



环谱检测
HAP Testing

检测报告

江苏环谱检测技术服务有限公司
JiangSu HAP Testing Service Co.,Ltd.



Test Report

Report No.: HAP17106585501

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Applicant JF Polymers(Suzhou) Co.,Ltd.

Address Haicheng Industrial Park,Bldg 7,Changshu Economic and Technological Zone,Changshu,Jiangsu Province ,China

Report on the submitted sample(s) said to be

The following sample(s) and sample information was/were submitted and identified on behalf of the clients

Sample Name 1# PolyLite PLA
Sample Wire Diameter 1.75mm / 2.85mm
Sample Colour Black / White / Blue / Red / Grey
Sample Received Date Oct.10,2017
Testing Period Oct.10,2017 to Oct.16,2017

Testing Requested

As per client's request,

(1) According to European Commission Regulation 1907/2006(REACH Act),to test the SVHC content which have been listed in ECHA's SVHC candidate list till 2017/07/07,<http://echa.europa.eu/web/guest/candidate-list-table>

(2) to determine the RoHS 6 (Pb,Cd,Hg,Cr⁶⁺, PBBs, PBDEs) in the submitted sample according to RoHS Directive 2011/65/EU Annex II;

(3) to determine the Polynuclear Aromatic Hydrocarbons (PAHs) content in the submitted sample according to AfPS GS 2014.01 PAK.

Testing Results

Please refer to next page(s)

Conclusion

According to the analytical results,

(1) concentrations of 174 SVHC substances are all less than 0.1% in the submitted sample.Please refer to next page(s);

(2) Based on the test samples,the test results of Cadmium(Cd),Lead(Pb),Mercury(Hg),Hexavalent Chromium (Cr⁶⁺),The sum of Polybrominated Biphenyls(PBBs) and The sum of Polybrominated Diphenyl Ethers(PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II,recasting 2002/95/EC.

Signer :

Date :





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1. Determination of REACH-SVHC (unit: %)

Testing method In-house method with reference to AfPS GS 2014:01 PAK,EPA 3550C:2007,EPA 305 2:1996,EPA 6010C:2007,EPA 5021:1996,EPA 8270D:2007,IEC 62321:2008,EN 14362-1: 2012,DIN EN ISO 17353:2005, By GC-MS, HPLC,UV-VIS, ICP-OES for measuring.

No.	Testing Item(s)	CASNo.	EC No.	MDL	1#*****
1	Anthracene	120-12-7	204-371-1	0.005	ND
2	4,4'-diaminodiphenylmethane (MDA)	101-77-9	202-974-4	0.005	ND
3	Dibutyl Phthalate (DBP)	84-74-2	201-557-4	0.005	ND
4	Cobalt dichloride*	7646-79-9	231-589-4	—	ND
5	Diarsenic pentaoxide*	1303-28-2	215-116-9	—	ND
6	Diarsenic trioxide*	1327-53-3	215-481-4	—	ND
7	Sodium dichromate*	7789-12-0/105 88-01-09	234-190-3	—	ND
8	5-tert-butyl-2,4,6-trinitro-m-xylene(Musk xylene)	81-15-2	201-329-4	0.005	ND
9	Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	204-211-0	0.005	ND
10	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane	25637-99-4/31 94-55-6	247-148-4/ 221-695-9	0.005	ND
11	Short Chain Chlorinated Paraffins (SCCPs)	85535-84-8	287-476-5	0.01	ND
12	Bis (tributyltin) oxide (TBTO) **	56-35-9	200-268-0	0.05	ND
13	Lead hydrogen arsenate*	7784-40-9	232-064-2	—	ND
14	Benzylbutyl Phthalate (BBP)	85-68-7	201-622-7	0.005	ND
15	Triethyl arsenate*	15606-95-8	427-700-2	—	ND
16	Anthracene oil	90640-80-5	292-602-7	0.05	ND
17	Anthracene oil,anthracene paste,distn.Lights	91995-17-4	295-278-5	0.05	ND
18	Anthracene oil,anthracene paste,anthracene fraction	91995-15-2	295-275-9	0.05	ND
19	Anthracene oil,anthracene-low	90640-82-7	292-604-8	0.05	ND
20	Anthracene oil,anthracene paste	90640-81-6	292-603-2	0.05	ND
21	Coal tar pitch,high temperature	659969-93-2	266-028-2	0.05	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
22	2,4-Dinitrotoluene	121-14-2	204-450-0	0.01	ND
23	Diisobutyl phthalate (DIBP)	84-69-5	201-553-2	0.005	ND
24	Lead chromate*	7758-97-6	231-846-0	—	ND
25	Lead chromate molybdate sulphate red (C.I.Pigment Red 104) *	12656-85-8	235-759-9	—	ND
26	Lead sulfochromate yellow (C.I.Pigment Yellow 34) *	1344-37-2	215-693-7	—	ND
27	Tris (2-chloroethyl) phosphate (TCEP)	115-96-8	204-118-5	0.01	ND
28	Acrylamide	79-06-1	201-173-7	0.01	ND
29	Trichloroethylene	79-01-6	201-167-4	0.005	ND
30	Boric acid*	10043-35-3 11113-50-1	233-139-2 234-343-4	—	ND
31	Disodium tetraborate, anhydrous*	1330-43-4 12179-04-3 1303-96-4	215-540-4	—	ND
32	Tetraboron disodium heptaoxide, hydrate*	12267-73-1	235-541-3	—	ND
33	Sodium chromate*	7775-11-3	231-889-5	—	ND
34	Potassium chromate*	7789-00-6	232-140-5	—	ND
35	Ammonium dichromate*	7789-09-5	232-143-1	—	ND
36	Potassium dichromate*	7778-50-9	231-906-6	—	ND
37	Cobalt(II) sulphate *	10124-43-3	233-334-2	—	ND
38	Cobalt(II) dinitrate *	10141-05-6	233-402-1	—	ND
39	Cobalt(II) carbonate*	513-79-1	208-169-4	—	ND
40	Cobalt(II) diacetate *	71-48-7	200-755-8	—	ND
41	2-Methoxyethanol	109-86-4	203-713-7	0.01	ND
42	2-Ethoxyethanol	110-80-5	203-804-1	0.01	ND
43	Chromium trioxide*	1333-82-0	215-607-8	—	ND
44	Chromic acid、Dichromic acid、acids generated from chromium trioxide and their oligomers*	7738-94-5; 13530-68-2	231-801-5,236 -881-5	—	ND
45	2-ethoxyethyl acetate	111-15-9	203-839-2	0.05	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
46	strontium chromate (1,2-Benzenedic) *	7789-6-2	232-142-6	—	ND
47	1,2-Benzenedicarboxylic acid, di-(C7-11)-branched and linear alkyl esters	68515-42-4	271-084-6	0.01	ND
48	Hydrazine	7803-57-8、302-01-2	206-114-9	0.05	ND
49	1-Methyl-2-pyrrolidinone	872-50-4	212-828-1	0.01	ND
50	1,2,3-trichloropropane (1,2-Benzenedic)	96-18-4	202-486-1	0.01	ND
51	1,2-Benzenedicarboxylic acid, di-(C6-8)-branched alkyl esters, C7-rich	71888-89-6	276-158-1	0.01	ND
52	Dichromium tris(chromate)*	24613-89-6	246-356-2	—	ND
53	Potassium hydroxyoctaoxodizincatedi-chromate*	11103-86-9	234-329-8	—	ND
54	Pentazinc chromate octahydroxide*	49663-84-5	256-418-0	—	ND
55	Aluminosilicate Refractory Ceramic Fibres (RCF)***	—	650-017-00-8	0.05	ND
56	Zirconia Aluminosilicate Refractory Ceramic Fibres***	—	650-017-00-8	0.05	ND
57	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	500-036-01	0.05	ND
58	Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6	0.005	ND
59	2-Methoxyaniline; o-Anisidine	90-04-0	201-963-1	0.01	ND
60	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	205-426-2	0.01	ND
61	1,2-Dichloroethane	107-06-2	203-458-1	0.01	ND
62	Bis(2-methoxyethyl) ether	111-96-6	203-924-4	0.01	ND
63	Arsenic acid*	7778-39-4	231-901-9	—	ND
64	Trilead diarsenate*	3687-31-8	222-979-5	—	ND
65	Calcium arsenate*	7778-44-1	231-904-5	—	ND
66	N,N-dimethylacetamide	127-19-5	204-826-4	0.01	ND
67	Phenolphthalein	77-09-8	201-004-7	0.05	ND
68	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9	0.01	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
69	Lead azide Lead diazide*	13424-46-9	236-542-1	—	ND
70	Lead styphnate*	15245-44-0	239-290-0	—	ND
71	Lead dipicrate*	6477-64-1	229-335-2	—	ND
72	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	2003-977-3	0.01	ND
73	1,2-dimethoxyethane,ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9	0.01	ND
74	Diboron trioxide*	1303-86-2	215-125-8	—	ND
75	Formamide	75-12-7	200-842-0	0.01	ND
76	Lead(II)bis(methanesulfonate)*	17570-76-2	401-750-5	—	ND
77	TGIC(1,3,5-tris[oxiranylmethyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	219-514-3	0.01	ND
78	β -TGIC(1,3,5-tris[2Sand2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	59653-74-6	423-400-0	0.01	ND
79	4,4'-bis(dimethylamino)benzophenone(Michler's ketone)	90-94-8	202-027-5	0.01	ND
80	N,n,n',n'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	202-959-2	0.01	ND
81	[4-[4,4'-bis(dimethylamino)benzhydrydene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride(C.I.Basic Violet 3)[with $\geq 0.1\%$ of Michler's ketone(EC No.202-027-5)or Michler's base(EC No.202-959-2)]****	548-62-9	208-953-6	0.01	ND
82	[4-[[4-anilino-1-naphthyl][1-(dimethylamino)Phenyl]methylene]cyclohexa-2,5-dien-1ylidene] dimethylammonium chloride(C.I Basic Blue 26)[with $\geq 0.1\%$ of Michler's ketone(EC No.202-027-5)or Michler's base(EC No.202-959-2)]****	2580-56-5	219-943-6	0.01	ND
83	α, α -Bis[4-(dimethylamino)phenyl]-4(phenylamino)naphthalene-1-methanol(C.I.SolventBlue4)[with $\geq 0.1\%$ of Michler's ketone(EC No.202-027-5)or Michler's base(EC No.202-959-2)]****	6786-83-0	229-851-8	0.01	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
84	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol[with $\geq 0.1\%$ of Michler's ketone(EC No.202-027-5)or Michler's base(EC No.202-959-2)]****	561-41-1	209-218-2	0.01	ND
85	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	214-604-9	0.001	ND
86	Pentacosafuorotridecanoic acid	72629-94-8	276-745-2	0.01	ND
87	Tricosafuorododecanoic acid	307-55-1	206-203-2	0.01	ND
88	Henicosafuoroundecanoic acid	2058-94-8	218-165-4	0.01	ND
89	Heptacosafuorotetradecanoic acid	376-06-7	206-803-4	0.01	ND
90	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated -covering well-defined substances and UVCB substances, polymers and homologues	—	—	0.01	ND
91	4-Nonylphenol, branched and linear -substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof	—	—	0.01	ND
92	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8	0.01	ND
93	Cyclohexane-1,2-dicarboxylic anhydride (Hexahydrophthalic anhydride - HHPA)	85-42-7	201-604-9	0.01	ND
94	Hexahydromethylphthalic anhydride, Hexahydro-4-methylphthalic anhydride, Hexahydro-1-methylphthalic anhydride, Hexahydro-3-methylphthalic anhydride	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	247-094-1, 243-072-0, 256-356-4, 260-566-1	0.01	ND
95	Methoxy acetic acid	625-45-6	210-894-6	0.01	ND
96	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	284-032-2	0.01	ND
97	Diisopentylphthalate (DIPP)	605-50-5	210-088-4	0.01	ND
98	N-pentyl-isopentylphthalate	—	—	0.01	ND
99	1,2-Diethoxyethane	629-14-1	211-076-1	0.01	ND
100	N,N-dimethylformamide, dimethyl formamide	68-12-2	200-679-5	0.01	ND
101	Dibutyltin dichloride (DBT)	683-18-1	211-670-0	0.01	ND
102	Acetic acid, lead salt, basic*	51404-69-4	257-175-3	—	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
103	Basic lead carbonate (trilead bis(carbonate)dihydroxide)*	1319-46-6	215-290-6	—	ND
104	Lead oxide sulfate (basic lead sulfate)*	12036-76-9	234-853-7	—	ND
105	[Phthalato(2-)]dioxotrilead (dibasic lead phthalate)*	69011-06-9	273-688-5	—	ND
106	Dioxobis(stearato)trilead*	12578-12-0	235-702-8	—	ND
107	Fatty acids, C16-18, lead salts*	91031-62-8	292-966-7	—	ND
108	Lead bis(tetrafluoroborate)*	13814-96-5	237-486-0	—	ND
109	Lead cyanamate*	20837-86-9	244-073-9	—	ND
110	Lead dinitrate*	10099-74-8	233-245-9	—	ND
111	Lead oxide (lead monoxide)*	1317-36-8	215-267-0	—	ND
112	Lead tetroxide (orange lead)*	1314-41-6	215-235-6	—	ND
113	Lead titanium trioxide*	12060-00-3	235-038-9	—	ND
114	Lead Titanium Zirconium Oxide*	12626-81-2	235-727-4	—	ND
115	Pentalead tetraoxide sulphate*	12065-90-6	235-067-7	—	ND
116	Pyrochlore, antimony lead yellow*	8012-00-8	232-382-1	—	ND
117	Silicic acid, barium salt, lead-doped*	68784-75-8	272-271-5	—	ND
118	Silicic acid, lead salt*	11120-22-2	234-363-3	—	ND
119	Sulfurous acid, lead salt, dibasic*	62229-08-7	263-467-1	—	ND
120	Tetraethyllead*	78-00-2	201-075-4	—	ND
121	Tetralead trioxide sulphate*	12202-17-4	235-380-9	—	ND
122	Trilead dioxide phosphonate*	12141-20-7	235-252-2	—	ND
123	Furan	110-00-9	203-727-3	0.01	ND
124	Propylene oxide, 1,2-epoxypropane; methyloxirane	75-56-9	200-879-2	0.01	ND
125	Diethyl sulphate	64-67-5	200-589-6	0.01	ND
126	Dimethyl sulphate	77-78-1	201-058-1	0.01	ND
127	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	421-150-7	0.01	ND
128	Dinoseb	88-85-7	201-861-7	0.01	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
129	4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	0.01	ND
130	4,4'-oxydianiline and its salts	101-80-4	202-977-0	0.001	ND
131	4-Aminoazobenzene; 4-Phenylazoaniline	1960-9-3	200-453-6	0.001	ND
132	4-methyl-m-phenylenediamine (toluene-2,4--diamine)	95-80-7	202-453-1	0.001	ND
133	6-methoxy-m-toluidine (p-cresidine)	120-71-8	204-419-1	0.001	ND
134	Biphenyl-4-ylamine	92-67-1	202-177-1	0.01	ND
135	o-aminoazotoluene	97-56-3	202-591-2	0.001	ND
136	o-Toluidine, 2-Aminotoluene	95-53-4	202-429-0	0.001	ND
137	N-methylacetamide	79-16-3	201-182-6	0.01	ND
138	1-bromopropane; n-propyl bromide	106-94-5	203-445-0	0.01	ND
139	Cadmium*	7440-43-9	231-152-8	—	ND
140	Cadmium oxide*	1306-19-0	215-146-2	—	ND
141	Ammonium pentadecafluorooctanoate(APFO)	3825-26-1	223-320-4	0.01	ND
142	Pentadecafluorooctanoic acid(PFOA)	335-67-1	206-397-9	0.01	ND
143	Dipentyl phthalate(DPP)	131-18-0	205-017-9	0.01	ND
144	4-Nonylphenol, branched and linear,ethoxylated	—	—	0.01	ND
145	Cadmium sulphide*	1306-23-6	215-147-8	—	ND
146	Disodium 3,3'-[[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-amin on aphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	209-358-4	0.03	ND
147	Disodium 4-amino-3-[[4'-(2,4-diaminophenyl)azo][1,1'-bip henyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphth alene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	217-710-3	0.03	ND
148	Dihexyl phthalate	84-75-3	201-559-5	0.01	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
149	Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	202-506-9	0.03	ND
150	Lead di(acetate)*	301-04-2	206-104-4	—	ND
151	Trixyly phosphate	25155-23-1	246-677-8	0.01	ND
152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	271-093-5	0.01	ND
153	Sodium perborate, perboric acid, sodium salt*	—	239-172-9 234-390-0	—	ND
154	Sodium peroxometaborate*	7632-04-4	231-556-4	—	ND
155	Cadmium chloride*	10108-64-2	233-296-7	—	ND
156	Cadmium fluoride*	7790-79-6	232-222-0	—	ND
157	Cadmium sulphate*	10124-36-4 31119-53-6	233-331-6	—	ND
158	2-benzotriazol-2-yl-4,6-di-tert-butylphenol	3846-71-7	223-346-6	0.01	ND
159	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol	25973-55-1	247-384-8	0.01	ND
160	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stanna tetradecanoate	15571-58-1	239-622-4	0.01	ND
161	reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stanna tetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]- 4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoat e	—	—	0.01	ND
162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate (EC NO.201-559-5)	68515-51-5 68648-93-1	271-094-0 272-013-1	0.05	ND
163	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl) -5-methyl-1,3-dioxane[1], 5-sec-butyl-2- (4,6-dimethylcyclohex-3-en-1-yl) -5-methyl-1,3-dioxane[2][covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	—	—	0.05	ND



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No.	Testing Item(s)	CAS No.	EC No.	MDL	1#
164	1,3-Propanesultone	1120-71-4	214-317-9	0.01	ND
165	2,4-Di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	223-383-8	0.01	ND
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol(UV-350)	36437-37-3	253-037-1	0.01	ND
167	Nitrobenzene	98-95-3	202-716-0	0.01	ND
168	Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorooxanoic acid) and its sodium and ammonium salts	375-95-1/ 21049-39-8 / 4149-60-4	206-801-3	0.01	ND
169	Benzo (e) pyrene	50-32-8	200-028-5	0.005	ND
170	4,4'-isopropylidenediphenol (bisphenol A)	80-05-7	201-245-8	0.01	ND
171	nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	335-76-2	206-400-3	0.01	ND
172	4-heptylphenol, branched and linear (4-HPbl)	/	/	0.01	ND
173	4-tert-pentylphenol (PTAP)	80-46-6	201-280-9	0.01	ND
174	Perfluorohexane-1-Sulphonic acid and its salts(PFHxS)	355-46-4	206-587-1	0.05	ND

*****To be continued*****



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Remark 1 (1) In accordance with Regulation (EC) No. 1907/2006, any producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1), if both the following conditions are met;

(a) The substance is present in those articles in quantities totalling over 1 tonne per producer or importer per year;

(b) The substance is present in those articles above a concentration of 0.1% weight by weight (w/w).

(2) From 28 October 2008, EU & EEA suppliers of articles which contain substances on the Candidate List in a concentration above 0.1% (w/w) must provide sufficient information, available to them, to their customers and on request to a consumer within 45 days of the receipt of this request. This information must ensure safe use of the article and, as a minimum, include the name of the substance.

Remark 2 (1) Calculated concentration of cobalt dichloride, cobalt(II) sulphate, cobalt(II) dinitrate, cobalt(II) carbonate and cobalt(II) diacetate is based on the identified heavy metal and anion result.

Calculated concentration of diarsenic pentoxide, diarsenic trioxide, chromium trioxide, sodium dichromate, dehydrate, lead hydrogen arsenate, triethyl arsenate, lead chromate, sodium chromate, strontium chromate, potassium chromate, ammonium dichromate, potassium dichromate, lead chromate molybdate sulfate red, lead sulfochromate yellow and acids generated from chromium trioxide and their oligomers, Lead dipicrate, Lead styphnate, Lead azide, Lead diazide, Trilead diarsenate, Calcium arsenate, Arsenic acid, Potassium hydroxyoctaoxodizincatedi-chromate, Dichromium tris(chromate), Pentazinc chromate octahydroxide, Lead(II) bis(methanesulfonate), Diboron trioxide, Acetic acid, lead salt, basic, Basic lead carbonate (trilead bis(carbonate)dihydroxide), Lead oxide sulfate (basic lead sulfate), [Phthalato(2-)]dioxotrilead (dibasic lead phthalate), Dioxobis(stearato)trilead, Fatty acids, C16-18, lead salts, Lead bis(tetrafluoroborate), Lead cyanamate, Lead dinitrate, Lead oxide (lead monoxide), Lead tetroxide (orange lead), Lead titanium trioxide, Lead Titanium Zirconium Oxide, Pentalead tetraoxide sulphate, Pyrochlore, antimony lead yellow, Silicic acid, barium salt, lead-doped, Sulfurous acid, lead salt, dibasic, Tetraethyllead, Tetralead trioxide sulphate, Trilead dioxide phosphonate, Cadmium, Cadmium oxide, Cadmium sulphide and Lead di(acetate), Cadmium chloride, Cadmium fluoride, Cadmium sulphate are based on the identified heavy metal result, boric acid, disodium tetraborate, anhydrous and tetraboron disodium heptaoxide, hydrate, Sodium perborate, perboric acid, sodium salt, Sodium peroxometaborate are based on the identified result of boron and sodium result. The identities of above metal substances present in the article have to be further confirmed; The RL (Reporting Limit) for these test items are 0.05%.

(2) ** Concentration of bis(tributyltin)oxide, TBTO is reported as tributyltin, TBT. The result is a screening test of TBTO and can cover TBTO and other salts under current technologies. Further investigation is needed to have the exact amount of TBTO;



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- Remark 2** (3)*** Calculated concentration of Aluminosilicate, Refractory Ceramic Fibres ;Zirconia Aluminosilicate, Refractory Ceramic Fibres is based on the identified heavy metal result and confirmation by microscope;
- (4) ****The substance does only fulfil the criteria of REACH Art. 57 (a) if it contains Michler's ketone (EC Number: 202-027-5) or Michler's base (EC Number: 202-959-2) in a concentration $\geq 0.1\%$ (weight / weight);
- (5) ND= Not detected, less than MDL;
- (6) MDL=Method Detection Limit;
- (7) *****1# sample test line

2. Determination of RoHS 6 (unit: mg/kg)

- Testing method**
- (1) With reference to IEC 62321-5:2013. By ICP - OES for measuring;
- (2) With reference to IEC 62321-4:2013. By ICP-OES for measuring;
- (3) With reference to IEC 62321-7-2-2017. By UV-VIS for measuring;
- (4) With reference to IEC 62321-6:2015. By GC-MS for measuring.

Testing Item(s)	Method	MDL	Limit	1#*****
Lead (Pb)	(1)	2	1000	ND
Cadmium (Cd)		2	100	ND
Mercury (Hg)	(2)	2	1000	ND
Chromium(VI) (Cr ⁶⁺)	(3)	2	1000	ND
Polybrominated Biphenyls (PBBs)	(4)	—	1000	ND
Polybrominated Diphenyl Ethers (PBDEs)		—	1000	ND

- Note:
- (1) 1 mg/kg=1 ppm=0.0001%
- (2) MDL=Method Detection Limit
- (3) ND=Not Detected (<MDL)
- (4) "—" =Not Regulated
- (5) Polybrominated diphenyl ethers
- (6) Polybrominated Biphenyls、Polybrominated Diphenyl Ethers list,and detection limit (MDL)

Polybrominated Biphenyls (PBBs)	MDL	Polybrominated Diphenyl Ethers (PBDEs)	MDL
Bromobiphenyl	5	Bromobiphenyl ether	5
Dibromobiphenyl	5	Dibromobiphenyl ether	5
Tribromobiphenyl	5	Tribromobiphenyl ether	5
Tetrabromobiphenyl	5	Tetrabromodiphenyl ether	5
Pentabromobiphenyl	5	Pentabromodiphenyl ether	5
Hexabromobiphenyl	5	Hexabromodiphenyl ether	5
Heptabromobiphenyl	5	Heptabromodiphenyl ether	5
Octabromobiphenyl	5	Octabromobiphenyl ether	5
Nonabromobiphenyl	5	Nonabromobiphenyl ether	5
Decabromodiphenyl	5	Decabromobiphenyl ether	5

- (7) *****1# sample test line

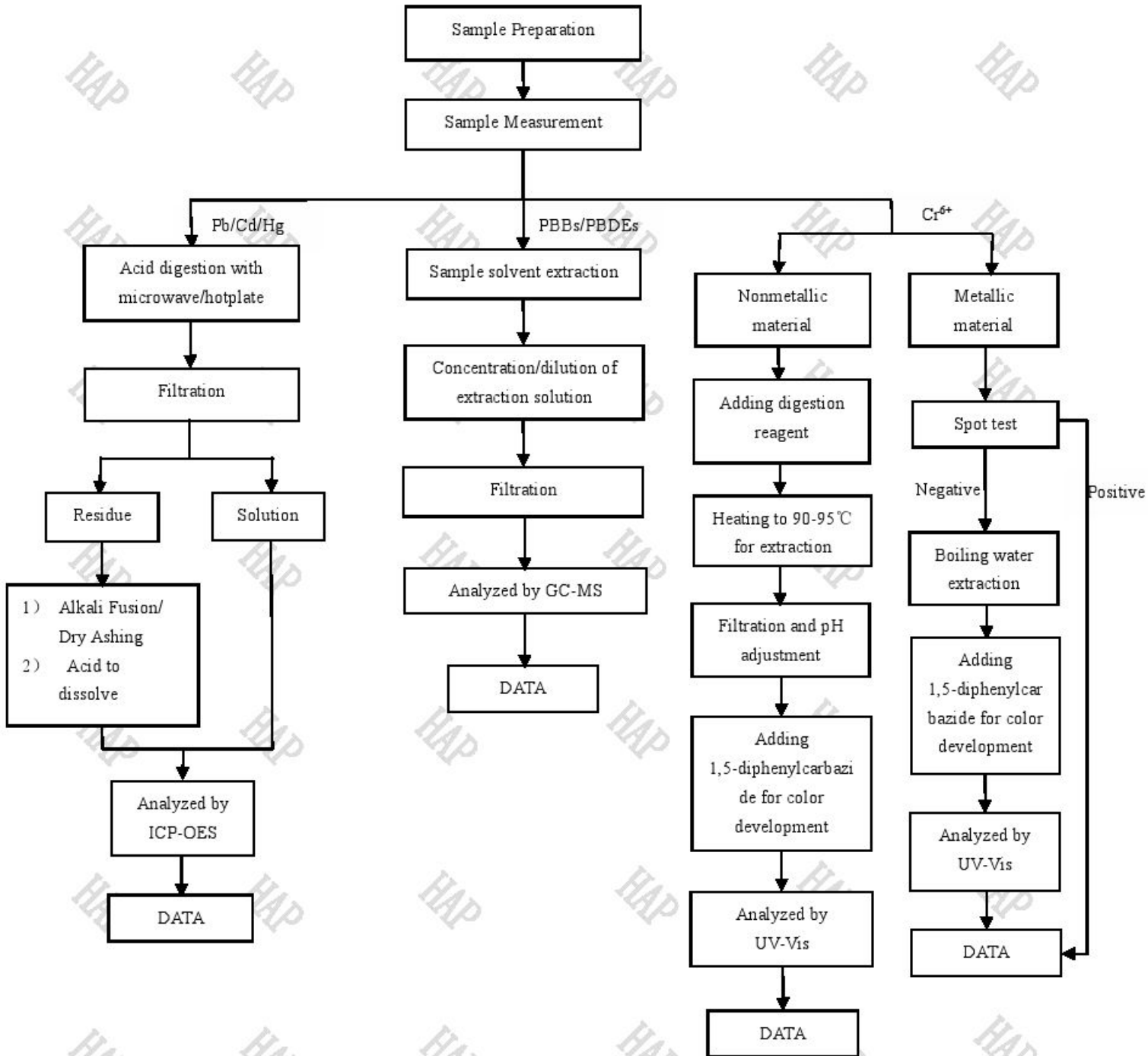


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RoHS Testing Flow Chart





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3. Determination of Polynuclear Aromatic Hydrocarbons (PAHs) (unit: mg/kg)

Testing method With reference to AfPS GS 2014.01 PAK. By GC-MS for measuring.

Testing Item(s)	MDL	1#*****
Naphthalene	0.2	ND
Acenaphthene	0.2	ND
Fluorene	0.2	ND
Phenanthrene	0.2	ND
Anthracene	0.2	ND
Pyrene	0.2	ND
Chrysene	0.2	ND
Acenaphthylene	0.2	ND
Fluoranthene	0.2	ND
Benzo (a) anthracene	0.2	ND
Benzo (a) pyrene	0.2	ND
Benzo (e) pyrene	0.2	ND
Benzo (b) fluoranthene	0.2	ND
Benzo (j) fluoranthene	0.2	ND
Benzo (k) fluoranthene	0.2	ND
Benzo (a, h, i) perylene	0.2	ND
Dibenzo (a, h) anthracene	0.2	ND
Indeno (1,2,3-c, d) pyrene	0.2	ND
Sum of Acenaphthylene Acenaphthene Anthracene Fluoranthene Fluorene Phenanthrene Pyrene		ND
The sum of 18 PAHs	—	ND

- Note:
- (1) 1mg/kg=1ppm=0.0001%
 - (2) MDL=Method Detection Limit
 - (3) ND=Not Detected (<MDL)
 - (4) “—” =Not Regulated
 - (5) *****1# sample test line



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Sample photo:



End of report

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