

## Test Report

No:CE/2024/B4230

Date:2024/05/07

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AGC FLAT GLASS (THAILAND) PUBLIC CO., LTD.  
AMATA CITY INDUSTRIAL ESTATE, 7/104 MOO.4, HIGHWAY NO.331, MAP YANG PHON,  
PLUAK DAENG, RAYONG 21140



The following samples was/were submitted and identified by/on behalf of the applicant as :

Sample Submitted By : SGS THAILAND LTD.  
Sample Description : FLOAT GLASS SUBSTRATE AS2  
Sample Receiving Date : 2024/05/07  
Testing Period : 2024/05/07 TO 2024/05/08 AND 2024/05/07 TO 2024/05/08

### Test Requested :

- (1) As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample.
- (2) As specified by client, to test PAHs and other item(s).

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

Conclusion : (2) Based upon the performed tests on the submitted sample, the test results of PAHs (18 items) comply with the limits of PAHs requirement (Category 1) as set by German Committee on Product Safety (AfPS) GS PAHs.

  
Troy Chang, Manager - Tech  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei



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## Test Result(s)

PART NAME No.1 : TRANSPARENT GLASS

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)	mg/kg	With reference to IEC 62321 (2008) and performed by UV-VIS.	2	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321-6 (2015) 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.
Sum of PBDEs	mg/kg		-	n.d.
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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Test Item(s)	Unit	Method	MDL	Result
				No.1
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>				
Acenaphthene (CAS No.: 83-32-9)	mg/kg	With reference to AfPS GS 2014:01 PAK. Analysis was performed by GC/MS.	0.2	n.d.
Acenaphthylene (CAS No.: 208-96-8)	mg/kg		0.2	n.d.
Anthracene (CAS No.: 120-12-7)	mg/kg		0.2	n.d.
Benzo[a]anthracene (CAS No.: 56-55-3)	mg/kg		0.2	n.d.
Benzo[a]pyrene (CAS No.: 50-32-8)	mg/kg		0.2	n.d.
Benzo[b]fluoranthene (CAS No.: 205-99-2)	mg/kg		0.2	n.d.
Benzo[g,h,i]perylene (CAS No.: 191-24-2)	mg/kg		0.2	n.d.
Benzo[k]fluoranthene (CAS No.: 207-08-9)	mg/kg		0.2	n.d.
Chrysene (CAS No.: 218-01-9)	mg/kg		0.2	n.d.
Dibenzo[a,h]anthracene (CAS No.: 53-70-3)	mg/kg		0.2	n.d.
Fluoranthene (CAS No.: 206-44-0)	mg/kg		0.2	n.d.
Fluorene (CAS No.: 86-73-7)	mg/kg		0.2	n.d.
Indeno[1,2,3-c,d] pyrene (CAS No.: 193-39-5)	mg/kg		0.2	n.d.
Naphthalene (CAS No.: 91-20-3)	mg/kg		0.2	n.d.
Phenanthrene (CAS No.: 85-01-8)	mg/kg		0.2	n.d.
Pyrene (CAS No.: 129-00-0)	mg/kg		0.2	n.d.
Benzo[j]fluoranthene (CAS No.: 205-82-3)	mg/kg		0.2	n.d.
Benzo[e]pyrene (CAS No.: 192-97-2)	mg/kg		0.2	n.d.
Sum of 18 PAHs	mg/kg		-	n.d.

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PLUAK DAENG, RAYONG 21140



Test Item(s)	Unit	Method	MDL	Result
				No.1
Polychlorinated Terphenyls (PCTs)	mg/kg	With reference to US EPA 3550C (2007). Analysis was performed by GC/MS.	0.5	n.d.
Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg		0.5	n.d.
Polychlorinated Naphthalene (PCNs)	mg/kg		5	n.d.
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	mg/kg	With reference to US EPA 3550C (2007). Analysis was performed by GC/MS.	100	n.d.
Tributyl Tin (TBT)	mg/kg	With reference to ISO 17353 (2004). Analysis was performed by GC/FPD.	0.03	n.d.
Triphenyl Tin (TphT)	mg/kg		0.03	n.d.
Dibutyl Tin (DBT)	mg/kg		0.03	n.d.
Diocetyl Tin (DOT)	mg/kg		0.03	n.d.
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative
<b>CFC's (Chlorofluorocarbons)</b>				
Group I				
Chlorofluorocarbon-11 (CAS No.: 75-69-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-12 (CAS No.: 75-71-8)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-113 (CAS No.: 76-13-1)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-114 (CAS No.: 76-14-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-115 (CAS No.: 76-15-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Group III				
Chlorofluorocarbon-13 (CAS No.: 75-72-9)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-111 (CAS No.: 354-56-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-112 (CAS No.: 76-12-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
Chlorofluorocarbon-211 (CAS No.: 422-78-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-212 (CAS No.: 3182-26-1)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-213 (CAS No.: 2354-06-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-214 (CAS No.: 29255-31-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-215 (CAS No.: 4259-43-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-216 (CAS No.: 661-97-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chlorofluorocarbon-217 (CAS No.: 422-86-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>HCFCs</b> <b>(Hydrochlorofluorocarbons)</b>				
HCFC-21 (CAS No.: 75-43-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-22 (CAS No.: 75-45-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-31 (CAS No.: 593-70-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-121 (CAS No.: 354-14-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-122 (CAS No.: 354-21-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-123 (CAS No.: 306-83-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-124 (CAS No.: 2837-89-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-131 (CAS No.: 359-28-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-132b (CAS No.: 1649-08-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
HCFC-133a (CAS No.: 75-88-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-141b (CAS No.: 1717-00-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-142b (CAS No.: 75-68-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-221 (CAS No.: 422-26-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-222 (CAS No.: 422-49-1)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-223 (CAS No.: 422-52-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-224 (CAS No.: 422-54-8)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-225ca (CAS No.: 422-56-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-225cb (CAS No.: 507-55-1)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-226 (CAS No.: 431-87-8)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-231 (CAS No.: 421-94-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-232 (CAS No.: 460-89-9)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-233 (CAS No.: 7125-84-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-234 (CAS No.: 425-94-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-235 (CAS No.: 460-92-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-241 (CAS No.: 666-27-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-242 (CAS No.: 460-63-9)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
HCFC-243 (CAS No.: 460-69-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-244	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-251 (CAS No.: 421-41-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-252 (CAS No.: 819-00-1)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-253 (CAS No.: 460-35-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-261 (CAS No.: 420-97-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-262 (CAS No.: 421-02-03)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HCFC-271 (CAS No.: 430-55-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>Halons</b>				
Halon-1211 (CAS No.: 353-59-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Halon-1301 (CAS No.: 75-63-8)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Halon-2402 (CAS No.: 124-73-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Bromomethane (CAS No.: 74-83-9)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>HBFCs (Hydrobromofluorocarbons)</b>				
HBFC-21B2 (CHFBr <sub>2</sub> ) (CAS No.: 1868-53-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-22B1 (CHF <sub>2</sub> Br) (CAS No.: 1511-62-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-31B1 (CH <sub>2</sub> FBr) (CAS No.: 373-52-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
HBFC-121B4 (C2HFBr4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-122B3 (C2HF2Br3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-123B2 (C2HF3Br2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-124B1 (C2HF4Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-131B3 (C2H2FBr3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-132B2 (C2H2F2Br2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-133B1 (C2H2F3Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-141B2 (C2H3FBr2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-142B1 (C2H3F2Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-151B1 (C2H4FBr)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-221B6 (C3HFBr6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-222B5 (C3HF2Br5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-223B4 (C3HF3Br4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-224B3 (C3HF4Br3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-225B2 (C3HF5Br2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-226B1 (C3HF6Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-231B5 (C3H2FBr5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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AMATA CITY INDUSTRIAL ESTATE, 7/104 MOO.4, HIGHWAY NO.331, MAP YANG PHON,  
PLUAK DAENG, RAYONG 21140



Test Item(s)	Unit	Method	MDL	Result
				No.1
HBFC-232B4 (C3H2F2Br4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-233B3 (C3H2F3Br3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-234B2 (C3H2F4Br2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-235B1 (C3H2F5Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-241B4 (C3H3FBr4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-242B3 (C3H3F2Br3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-243B2 (C3H3F3Br2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-244B1 (C3H3F4Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-251B3 (C3H4FBr3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-252B2 (C3H4F2Br2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-253B1 (C3H4F3Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-261B2 (C3H5FBr2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-262B1 (C3H5F2Br)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HBFC-271B1 (C3H6FBr)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>HFCs (Hydrofluorocarbon)</b>				
HFC-23 (CHF3) (CAS No.: 75-46-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-32 (CH2F2) (CAS No.: 75-10-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
HFC-41 (CH3F) (CAS No.: 593-53-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-43-10mee (C5H2F10)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-125 (C2HF5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-134 (C2H2F4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-134a (CH2FCF3) (CAS No.: 811-97-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-143 (CH3F3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-143a (CH3F3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-152a (C2H4F2) (CAS No.: 75-37-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-227ea (C3HF7) (CAS No.: 431-89-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-236fa (C3H2F6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-236ea (C3H2F6) (CAS No.: 431-63-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-245ca (C3H3F5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-245fa (C3H3F5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
HFC-365mfc (C4H5F5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>PFCs (Perfluorocarbon)</b>				
F14 (CAS No.: 75-73-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Fluorocarbon 116 (CAS No.: 76-16-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
Freon 218 (CAS No.: 76-19-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Decafluorobutane (CAS No.: 355-25-9)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Freon C318 (CAS No.: 115-25-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Perfluor-1-butene (CAS No.: 357-26-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
perfluorisobutene (CAS No.: 382-21-8)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,4-dihydrooctafluorobutane (CAS No.: 377-36-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Nonafluor-2- (trifluoromethyl) butane (CAS No.: 594-91-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Perfluoro-n-pentane (CAS No.: 678-26-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
2-perfluoromethylpentane (CAS No.: 355-04-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Perfluorohexane (CAS No.: 355-42-0)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>CHCs (Chlorinate hydrocarbon)</b>				
1,1,1,2-Tetrachloroethane (CAS No.: 630-20-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,1,1-Trichloroethane (CAS No.: 71-55-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,1,2,2-Tetrachloroethane (CAS No.: 79-34-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,1,2-Trichloroethane (CAS No.: 79-00-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,1-Dichloroethane (CAS No.: 75-34-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,1-Dichloroethene (CAS No.: 75-35-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
1,1-Dichloropropene (CAS No.: 563-58-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,2,3-Trichloropropane (CAS No.: 96-18-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,2-Dichloroethane (CAS No.: 107-06-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,2-Dichloropropane (CAS No.: 78-87-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
1,3-Dichloropropane (CAS No.: 142-28-9)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
2,2-Dichloropropane (CAS No.: 594-20-7)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Carbon tetrachloride (CAS No.: 56-23-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chloroethane (CAS No.: 75-00-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chloroform (CAS No.: 67-66-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Chloromethane (CAS No.: 74-87-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
cis-1,2-Dichloroethene (CAS No.: 156-59-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
cis-1,3-Dichloropropene (CAS No.: 10061-01-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Hexachlorobutadiene (CAS No.: 87-68-3)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Methylene Chloride (CAS No.: 75-09-2)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Tetrachloroethene (CAS No.: 127-18-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
trans-1,2-Dichloroethene (CAS No.: 156-60-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
trans-1,3-Dichloropropene (CAS No.: 10061-02-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
Trichloroethylene (CAS No.: 79-01-6)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Bromochloromethane (CAS No.: 74-97-5)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
Sulfur Hexafluoride (SF6) (CAS No.: 2551-62-4)	mg/kg	With reference to US EPA 5021A (2014). Analysis was performed by GC/MS.	1	n.d.
<b>AZO</b>				
1): 4-AMINODIPHENYL (CAS No.: 92-67-1)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
2): BENZIDINE (CAS No.: 92-87-5)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
3): 4-CHLORO-O-TOLUIDINE (CAS No.: 95-69-2)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
4): 2-NAPHTHYLAMINE (CAS No.: 91-59-8)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
5): O-AMINOAZOTOLUENE (CAS No.: 97-56-3)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
6): 2-AMINO-4-NITROTOLUENE (CAS No.: 99-55-8)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
7): P-CHLOROANILINE (CAS No.: 106-47-8)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
8): 2,4-DIAMINOANISOLE (CAS No.: 615-05-4)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
9): 4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 101-77-9)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
10): 3,3'-DICHLOBENZIDINE (CAS No.: 91-94-1)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
11): 3,3'-DIMETHOXYBENZIDINE (CAS No.: 119-90-4)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
12): 3,3'-DIMETHYLBENZIDINE (CAS No.: 119-93-7)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
13): 3,3'-DIMETHYL-4,4'-DIAMINODIPHENYLMETHANE (CAS No.: 838-88-0)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
14): P-CRESIDINE (2-METHOXY-5-METHYLANILINE) (CAS No.: 120-71-8)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
15): 4,4'-METHYLENE-BIS- (2-CHLOROANILINE) (CAS No.: 101-14-4)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
16): 4,4'-OXYDIANILINE (CAS No.: 101-80-4)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
17): 4,4'-THIODIANILINE (CAS No.: 139-65-1)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
18): O-TOLUIDINE (CAS No.: 95-53-4)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
19): 2,4-TOLUYLENEDIAMINE (CAS No.: 95-80-7)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
20): 2,4,5-TRIMETHYLANILINE (CAS No.: 137-17-7)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
21): O-ANISIDINE (CAS No.: 90-04-0)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
22): 4-AMINOAZOBENZENE (CAS No.: 60-09-3)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
23): 2,4-XYLIDINE (CAS No.: 95-68-1)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
24): 2,6-XYLIDINE (CAS No.: 87-62-7)	mg/kg	With reference to LFGB 82.02-2 (2013). Analysis was performed by GC/MS.	3	n.d.
Cobalt dichloride (CAS No.: 7646-79-9)	mg/kg	SGS In-House method-RSTS-EE-SVHC-007. Analyzed by ICP-AES.	50	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		10	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	%	With reference to EN 14372 (2004). Analysis was performed by GC/MS.	0.01	n.d.
DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	%		0.01	n.d.
DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	%		0.003	n.d.
DNHP (Di-n-heptyl phthalate) (CAS No.: 3648-21-3)	%		0.003	n.d.
Halogen				
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		50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n.d.
Beryllium (Be)	mg/kg	With reference to US EPA 3050B (1996). Analysis was performed by ICP-AES.	2	n.d.
Selenium (Se)	mg/kg	With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n.d.
Barium (Ba)	mg/kg	With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	19.5
Arsenic (As)	mg/kg	With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n.d.
Antimony (Sb)	mg/kg	With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n.d.
Antimony trioxide (Sb <sub>2</sub> O <sub>3</sub> )*** (CAS No.: 1309-64-4)	mg/kg	With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.***	-	n.d.

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Test Item(s)	Unit	Method	MDL	Result
				No.1
Asbestos				
Chrysotile (CAS No.: 12001-29-5)	%	With reference to NIOSH 9002 (1994). Analysis was performed by Stereo Microscope (SM) and Dispersion Staining Polarized Light Microscope (DS-PLM).	-	Negative
Amosite (CAS No.: 12172-73-5)	%		-	Negative
Crocidolite (CAS No.: 12001-28-4)	%		-	Negative
Anthophyllite (CAS No.: 77536-67-5)	%		-	Negative
Tremolite (CAS No.: 77536-68-6)	%		-	Negative
Actinolite (CAS No.: 77536-66-4)	%		-	Negative

## Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected = less than MDL
4. " - " = Not Regulated
5. \*\* = Qualitative analysis (No Unit)
6. Negative = Undetectable / Positive = Detectable
7. Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".
8. \*\*\*: The substance was calculated by the test result of Antimony. The MDL was evaluated for Antimony.
9. Parameter Conversion Table : Please refer to [http://twap.sgs.com/sgsrsts/chn/download-REACH\\_tw.asp](http://twap.sgs.com/sgsrsts/chn/download-REACH_tw.asp)

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Δ AfPS (German commission for Product Safety): GS PAHs requirements

Parameter	Category 1	Category 2		Category 3	
	Material indented to be put in the mouth or toys with intended skin contact (longer than 30 s).	Materials not falling under category 1 with foreseeable contact to skin for longer than 30 seconds (long-term skin or frequent contact).		Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 seconds (short-term skin contact).	
		Toy under 2009/48/EC	Other products under ProdSG	Toy under 2009/48/EC	Other products under ProdSG
Naphthalene	< 1	< 2		< 10	
Acenaphthylene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Acenaphthene					
Fluorene					
Phenanthrene					
Anthracene					
Fluoranthene					
Pyrene					
Benzo[a]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[j]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-c,d] pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo[a,h]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[g,h,i]perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Sum of 18 PAH	< 1	< 5	< 10	< 20	< 50

Unit: mg/kg

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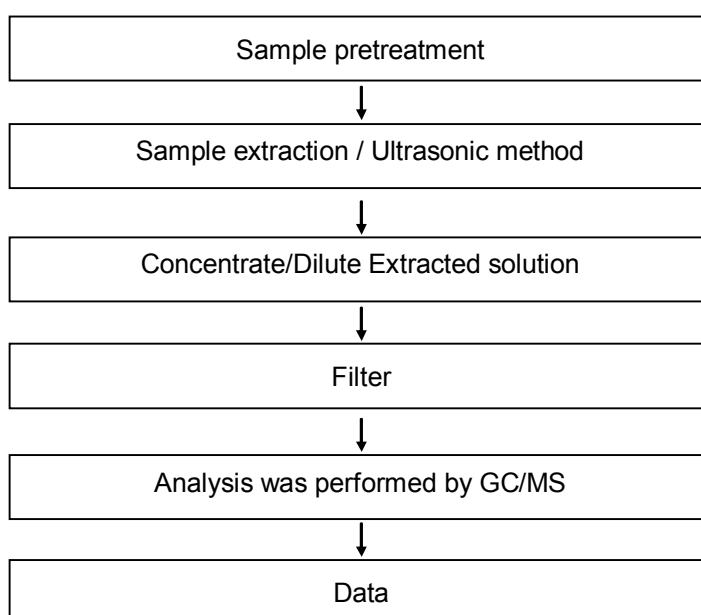
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## Analytical flow chart - Chlorinated Paraffins

- Technician: Yaling Tu
- Supervisor: Troy Chang



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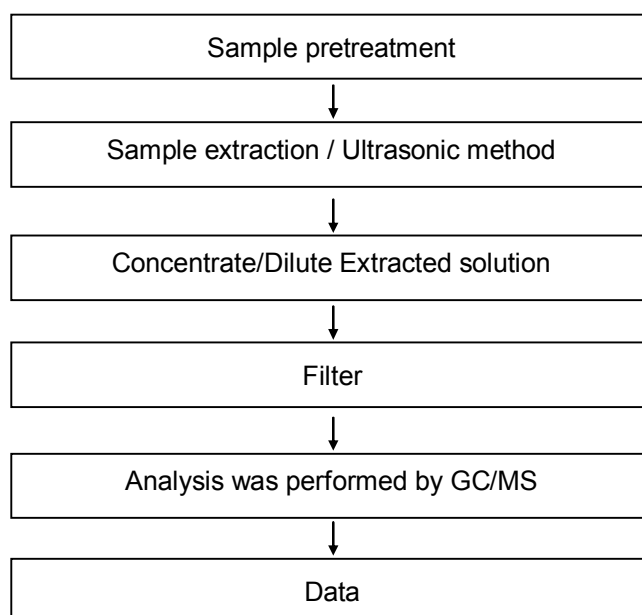
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## Analytical flow chart - PCNs

- Technician: Yaling Tu
- Supervisor: Troy Chang



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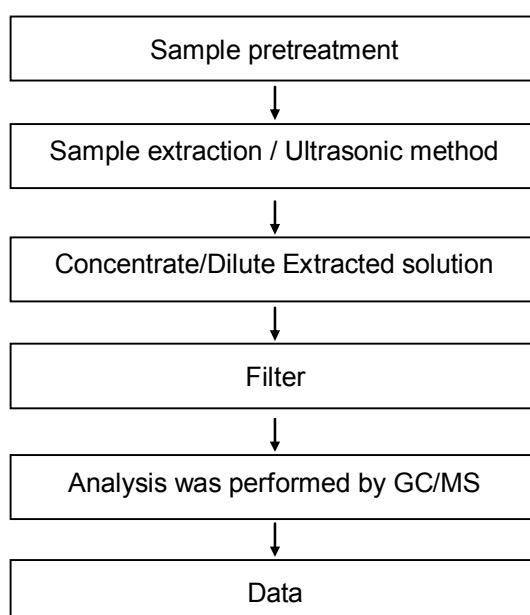
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## Analytical flow chart - PCBs

- Technician: Yaling Tu
- Supervisor: Troy Chang



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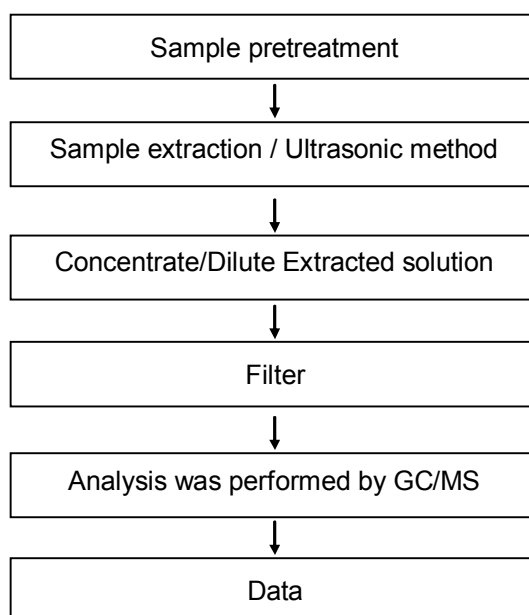
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## Analytical flow chart - PCTs

- Technician: Barry Tseng
- Supervisor: Troy Chang



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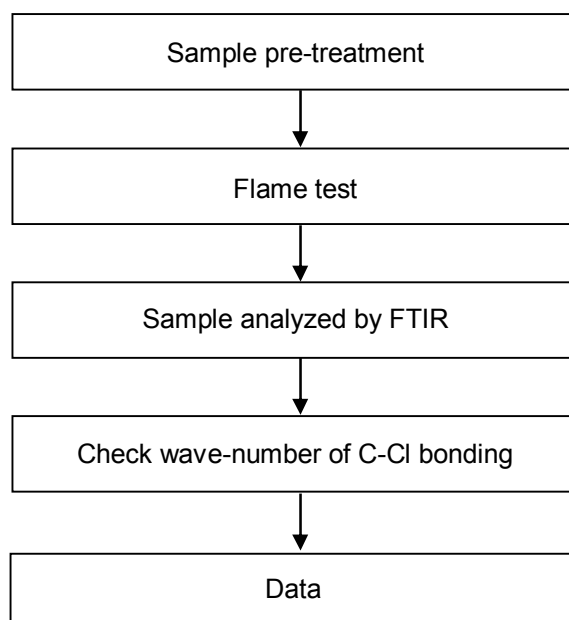
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## Analysis flow chart - PVC

- Technician: Yaling Tu
- Supervisor: Troy Chang



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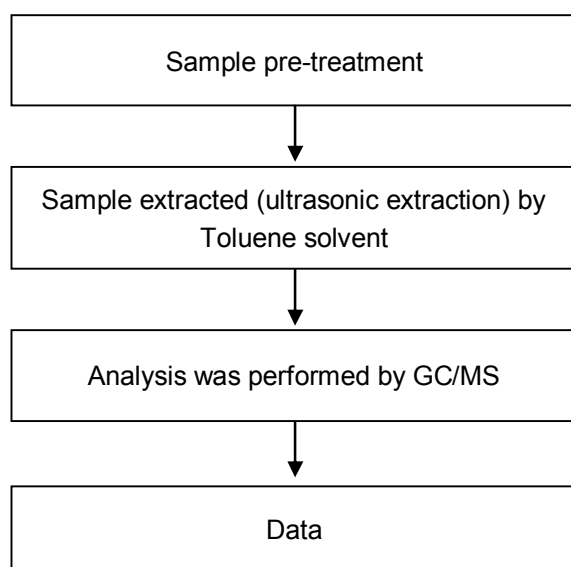
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## Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

- Technician: Yaling Tu
- Supervisor: Troy Chang



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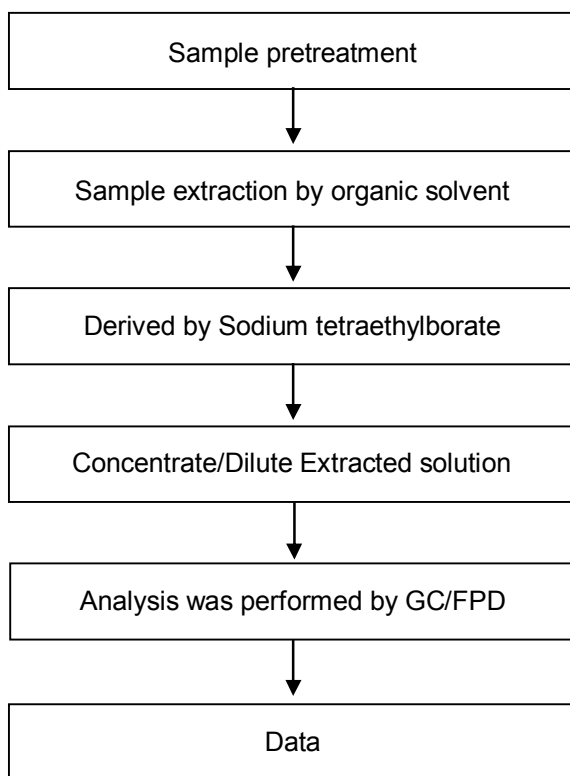
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## Analytical flow chart - Organic-Tin

- Technician: Yaling Tu
- Supervisor: Troy Chang



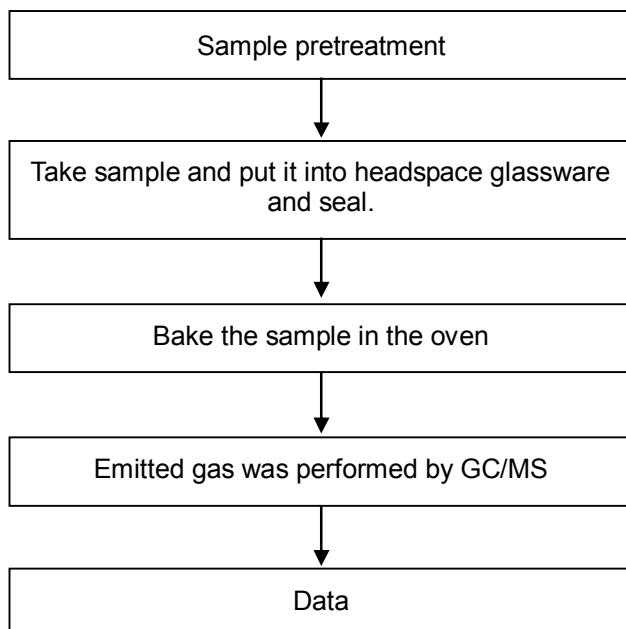
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## Analytical flow chart - volatile organic compounds (VOCs)

- Technician : Chun Wu
- Supervisor : Shinjyh Chen
- 【Reference method : US EPA 5021, 5021A】



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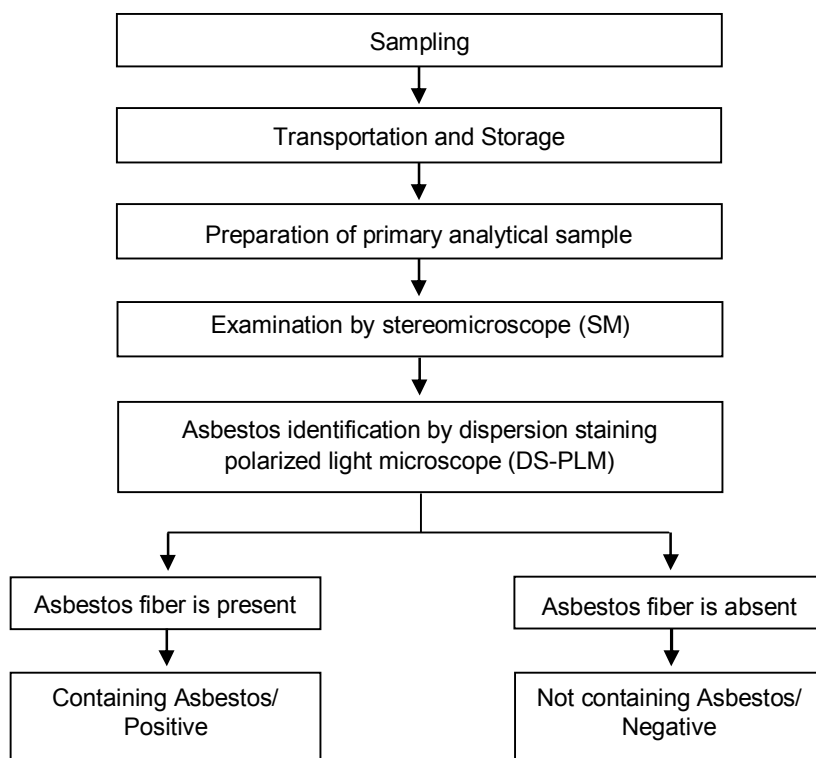
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### Analysis flow chart for determination of Asbestos

【Reference method: NIOSH 9002 、NIEA R401.22C】

- Technician: Victor Kao
- Supervisor: Wendy Wei



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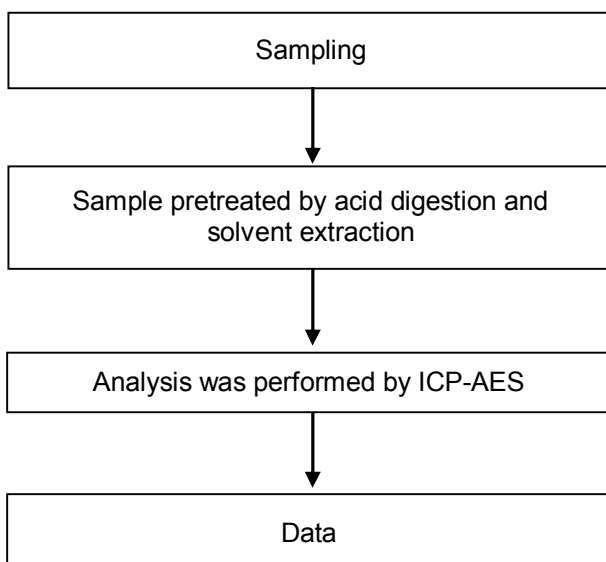
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## Analytical flow chart - Cobalt dichloride

- Technician: JR Wang
- Supervisor: Troy Chang



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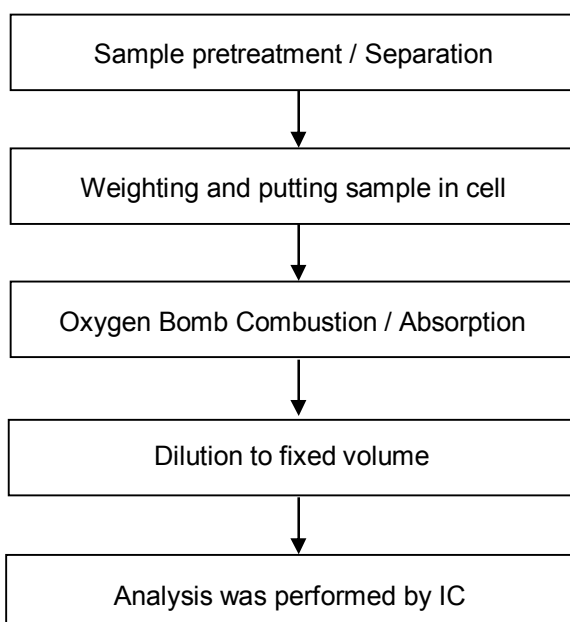
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## Analytical flow chart - Halogen

- Technician: Rita Chen
- Supervisor: Troy Chang



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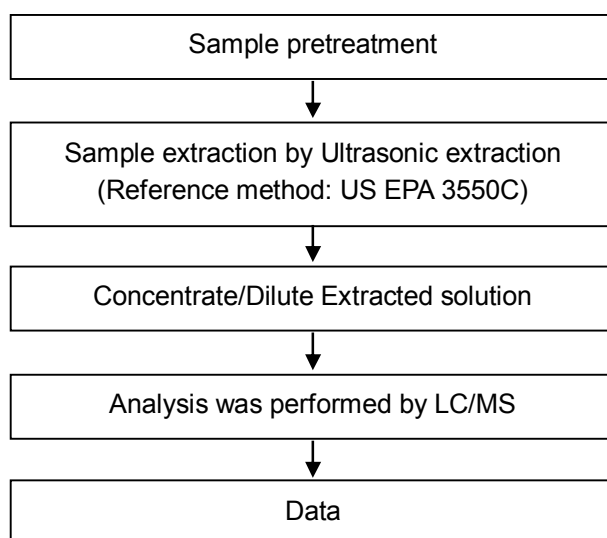
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## Analytical flow chart - PFOA/PFOS

- Technician: Yaling Tu
- Supervisor: Troy Chang



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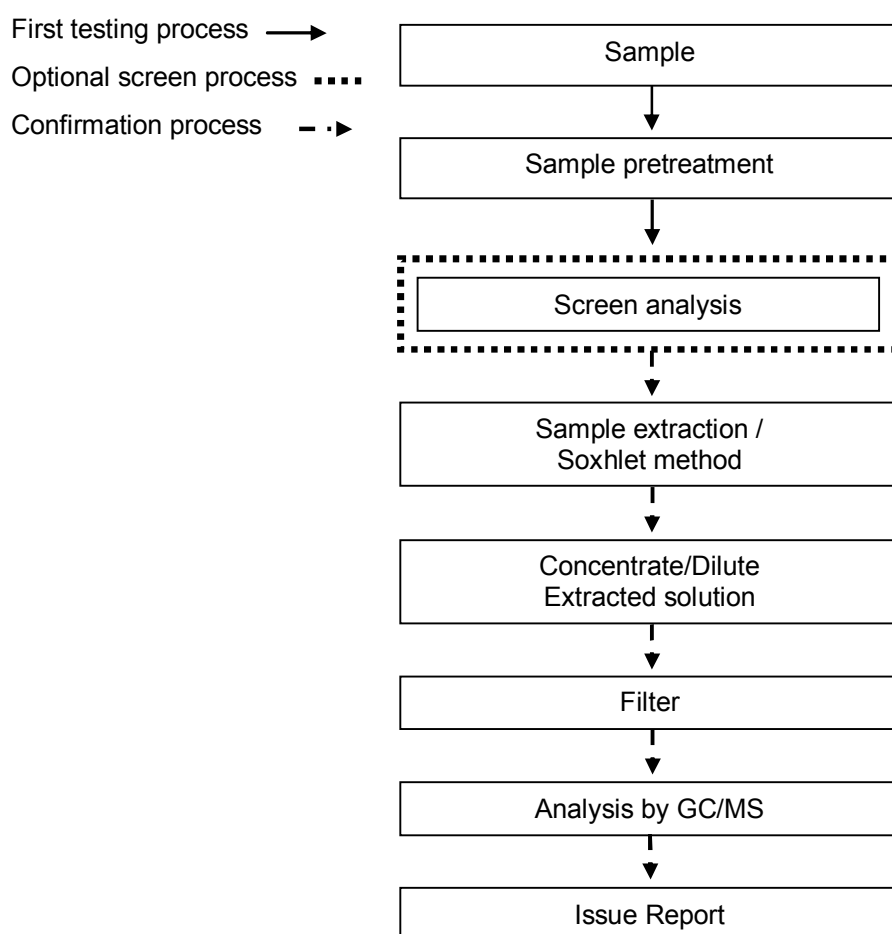
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## Analytical flow chart – PBB / PBDE

- Technician : Yaling Tu
- Supervisor: Troy Chang



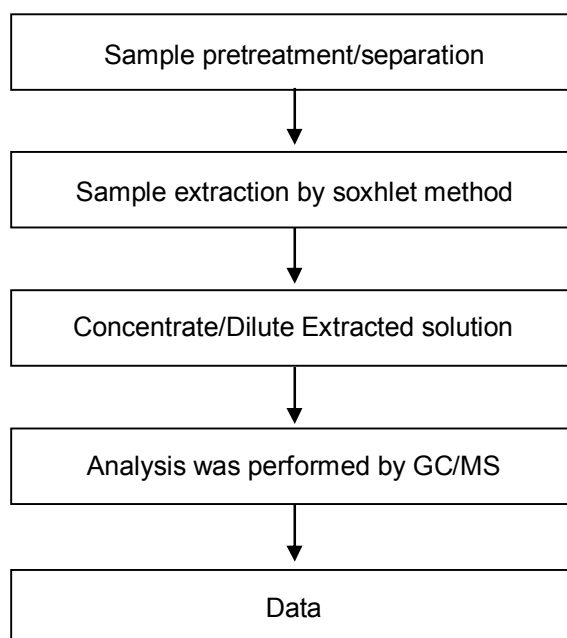
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## Analytical flow chart - Phthalate

- Technician: Yaling Tu
- Supervisor: Troy Chang



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## Test Report

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AGC FLAT GLASS (THAILAND) PUBLIC CO., LTD.

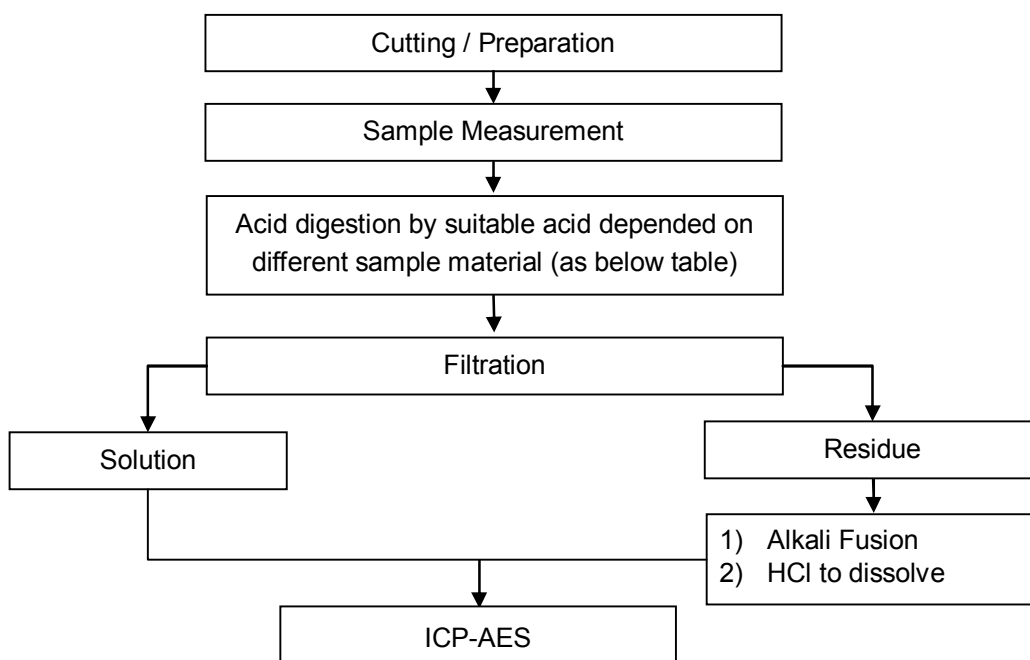
AMATA CITY INDUSTRIAL ESTATE, 7/104 MOO.4, HIGHWAY NO.331, MAP YANG PHON,  
PLUAK DAENG, RAYONG 21140



These samples were dissolved totally by pre-conditioning method according to below flow chart.

- Technician: JR Wang
- Supervisor: Troy Chang

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



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	Added appropriate reagent to total digestion



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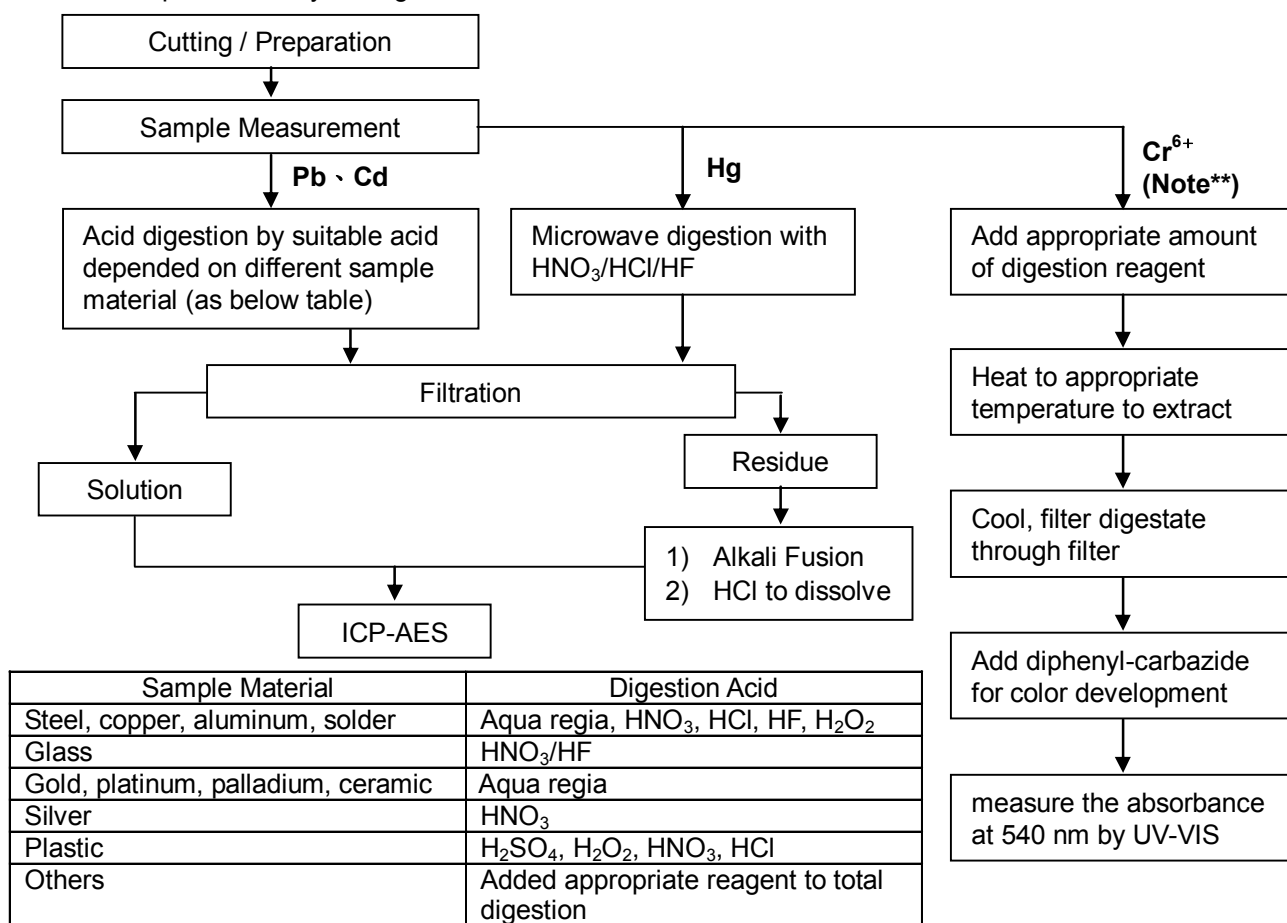
### Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.

(Cr<sup>6+</sup> test method excluded)

■ Technician: JR Wang

■ Supervisor: Troy Chang



#### Note\*\* (For IEC 62321)

(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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**\*\* End of Report \*\***

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