

#### **Test Report** No. : CE/2013/A0759 Date : 2013/10/09 Page : 1 of 18

CHANG CHUN PLASTICS CO., LTD. CHANG CHUN SB (CHANG SHU) CO., LTD.) NO. 8, CHUNG HWA ROAD, HSINCHU INDUSTRIAL DISTRICT, TAIWAN (CHANGCHUN RD., RIVERSIDE INDUSTRIAL PARK, CHANGSHU ECONOMIC DEVELOPMENT ZONE, JIANGSU, CHINA)

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

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#### Test Result(s)

: Please refer to next page(s).

Conclusion

: 1. Base upon the performed tests by submitted samples, the test results of PAHs comply with the PAHs requirement according to (Category 2) of ZEK 01.4-08 of German ZLS and its amendments.

2. Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.





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### Test Result(s)

PART NAME No.1

: BLACK GRAINS

Test Item(s)	Unit	Method	MDL	Result	Limit
rest ttem(s)			WDL	No.1	Liiiiit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	and performed by ICP-AES.		n.d.	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
Antimony (Sb)	mg/kg	With reference to US EPA Method 3052. Analysis was performed by ICP- AES.	2	n.d.	-
Phosphorus (P)	mg/kg	With reference to US EPA Method 3052. Analysis was performed by ICP- AES.	2	130	-
BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	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.	-
DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.01	n.d.	-
DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%	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.	-
DNHP (Di-n-hexyl phthalate) (CAS No.: 84-75-3)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.	-
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative	-

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(CHANGCHUN RD., RIVERSIDE INDUSTRIAL PARK, CHANGSHU ECONOMIC DEVELOPMENT ZONE, JIANGSU, CHINA)

Test Item(s)	Unit	Method	MDL	Result	Limit
rest ttell(s)	Onic	Method	MDL	No.1	Emit
Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	mg/kg	With reference to Global SOP RSTS- E&E-121. Analysis was performed by LC/MS.	10	n.d.	-
Bisphenol A (CAS No.: 80-05-7)	mg/kg	With reference to RSTS-HL-229-1 method. Analysis was performed by UPLC-MSMS.	1	n.d.	-
Polychlorinated Naphthalene (PCNs)	mg/kg	With reference to US EPA 3540C method. Analysis was performed by GC/MS.	5	n.d.	-
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
PFOA (CAS No.: 335-67-1)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	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	mg/kg	With reference to IEC 62321: 2008 and	5	n.d.	-
Sum of PBDEs	шу/ку	performed by GC/MS.	-	n.d.	1000
Monobromodiphenyl ether			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.	-



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	Unit	Method	МО	Result	limit
Test Item(s)			MDL	No.1	Limit
Polynuclear Aromatic Hydrocarbons (PAHs)					
Acenaphthene (CAS No.: 83-32-9)			0.2	n.d.	-
Acenaphthylene (CAS No.: 208- 96-8)			0.2	0.386	-
Anthracene (CAS No.: 120-12-7)			0.2	n.d.	-
Benzo[a]anthracene (CAS No.: 56- 55-3)			0.2	n.d.	-
Benzo[a]pyrene (CAS No.: 50-32- 8)			0.2	n.d.	-
Benzo[b]fluoranthene (CAS No.: 205-99-2)			0.2	n.d.	-
Benzo[g,h,i]perylene (CAS No.: 191-24-2)			0.2	n.d.	-
Benzo[k]fluoranthene (CAS No.: 207-08-9)		With reference to ZLS standard ZEK	0.2	n.d.	-
Chrysene (CAS No.: 218-01-9)	mg/kg	01.4-08 method. Analysis was	0.2	n.d.	-
Dibenzo[a,h]anthracene (CAS No.: 53-70-3)	5 5	performed by GC/MS.	0.2	n.d.	-
Fluoranthene (CAS No.: 206-44-0)			0.2	0.204	-
Fluorene (CAS No.: 86-73-7)			0.2	n.d.	-
Indeno[1,2,3-c,d] pyrene (CAS No.: 193-39-5)			0.2	n.d.	-
Naphthalene (CAS No.: 91-20-3)			0.2	0.223	-
Phenanthrene (CAS No.: 85-01-8)			0.2	n.d.	-
Pyrene (CAS No.: 129-00-0)			0.2	0.485	-
Benzo[j]fluoranthene (CAS No.: 205-82-3)			0.2	n.d.	-
Benzo[e]pyrene (CAS No.: 192- 97-2)			0.2	n.d.	-
Sum of 18 PAHs			-	1.298	-

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(CHANGCHUN RD., RIVERSIDE INDUSTRIAL PARK, CHANGSHU ECONOMIC DEVELOPMENT ZONE, JIANGSU, CHINA)

Test Item(s)	Unit	Method	MDL	Result	Limit
rest item(s)				No.1	
Halogen					
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	ma/ka	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.	-
Halogen-Chlorine (CI) (CAS No.: 22537-15-1)			50	81	-
Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.	-
Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.	-

#### Note :

- 1. mg/kg = ppm ; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected
- 3. MDL = Method Detection Limit
- 4. " " = Not Regulated
- 5. \*\* = Qualitative analysis (No Unit)
- 6. Negative = Undetectable / Positive = Detectable

### PFOS Reference Information : POPs - (EU) 757/2010

Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above  $1\mu g/m^2$ .



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### **Reference information for PAHs:**

### Requirement of ZEK 01.4-08 : Restraining maximum values for products

Parameter	Category 1	Category 1 Category 2	
	Material indented to be put in the mouth or toys for children aged < 36 months with intended skin contact.	category 1 with foreseeable	Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 seconds (short- term skin contact).
Benzo[a]pyrene (mg/kg)	<mdl (<0.2)**<="" td=""><td>1</td><td>20</td></mdl>	1	20
Sum of 18 PAH (mg/kg)*	<mdl (<0.2)**<="" td=""><td>10</td><td>200</td></mdl>	10	200

#### Remark :

\* = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs

\*\* = If the limits of category 1 are surpassed but the limits of category 2 still met, the confirmation of suitability of contact with foodstuff or the oral mucosa can be verified by an additional specific migration test of the PAH components according to EN 1186 ff. and § 64 LFBG 80.30-1. The results of the migration test shall be evaluated according to law criteria for foodstuff.



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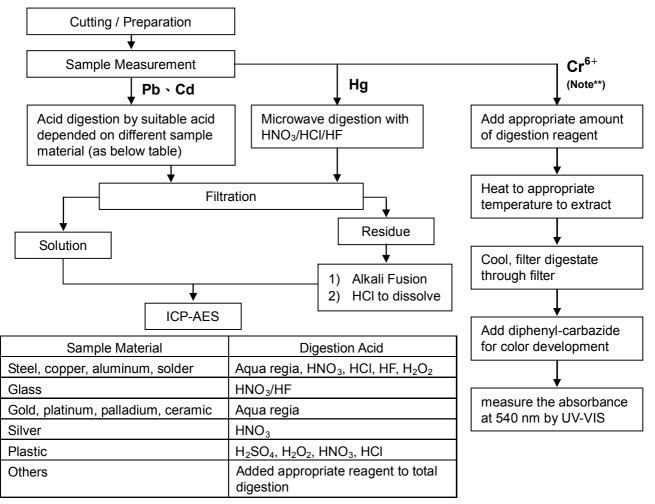
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(CHANGCHUN RD., RIVERSIDE INDUSTRIAL PARK, CHANGSHU ECONOMIC DEVELOPMENT ZONE, JIANGSU, CHINA)

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  $(Cr^{6+} test method excluded)$
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



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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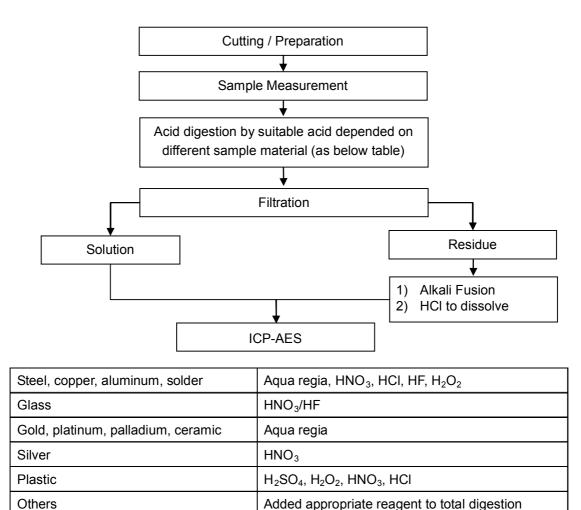
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- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang

#### Flow Chart of digestion for the elements analysis performed by ICP-AES



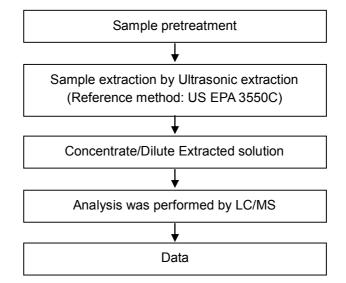


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#### PFOA/PFOS analytical flow chart of Ultrasonic extraction (LC/MS) procedure

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



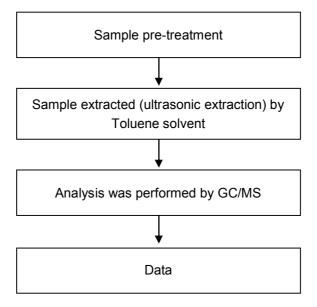


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#### PAHs (Polynuclear Aromatic Hydrocarbons) analytical flow chart

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



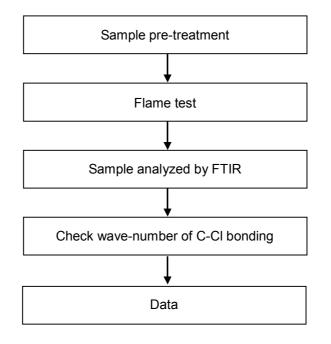


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#### Analysis flow chart for determination of PVC in material

- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang





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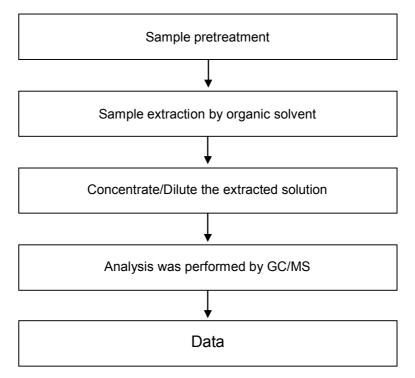
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#### PCNs analytical flow chart

- Name of the person who made measurement: Barry Tseng
- Name of the person in charge of measurement: Troy Chang



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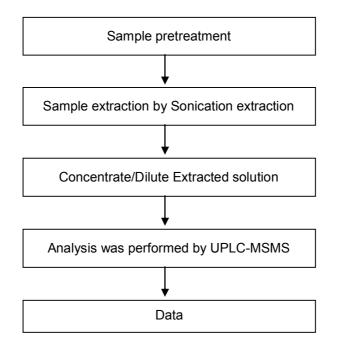


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#### **Bisphenol A analytical flow chart**

- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang



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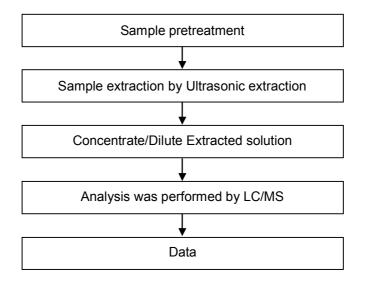


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#### **TBBP-A** analytical flow chart

- Name of the person who made measurement: Ginny Chen
- Name of the person in charge of measurement: Troy Chang



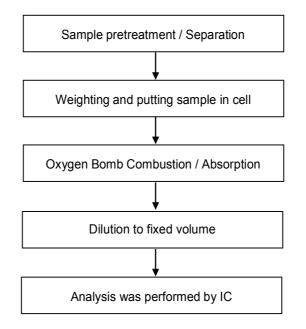


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#### Analytical flow chart of halogen content

- Name of the person who made measurement: Rita Chen
- Name of the person in charge of measurement: Troy Chang



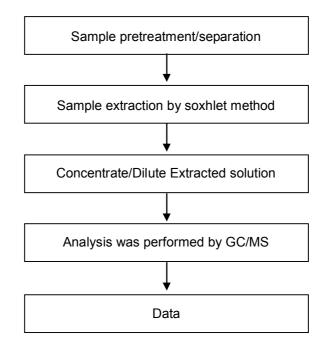


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#### Analytical flow chart of phthalate content

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang





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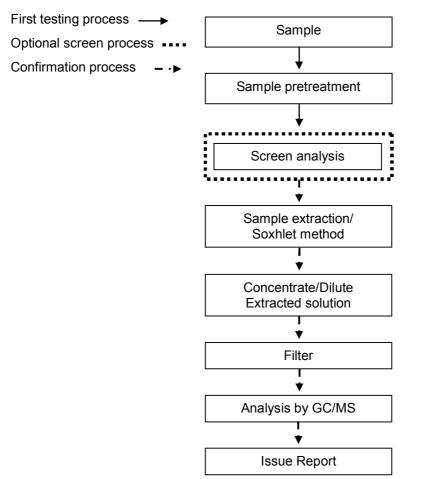
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#### **PBB/PBDE analytical FLOW CHART**

■ Name of the person who made measurement: Roman Wong

■ Name of the person in charge of measurement: Troy Chang





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



\*\* End of Report \*\*