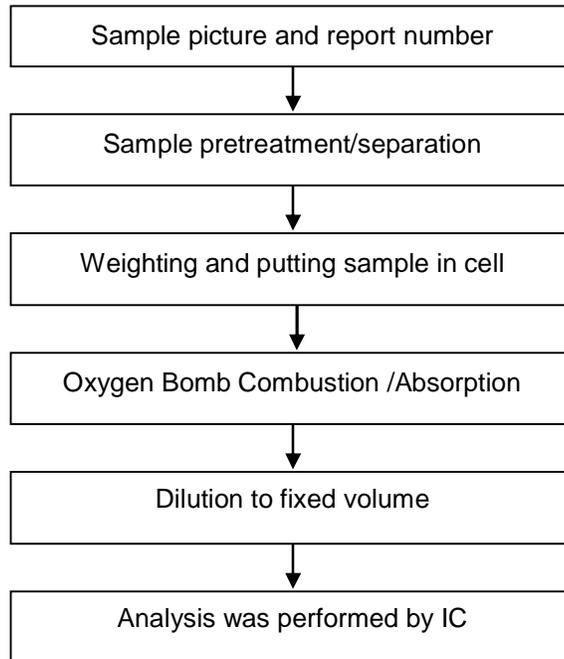


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### Analytical flow chart of halogen content

- 1) Name of the person who made measurement: Jean Hung
- 2) Name of the person in charge of measurement: Ray Chang



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\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

## KE/2014/B1339



\*\* End of Report \*\*

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