



TEST REPORT

Technical Report: (5218)239-0215-R1

September 5, 2018

The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018

Date Received: August 27, 2018

Page 1 of 38

LeitOn GmbH
Gottlieb-Dunkel-Str. 47 12099 Berlin, Germany

Sample Description: Sample(s) received is/are stated to be:
As per image: PCB

Color:	/	Style No(s):	/
Order No.:	/	PO No.:	/
Age Grade:	/	Product End Use:	/
Vendor:	/	Retest No.:	/
Manufacturer:	/	Supplier Reference:	/
Buyer:	/	Country of Origin:	/
Test Period:	August 27, 2018 - September 4, 2018	Country of Destination:	/
Fiber Content:	/		
Care Instruction:	/		

SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION	REMARK
Candidate List of Substances of Very High Concern for authorization published by European Chemicals Agency (ECHA) Regarding Regulation (EC) No. 1907/2006 concerning REACH, including REACH SVHC 191 (released on 27 June 2018)	PASS	-
Bureau Veritas SVHC* Test	No SVHC was detected exceeding 0,1% (w/w)	-
European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	PASS	-
Phthalates Content - European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments including EU 2015/863 Directive	PASS	-

DK

REMARK

If there are questions or concerns on this report, please contact:

(852) 2331 0330
analytical-enquiry@hk.bureauveritas.com

BUREAU VERITAS HONG KONG LTD.

MS. YANN LO
MANAGER, ANALYTICAL

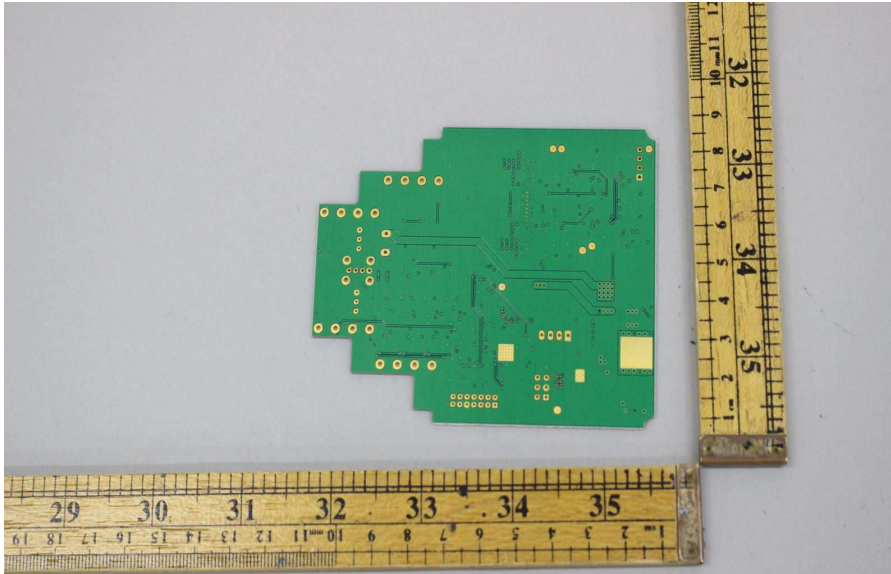


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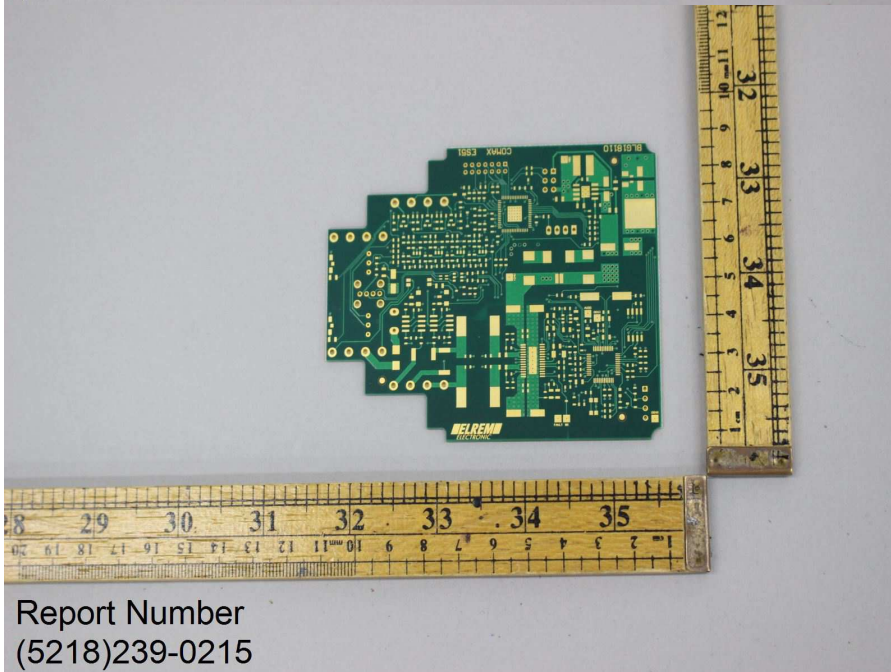
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September 5, 2018

Page 2 of 38

Photo of the Submitted Sample



Report Number
(5218)239-0215



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SAMPLE DESCRIPTION ASSIGNED BY LABORATORY:

ITEM	ITEM DESCRIPTION
1	Green/ silvery PCB

**TEST RESULT****Candidate List of Substances of Very High Concern for authorization published by European Chemicals Agency (ECHA) Regarding Regulation (EC) No. 1907/2006 concerning REACH**

No.	Substance name	CAS No.	EC No.	Result, %	Detection Limit, %	Basis for identification as a SVHC
				1		
1	Triethyl arsenate*	15606-95-8	427-700-2	ND	0.01	Carcinogenic
2	Anthracene	120-12-7	204-371-1	ND	0.005	PBT
3	4,4'-Diaminodiphenyl methane (MDA)	101-77-9	202-974-4	ND	0.005	Carcinogenic
4	Dibutyl phthalate (DBP)	84-74-2	201-557-4	ND	0.005	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health
5	Cobalt dichloride*	7646-79-9	231-589-4	ND	0.01	Carcinogenic
6	Diarsenic pentaoxide*	1303-28-2	215-116-9	ND	0.01	Carcinogenic
7	Diarsenic trioxide*	1327-53-3	215-481-4	ND	0.01	Carcinogenic
8	Sodium dichromate*	7789-12-0 ⁽¹⁾ , 10588-01-9 ⁽²⁾	234-190-3	ND	0.01	Carcinogenic; Mutagenic; Toxic for reproduction
9	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4	ND	0.005	vPvB
10	Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	204-211-0	ND	0.005	Toxic for reproduction; Equivalent level of concern having probable serious effects to environment and human health
11	Hexabromo cyclododecane (HBCDD) and all major diastereoisomers identified: α - HBCDD β - HBCDD γ - HBCDD	3194-55-6 ⁽³⁾ , 25637-99-4 ⁽⁴⁾ 134237-50-6 134237-51-7 134237-52-8	247-148-4, 221-695-9	ND	0.005	PBT
12	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (SCCP)	85535-84-8	287-476-5	ND	0.01	PBT, vPvB
13	Bis(tributyltin)oxide (TBTO)**	56-35-9	200-268-0	ND	0.005	PBT
14	Lead hydrogen arsenate*	7784-40-9	232-064-2	ND	0.01	Carcinogenic; Toxic for reproduction
15	Benzyl butyl phthalate (BBP)	85-68-7	201-622-7	ND	0.005	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health
16	2,4-Dinitrotoluene	121-14-2	204-450-0	ND	0.005	Carcinogenic
17	Anthracene oil	90640-80-5	292-602-7	ND	0.01	Carcinogenic, PBT, vPvB



18	Anthracene oil, anthracene paste, distn. Lights	91995-17-4	295-278-5	ND	0.01	Carcinogenic; Mutagenic, PBT, vPvB
19	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	ND	0.01	Carcinogenic; Mutagenic, PBT, vPvB
20	Anthracene oil, anthracene-low	90640-82-7	292-604-8	ND	0.01	Carcinogenic; Mutagenic, PBT, vPvB
21	Anthracene oil, anthracene paste	90640-81-6	292-603-2	ND	0.01	Carcinogenic; Mutagenic, PBT, vPvB
22	Diisobutyl phthalate	84-69-5	201-553-2	ND	0.005	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health
23	Aluminosilicate, Refractory Ceramic Fibres ^{*a}	Index no. 650-017-00-8		ND	0.01	Carcinogenic
24	Zirconia Aluminosilicate, Refractory Ceramic Fibres ^{*b}	Index no. 650-017-00-8		ND	0.01	Carcinogenic
25	Lead chromate*	7758-97-6	231-846-0	ND	0.01	Carcinogenic; Toxic for reproduction
26	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)*	12656-85-8	235-759-9	ND	0.01	Carcinogenic; Toxic for reproduction
27	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	215-693-7	ND	0.01	Carcinogenic; Toxic for reproduction
28	Tris(2-chloroethyl) phosphate	115-96-8	204-118-5	ND	0.005	Toxic for reproduction
29	Coal tar pitch, high temperature	65996-93-2	266-028-2	ND	0.01	Carcinogenic, PBT, vPvB
30	Acrylamide	79-06-1	201-173-7	ND	0.005	Carcinogenic; Mutagenic
31	Trichloroethylene	79-01-6	201-167-4	ND	0.005	Carcinogenic
32	Boric acid*	10043-35-3, 11113-50-1	233-139-2 / 234-343-4	ND	0.01	Toxic for reproduction
33	Disodium tetraborate, anhydrous*	1330-43-4 ⁽⁵⁾ , 12179-04-3 ⁽⁶⁾ , 1303-96-4 ⁽⁷⁾	215-540-4	ND	0.01	Toxic for reproduction
34	Tetraboron disodium heptaoxide, hydrate*	12267-73-1	235-541-3	ND	0.01	Toxic for reproduction
35	Sodium chromate*	7775-11-3	231-889-5	ND	0.01	Carcinogenic; Mutagenic; Toxic for reproduction
36	Potassium chromate*	7789-00-6	232-140-5	ND	0.01	Carcinogenic; Mutagenic
37	Ammonium dichromate*	7789-09-5	232-143-1	ND	0.01	Carcinogenic; Mutagenic; Toxic for reproduction
38	Potassium dichromate*	7778-50-9	231-906-6	ND	0.01	Carcinogenic; Mutagenic; Toxic for reproduction



39	Cobalt(II) sulphate*	10124-43-3	233-334-2	ND	0.01	Carcinogenic; Toxic for reproduction
40	Cobalt(II) dinitrate*	10141-05-6	233-402-1	ND	0.01	Carcinogenic; Toxic for reproduction
41	Cobalt(II) carbonate*	513-79-1	208-169-4	ND	0.01	Carcinogenic; Toxic for reproduction
42	Cobalt(II) diacetate*	71-48-7	200-755-8	ND	0.01	Carcinogenic; Toxic for reproduction
43	2-Methoxyethanol	109-86-4	203-713-7	ND	0.005	Toxic for reproduction
44	2-Ethoxyethanol	110-80-5	203-804-1	ND	0.005	Toxic for reproduction
45	Chromium trioxide*	1333-82-0	215-607-8	ND	0.01	Carcinogenic; Mutagenic
46	Acid generated from chromium trioxide and their oligomers: Chromic acid* Dichromic acid* Oligomers of chromic acid and dichromic acid*	7738-94-5 13530-68-2 -	231-801-5 236-881-5 -	ND	0.01	Carcinogenic
47	2-Ethoxyethyl acetate	111-15-9	203-839-2	ND	0.005	Toxic for reproduction
48	Strontium Chromate*	7789-06-2	232-142-6	ND	0.01	Carcinogenic
49	1,2-benzenedicarboxylic acid, di-C7-11 branched alkyl ester and linear alkyl ester	68515-42-4	271-084-6	ND	0.005	Toxic for reproduction
50	Hydrazine	302-01-2 7803-57-8	206-114-9	ND	0.005	Carcinogenic
51	1-Methyl-2-pyrrolidone	872-50-4	212-828-1	ND	0.005	Toxic for reproduction
52	1,2,3-trichloropropane	96-18-4	202-486-1	ND	0.005	Toxic for reproduction
53	1,2-benzenedicarboxylic acid, di-C6-8-branched alkyl ester, C7-rich (DIHP)	71888-89-6	276-158-1	ND	0.005	Toxic for reproduction
54	Dichromium tris(chromate)*	24613-89-6	246-356-2	ND	0.01	Carcinogenic
55	Potassium hydroxyoctaoxidizincated i-chromate*	11103-86-9	234-329-8	ND	0.01	Carcinogenic
56	Pentazinc chromate octahydroxide*	49663-84-5	256-418-0	ND	0.01	Carcinogenic
57	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	500-036-1	ND	0.005	Carcinogenic
58	Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6	ND	0.005	Toxic for reproduction
59	2-Methoxyaniline; o-Anisidine	90-04-0	201-963-1	ND	0.005	Carcinogenic
60	4-(1,1,3,3- tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	205-426-2	ND	0.005	Equivalent level of concern



61	1,2-Dichloroethane	107-06-2	203-458-1	ND	0.005	Carcinogenic
62	Bis(2-methoxyethyl) ether	111-96-6	203-924-4	ND	0.005	Toxic for reproduction
63	Arsenic acid*	7778-39-4	231-901-9	ND	0.01	Carcinogenic
64	Calcium arsenate*	7778-44-1	231-904-5	ND	0.01	Carcinogenic
65	Trilead diarsenate*	3687-31-8	222-979-5	ND	0.01	Carcinogenic; Toxic for reproduction
66	N,N-dimethylacetamide (DMAC)	127-19-5	204-826-4	ND	0.005	Toxic for reproduction
67	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9	ND	0.005	Carcinogenic
68	Phenolphthalein	77-09-8	201-004-7	ND	0.005	Carcinogenic
69	Lead azide, Lead diazide*	13424-46-9	236-542-1	ND	0.01	Toxic for reproduction
70	Lead styphnate*	15245-44-0	239-290-0	ND	0.01	Toxic for reproduction
71	Lead dipicrate*	6477-64-1	229-335-2	ND	0.01	Toxic for reproduction
72	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	203-977-3	ND	0.005	Toxic for reproduction
73	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9	ND	0.005	Toxic for reproduction
74	Diboron trioxide*	1303-86-2	215-125-8	ND	0.01	Toxic for reproduction
75	Formamide	75-12-7	200-842-0	ND	0.01	Toxic for reproduction
76	Lead(II) bis(methanesulfonate)*	17570-76-2	401-750-5	ND	0.01	Toxic for reproduction
77	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione) §	2451-62-9	219-514-3	ND	0.005	Mutagenic
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	423-400-0	ND	0.005	Mutagenic
79	4,4'-bis(dimethylamino)benzo phenone (Michler's ketone)	90-94-8	202-027-5	ND	0.005	Carcinogenic
80	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	202-959-2	ND	0.005	Carcinogenic
81	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	548-62-9	208-953-6	ND	0.005	Carcinogenic
82	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)	2580-56-5	219-943-6	ND	0.005	Carcinogenic



	phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26)					
83	α,α -Bis[4-(dimethylamino)phenyl]-4(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	6786-83-0	229-851-8	ND	0.01	Carcinogenic
84	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	561-41-1	209-218-2	ND	0.005	Carcinogenic
85	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	214-604-9	ND	0.005	Persistent, bioaccumulative and toxic; very persistent and very bioaccumulative
86	N,N-dimethylformamide; dimethyl formamide	68-12-2	200-679-5	ND	0.005	Toxic for reproduction
87	Methoxy acetic acid	625-45-6	210-894-6	ND	0.005	Toxic for reproduction ; equivalent level of concern
88	Dibutyltin dichloride (DBT) ^{db}	683-18-1	211-670-0	ND	0.01	Toxic for reproduction
89	1,2-Diethoxyethane	629-14-1	211-076-1	ND	0.005	Toxic for reproduction
90	Hexahydro-2-benzofuran-1,3-dione (HHPA), cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	85-42-7, 13149-00-3, 14166-21-3	201-604-9, 236-086-3, 238-009-9	ND	0.01	Equivalent level of concern
91	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	ND	0.01	Equivalent level of concern
92	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	-	-	ND	0.005	Equivalent level of concern
93	Heptacosafuorotetradecanoic acid	376-06-7	206-803-4	ND	0.005	Very persistent and very bioaccumulative



94	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear +	84777-06-0	284-032-2	ND	0.005	Toxic for reproduction
95	Henicosafuoroundecanoic acid	2058-94-8	218-165-4	ND	0.005	Very persistent and very bioaccumulative
96	N-pentyl-isopentylphthalate (iPnPP) +	776297-69-9	-	ND	0.005	Toxic for reproduction
97	Pentacosafuorotridecanoic acid	72629-94-8	276-745-2	ND	0.005	Very persistent and very bioaccumulative
98	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated - covering well-defined substances and UVCB substances, polymers and homologues	-	-	ND	0.005	Equivalent level of concern
99	Tricosafuorododecanoic acid	307-55-1	206-203-2	ND	0.005	Very persistent and very bioaccumulative
100	Lead bis(tetrafluoroborate)*	13814-96-5	237-486-0	ND	0.01	Toxic for reproduction
101	Lead tetroxide (orange lead)*	1314-41-6	215-235-6	ND	0.01	Toxic for reproduction
102	Diethyl sulphate	64-67-5	200-589-6	ND	0.005	Carcinogenic; Mutagenic
103	Dinoseb	88-85-7	201-861-7	ND	0.005	Toxic for reproduction
104	Lead Titanium Zirconium Oxide*	12626-81-2	235-727-4	ND	0.01	Toxic for reproduction
105	Acetic acid, lead salt, basic*	51404-69-4	257-175-3	ND	0.01	Toxic for reproduction
106	Furan	110-00-9	203-727-3	ND	0.01	Carcinogenic
107	N-methylacetamide	79-16-3	201-182-6	ND	0.005	Toxic for reproduction
108	o-Toluidine; 2-Aminotoluene	95-53-4	202-429-0	ND	0.005	Carcinogenic
109	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	421-150-7	ND	0.01	Toxic for reproduction
110	4,4'-oxydianiline and its salts	101-80-4	202-977-0	ND	0.005	Carcinogenic; Mutagenic
111	[Phthalato(2-)]dioxotrilead (Dibasic lead phthalate)*	69011-06-9	273-688-5	ND	0.01	Toxic for reproduction
112	Lead titanium trioxide*	12060-00-3	235-038-9	ND	0.01	Toxic for reproduction
113	Lead oxide sulphate*	12036-76-9	234-853-7	ND	0.01	Toxic for reproduction
114	Lead dinitrate*	10099-74-8	233-245-9	ND	0.01	Toxic for reproduction
115	4-Aminoazobenzene; 4-Phenylazoaniline	60-09-3	200-453-6	ND	0.005	Carcinogenic
116	Lead cyanamidate*	20837-86-9	244-073-9	ND	0.01	Toxic for reproduction
117	Tetralead trioxide sulphate*	12202-17-4	235-380-9	ND	0.01	Toxic for reproduction
118	4-methyl-m-phenylenediamine (2,4-toluene-diamine)	95-80-7	202-453-1	ND	0.005	Carcinogenic
119	Pyrochlore, antimony lead yellow*	8012-00-8	232-382-1	ND	0.01	Toxic for reproduction
120	Trilead bis(carbonate)dihydroxide (basic lead carbonate)*	1319-46-6	215-290-6	ND	0.01	Toxic for reproduction



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121	Dimethyl sulphate	77-78-1	201-058-1	ND	0.005	Carcinogenic
122	Dioxobis(stearato)trilead*	12578-12-0	235-702-8	ND	0.01	Toxic for reproduction
123	Silicic acid, barium salt, lead-doped*	68784-75-8	272-271-5	ND	0.01	Toxic for reproduction
124	Biphenyl-4-ylamine	92-67-1	202-177-1	ND	0.005	Carcinogenic
125	Lead oxide (lead monoxide)*	1317-36-8	215-267-0	ND	0.01	Toxic for reproduction
126	Pentalead tetraoxide sulphate*	12065-90-6	235-067-7	ND	0.01	Toxic for reproduction
127	Propylene oxide; 1,2-epoxypropane; methyloxirane	75-56-9	200-879-2	ND	0.01	Carcinogenic; Mutagenic
128	Silicic acid, lead salt*	11120-22-2	234-363-3	ND	0.01	Toxic for reproduction
129	Trilead dioxide phosphonate*	12141-20-7	235-252-2	ND	0.01	Toxic for reproduction
130	o-aminoazotoluene	97-56-3	202-591-2	ND	0.005	Carcinogenic
131	1-bromopropane	106-94-5	203-445-0	ND	0.01	Toxic for reproduction
132	6-methoxy-m-toluidine (p-cresidine)	120-71-8	204-419-1	ND	0.005	Carcinogenic
133	4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	ND	0.005	Carcinogenic
134	Tetraethyllead*	78-00-2	201-075-4	ND	0.01	Toxic for reproduction
135	Sulfurous acid, lead salt, dibasic*	62229-08-7	263-467-1	ND	0.01	Toxic for reproduction
136	Fatty acids, C16-18, lead salts*	91031-62-8	292-966-7	ND	0.01	Toxic for reproduction
137	Diisopentylphthalate +	605-50-5	210-088-4	ND	0.005	Toxic for reproduction
138	Diazeno-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8	ND	0.01	Equivalent level of concern
139	Cadmium*	7440-43-9	231-152-8	ND	0.01	Carcinogenic; Equivalent level of concern
140	Cadmium oxide*	1306-19-0	215-146-2	ND	0.01	Carcinogenic; Equivalent level of concern
141	Dipentyl phthalate (DPP) +	131-18-0	205-017-9	ND	0.005	Toxic for reproduction
142	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	-	-	ND	0.005	Equivalent level of concern
143	Ammonium pentadecafluorooctanoate (APFO) [‡]	3825-26-1	223-320-4	ND	0.005	Toxic for reproduction; PBT
144	Pentadecafluorooctanoic acid (PFOA) [‡]	335-67-1	206-397-9	ND	0.005	Toxic for reproduction; PBT



145	Cadmium sulphide*	1306-23-6	215-147-8	ND	0.01	Carcinogenic; Equivalent level of concern
146	Diethyl phthalate	84-75-3	201-559-5	ND	0.005	Toxic for reproduction
147	Disodium 3,3'-[[1,1'- biphenyl]-4,4'- diylbis(azo)]bis(4- aminonaphthalene-1- sulphonate) (C.I. Direct Red 28)	573-58-0	209-358-4	ND	0.005	Carcinogenic
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	217-710-3	ND	0.005	Carcinogenic
149	Imidazolidine-2-thione (2- imidazoline-2-thiol)	96-45-7	202-506-9	ND	0.005	Toxic for reproduction
150	Lead di(acetate)*	301-04-2	206-104-4	ND	0.01	Toxic for reproduction
151	Triethyl phosphate	25155-23-1	246-677-8	ND	0.005	Toxic for reproduction
152	Cadmium chloride*	10108-64-2	233-296-7	ND	0.01	Carcinogenic; Mutagenic; Toxic for Reproduction; Equivalent level of concern having probable serious effects to human health
153	1,2-Benzenedicarboxylic acid, diethyl ester, branched and linear ⁺⁺	68515-50-4	271-093-5	ND	0.005	Toxic for reproduction
154	Sodium peroxometaborate*	7632-04-4	231-556-4	ND	0.01	Toxic for reproduction
155	Sodium perborate; perboric acid, sodium salt*	-	239-172-9; 234-390-0	ND	0.01	Toxic for reproduction
156	Cadmium fluoride *	7790-79-6	232-222-0	ND	0.01	Carcinogenic; Mutagenic; Toxic for Reproduction; Equivalent level of concern having probable serious effects to human health



157	Cadmium sulphate *	10124-36-4; 31119-53-6	233-331-6	ND	0.01	Carcinogenic; Mutagenic; Toxic for Reproduction; Equivalent level of concern having probable serious effects to human health
158	2-benzotriazol-2-yl-4,6- di-tert-butylphenol (UV- 320)	3846-71-7	223-346-6	ND	0.005	PBT; vPvB
159	2-(2H-benzotriazol-2-yl)- 4,6-ditertpentylphenol (UV-328)	25973-55-1	247-384-8	ND	0.005	PBT; vPvB
160	2-ethylhexyl 10-ethyl-4,4- dioctyl-7-oxo-8-oxa-3,5- dithia-4- stannatetradecanoate (DOTE) ^{db}	15571-58-1	239-622-4	ND	0.01	Toxic for Reproduction
161	Reaction mass of 2- ethylhexyl 10-ethyl-4,4- dioctyl-7-oxo-8-oxa-3,5- dithia-4- stannatetradecanoate and 2-ethylhexyl 10-ethyl-4- [[2-[(2-ethylhexyl)oxy]-2- oxoethyl]thio]-4-octyl-7- oxo-8-oxa-3,5-dithia-4- stannatetradecanoate (reaction mass of DOTE and MOTE) ^{db}	-	-	ND	0.01	Toxic for Reproduction
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 (EC No. 201-559-5)	68515-51-5; 68648-93-1	271-094-0; 272-013-1	ND	0.01	Toxic for reproduction
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 isomers of [1] and [2] or any combination thereof]	-	-	ND	0.01	vPvB
164	1,3-propanesultone	1120-71-4	214-317-9	ND	0.005	Carcinogenic
165	2,4-di-tert-butyl-6-(5- chlorobenzotriazol-2- yl)phenol (UV-327)	3864-99-1	223-383-8	ND	0.005	vPvB



166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	253-037-1	ND	0.005	vPvB
167	Nitrobenzene	98-95-3	202-716-0	ND	0.005	Toxic for reproduction
168	Perfluorononan-1-oic acid and its sodium and ammonium salts	375-95-1; 21049-39-8; 4149-60-4	206-801-3	ND	0.005	Toxic for reproduction; PBT
169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	200-028-5	ND	0.005	Carcinogenic; Mutagenic; Toxic for Reproduction; PBT; vPvB
170	4,4'-isopropylidenediphenol (bisphenol A; BPA)	80-05-7	201-245-8	ND	0.005	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health & environment
171	4-Heptylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof] (4-Hpbl)	-	-	ND	0.005	Equivalent level of concern having probable serious effects to the environment
172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3830-45-3, 335-76-2, 3108-42-7	-, 206-400-3, 221-470-5	ND	0.005	Toxic for reproduction; PBT
173	p-(1,1-dimethylpropyl)phenol (PTAP)	80-46-6	201-280-9	ND	0.005	Equivalent level of concern having probable serious effects to the environment
174	Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	-	-	ND	0.005	vPvB
175	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10] octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	-	ND	0.005	vPvB
176	Benz[a]anthracene	56-55-3	200-280-6	ND	0.005	Carcinogenic; PBT; vPvB



177	Cadmium nitrate	10325-94-7	233-710-6	ND	0.005	Carcinogenic; Mutagenic; Equivalent level of concern having probable serious effects to human health
178	Cadmium carbonate	513-78-0	208-168-9	ND	0.005	Carcinogenic; Mutagenic; Equivalent level of concern having probable serious effects to human health
179	Cadmium hydroxide	21041-95-2	244-168-5	ND	0.005	Carcinogenic; Mutagenic; Equivalent level of concern having probable serious effects to human health
180	Chrysene	218-01-9	205-923-4	ND	0.005	Carcinogenic; PBT; vPvB
181	Reaction products of 1,3,4-thiadiazolidine-2,5- dithione, formaldehyde and 4-heptylphenol, branched and linear (RP- HP) [with $\geq 0.1\%$ w/w 4- heptylphenol, branched and linear]	-	-	ND	0.005	Equivalent level of concern having probable serious effects to the environment
182	Octamethylcyclotetrasilox ane (D4)	556-67-2	209-136-7	ND	0.005	PBT; vPvB
183	Decamethylcyclopentasilox ane (D5)	541-02-6	208-764-9	ND	0.005	PBT; vPvB
184	Dodecamethylcyclohexasilox ane (D6)	540-97-6	208-762-8	ND	0.005	PBT; vPvB
185	Lead	7439-92-1	231-100-4	ND	0.005	Toxic for reproduction
186	Disodium octaborate	12008-41-2	234-541-0	ND	0.005	Toxic for reproduction
187	Benzo[ghi]perylene	191-24-2	205-883-8	ND	0.005	PBT; vPvB
188	Terphenyl hydrogenated	61788-32-7	262-967-7	ND	0.005	vPvB
189	Ethylenediamine (EDA)	107-15-3	203-468-6	ND	0.005	Equivalent level of concern having probable serious effects to human health
190	Benzene-1,2,4- tricarboxylic acid 1,2 anhydride (TMA)	552-30-7	209-008-0	ND	0.005	Equivalent level of concern having probable serious effects



						to human health
191	Dicyclohexyl phthalate (DCHP)	84-61-7	201-545-9	ND	0.005	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health

- (1) CAS no. 7789-12-0 refers to sodium dichromate dihydrate
(2) CAS no. 10588-01-9 refers to anhydrous sodium dichromate
(3) CAS no. 3194-55-6 refers to a specific HBCDD - 1,2,5,6,9,10-hexabromocyclododecane
(4) CAS no. 25637-99-4 refers to unspecific HBCDD isomer composition
(5) CAS no. 1330-43-4 refers to disodium tetraborate, anhydrous
(6) CAS no. 12179-04-3 refers to sodium tetraborate, pentahydrate
(7) CAS no. 1303-96-4 refers to sodium tetraborate, decahydrate

Method: Analysis is based on GC, LC, IC, ICP, with various detection techniques and UV.

Remark:

- PBT = Persistent, bio accumulative and toxic as defined in Regulation (EC) No 1907/2006
- vPvB = Very persistent and very bio accumulative as defined in Regulation (EC) No 1907/2006
- ND = Not Detected
- *Result is based on the heavy metal or inorganic element concentration. Due to the limit of the analytical technology available, any further investigation is not feasible. The client is strongly advised to review the chemical formulation to ascertain.
- **Result is identified by tributyltin (TBT). Due to the limit of the analytical technology available, any further investigation is not feasible. The client is strongly advised to review the chemical formulation to ascertain.
- ^sTGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione) and β -TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione) are reported as a mixture.
- ^aRefer to Aluminosilicate, Refractory Ceramic Fibres fulfil the three following conditions: a) oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (μm) c) alkaline oxide and alkali earth oxide ($\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$) content less or equal to 18% by weight.
- ^bRefer to Zirconia Aluminosilicate, Refractory Ceramic Fibres fulfil the three following conditions: a) oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (μm). c) alkaline oxide and alkali earth oxide ($\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$) content less or equal to 18% by weight.
- ⁺[1,2-Benzenedicarboxylic acid, dipentylester, branched and linear] is a mixture of phthalates contains DPP, DIPP and N-pentyl-isopentylphthalate.
- ^zPFOA and APFO are reported together. The result is based on PFOA concentration. Due to the limit of the analytical technology available, any further investigation is not feasible. The client is strongly advised to review the chemical formulation to ascertain.
- ⁺⁺[1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear] is a mixture of phthalates contains dihexyl phthalate.
- ^hResult is based on the tin metal concentration, and further confirmation for checking DBT, DOTE & MOTE concentration.

**Note:**

1. The limit of 0.1% (w/w) applies to an article. The results were calculated assuming as the submitted sample was an article. However, the results may not be applicable if the intended use of the sample is a substance or mixture. According to REACH, definition of an article, substance and mixture are:
 - i. Article - An object during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition
 - ii. Substance - A chemical element and its compound in the natural state or obtained by any manufacturing process
 - iii. Mixture (Previously known as "Preparation") - A mixture or solution composed of two or more substances
2. In accordance of Article 7 of Regulation (EC) No. 1907/2006 (REACH regulation) – Registration and notification of substances in articles, any producer or importer of articles shall notify ECHA, if a substance meets in criteria in Article 57 and is identified in accordance with Article 59(1), if both (1) the substance is present in those articles in quantities totalling over 1 tonne per producer or importer per year & (2) the substance is present in those articles above a concentration of 0.1% weight by weight (w/w) are met. The information to be notified shall include (a) identity and contact details of the producer or importer, (b) the registration numbers, (c) the identity of the substance and (d) the classification of the substance, (e) a brief description of the use of the substance and (f) the tonnage range of the substance.
3. In accordance of Article 33 of Regulation (EC) No. 1907/2006 (REACH regulation) – Duty to communicate information on substances in articles, any supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance. On request by a consumer the relevant information shall be provided by any supplier of an article free of charge, within 45 days of receipt of the request.



Technical Report: **(5218)239-0215-R1**

The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018
September 5, 2018

Page 16 of 38

TEST RESULT

Bureau Veritas SVHC* Test

Parameter	Unit	Result	Detection Limit, %
		1#	
Substances of Very High Concern (SVHC*)	%	ND	0.1 for each substance

Note: ND = Not Detected

Method: The screening is based on GC, LC, IC, ICP, with various detection techniques and UV & XRF.

Remark:

- * The selection of SVHC is based on the list of substances given in the Annex I of this test report. The Bureau Veritas SVHC list does not claim completeness, but is constantly updated to the state of laboratory technique. The Bureau Veritas SVHC list is preliminary and contains substances listed in Candidate List of Substances of Very High Concern for authorization published by European Chemicals Agency (ECHA) Regarding Regulation (EC) No. 1907/2006 concerning REACH (Annex II), and Substitute It Now (SIN) List 2.1 published on Feb 14, 2013 by the International Chemical Secretariat, ChemSec (Annex III).
- If the article contains a material type whose weight is <0.1% of the total article weight, this material type is ignored for testing.
- The limit of 0.1% w/w applies to an article. The results were calculated assuming as the submitted sample was an article. However, the results may not be applicable if the intended use of the sample is a substance or mixture.



Annex I

Bureau Veritas SVHC List

List of Substances in CAS No.

101-80-4; 103-33-3; 120-71-8; 131-17-9; 137-17-7; 139-65-1; 35541-81-2; 57837-19-1; 615-05-4; 62-53-3; 67485-29-4; 78-30-8; 90-04-0; 91-59-8; 92-87-5; 95-69-2; 95-80-7; 99-55-8; 7646-85-7; 100-00-5; 10025-67-9; 10049-04-4; 100-63-0; 101-02-0; 101-61-1; 101-72-4; 101-83-7; 10265-92-6; 10502-44-0; 10545-99-0; 10605-21-7; 106-46-7; 106-93-4; 106-94-5; 107-05-1; 107-13-1; 107-20-0; 107534-96-3; 108-46-3; 108-67-8; 108-90-7; 110-00-9; 110-54-3; 110-71-4; 110-82-7; 111-30-8; 112-24-3; 112-49-2; 112-57-2; 115-29-7; 115-31-1; 120-82-1; 121-72-2; 121-75-5; 122-60-1; 124-68-5; 126-99-8; 13067-93-1; 13071-79-9; 131-18-0; 13194-48-4; 133-49-3; 1336-36-3; 13593-03-8; 13684-56-5; 13684-63-4; 137-26-8; 137-30-4; 142-90-5; 142-96-1; 1449-55-4; 14816-18-3; 151006-61-0; 151006-62-1; 15545-48-9; 156-60-5; 1570-64-5; 15972-60-8; 1638-05-7; 1663-39-4; 16672-87-0; 1626-11-4; 689-83-4; 1689-84-5; 1689-99-2; 17040-19-6; 17804-35-2; 1836-75-5; 18368-64-4; 1897-45-6; 2104-96-3; 218-01-9; 21923-23-9; 2212-67-1; 22224-92-6; 2275-18-5; 2312-35-8; 23560-59-0; 24151-93-7; 24934-91-6; 2497-07-6; 25154-52-3; 25311-71-1; 2597-03-7; 26087-47-8; 2634-33-5; 26471-62-5; 26530-20-1; 2699-79-8; 2855-13-2; 2921-88-2; 29232-93-7; 294-62-2; 298-00-0; 298-02-2; 299-84-3; 300-76-5; 302-01-2; 303-04-8; 3066-71-5; 31218-83-4; 32536-52-0; 330-55-2; 33089-61-1; 3380-34-5; 34123-59-6; 3689-24-5; 37143-54-7; 38260-54-7; 3862-73-5; 39300-45-3; 4067-16-7; 4098-71-9; 41198-08-7; 42978-66-5; 43121-43-3; 432-68-8; 461-96-1; 4769-96-4; 500-28-7; 501-53-1; 50-32-8; 5216-25-1; 52315-07-8; 52645-53-1; 52-68-6; 53-70-3; 540-59-0; 540-73-8; 542-56-3; 556-52-5; 5598-13-0; 56-23-5; 563-12-2; 56-38-2; 584-84-9; 58-89-9; 58-90-2; 593-74-8; 59-50-7; 5986-38-9; 59-88-1; 602-01-7; 60207-90-1; 606-20-2; 609-72-3; 610-39-9; 611-15-4; 61-82-5; 618-85-9; 619-15-8; 627-44-1; 62-75-9; 67375-30-8; 67564-91-4; 70-30-4; 7085-19-0; 70987-78-9; 71626-11-4; 732-11-6; 741-58-2; 74-90-8; 74-93-1; 74-95-3; 75-34-3; 75-55-8; 75-74-1; 76-01-7; 76-03-9; 76-05-1; 764-41-0; 7646-78-8; 7647-18-9; 7664-41-7; 7700-17-6; 77-78-1; 7783-06-4; 7786-34-7; 7803-51-2; 78-32-0; 78-79-5; 79-10-7; 79-27-6; 79-34-5; 80-15-9; 818-61-1; 823-40-5; 82-68-8; 84852-15-3; 87-61-6; 87-68-3; 88-72-2; 90-94-8; 91-08-7; 91-20-3; 91-66-7; 94-59-7; 95-50-1; 95-76-1; 95-95-4; 96-18-4; 96-29-7; 97-86-9; 98-83-9; 99-97-8; 99-99-0; 6390-69-8; 71-43-2; 90076-65-6; 10097-02-6; 1031-15-8; 104206-82-8; 107934-68-9; 111969-64-3; 113136-77-9; 114311-32-9; 118289-55-7; 119126-15-7; 12223-77-7; 122453-73-0; 123312-89-0; 1263-57-6; 126833-17-8; 126990-35-0; 129630-17-7; 129630-19-9; 131807-57-3; 13516-27-3; 136122-15-1; 137234-87-8; 138401-24-8; 14143-32-9; 141517-21-7; 141776-32-1; 142653-61-0; 143269-74-3; 143322-57-0; 144651-06-9; 145701-23-1; 147783-69-5; 149182-72-9; 14938-42-2; 15263-53-3; 153233-91-1; 153441-77-1; 154212-60-9; 156738-27-1; 161326-34-7; 162881-26-7; 16298-38-7; 16484-77-8; 178961-20-1; 18015-76-4; 18759-96-1; 18854-01-8; 1939-36-2; 2008-75-5; 20153-49-5; 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The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018
September 5, 2018

Page 18 of 38

63; 8002-05-9; 68514-79-4; 111-15-9; 65996-83-0; 68783-04-0; 93763-11-2; 68477-61-2; 91995-68-5; 100684-02-4; 100684-03-5; 91995-75-4; 90641-09-1; 91995-76-5; 91995-77-6; 91995-79-8; 100684-04-6; 100684-05-7; 91995-73-2; 97926-43-7; 93763-10-1; 68814-89-1; 92704-08-0; 68783-00-6; 90641-07-9; 90641-08-0; 91995-66-3; 122070-79-5; 122070-80-8; 90640-99-6; 90641-00-2; 84989-12-8; 68937-63-3; 65996-86-3; 73665-18-6; 65996-87-4; 91995-61-8; 93821-38-6; 91697-23-3; 90641-01-3; 90641-02-4; 90641-03-5; 101316-62-5; 90641-04-6; 90641-05-7; 121620-47-1; 121620-48-2; 122384-78-5; 101316-63-6; 90641-06-8; 92062-34-5; 68477-84-9; 68921-08-4; 68783-08-4; 64742-79-6; 64742-29-6; 85117-03-9; 64742-86-5; 97926-59-5; 64741-90-8; 64742-59-2; 64742-12-7; 64741-57-7; 92045-29-9; 97862-78-7; 93924-33-3; 68333-26-6; 64741-62-4; 118-74-1; 7758-01-2; 97862-77-6; 97862-76-5; 93924-31-3; 93924-32-4; 92045-12-0; 64742-67-2; 94114-47-3; 94114-48-4; 630-08-0; 95371-04-3; 95371-05-4; 95465-89-7; 93572-35-1; 68476-47-1; 102110-14-5; 68476-50-6; 97862-81-2; 97926-68-6; 91995-38-9; 90640-95-2; 97722-08-2; 97722-09-3; 97722-10-6; 95371-07-6; 101316-66-9; 68476-46-0; 92128-94-4; 101794-97-2; 101896-28-0; 93763-33-8; 93763-34-9; 95371-08-7; 97675-85-9; 97675-86-0; 97675-87-1; 97722-06-0; 97862-82-3; 97926-70-0; 92045-61-9; 92045-62-0; 92045-63-1; 92045-64-2; 97862-83-4; 97926-71-1; 93752-36-2; 102110-15-6; 101316-67-0; 68476-55-1; 93924-61-9; 93763-38-3; 92045-55-1; 100801-63-6; 100801-65-8; 100801-66-9; 90641-11-5; 65996-78-3; 68512-78-7; 64742-89-8; 64742-95-6; 92062-15-2; 65996-79-4; 110-49-6; 838-88-0; 68603-08-7; 92045-49-3; 64742-22-9; 64742-23-0; 68516-20-1; 97488-96-5; 68527-27-5; 64741-64-6; 68513-02-0; 68919-37-9; 64741-42-0; 64741-87-3; 101795-01-1; 101316-76-1; 64742-73-0; 64742-82-1; 85116-60-5; 92045-52-8; 92045-53-9; 64741-70-4; 92045-58-4; 64742-66-1; 68783-09-5; 68955-35-1; 85116-59-2; 92045-60-8; 64741-66-8; 92201-97-3; 64742-83-2; 68527-27-1; 68527-26-4; 93165-55-0; 98219-46-6; 98219-47-7; 64741-69-1; 64741-55-5; 64741-63-5; 92045-59-5; 68513-03-1; 64741-46-4; 64741-74-8; 92045-65-3; 68783-66-4; 64741-84-0; 64741-92-0; 64742-48-9; 64742-49-0; 85116-61-6; 92045-57-3; 64742-15-0; 92045-51-7; 64741-65-7; 64741-78-2; 64741-54-4; 92045-50-6; 64741-68-0; 101631-20-3; 64741-41-9; 64741-83-9; 68527-21-9; 68527-22-0; 90641-12-6; 94114-54-2; 8030-30-6; 64742-68-3; 64742-69-4; 64742-75-2; 64742-76-3; 68783-12-0; 64741-48-6; 64741-47-5; 12035-36-8; 1313-99-1; 16812-54-7; 91-23-6; 100684-49-9; 92062-09-4; 92062-10-7; 92062-11-8; 97863-04-2; 97863-05-3; 97863-06-4; 90669-77-5; 90669-78-6; 92129-09-4; 64742-70-7; 64742-71-8; 97926-76-6; 97926-77-7; 97926-78-8; 92045-71-1; 92045-72-2; 68187-57-5; 94114-13-3; 90669-57-1; 90669-58-2; 90669-59-3; 121575-60-8; 61789-60-4; 85029-74-9; 97862-98-1; 97862-97-0; 100684-33-1; 92045-77-7; 64743-01-7; 8009-03-8; 68425-35-4; 91770-57-9; 98219-64-8; 68478-12-6; 68478-15-9; 90669-75-3; 64742-90-1; 68513-69-9; 92062-04-9; 102110-55-4; 68955-36-2; 93763-85-0; 68478-16-0; 92062-00-5; 64742-78-5; 64741-75-9; 68478-13-7; 92061-97-7; 64741-67-9; 68783-13-1; 68512-62-9; 68333-22-2; 64741-45-3; 68512-61-8; 68478-17-1; 64741-80-6; 68607-30-7; 90669-76-4; 94114-46-2; 92061-92-2; 93821-66-0; 92061-86-4; 64742-01-4; 64742-62-7; 100684-37-5; 100684-38-6; 64742-57-0; 90669-74-2; 64742-41-2; 74869-21-9; 93572-43-1; 94733-15-0; 101316-69-2; 101316-70-5; 101316-71-6; 101316-72-7; 94733-16-1; 97488-95-4; 92045-42-6; 72623-85-9; 72623-86-0; 72623-87-1; 92045-43-7; 74869-22-0; 85536-19-2; 85536-17-0; 85536-20-5; 8052-41-3; 7789-06-2; 92062-27-6; 92062-29-8; 92062-28-7; 91082-52-9; 65996-84-1; 92062-33-4; 91082-53-0; 101316-83-0; 101316-84-1; 68513-87-1; 68990-61-4; 100684-51-3; 92062-20-9; 65996-89-6; 101316-85-2; 8007-45-2; 91082-50-7; 65996-90-9; 65996-82-9; 101316-87-4; 94114-29-1; 101316-86-3; 92062-22-1; 68815-21-4; 68555-24-8; 96690-55-0; 84989-03-7; 65996-85-2; 92062-26-5; 84989-04-8; 84989-05-9; 68477-23-6; 84989-06-0; 84989-07-1; 94114-40-6; 13463-39-3; 95-53-4; 7446-27-7; 12035-72-2; 140-66-9; 90-43-7; 8001-35-2; 50-29-3; 100-4



The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018
September 5, 2018

Page 19 of 38

57110-29-9; 776297-69-9; 13814-96-5; 12626-81-2; 51404-69-4; 12060-00-3; 12036-76-9; 10099-74-8; 20837-86-9; 8012-00-8; 1319-46-6; 68784-75-8; 11120-22-2; 62229-08-7; 91031-62-8; 123-77-3; 1689-83-4; 111687-36-6; 84777-06-01; 91995-42-5; 68513-03-1; 1317-42-6; 7803-57-8; 49663-84-5; 17010-21-8; 12427-38-2; 1314-62-1; 8018-01-7; 12056-51-8; 11099-02-8; 34492-97-2; 7487-94-7; 75-09-2; 79-00-5; 131-52-2; 7778-73-6; 88-06-2; 591-78-6; 74-83-9; 7572-29-4; 3864-99-1; 3846-71-7; 25973-55-1; 36437-37-3; 2832-40-8; 25155-23-1; 68515-50-4; 31119-53-6; 15571-58-1; 80-09-1; 620-92-8; 75-28-5; 375-95-1; 21049-39-8; 4149-60-4; 68515-51-5; 68648-93-1; 1303-00-0; 98-95-3; 80-46-6; 335-76-2; 3830-45-3; 3108-42-7; 355-46-4

List of Substances without CAS No.

A mixture of complexes of: titanium, 2,2'-oxydiethanol, ammonium lactate, nitrilotris(2-propanol) and ethylene glycol; arsenic and its salts; cadmium compounds, with the exception of cadmium sulphoselenide ($x\text{CdS.yCdSe}$), mixture of cadmium sulphide with zinc sulphide ($x\text{CdS.yZnS}$), mixture of cadmium sulphide with mercury sulphide ($x\text{CdS.yHgS}$), and those specified elsewhere in table 3.2*; trimethyltin compounds, with the exception of those specified elsewhere in table 3.2*; triethyltin compounds, with the exception of those specified elsewhere in table 3.2*; tripropyltin compounds, with the exception of those specified elsewhere in table 3.2*; triphenyltin compounds, with the exception of those specified elsewhere in table 3.2*; trioctyltin compounds, with the exception of those specified elsewhere in table 3.2*; antimony compounds, with the exception of the tetroxide (Sb_2O_4), pentoxide (Sb_2O_5), trisulphide (Sb_2S_3), pentasulphide (Sb_2S_5) and those specified elsewhere in table 3.2*; inorganic compounds of mercury with the exception of mercuric sulphide and those specified elsewhere in table 3.2*; organic compounds of mercury with the exception of those specified elsewhere in table 3.2*; lead compounds with the exception of those specified elsewhere in table 3.2*; lead alkyls; lead; mercury; 4-Aminobiphenyl, salts of; arsenic acid and its salts; beryllium compounds; chromium (VI) compounds, with exemption of barium chromate; zinc chromate incl. zinc potassium chromate; Methoxyethylacrylate tinbutyltin, copolymer; Pentabrominated diphenylether (pentaBDE); cobalt lithium nickel oxide; Tributyltinpolyethoxylate; Tributyltin carboxylate; Oligomers of chromic acid and dichromic acid; Aluminosilicate, Refractory Ceramic Fibres; Zirconia Aluminosilicate, Refractory Ceramic Fibres; 2-[2-hydroxy-3-(2-chlorophenyl)carbamoyl-1-naphthylazo]-7-[2-hydroxy-3-(3-methylphenyl)carbamoyl-1-naphthylazo]fluoren-9-one; A mixture of: 1,3,5-tris(3-aminomethylphenyl)-1,3,5-(1H;3H;5H)-triazine-2,4,6-trione; a mixture of oligomers of 3,5-bis(3-aminomethylphenyl)-1-poly[3,5-bis(3-aminomethylphenyl)-2,4,6-trioxo-1,3,5-(1H;3H;5H)-triazine-1-yl]-1,3,5-(1H;3H;5H)-triazine-2,4,6-t; A mixture of: 4-[[bis(4-fluorophenyl)methylsilyl]methyl]-4H-1,2,4-triazole; 1-[[bis(4-fluorophenyl)methylsilyl]methyl]-1H-1,2,4-triazole; Hydrazine-tri-nitromethane; Hydrazine bis(3-carboxy-4-hydroxybenzenesulfonate); Dye K; Vernetzer Tmag; O-hexyl-N-ethoxy carbonylthiocarbamate; diethyl (2-(hydroxymethylcarbamoyl)ethyl)phosphonate; cobalt lithium nickel oxide; (methylenebis(4;1-phenylenazo(1-(3-(dimethylamino)propyl) -1;2-dihydro-6-hydroxy-4-methyl-2-oxopyridine-5;3-diyl))) - 1;1'-dipyridinium dichloride dihydrochloride; 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; 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated - covering well-defined substances and UVCB substances, polymers and homologues; tributyltin compounds, with the exception of those specified elsewhere in this Annex; silver sodium zirconium hydrogenphosphate; 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (4-tert-Octylphenol ethoxylates); 4-Nonylphenol, branched and linear, ethoxylated; trisodium bis(7-acetamido-2-(4-nitro-2-oxidophenylazo)-3-sulphonato-1-naphtholato)chromate(1-); 1,2,3,4,5,6-hexachlorocyclohexanes; o-dianisidine based azo dyes; o-tolidine based dyes; reaction mass of: triammonium 6-amino-3-((2,5-diethoxy-4-(3-phosphonophenyl)azo)phenyl)azo-4-hydroxy-2-naphthalenesulfonate; diammonium 3-((4-((7-amino-1-hydroxy-3-sulfonyl)azo)-2,5-diethoxyphenyl)azo)benzoate; reaction mass of 2-ethylhexyl 10-ethyl-4,4-diethyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-((2-ethylhexyl)oxy)-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE); 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 isomers of [1] and [2] or any combination thereof]; 4-Heptylphenol, branched and linear (4-HPbl)

Note: * Refer to table 3.2 of (EC) No. 1272/2008 "The list of harmonised classification and labelling of hazardous substances from Annex I to Directive 67/548/EEC"

**Annex II****Candidate List of Substances of Very High Concern for authorization published by European Chemicals Agency (ECHA) Regarding Regulation (EC) No. 1907/2006 concerning REACH**

No.	Substance name	CAS No.	EC No.	Basis for identification as a SVHC
1	Triethyl arsenate	15606-95-8	427-700-2	Carcinogenic
2	Anthracene	120-12-7	204-371-1	PBT
3	4,4'-Diaminodiphenyl methane (MDA)	101-77-9	202-974-4	Carcinogenic
4	Dibutyl phthalate (DBP)	84-74-2	201-557-4	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health
5	Cobalt dichloride	7646-79-9	231-589-4	Carcinogenic
6	Diarsenic pentaoxide	1303-28-2	215-116-9	Carcinogenic
7	Diarsenic trioxide	1327-53-3	215-481-4	Carcinogenic
8	Sodium dichromate	7789-12-0 ⁽¹⁾ , 10588-01-9 ⁽²⁾	234-190-3	Carcinogenic; Mutagenic; Toxic for reproduction
9	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4	vPvB
10	Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	204-211-0	Toxic for reproduction; Equivalent level of concern having probable serious effects to environment and human health
11	Hexabromo cyclododecane (HBCDD) and all major diastereoisomers identified: α - HBCDD β - HBCDD γ - HBCDD	3194-55-6 ⁽³⁾ , 25637-99-4 ⁽⁴⁾ 134237-50-6 134237-51-7 134237-52-8	247-148-4, 221-695-9	PBT
12	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (SCCP)	85535-84-8	287-476-5	PBT, vPvB
13	Bis(tributyltin)oxide (TBTO)	56-35-9	200-268-0	PBT
14	Lead hydrogen arsenate	7784-40-9	232-064-2	Carcinogenic; Toxic for reproduction
15	Benzyl butyl phthalate (BBP)	85-68-7	201-622-7	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health
16	2,4-Dinitrotoluene	121-14-2	204-450-0	Carcinogenic
17	Anthracene oil	90640-80-5	292-602-7	Carcinogenic, PBT, vPvB
18	Anthracene oil, anthracene paste, distn. Lights	91995-17-4	295-278-5	Carcinogenic; Mutagenic, PBT, vPvB
19	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	Carcinogenic; Mutagenic, PBT, vPvB



20	Anthracene oil, anthracene-low	90640-82-7	292-604-8	Carcinogenic; Mutagenic, PBT, vPvB
21	Anthracene oil, anthracene paste	90640-81-6	292-603-2	Carcinogenic; Mutagenic, PBT, vPvB
22	Diisobutyl phthalate	84-69-5	201-553-2	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health
23	Aluminosilicate, Refractory Ceramic Fibres ^a	Index no. 650-017-00-8		Carcinogenic
24	Zirconia Aluminosilicate, Refractory Ceramic Fibres ^b	Index no. 650-017-00-8		Carcinogenic
25	Lead chromate	7758-97-6	231-846-0	Carcinogenic; Toxic for reproduction
26	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	12656-85-8	235-759-9	Carcinogenic; Toxic for reproduction
27	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	215-693-7	Carcinogenic; Toxic for reproduction
28	Tris(2-chloroethyl) phosphate	115-96-8	204-118-5	Toxic for reproduction
29	Coal tar pitch, high temperature	65996-93-2	266-028-2	Carcinogenic, PBT, vPvB
30	Acrylamide	79-06-1	201-173-7	Carcinogenic; Mutagenic
31	Trichloroethylene	79-01-6	201-167-4	Carcinogenic
32	Boric acid	10043-35-3, 11113-50-1	233-139-2 / 234-343-4	Toxic for reproduction
33	Disodium tetraborate, anhydrous	1330-43-4 ⁽⁵⁾ , 12179-04-3 ⁽⁶⁾ , 1303-96-4 ⁽⁷⁾	215-540-4	Toxic for reproduction
34	Tetraboron disodium heptaoxide, hydrate	12267-73-1	235-541-3	Toxic for reproduction
35	Sodium chromate	7775-11-3	231-889-5	Carcinogenic; Mutagenic; Toxic for reproduction
36	Potassium chromate	7789-00-6	232-140-5	Carcinogenic; Mutagenic
37	Ammonium dichromate	7789-09-5	232-143-1	Carcinogenic; Mutagenic; Toxic for reproduction
38	Potassium dichromate	7778-50-9	231-906-6	Carcinogenic; Mutagenic; Toxic for reproduction
39	Cobalt(II) sulphate	10124-43-3	233-334-2	Carcinogenic; Toxic for reproduction
40	Cobalt(II) dinitrate	10141-05-6	233-402-1	Carcinogenic; Toxic for reproduction
41	Cobalt(II) carbonate	513-79-1	208-169-4	Carcinogenic; Toxic for reproduction
42	Cobalt(II) diacetate	71-48-7	200-755-8	Carcinogenic; Toxic for reproduction
43	2-Methoxyethanol	109-86-4	203-713-7	Toxic for reproduction
44	2-Ethoxyethanol	110-80-5	203-804-1	Toxic for reproduction
45	Chromium trioxide	1333-82-0	215-607-8	Carcinogenic; Mutagenic
46	Acid generated from			Carcinogenic



	chromium trioxide and their oligomers: Chromic acid Dichromic acid Oligomers of chromic acid and dichromic acid	7738-94-5 13530-68-2 -	231-801-5 236-881-5 -	
47	2-Ethoxyethyl acetate	111-15-9	203-839-2	Toxic for reproduction
48	Strontium Chromate	7789-06-2	232-142-6	Carcinogenic
49	1,2-benzenedicarboxylic acid, di-C7-11 branched alkyl ester and linear alkyl ester	68515-42-4	271-084-6	Toxic for reproduction
50	Hydrazine	302-01-2 7803-57-8	206-114-9	Carcinogenic
51	1-Methyl-2-pyrrolidone	872-50-4	212-828-1	Toxic for reproduction
52	1,2,3-trichloropropane	96-18-4	202-486-1	Toxic for reproduction
53	1,2-benzenedicarboxylic acid, di-C6-8-branched alkyl ester, C7-rich (DIHP)	71888-89-6	276-158-1	Toxic for reproduction
54	Dichromium tris(chromate)	24613-89-6	246-356-2	Carcinogenic
55	Potassium hydroxyoctaoxodizincatedi-chromate	11103-86-9	234-329-8	Carcinogenic
56	Pentazinc chromate octahydroxide	49663-84-5	256-418-0	Carcinogenic
57	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	500-036-1	Carcinogenic
58	Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6	Toxic for reproduction
59	2-Methoxyaniline; o-Anisidine	90-04-0	201-963-1	Carcinogenic
60	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	205-426-2	Equivalent level of concern
61	1,2-Dichloroethane	107-06-2	203-458-1	Carcinogenic
62	Bis(2-methoxyethyl) ether	111-96-6	203-924-4	Toxic for reproduction
63	Arsenic acid	7778-39-4	231-901-9	Carcinogenic
64	Calcium arsenate	7778-44-1	231-904-5	Carcinogenic
65	Trilead diarsenate	3687-31-8	222-979-5	Carcinogenic; Toxic for reproduction
66	N,N-dimethylacetamide (DMAC)	127-19-5	204-826-4	Toxic for reproduction
67	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9	Carcinogenic
68	Phenolphthalein	77-09-8	201-004-7	Carcinogenic
69	Lead azide, Lead diazide	13424-46-9	236-542-1	Toxic for reproduction
70	Lead styphnate	15245-44-0	239-290-0	Toxic for reproduction



71	Lead dipicrate	6477-64-1	229-335-2	Toxic for reproduction
72	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	203-977-3	Toxic for reproduction
73	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9	Toxic for reproduction
74	Diboron trioxide	1303-86-2	215-125-8	Toxic for reproduction
75	Formamide	75-12-7	200-842-0	Toxic for reproduction
76	Lead(II) bis(methanesulfonate)	17570-76-2	401-750-5	Toxic for reproduction
77	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	219-514-3	Mutagenic
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	423-400-0	Mutagenic
79	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	202-027-5	Carcinogenic
80	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	202-959-2	Carcinogenic
81	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	548-62-9	208-953-6	Carcinogenic
82	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26)	2580-56-5	219-943-6	Carcinogenic
83	α,α -Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	6786-83-0	229-851-8	Carcinogenic
84	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	561-41-1	209-218-2	Carcinogenic



85	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	214-604-9	Persistent, bioaccumulative and toxic; very persistent and very bioaccumulative
86	N,N-dimethylformamide; dimethyl formamide	68-12-2	200-679-5	Toxic for reproduction
87	Methoxy acetic acid	625-45-6	210-894-6	Toxic for reproduction ; equivalent level of concern
88	Dibutyltin dichloride (DBT)	683-18-1	211-670-0	Toxic for reproduction
89	1,2-Diethoxyethane	629-14-1	211-076-1	Toxic for reproduction
90	Hexahydro-2-benzofuran- 1,3-dione (HHPA), cis- cyclohexane-1,2- dicarboxylic anhydride, trans-cyclohexane-1,2- dicarboxylic anhydride	85-42-7, 13149-00-3, 14166-21-3	201-604-9, 236-086-3, 238-009-9	Equivalent level of concern
91	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	Equivalent level of concern
92	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	-	-	Equivalent level of concern
93	Heptacosafuorotetra decanoic acid	376-06-7	206-803-4	Very persistent and very bioaccumulative
94	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	284-032-2	Toxic for reproduction
95	Henicosafuoroundecanoic acid	2058-94-8	218-165-4	Very persistent and very bioaccumulative
96	N-pentyl-isopentylphthalate (iPnPP)	776297-69- 9	-	Toxic for reproduction



97	Pentacosafuorotridecanoic acid	72629-94-8	276-745-2	Very persistent and very bioaccumulative
98	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated - covering well-defined substances and UVCB substances, polymers and homologues	-	-	Equivalent level of concern
99	Tricosafuorododecanoic acid	307-55-1	206-203-2	Very persistent and very bioaccumulative
100	Lead bis(tetrafluoroborate)	13814-96-5	237-486-0	Toxic for reproduction
101	Lead tetroxide (orange lead)	1314-41-6	215-235-6	Toxic for reproduction
102	Diethyl sulphate	64-67-5	200-589-6	Carcinogenic; Mutagenic
103	Dinoseb	88-85-7	201-861-7	Toxic for reproduction
104	Lead Titanium Zirconium Oxide	12626-81-2	235-727-4	Toxic for reproduction
105	Acetic acid, lead salt, basic	51404-69-4	257-175-3	Toxic for reproduction
106	Furan	110-00-9	203-727-3	Carcinogenic
107	N-methylacetamide	79-16-3	201-182-6	Toxic for reproduction
108	o-Toluidine; 2-Aminotoluene	95-53-4	202-429-0	Carcinogenic
109	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	421-150-7	Toxic for reproduction
110	4,4'-oxydianiline and its salts	101-80-4	202-977-0	Carcinogenic; Mutagenic
111	[Phthalato(2-)]dioxotrilead (Dibasic lead phthalate)	69011-06-9	273-688-5	Toxic for reproduction



112	Lead titanium trioxide	12060-00-3	235-038-9	Toxic for reproduction
113	Lead oxide sulphate	12036-76-9	234-853-7	Toxic for reproduction
114	Lead dinitrate	10099-74-8	233-245-9	Toxic for reproduction
115	4-Aminoazobenzene; 4-Phenylazoaniline	60-09-3	200-453-6	Carcinogenic
116	Lead cyanamidate	20837-86-9	244-073-9	Toxic for reproduction
117	Tetralead trioxide sulphate	12202-17-4	235-380-9	Toxic for reproduction
118	4-methyl-m-phenylenediamine (2,4-toluene-diamine)	95-80-7	202-453-1	Carcinogenic
119	Pyrochlore, antimony lead yellow	8012-00-8	232-382-1	Toxic for reproduction
120	Trilead bis(carbonate)dihydroxide (basic lead carbonate)	1319-46-6	215-290-6	Toxic for reproduction
121	Dimethyl sulphate	77-78-1	201-058-1	Carcinogenic
122	Dioxobis(stearato)trilead	12578-12-0	235-702-8	Toxic for reproduction
123	Silicic acid, barium salt, lead-doped	68784-75-8	272-271-5	Toxic for reproduction
124	Biphenyl-4-ylamine	92-67-1	202-177-1	Carcinogenic
125	Lead oxide (lead monoxide)	1317-36-8	215-267-0	Toxic for reproduction
126	Pentalead tetraoxide sulphate	12065-90-6	235-067-7	Toxic for reproduction
127	Propylene oxide; 1,2-epoxypropane; methyloxirane	75-56-9	200-879-2	Carcinogenic; Mutagenic



128	Silicic acid, lead salt	11120-22-2	234-363-3	Toxic for reproduction
129	Trilead dioxide phosphonate	12141-20-7	235-252-2	Toxic for reproduction
130	o-aminoazotoluene	97-56-3	202-591-2	Carcinogenic
131	1-bromopropane	106-94-5	203-445-0	Toxic for reproduction
132	6-methoxy-m-toluidine (p-cresidine)	120-71-8	204-419-1	Carcinogenic
133	4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	Carcinogenic
134	Tetraethyllead	78-00-2	201-075-4	Toxic for reproduction
135	Sulfurous acid, lead salt, dibasic	62229-08-7	263-467-1	Toxic for reproduction
136	Fatty acids, C16-18, lead salts	91031-62-8	292-966-7	Toxic for reproduction
137	Diisopentylphthalate	605-50-5	210-088-4	Toxic for reproduction
138	Diazeno-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8	Equivalent level of concern
139	Cadmium	7440-43-9	231-152-8	Carcinogenic; Equivalent level of concern
140	Cadmium oxide	1306-19-0	215-146-2	Carcinogenic; Equivalent level of concern
141	Dipentyl phthalate (DPP)	131-18-0	205-017-9	Toxic for reproduction
142	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers]	-	-	Equivalent level of concern



	<i>and homologues, which include any of the individual isomers and/or combinations thereof]</i>			
143	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	223-320-4	Toxic for reproduction; PBT
144	Pentadecafluorooctanoic acid (PFOA)	335-67-1	206-397-9	Toxic for reproduction; PBT
145	Cadmium sulphide	1306-23-6	215-147-8	Carcinogenic; Equivalent level of concern
146	Dihexyl phthalate	84-75-3	201-559-5	Toxic for reproduction
147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	209-358-4	Carcinogenic
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	217-710-3	Carcinogenic
149	Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	202-506-9	Toxic for reproduction
150	Lead di(acetate)	301-04-2	206-104-4	Toxic for reproduction
151	Trixylyl phosphate	25155-23-1	246-677-8	Toxic for reproduction
152	Cadmium chloride	10108-64-2	233-296-7	Carcinogenic; Mutagenic; Toxic for Reproduction; Equivalent level of concern having probable serious effects to human health
153	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	271-093-5	Toxic for reproduction
154	Sodium peroxometaborate	7632-04-4	231-556-4	Toxic for reproduction
155	Sodium perborate; perboric acid, sodium salt	-	239-172-9; 234-390-0	Toxic for reproduction



156	Cadmium fluoride	7790-79-6	232-222-0	Carcinogenic; Mutagenic; Toxic for Reproduction; Equivalent level of concern having probable serious effects to human health
157	Cadmium sulphate	10124-36-4; 31119-53-6	233-331-6	Carcinogenic; Mutagenic; Toxic for Reproduction; Equivalent level of concern having probable serious effects to human health
158	2-benzotriazol-2-yl-4,6-di- tert-butylphenol (UV-320)	3846-71-7	223-346-6	PBT; vPvB
159	2-(2H-benzotriazol-2-yl)- 4,6-ditertpentylphenol (UV-328)	25973-55-1	247-384-8	PBT; vPvB
160	2-ethylhexyl 10-ethyl-4,4- dioctyl-7-oxo-8-oxa-3,5- dithia-4- stannatetradecanoate (DOTE)	15571-58-1	239-622-4	Toxic for reproduction
161	Reaction mass of 2- ethylhexyl 10-ethyl-4,4- dioctyl-7-oxo-8-oxa-3,5- dithia-4- stannatetradecanoate and 2- ethylhexyl 10-ethyl-4-[[2- [(2-ethylhexyl)oxy]-2- oxoethyl]thio]-4-octyl-7- oxo-8-oxa-3,5-dithia-4- stannatetradecanoate (reaction mass of DOTE and MOTE)	-	-	Toxic for reproduction
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	Toxic for reproduction
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 isomers of [1] and [2] or any combination thereof]	-	-	Very persistent and very bioaccumulative
164	1,3-propanesultone	1120-71-4	214-317-9	Carcinogenic
165	2,4-di-tert-butyl-6-(5- chlorobenzotriazol-2- yl)phenol (UV-327)	3864-99-1	223-383-8	vPvB
166	2-(2H-benzotriazol-2-yl)-4- (tert-butyl)-6-(sec-	36437-37-3	253-037-1	vPvB



	butyl)phenol (UV-350)			
167	Nitrobenzene	98-95-3	202-716-0	Toxic for reproduction
168	Perfluorononan-1-oic acid and its sodium and ammonium salts	375-95-1; 21049-39-8; 4149-60-4	206-801-3	Toxic for reproduction; PBT
169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	200-028-5	Carcinogenic; Mutagenic; Toxic for Reproduction; PBT; vPvB
170	4,4'-isopropylidenediphenol (bisphenol A; BPA)	80-05-7	201-245-8	Toxic for reproduction; Equivalent level of concern having probable serious effects to human health & environment
171	4-Heptylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof] (4-Hpbl)	-	-	Equivalent level of concern having probable serious effects to the environment
172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3830-45-3, 335-76-2, 3108-42-7	-, 206-400-3, 221-470-5	Toxic for reproduction; PBT
173	p-(1,1-dimethylpropyl)phenol (PTAP)	80-46-6	201-280-9	Equivalent level of concern having probable serious effects to the environment
174	Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	-	-	vPvB
175	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10] octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	-	vPvB
176	Benz[a]anthracene	56-55-3	200-280-6	Carcinogenic; PBT; vPvB
177	Cadmium nitrate	10325-94-7	233-710-6	Carcinogenic; Mutagenic; Specific target organ toxicity after repeated exposure - human health
178	Cadmium carbonate	513-78-0	208-168-9	Carcinogenic; Mutagenic; Specific target organ toxicity after repeated exposure - human health
179	Cadmium hydroxide	21041-95-2	244-168-5	Carcinogenic; Mutagenic;



The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018
September 5, 2018

Page 31 of 38

				Specific target organ toxicity after repeated exposure - human health
180	Chrysene	218-01-9	205-923-4	Carcinogenic; PBT; vPvB
181	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with $\geq 0.1\%$ w/w 4-heptylphenol, branched and linear]	-	-	Endocrine disrupting properties - environment

- (1) CAS no. 7789-12-0 refers to sodium dichromate dihydrate
(2) CAS no. 10588-01-9 refers to anhydrous sodium dichromate
(3) CAS no. 3194-55-6 refers to a specific HBCDD - 1,2,5,6,9,10-hexabromocyclododecane
(4) CAS no. 25637-99-4 refers to unspecific HBCDD isomer composition
(5) CAS no. 1330-43-4 refers to disodium tetraborate, anhydrous
(6) CAS no. 12179-04-3 refers to sodium tetraborate, pentahydrate
(7) CAS no. 1303-96-4 refers to sodium tetraborate, decahydrate

Remark:

13. PBT = Persistent, bio accumulative and toxic as defined in Regulation (EC) No 1907/2006

14. vPvB = Very persistent and very bio accumulative as defined in Regulation (EC) No 1907/2006

^aRefer to Aluminosilicate, Refractory Ceramic Fibres fulfil the three following conditions: a) oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (μm) c) alkaline oxide and alkali earth oxide ($\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$) content less or equal to 18% by weight.

^bRefer to Zirconia Aluminosilicate, Refractory Ceramic Fibres fulfil the three following conditions: a) oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (μm). c) alkaline oxide and alkali earth oxide ($\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$) content less or equal to 18% by weight.



The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018
September 5, 2018

Page 32 of 38

Annex III

Substitute It Now (SIN) List 2.1 published on Feb 14, 2013 by the International Chemical Secretariat, ChemSec

List of Substances in CAS No.

12035-72-2; 12035-71-1; 16812-54-7; 11113-75-0; 1314-04-1; 1461-22-9; 688-73-3; 56573-85-4; 25637-99-4; 3194-55-6; 134237-50-6; 134237-51-7; 134237-52-8; 140-66-9; 27193-28-8; 28553-12-0; 68515-48-0; 25154-52-3; 104-40-5; 90481-04-2; 1763-23-1; 2795-39-3; 70225-14-8; 29081-56-9; 29457-72-5; 668-34-8; 639-58-7; 76-87-9; 900-95-8; 2279-76-7; 1067-29-4; 761-44-4; 9002-93-1; 9036-19-5; 68987-90-6; 9016-45-9; 26027-38-3; 68412-54-4; 127087-87-0; 37205-87-1; 12001-28-4; 12172-73-5; 77536-66-4; 77536-67-5; 77536-68-6; 1332-21-4; 12001-29-5; 132207-32-0; 531-85-1; 531-86-2; 21136-70-9; 36341-27-2; 553-00-4; 612-52-2; 1002-53-5; 77-58-7; 683-18-1; 10043-35-3; 11113-50-1; 1330-43-4; 12267-73-1; 13840-56-7; 1303-96-4; 12179-04-3; 13138-45-9; 14216-75-2; 13842-46-1; 15699-18-0; 3349-06-2; 15843-02-4; 68134-59-8; 373-02-4; 14998-37-9; 547-67-1; 20543-06-0; 12068-61-0; 27016-75-7; 12054-48-7; 11113-74-9; 15120-21-5; 11138-47-9; 12040-72-1; 7632-04-4; 10332-33-9; 13517-20-9; 37244-98-7; 10486-00-7; 10028-18-9; 13462-88-9; 13462-90-3; 11132-10-8; 14332-34-4; 18718-11-1; 10381-36-9; 14448-18-1; 14507-36-9; 36026-88-7; 17169-61-8; 19372-20-4; 21784-78-1; 13775-54-7; 31748-25-1; 37321-15-6; 12519-85-6; 68186-89-0; 58591-45-0; 12737-30-3; 67952-43-6; 14550-87-9; 71720-48-4; 16083-14-0; 3349-08-4; 39819-65-3; 18721-51-2; 18283-82-4; 22605-92-1; 4454-16-4; 7580-31-6; 93983-68-7; 29317-63-3; 27637-46-3; 84852-37-9; 93920-10-6; 85508-43-6; 85508-44-7; 51818-56-5; 93920-09-3; 71957-07-8; 52625-25-9; 13654-40-5; 85508-45-8; 85508-46-9; 84852-35-7; 84852-39-1; 85135-77-9; 85166-19-4; 84852-36-8; 85551-28-6; 91697-41-5; 84776-45-4; 72319-19-8; 7757-95-1; 15851-52-2; 15852-21-8; 68130-36-9; 12007-00-0; 12007-02-2; 12619-90-8; 12059-14-2; 12201-89-7; 12035-64-2; 65229-23-4; 12004-35-2; 12035-39-1; 12653-76-8; 52502-12-2; 68016-03-5; 70692-93-2; 14177-55-0; 14177-51-6; 68515-84-4; 12031-65-1; 12673-58-4; 3333-67-3; 16337-84-1; 65405-96-1; 12607-70-4; 612-83-9; 64969-34-2; 74332-73-3; 109-86-4; 110-80-5; 7440-41-7; 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BUREAU
VERITAS

Technical Report: **(5218)239-0215-R1**

The report is amendment of and supersedes the previous report (5218)239-0215 dated September 4, 2018
September 5, 2018

Page 33 of 38

01-1; 68783-12-0; 64741-48-6; 64741-47-5; 64742-70-7; 64742-71-8; 8009-03-8; 100684-33-1; 92045-77-7; 64743-01-7; 68476-85-7; 68476-86-8; 92045-80-2; 68514-79-4; 121575-60-8; 93821-66-0; 91770-57-9; 64742-57-0; 64741-95-3; 64742-62-7; 64742-01-4; 68513-66-6; 64741-45-3; 68333-22-2; 92061-97-7; 64741-67-9; 68478-17-1; 64741-75-9; 64742-78-5; 68512-62-9; 64742-90-1; 68513-69-9; 102110-55-4; 64741-80-6; 68607-30-7; 90669-76-4; 98219-64-8; 90669-78-6; 92062-09-4; 65996-79-4; 85536-20-5; 64742-89-8; 64742-95-6; 84989-04-8; 84989-06-0; 101316-84-1; 11099-02-8; 34492-97-2; 68411-07-4; 7758-95-4; 546-67-8; 93763-87-2; 99328-50-4; 20039-37-6; 142844-00-6; 142844-00-6; 1303-00-0; 13464-97-6; 131-56-6; 25013-16-5; 302-97-6; 98-73-7; 25155-23-1; 90622-53-0; 8032-32-4; 68410-71-9; 64742-61-6

List of Substances without CAS No.

2-[2-hydroxy-3-(2-chlorophenyl)carbamoyl-1-naphthylazo]-7-[2-hydroxy-3-(3-methylphenyl)carbamoyl-1-naphthylazo]fluoren-9-one; A mixture of: 1,3,5-tris(3-aminomethylphenyl)-1,3,5-(1H,3H,5H)-triazine-2,4,6-trione; a mixture of oligomers of 3,5-bis(3-aminomethylphenyl)-1-poly[3,5-bis(3-aminomethylphenyl)-2,4,6-trioxo-1,3,5-(1H,3H,5H)-triazin-1-yl]-1,3,5-(1H,3H,5H)-triazine-2,4,6-t; A mixture of: 4-[[bis-(4-fluorophenyl)methylsilyl]methyl]-4H-1,2,4-triazole; 1-[[bis-(4-fluorophenyl)methylsilyl]methyl]-1H-1,2,4-triazole; Hydrazine-tri-nitromethane; Hydrazine bis(3-carboxy-4-hydroxybenzensulfonate); Dye K; Vernetzer Tmag; O-hexyl-N-ethoxy carbonylthiocarbamate; diethyl (2-(hydroxymethylcarbamoyl)ethyl)phosphonate; cobalt lithium nickel oxide; (methylenebis(4-(1-phenylenazo(1-(3-(dimethylamino)propyl) -1,2-dihydro-6-hydroxy-4-methyl-2-oxopyridine-5,3-diyl))) -1,1'-dipyridinium dichloride dihydrochloride; Saponification and oxidation product of carnauba wax with acidic sodium dichromate solution; Saponification and oxidation product of carnauba wax with acidic sodium dichromate solution esterified with 1-methyl-1,3-propanediol and subsequent saponification with calcium dihydroxide; Saponification and oxidation product of carnauba wax with acidic sodium dichromate solution esterified with ethylene glycol; cobalt lithium nickel oxide; reaction mass of: 4,7-bis(mercaptomethyl)-3,6,9-trithia-1,11-undecanedithiol; 4,8-bis(mercaptomethyl)-3,6,9-trithia-1,11-undecanedithiol; 5,7-bis(mercaptomethyl)-3,6,9-trithia-1,11-undecanedithiol

**TEST RESULT****European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)**

Test Method : See Appendix.

See Analytes (Parameter) and their corresponding Maximum Allowable Limit (Req.) in Result Table	Type I	Metallic material				
	Type II	Glass or ceramic material				
	Type III	Other non-metallic material except Type II				
-	Unit	Req.	Result			
Test Item(s)	-	-	1 [#]	-	-	-
Type	-	III	II	-	-	-
Parameter	-	-	-	-	-	-
Lead (Pb)	mg/kg	1000	8.35	-	-	-
Cadmium (Cd)	mg/kg	100	ND	-	-	-
Mercury (Hg)	mg/kg	1000	2.22	-	-	-
Chromium VI (Cr VI)	mg/kg	1000	ND	-	-	-
PBBs	mg/kg	1000	ND	-	-	-
MonoBB	mg/kg	-	ND	-	-	-
DiBB	mg/kg	-	ND	-	-	-
TriBB	mg/kg	-	ND	-	-	-
TetraBB	mg/kg	-	ND	-	-	-
PentaBB	mg/kg	-	ND	-	-	-
HexaBB	mg/kg	-	ND	-	-	-
HeptaBB	mg/kg	-	ND	-	-	-
OctaBB	mg/kg	-	ND	-	-	-
NonaBB	mg/kg	-	ND	-	-	-
DecaBB	mg/kg	-	ND	-	-	-
PBDEs	mg/kg	1000	ND	-	-	-
MonoBDE	mg/kg	-	ND	-	-	-
DiBDE	mg/kg	-	ND	-	-	-
TriBDE	mg/kg	-	ND	-	-	-
TetraBDE	mg/kg	-	ND	-	-	-
PentaBDE	mg/kg	-	ND	-	-	-
HexaBDE	mg/kg	-	ND	-	-	-
HeptaBDE	mg/kg	-	ND	-	-	-
OctaBDE	mg/kg	-	ND	-	-	-
NonaBDE	mg/kg	-	ND	-	-	-
DecaBDE	mg/kg	-	ND	-	-	-
Conclusion	-	-	PASS	-	-	-

**TEST RESULT****European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)**

Note / Key:

ND = Not detected "≥" = Greater than Req. = Requirement
 NR = Not requested mg/kg = milligram(s) per kilogram
 Detection Limit (mg/kg) :
 For Type I - Each (Pb, Cd & Hg) : 2.0
 For Type II - Each (Pb, Cd, Hg & Cr VI) : 2.0
 For Type III - Metal, Polymers & Electronics - Each (Pb, Cd, Hg & Cr VI) : 2.0; Each (PBBs & PBDEs) : 50;
 Others - Each (Pb, Cd & Hg) : 2.0; Cr VI : 3.0; Each (PBBs & PBDEs) : 50

Remark:

- The testing approach is listed in table of Appendix.
- According to European Parliament and Council Directive 2011/65/EU, Article 5 "Adaptation of the Annexes to scientific and technical progress", exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.

Phthalates Content - European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments including EU 2015/863 Directive

Maximum Allowable Limit :	0.1 % (Each of the listed phthalates)^[a]			
Test Item(s)	Result			Conclusion
	Detected Analyte(s)	Conc.	Unit	
1 [#]	ND	ND	%	PASS

Note / Key :

ND = Not detected "≥" = Greater than Conc. = Concentration
 % = percent 1 % = 10 000 mg/kg
 mg/kg = milligram(s) per kilogram = ppm = part(s) per million
 Detection Limit (%) : Each : 0.005

Remark :

- The list of phthalates is summarized in table of Appendix.
- The testing approach is listed in table of Appendix.
- ^[a] denotes as this maximum allowable limit applies to :
 - Medical devices and monitoring and control instruments placed on the market on or after July 22, 2021.
 - Other products placed on the market on or after July 22, 2019.

The above results marked with # are transferred from (5218)030-1132-R1 dated on February 26, 2018.

END

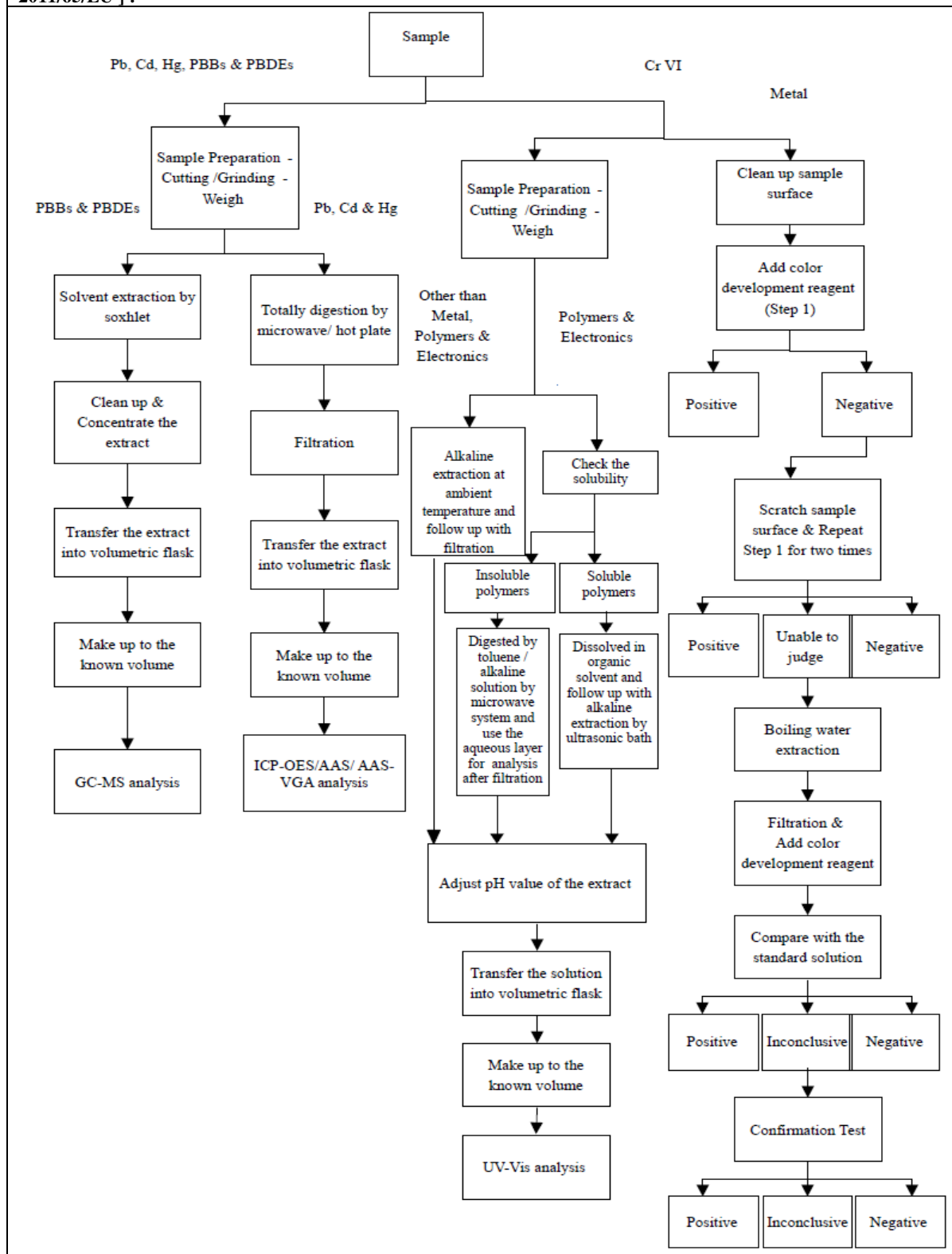
**APPENDIX**

List of Analytes and their Corresponding Test Methods [European Parliament and Council Directive 2011/65/EU] :		
No.	Name of Analytes	Test Method(s)
1	Lead (Pb)	With reference to International Standard IEC 62321-5: 2013.
2	Cadmium (Cd)	
3	Mercury (Hg)	With reference to International Standard IEC 62321-4: 2017.
4	Chromium VI (Cr VI)	<u>Metal</u> : With reference to International Standard IEC 62321-7-1: 2015. <u>Polymers and Electronics</u> : With reference to European Standard EN 62321-7-2: 2017 <u>Leather</u> : International Standard ISO 17075: 2007 <u>Other than Metal, Leather, Polymers and Electronics</u> : With reference to International Standard ISO 17075: 2007
5	Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB)	With reference to International Standard IEC 62321-6: 2015.
6	Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) - Pentabromodiphenyl ether (PentaBDE) - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE) - Nonabromodiphenyl ether (NonaBDE) - Decabromodiphenyl ether (DecaBDE)	

List of Phthalates [European Parliament and Council Directive 2011/65/EU] :					
No.	Name of Analyte(s)	CAS-No.	No.	Name of Analyte(s)	CAS-No.
1	Butyl benzyl phthalate (BBP)	85-68-7	3	Di-2-ethylhexyl phthalate (Bis (2-ethylhexyl) phthalate) (DEHP)	117-81-7
2	Di-n-butyl phthalate (Dibutyl phthalate) (DBP)	84-74-2	4	Di-iso-butyl phthalate (Diisobutyl phthalate) (DIBP)	84-69-5
CAS-No. = Chemical Abstracts Service registry number					

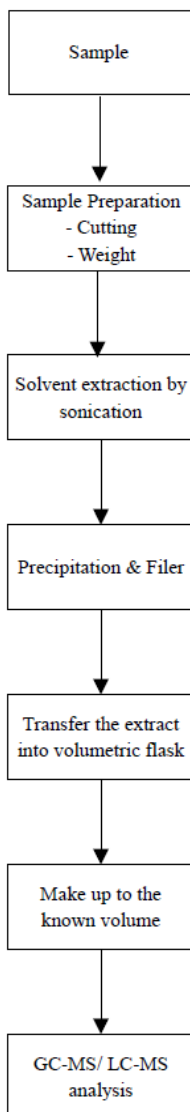


Test Flowchart of Heavy Metals and Flame Retardants Content [European Parliament and Council Directive 2011/65/EU] :





Test Flowchart of Phthalates Content [European Parliament and Council Directive 2011/65/EU] :



END