

Shenzhen 863 New Material and Technology Co., Ltd

Test Report

Report No.: SAC2018-05578-23-1E

Date: Nov.16, 2018

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Customer : SHENZHEN REFOND OPTOELECTRONICS CO.,LTD
Address : 1-8th Floor, Building #1, 10th Industrial Zone, Tian Liao Community, Gong Ming Area,
Guang Ming New District, SHENZHEN, CHINA

Sample Information:

Sample Name : LED Flexible Filament

Sample Description : Orange filament

Model/P.O. No. : /

Item/Lot No. : /

Material : /

Buyer : /

Supplier : /

Manufacturer : /

Received Date : Nov.2, 2018

Test Period : Nov.2, 2018~Nov.15, 2018

Test Requested : As specified by customer,

1. refer to EU Regulation (EC) No 1907/2006 (REACH), to determine the 191 kinds of substances of very high concern (SVHC) in the submitted sample.

2. to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr^{6+}), PBBs, PBDEs, DBP, BBP, DEHP and DIBP content.

Edited by: Rose

Audited by: Jenny

Approved by: Sinead



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- Test Method** : Please refer to the following pages.
- Test Results** : Please refer to the following pages.
- Regulation Request** : Under REACH Regulation(EC) No 1907/2006, suppliers of articles which contain SVHC in a concentration above 0.1%(w/w) have to provide sufficient information, to articles recipients, to a consumer within 45 days of the receipt of the request. This information must ensure safe use of the article and as minimum contain the name of the substance.

- Test Conclusion:** 1. The test results correspond with the REACH Regulation (EC) No 1907/2006.
2. To test according to the requirements of the customer, the results of the sample shown on this report do not exceed the required limit of EU RoHS 2011/65/EU and 2015/863/EU.

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1. Test Result(s) (SVHC):

No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)
1	Anthracene	120-12-7	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
2	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2		GC-MS	N.D.	0.01
3	Short Chain Chlorinated Paraffines(SCCPs)	85535-84-8		GC-MS	N.D.	0.01
4	2,4-Dinitrotoluene	121-14-2		GC-MS	N.D.	0.01
5	Anthracene oil	90640-80-5		GC-MS	N.D.	0.01
6	Anthracene oil, anthracene paste, distn. lights	91995-17-4		GC-MS	N.D.	0.01
7	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2		GC-MS	N.D.	0.01
8	Anthracene oil, anthracene-low	90640-82-7		GC-MS	N.D.	0.01
9	Anthracene oil, anthracene paste	90640-81-6		GC-MS	N.D.	0.01
10	Pitch, coal tar, high-temp.	65996-93-2		GC-MS	N.D.	0.01
11	Tris(2-chloroethyl) phosphate	115-96-8		GC-MS	N.D.	0.01
12	2-Methoxyethanol	109-86-4		GC-MS	N.D.	0.01
13	2-Ethoxyethanol	110-80-5		GC-MS	N.D.	0.01
14	1,2-Benzendicarboxylic acid, di-(C7-11)-branched and linear alkyl esters	68515-42-4		GC-MS	N.D.	0.01
15	Hydrazine; Hydrazine base; Diamine; Hydrazine anhydrous	7803-57-8 302-01-2		GC-MS	N.D.	0.01
16	1-Methyl-2-pyrrolidone	872-50-4		GC-MS	N.D.	0.01
17	1,2,3-Trichloropropane	96-18-4		GC-MS	N.D.	0.01
18	1,2-Benzenedicarboxylic acid, di-(C6-8)-branched and linear alkyl esters	71888-89-6		GC-MS	N.D.	0.01
19	Trichloroethylene	79-01-6		GC-MS	N.D.	0.01

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No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)	
20	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	111-15-9	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01	
21	4,4'-Diaminodiphenylmethane	101-77-9	ISO 17234:2010	GC-MS	N.D.	0.01	
22	Dibutyl phthalate(DBP)	84-74-2	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01	
23	Bis(2-ethyl(hexyl)phthalate)(DEHP)	117-81-7		GC-MS	N.D.	0.01	
24	Diisobutyl Phthalate (DIBP)	84-69-5		GC-MS	N.D.	0.01	
25	Benzyl butyl phthalate (BBP)	85-68-7		GC-MS	N.D.	0.01	
26	Hexabromocyclododecane(HB CDD)	25637-99-4		GC-MS	N.D.	0.01	
27	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01	
28	1,2-Dichloroethane	107-06-2		GC-MS	N.D.	0.01	
29	Bis(2-methoxyethyl) ether	111-96-6		GC-MS	N.D.	0.01	
30	N,N-dimethylacetamide	127-19-5		GC-MS	N.D.	0.01	
31	Phenolphthalein	77-09-8		GC-MS	N.D.	0.01	
32	2,2'-dichloro-4,4'-methylenedi aniline (MOCA)	101-14-4		GC-MS	N.D.	0.01	
33	Formaldehyde, oligomeric reaction products with aniline	25214-704		GC-MS	N.D.	0.01	
34	Bis(2-methoxyethyl) phthalate(DMEP)	117-82-8		GC-MS	N.D.	0.01	
35	2-Methoxyaniline; o-Anisidine	90-04-0		GC-MS	N.D.	0.01	
36	Bis(tributyltin) oxide(TBTO)	56-35-9		ISO 17353:2004	GC-MS	N.D.	0.01
37	Acrylamide	79-06-1		US EPA 3550C:2007 US EPA 8321B:2007	HPLC	N.D.	0.01
38	Lead hydrogen arsenate	7784-40-9		US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
39	Triethyl arsenate	15606-95-8			ICP-OES	N.D.	0.01
40	Diarsenic pentaoxide	1303-28-2	US EPA 3052:1996	ICP-OES	N.D.	0.01	
41	Diarsenic trioxide	1327-53-3	US EPA 6010C:2007	ICP-OES	N.D.	0.01	

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No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)
42	Cobalt dichloride	7646-79-9	US EPA 3052:1996 EN 14582:2007	ICP-OES IC	N.D.	0.01
43	Sodium dichromate	7789-12-0	US EPA 3052:1996 US EPA 3060A:1996	ICP-OES UV-Vis	N.D.	0.01
44	Lead chromate	7758-97-6		ICP-OES UV-Vis	N.D.	0.01
45	Lead chromate molybdate sulfate red	12656-85-8		ICP-OES UV-Vis	N.D.	0.01
46	Dichromium tris(chromate)	24613-89-6	US EPA 3052:1996 US EPA 3060A:1996 US EPA 6010C:2007	ICP-OES UV-Vis	N.D.	0.01
47	Potassium hydroxyoctaoxodizincatedi-chromate	11103-86-9		ICP-OES UV-Vis	N.D.	0.01
48	Lead chromate	1344-37-2		ICP-OES	N.D.	0.01
49	Aluminosilicate, Refractory Ceramic Fibres	/		ICP-OES	N.D.	0.01
50	Zirconia Aluminosilicate, Refractory Ceramic Fibres	/		ICP-OES	N.D.	0.01
51	Pentazinc chromate octahydroxide	49663-84-5	US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
52	Lead azide Lead diazide	13424-46-9		ICP-OES	N.D.	0.01
53	Lead styphnate	15245-44-0		ICP-OES	N.D.	0.01
54	Lead dipicrate	6477-64-1		ICP-OES	N.D.	0.01
55	Arsenic acid	7778-39-4		ICP-OES	N.D.	0.01
56	Calcium arsenate	7778-44-1		ICP-OES	N.D.	0.01
57	Trilead diarsenate	3687-31-8		ICP-OES	N.D.	0.01
58	Boric acid	10043-35-3 11113-50-1	US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
59	Disodium tetraborate, anhydrous, Heptahydrate, Decahydrate	1330-43-4 12179-04-3 1303-96-4		ICP-OES	N.D.	0.01
60	Tetraboron disodium heptaoxide, hydrate	12267-73-1		ICP-OES	N.D.	0.01
61	Sodium chromate	7775-11-3	US EPA 3052:1996 US EPA 3060A:1996	ICP-OES UV-Vis	N.D.	0.01

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62	Potassium chromate	7789-00-6	US EPA 3052:1996 US EPA 3060A:1996	ICP-OES UV-Vis	N.D.	0.01
63	Potassium dichromate	7778-50-9	US EPA 3052:1996 US EPA 3060A:1996	ICP-OES UV-Vis	N.D.	0.01
64	Chromium trioxide	1333-82-0		ICP-OES	N.D.	0.01
65	Ammonium dichromate	7789-09-5	US EPA 3052:1996 US EPA 3060A:1996 EN 14582:2007	ICP-OES UV-Vis IC	N.D.	0.01
66	Cobalt(II) diacetate	71-48-7	US EPA 3052:1996 EN 14582:2007	ICP-OES IC	N.D.	0.01
67	Cobalt(II) carbonate	513-79-1		ICP-OES IC	N.D.	0.01
68	Cobalt(II) Dinitrate	10141-05-6		ICP-OES IC	N.D.	0.01
69	Cobalt(II) sulphate	10124-43-3		ICP-OES IC	N.D.	0.01
70	Chromic acid, Dichromic acid, Oligomers of chromic acid and Dichromic acid	7738-94-5 13530-68-2	US EPA 3052:1996 US EPA 6010C:2007 US EPA 3060A:1996	ICP-OES UV-Vis	N.D.	0.01
71	Strontium chromate	7789-06-2		ICP-OES UV-Vis	N.D.	0.01
72	Diboron trioxide	1303-86-2	US EPA 3052:1996	ICP-OES	N.D.	0.01
73	Lead(II) bis(methanesulfonate)	17570-76-2	US EPA 6010C:2007	ICP-OES	N.D.	0.01
74	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
75	1,2-dimethoxyethane	110-71-4		GC-MS	N.D.	0.01
76	Formamide	75-12-7		GC-MS	N.D.	0.01
77	TGIC(1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9		GC-MS	N.D.	0.01
78	β-TGIC(1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	59653-74-6		GC-MS	N.D.	0.01
79	4,4'-bis(dimethylamino)benzophenone(Michler's ketone)	90-94-8		GC-MS	N.D.	0.01

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80	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
81	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	561-41-1	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
82	4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	548-62-9		HPLC	N.D.	0.01
83	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylenecyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26)	2580-56-5	US EPA 3550C:2007 US EPA 8321B:2007	HPLC	N.D.	0.01
84	α,α -Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	6786-83-0		HPLC	N.D.	0.01
85	4-methyl-m-phenylenediamine (2,4-toluene-diamine)	95-80-7		GC-MS	N.D.	0.01
86	Biphenyl-4-ylamine	92-67-1		GC-MS	N.D.	0.01
87	4,4'-methylenedi-o-toluidine	838-88-0		GC-MS	N.D.	0.01
88	o-Toluidine; 2-Aminotoluene	95-53-4		GC-MS	N.D.	0.01
89	o-aminoazotoluene	97-56-3	ISO 17234:2010	GC-MS	N.D.	0.01
90	4-Aminoazobenzene	60-09-3		GC-MS	N.D.	0.01
91	4,4'-oxydianiline and its salts	101-80-4		GC-MS	N.D.	0.01
92	6-methoxy-m-toluidine (p-cresidine)	120-71-8		GC-MS	N.D.	0.01
93	Dibutyltin dichloride (DBT)	683-18-1	ISO 17353:2004	GC-MS	N.D.	0.01
94	Diazeno-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	US EPA 3550C:2007	GC-MS	N.D.	0.01
95	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	US EPA 8270D:2014	GC-MS	N.D.	0.01

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No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)	
96	N-methylacetamide	79-16-3	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01	
97	Dinoseb	88-85-7		GC-MS	N.D.	0.01	
98	Dimethyl sulphate	77-78-1	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01	
99	Furan	110-00-9		GC-MS	N.D.	0.01	
100	Pyrochlore, antimony lead yellow	8012-00-8		GC-MS	N.D.	0.01	
101	Diethyl sulphate	64-67-5		GC-MS	N.D.	0.01	
102	1,2-epoxypropane	75-56-9		GC-MS	N.D.	0.01	
103	1-bromopropane	106-94-5		GC-MS	N.D.	0.01	
104	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5		GC-MS	N.D.	0.01	
105	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	—		US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
106	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated -covering well-defined substances and UVCB substances, polymers and homologues	—		GC-MS	N.D.	0.01	
107	1,2-Diethoxyethane	629-14-1		GC-MS	N.D.	0.01	
108	Cyclohexane-1,2-dicarboxylic anhydride(Hexahydrophthalic anhydride - HHPA)	85-42-7	GC-MS	N.D.	0.01		

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No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)
109	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	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
110	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	US EPA 3550C:2007 US EPA 8270D:2014	GC-MS	N.D.	0.01
111	N-pentyl-isopentylphthalate	776297-69-9		GC-MS	N.D.	0.01
112	Methoxy acetic acid	625-45-6		GC-MS	N.D.	0.01
113	Diisopentylphthalate	605-50-5		GC-MS	N.D.	0.01
114	N,N-dimethylformamide; dimethyl formamide	68-12-2		GC-MS	N.D.	0.01
115	Heptacosafuorotetradecanoic acid	376-06-7	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
116	Pentacosafuorotridecanoic acid	72629-94-8		HPLC	N.D.	0.01
117	Henicosafuoroundecanoic acid	2058-94-8		HPLC	N.D.	0.01
118	Tricosafuorododecanoic acid	307-55-1		HPLC	N.D.	0.01
119	Pentalead tetraoxide sulphate	12065-90-6	US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
120	Lead dinitrate	10099-74-8		ICP-OES	N.D.	0.01
121	Tetralead trioxide sulphate	12202-17-4		ICP-OES	N.D.	0.01
122	Lead oxide (lead monoxide)	1317-36-8		ICP-OES	N.D.	0.01
123	Lead titanium trioxide	12060-00-3		ICP-OES	N.D.	0.01
124	Dioxobis(stearato)trilead	12578-12-0		ICP-OES	N.D.	0.01
125	Acetic acid, lead salt, basic	51404-69-4		ICP-OES	N.D.	0.01
126	Tetraethyllead	78-00-2		ICP-OES	N.D.	0.01

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127	[Phthalato(2-)] dioxotrilead	69011-06-9	US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01	
128	Lead cyanamidate	20837-86-9		ICP-OES	N.D.	0.01	
129	Silicic acid, barium salt, lead-doped	68784-75-8		ICP-OES	N.D.	0.01	
130	Trilead dioxide phosphonate	12141-20-7		ICP-OES	N.D.	0.01	
131	Lead Titanium Zirconium Oxide	12626-81-2		ICP-OES	N.D.	0.01	
132	Basic lead carbonate (trilead bis(carbonate) dihydroxide)	1319-46-6		ICP-OES	N.D.	0.01	
133	Fatty acids, C16-18, lead salts	91031-62-8		ICP-OES	N.D.	0.01	
134	Lead tetroxide (orange lead)	1314-41-6		ICP-OES	N.D.	0.01	
135	Sulfurous acid, lead salt, dibasic	62229-08-7		US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
136	Lead oxide sulphate	12036-76-9		ICP-OES	N.D.	0.01	
137	Lead bis (tetrafluoroborate)	13814-96-5		ICP-OES	N.D.	0.01	
138	Silicic acid, lead salt	11120-22-2		ICP-OES	N.D.	0.01	
139	Cadmium	7440-43-9		ICP-OES	N.D.	0.01	
140	Cadmium oxide	1306-19-0		ICP-OES	N.D.	0.01	
141	Dipentyl phthalate (DPP)	131-18-0	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01	
142	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01	
143	Pentadecafluorooctanoic acid (PFOA)	335-67-1		HPLC	N.D.	0.01	
144	4-Nonylphenol branched and linear, ethoxylated	—		HPLC	N.D.	0.01	

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145	Cadmium sulphide	1306-23-6	US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
146	Lead di (acetate)	301-04-2		ICP-OES	N.D.	0.01
147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)] bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
148	Disodium 4-amino-3-[[4'-(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl] azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
149	Imidazolidine-2-thione; 2-imidazoline-2-thiol	96-45-7	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
150	Trixylyl phosphate	25155-23-1		GC-MS	N.D.	0.01
151	Dihexyl phthalate	84-75-3		GC-MS	N.D.	0.01
152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4		GC-MS	N.D.	0.01
153	Cadmium chloride	10108-64-2	US EPA 3052:1996 US EPA 6010C:2007	ICP-OES	N.D.	0.01
154	Sodium peroxometaborate	7632-04-4		ICP-OES	N.D.	0.01
155	Sodium perborate; perboric acid, sodium salt	—		ICP-OES	N.D.	0.01
156	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	US EPA 3550C:2007	HPLC	N.D.	0.01
157	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	US EPA 8231B:2007	HPLC	N.D.	0.01

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158	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetra decanoate (DOTE)	15571-58-1	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
159	Cadmium fluoride	7790-79-6	US EPA 3052:1996	ICP-OES	N.D.	0.01
160	Cadmium sulphate	10124-36-4; 31119-53-6	US EPA 6010C:2007	ICP-OES	N.D.	0.01
161	Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetra decanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl) oxy]-2-oxoethyl]thio]-4-octyl- 7-oxo-8-oxa-3,5-dithia-4-stannate tridecanoate (reaction mass of DOTE and MOTE)	—	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate	68515-51-5 68648-93-1	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
163	5-sec-butyl-2-(2,4-dimethyl cyclohex-3-en-1-yl)-5-methyl- 1,3- dioxane [1], 5-sec-butyl-2-(4,6-dimethyl cyclohex-3-en-1-yl)-5-methyl- 1,3- dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof]	—	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01

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No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)
164	1,3-propanesultone	1120-71-4	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
167	Nitrobenzene	98-95-3	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
168	Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
169	Benzo[def]chrysene	50-32-8	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
170	Bisphenol A	80-05-7	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
171	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3108-42-7 335-76-2 3830-45-3	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
172	4-heptyl-phenol	—	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
173	P-tert-amyl phenol (PTAP)	80-46-6	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
174	Perfluorohexane sulfonate(PFHxS)	—	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
175	Dechlorane plus (including any of its individual anti- and syn-isomers or any combination thereof)	13560-89-9 135821-74-8 135821-03-3	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01

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176	Benz[a]anthracene	56-55-3	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
177	Cadmium nitrate	10325-94-7	US EPA3052:1996 US EPA6010C:2007	ICP-OES	N.D.	0.01
178	Cadmium carbonate	513-78-0	US EPA3052:1996 US EPA6010C:2007	ICP-OES	N.D.	0.01
179	Cadmium hydroxide	21041-95-2	US EPA3052:1996 US EPA6010C:2007	ICP-OES	N.D.	0.01
180	Chrysene	218-01-9	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
181	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	—	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
182	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA)	552-30-7	US EPA 3550C:2007 US EPA 8231B:2007	HPLC	N.D.	0.01
183	Benzo[ghi]perylene	191-24-2	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
184	ecamethylcyclopentasiloxane (D5)	541-02-6			N.D.	0.01
185	dicyclohexyl phthalate(DCHP)	84-61-7			N.D.	0.01
186	disodium octaborate	12008-41-2	US EPA3052:1996 US EPA6010C:2007	ICP-OES	N.D.	0.01
187	Dodecamethylcyclohexasiloxane(D6)	540-97-6	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
188	Ethylenediamine(EDA)	107-15-3			N.D.	0.01

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No.	Test Items	CAS No.	Test Methods	Equipment	Results (%)	MDL (%)
189	Lead	7439-92-1	US EPA3052:1996 US EPA6010C:2007	ICP-OES	N.D.	0.01
190	Octamethyl cyclotetrasiloxane(D4)	556-67-2	US EPA 3540C:1996 US EPA 8270D:2014	GC-MS	N.D.	0.01
191	Hydrogenated terphenyls	61788-32-7			N.D.	0.01

Remark: -N.D.=Not Detected (<MDL);

-MDL=Method Detected Limit;

-0.1%=1000mg/kg=1000ppm;

-* The result of Cobalt dichloride was calculated by the testing result of heavy metal element and anion. The result of Diarsenic pentaoxide, Diarsenic trioxide, Sodium dichromate dehydrate, Lead hydrogen arsenate, Aluminosilicate, Zirconia aluminosilicate, Lead chromate, Lead sulchromate yellow and lead chromate molybdate sulphate red, Boric acid, Disodium tetraborate, anhydrous, Tetraboron disodium heptaoxide, hydrate, Sodium chromate, Potassium chromate, Ammonium dichromate and Potassium dichromate, Cobalt sulphate, Cobalt Dinitrate, Cobalt carbonate, Cobalt diacetate, Chromium trioxide, Chromic acid, Dichromic acid, Oligomers of chromic acid and Dichromic acid, Strontium chromate, Dichromium tris(chromate), Potassium hydroxyoctaoxidizincatedi-chromate, Pentazine chromate octahydroxide, Aluminosilicate Refractory Ceramic Fibres (RCF), Zirconia Aluminosilicate Refractory Ceramic Fibres Zr-RCF, Lead azide Lead diazide, Lead styphnate, Lead dipicrate, Arsenic acid, Calcium arsenate, Trilead diarsenate, Pentalead tetraoxide sulphate, Lead dinitrate, Tetralead trioxide sulphate, Lead oxide (lead monoxide) , Lead titanium trioxide, Dioxobis(stearato)trilead, Acetic acid, lead salt, basic, Tetraethyllead, [Phthalato(2-)]dioxotrilead, Lead cyanamidate, Silicic acid, barium salt, lead-doped, Trilead dioxide phosphonate, Lead Titanium Zirconium Oxide, Basic lead carbonate (trilead bis(carbonate)dihydroxide) , Fatty acids, C16-18, lead salts, Lead tetroxide (orange lead) , Sulfurous acid, lead salt, dibasic, lead oxide sulphate, Lead bis(tetrafluoroborate) , Silicic acid, lead salt, Cadmium oxide, Cadmium nitrate, Cadmium carbonate, Cadmium hydroxide were calculated by the testing result of heavy metal element. To judge if the sample contains above metal compounds, further confirmation is needed; MDL is obtained by evaluating elements conversion (such as B, Na, K, As, Pb, Co, Si, Zr, Mo, Cr⁶⁺, P, Ca, Zn, Sr, Ti, Cd). The result of Bis(tributyltin) oxide was calculated by the testing result of tributyltin. This result was the screening result of Bis(tributyltin) oxide, including tributyltin oxide and its salts. If wants to

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know the exact content of Bis(tributyltin) oxide, further confirmation is needed; MDL is obtained by evaluating tributyltin content.

2. Test Result(s) (Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr6+), PBBs, PBDEs, DBP, BBP, DEHP, DIBP):

Test Item(s)	Test Method	Equipment	MDL (mg/kg)	Result(s) (mg/kg)	Limit# (mg/kg)
Lead(Pb)	IEC 62321-5:2013	ICP-OES	2	N.D.	1000
Cadmium(Cd)			2	N.D.	100
Mercury(Hg)	IEC 62321-4:2013	ICP-OES	2	N.D.	1000
Hexavalent Chromium(Cr ⁶⁺)	IEC 62321-7-2:2017	UV-Vis	2	N.D.	1000
Monobromobiphenyl	IEC 62321-6:2015	GC-MS	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.	—
Decabromodiphenyl			5	N.D.	—
Polybromobiphenyl(PBBs)			—	N.D.	1000
Monobromobiphenyl ether			5	N.D.	—
Bibromobiphenyl ether			5	N.D.	—
Tribromobiphenyl ether	5	N.D.	—		
Tetrabromobiphenyl ether	5	N.D.	—		
Pentabromobiphenyl ether	5	N.D.	—		
Hexabromobiphenyl ether	5	N.D.	—		
Heptabromobiphenyl ether	5	N.D.	—		
Octabromobiphenyl ether	5	N.D.	—		
Nonabromobiphenyl ether	5	N.D.	—		
Decabromodiphenyl ether	5	N.D.	—		

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Test Item(s)	Test Method	Equipment	MDL (mg/kg)	Result(s) (mg/kg)	Limit# (mg/kg)
Polybromodiphenyl ether (PBDEs)	IEC 62321-6:2015	GC-MS	—	N.D.	1000
Dibutyl phthalate(DBP)	IEC 62321-8:2017	GC-MS	10	N.D.	1000
Butyl benzyl phthalate(BBP)			10	N.D.	1000
Bis(2-ethylhexyl) phthalate (DEHP)			10	N.D.	1000
Diisobutyl phthalate(DIBP)			10	N.D.	1000

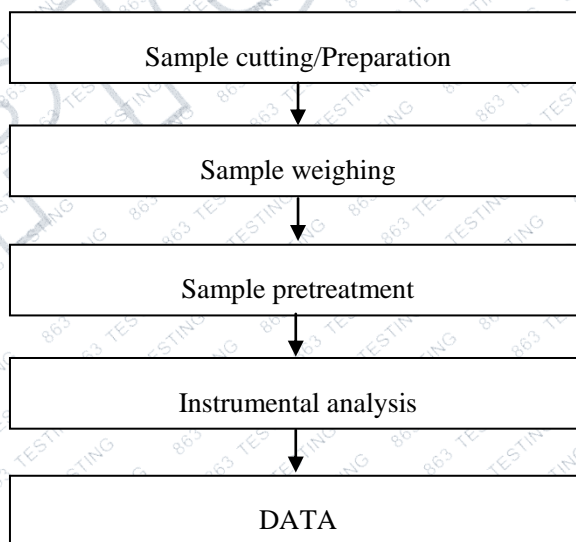
Remark: mg/kg=ppm=parts per million

N.D.=Not Detected (<MDL); MDL=method detection limit

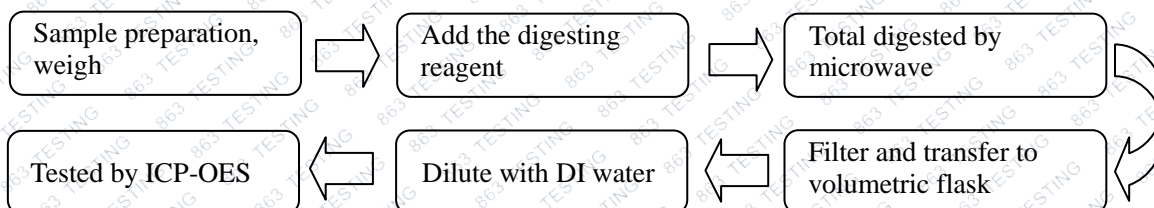
#: The Limit is(are) from EU RoHS 2011/65/EU and 2015/863/EU.

Test Process:

1. Test SVHC concentration:



2. Test Lead(Pb), Cadmium(Cd), Mercury(Hg) concentration:



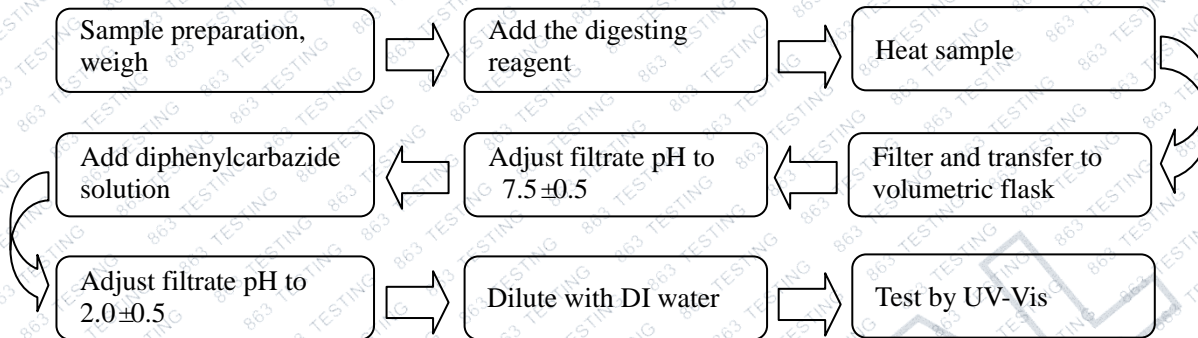
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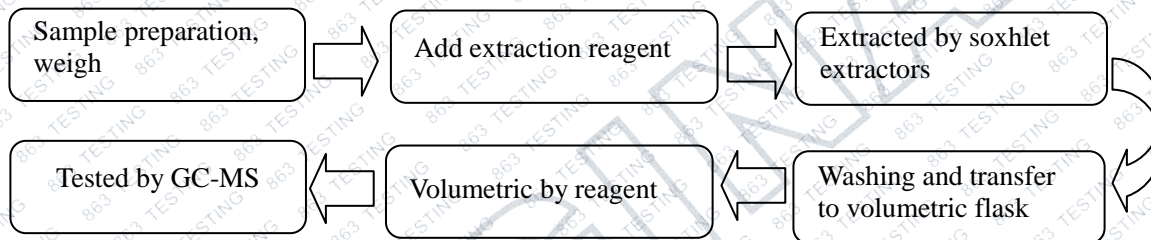
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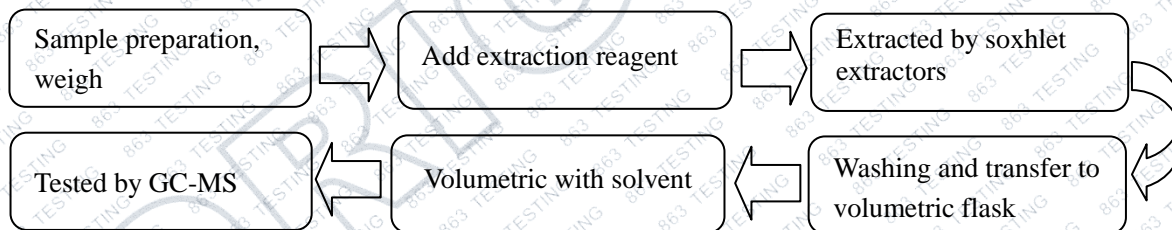
3. Test Hexavalent Chromium(Cr⁶⁺) concentration:



4. Test PBBs, PBDEs concentration:



5. Test DBP, BBP, DEHP, DIBP concentration:



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Photo of the sample



*** End of report ***

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