

**Test Report** No. SHAEC1418720202 Date: 10 Oct 2014 Page 1 of 13

FAR EASTERN INDUSTRIES (SHANGHAI) LTD.

NO.198 BAISHA ROAD XINGHUO DEVELOPMENT ZONE SHANGHAI 201419, CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as: APET SHEET/GAG

SHEET

SGS Job No.: SP14-029889 - SH

Date of Sample Received: 29 Sep 2014

Testing Period: 29 Sep 2014 - 10 Oct 2014

Test Requested: Selected test(s) as requested by client.

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

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

Conclusion: Based on the performed tests on submitted sample(s), the results of Lead,

Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS

Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of SGS-CSTC Ltd.

Marry Ma

Approved Signatory





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Test Results:

### **Test Part Description:**

Specimen No. SGS Sample ID Description

SN1 SHA14-187202.001 Transparent soft solid sheet

#### Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected ( < MDL)

(4) "-" = Not Regulated

### RoHS Directive 2011/65/EU

Test Method: (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.

(2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.

(3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.

(4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.

(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



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Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	
Dibromodiphenyl ether	-	mg/kg	5	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	

#### Notes:

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

### **Halogen**

Test Method: With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

Test Item(s)	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (CI)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
lodine (I)	mg/kg	50	ND

### Hexabromocyclododecane (HBCDD)

Test Method: Determination of HBCDD by GC-MS based on IEC 62321:2008.

Test Item(s)	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

#### Notes:

(1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC: Hexabromocyclododecane (HBCDD) is considered as a priority for risk evaluation and substance restriction.

### PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid)

Test Method: With reference to US EPA 3550C: 2007, analysis was performed by HPLC-MS.



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Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Perfluorooctane Sulfonates (PFOS) and related	1000	mg/kg	10	ND
Acid,Metal Salt and Amide				
Perfluorooctanoic Acid (PFOA)	-	mg/kg	10	ND

#### Notes:

Max. limit specified by commission regulation (EU) No. 757/2010 amending regulation (EC) No 850/2004.

#### Polycyclic aromatic hydrocarbons (PAHs)

Test Method: With reference to ZEK 01.4-08 of German ZLS and its amendments, analysis was performed by GC-MS

Test Item(s)	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Sum of 18 PAHs	mg/kg	-	ND
Naphthalene(NAP)	mg/kg	0.1	ND
Acenaphthylene(ANY)	mg/kg	0.1	ND
Acenaphthene(ANA)	mg/kg	0.1	ND
Fluorene(FLU)	mg/kg	0.1	ND
Phenanthrene(PHE)	mg/kg	0.1	ND
Anthracene(ANT)	mg/kg	0.1	ND
Fluoranthene(FLT)	mg/kg	0.1	ND
Pyrene(PYR)	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	mg/kg	0.1	ND
Chrysene(CHR)	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF) and	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)			
Benzo(k)fluoranthene(BkF)	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	mg/kg	0.1	ND

#### Notes:

Above 8 PAHs(BaA,CHR,BbF,BiF.BkF,BeP,BaP,DBA) are listed in Commission Regulation (EU) No 1272/2013 amending Annex XVII to Regulation (EC) No 1907/2006.

(1) In order to protect the health of consumers from the risk arising from exposure to PAHs in articles, limits on the PAH content in the accessible plastic or rubber parts of articles should be set, and the



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placing on the market of articles containing any of the PAHs in concentrations greater than 1 mg/kg in those parts should be prohibited.

(2) Taking into account the vulnerability of children a lower limit value should be established. Therefore the placing on the market of toys and childcare articles, containing any of the PAHs in concentrations greater than 0,5 mg/kg in their accessible plastic or rubber parts, should be prohibited.

ZEK 01.4-08: Restraining maximum values for products

Parameter	Category 1	Category 2	Category 3
	Material indented to be put in the mouth or material for toys with normal skin contact for children aged < 36 months	Materials those are not included in Category 1, with predictable contact with the skin longer than 30 s. (long-term skin contact).	Materials those are not included in Category 1 or 2, with predictable skin contact up to 30 s (short-term skin contact).
Benzo(a)pyrene (mg/kg)	<0.2**	1	20
Sum of 18 PAHs (mg/kg)*	<0.2**	10	200

#### Notes:

Only PAH substances > 0.1 mg/kg are taken into account while calculating the sum of PAHs

### **Phthalates**

Test Method: With reference to EN 14372:2004, analysis was performed by GC-MS

CAS NO.	<u>Unit</u>	<u>MDL</u>	<u>001</u>
84-74-2	%	0.003	ND
85-68-7	%	0.003	ND
117-81-7	%	0.003	ND
28553-12-0	%	0.01	ND
/68515-48-0			
117-84-0	%	0.003	ND
26761-40-0	%	0.01	ND
/68515-49-1			
131-11-3	%	0.003	ND
84-66-2	%	0.003	ND
84-69-5	%	0.003	ND
131-18-0	%	0.003	ND
	84-74-2 85-68-7 117-81-7 28553-12-0 /68515-48-0 117-84-0 26761-40-0 /68515-49-1 131-11-3 84-66-2 84-69-5	84-74-2 % 85-68-7 % 117-81-7 %  28553-12-0 % /68515-48-0 117-84-0 % 26761-40-0 % /68515-49-1 131-11-3 % 84-66-2 % 84-69-5 %	84-74-2       %       0.003         85-68-7       %       0.003         117-81-7       %       0.003         28553-12-0       %       0.01         /68515-48-0       %       0.003         26761-40-0       %       0.01         /68515-49-1       131-11-3       %       0.003         84-66-2       %       0.003         84-69-5       %       0.003



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<sup>\*\* =</sup> In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which is indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.



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Test Item(s)	CAS NO.	<u>Unit</u>	MDL	<u>001</u>				
Dicyclohexyl Phthalate (DCHP)	84-61-7	%	0.003	ND				
Diphenyl Phthalate (DPhP)	84-62-8	%	0.003	ND				
Dibenzyl Phthalate (DBzP)	523-31-9	%	0.003	ND				
Diisooctyl Phthalate (DiOP)	27554-26-3	%	0.01	ND				
Dipropyl Phthalate (DPrP)	131-16-8	%	0.003	ND				
Dinonyl Phthalate (DNP)	84-76-4	%	0.003	ND				
Diallyl Phthalate (DAP)	131-17-9	%	0.003	ND				
1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear	84777-06-0	%	0.01	ND				

#### Notes:

- (1) DBP,BBP,DEHP Reference information: Entry 51 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):
  - i) Shall not be used as substances or in mixtures, in concentrations greater than 0,1 % by weight of the plasticised material, in toys and childcare articles.
  - ii) Toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.

Please refer to Regulation (EC) No 552/2009 to get more detail information DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC).

- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.
- ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.

Please refer to Regulation (EC) No 552/2009 to get more detail information



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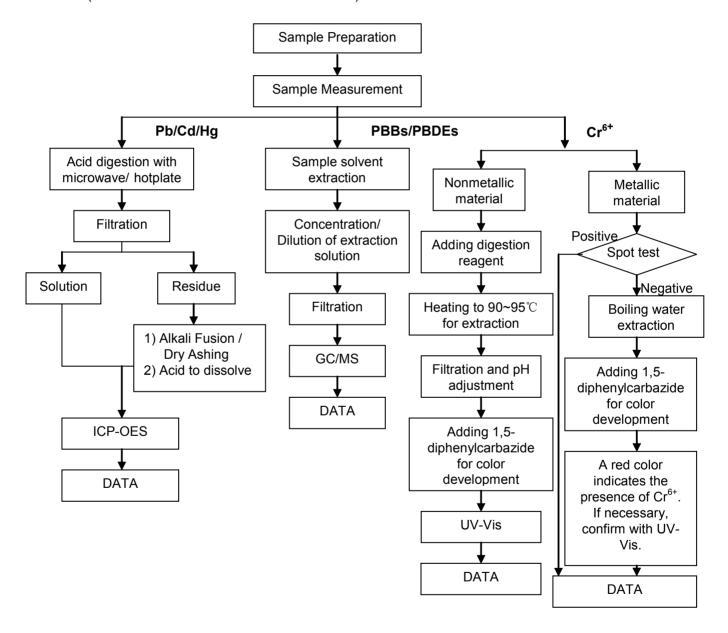
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#### **ATTACHMENTS**

## **RoHS Testing Flow Chart**

- 1) Name of the person who made testing: Bob Zhang/Star Wang/Shara Wang/Gary Xu
- 2) Name of the person in charge of testing: Jan Shi/Summer Jin/Jessy Huang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded)





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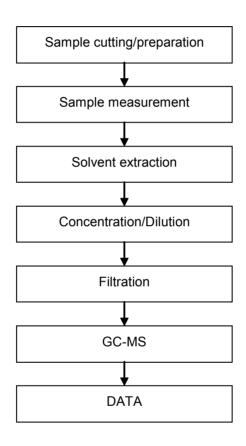
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## **Phthalates Testing Flow Chart**

1) Name of the person who made testing: Elyn Yao

2) Name of the person in charge of testing: Myra Ma







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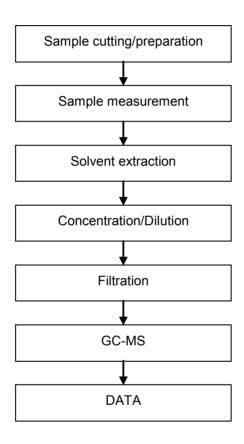
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### **ATTACHMENTS**

## **HBCDD Testing Flow Chart**

- 1) Name of the person who made testing: Gary Xu
- 2) Name of the person in charge of testing: Jessy Huang







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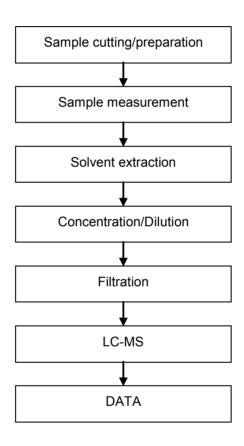
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### **PFOS/PFOA Testing Flow Chart**

1) Name of the person who made testing: Tony Hu

2) Name of the person in charge of testing: Myra Ma







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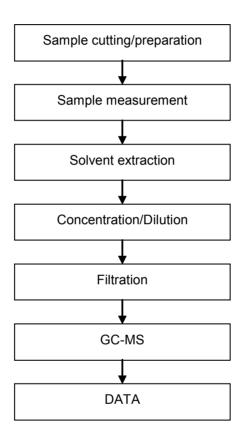
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#### **ATTACHMENTS**

## **PAHs Testing Flow Chart**

- 1) Name of the person who made testing: Lisa Duan
- 2) Name of the person in charge of testing: Jessy Huang







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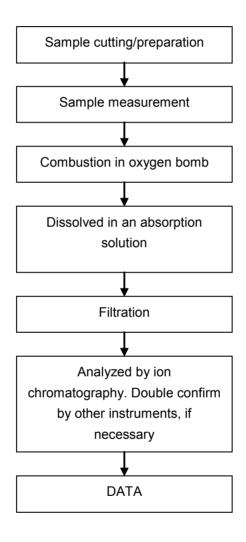
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## Halogen Testing (oxygen bomb) Flow Chart

1) Name of the person who made testing: Sisily Yin

2) Name of the person in charge of testing: Linda Li





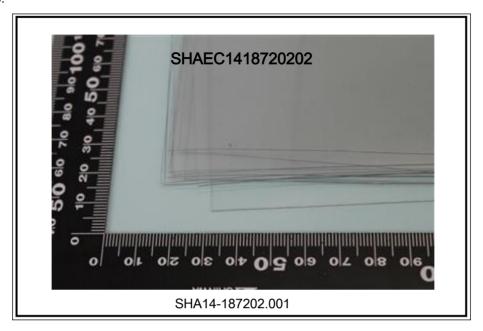


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Sample photo:



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