



Test Report

No.4312903-CH01

Date: June 12, 2018

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Permawick Company
3110 Permawick Drive
Columbus, IN 47201
United States

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

Electric Motor Lubricating Oil
Model/Part No.: Covers Oil and NP, NPW, PP, HH, FHH, Series for: P2AO, Mineral Oil (280-284-PW280SR-284 antileak-285-286, 400, 415, 420), TFL18, PMO300, PHC, DM, PSL(Esters), 250, SHC, LT200, PS207, HT300, AR456, AR465, Syn440, PWS (Silicones) & PDS
Country of Destination: World Wide

Sample Received Date: **5/23/2018**

Testing Period **5/30/2018 – 6/12/2018**

Test Requested: One hundred and eighty-one (181) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on and before January 15, 2018 regarding Regulation (EC) No 1907/2006 concerning the REACH.

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

Summary:

According to the specified scope and analytical techniques, concentrations of tested SVHC are $\leq 0.1\%$ (w/w) in the submitted sample.

PASS

Signed for and on behalf of SGS North America, Inc.

Prepared By:

Jennifer Vaval
Laboratory Operations Supervisor, Chemistry Laboratory

Shaina Gibbons
Report Writer, Chemistry Laboratory

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Remark:

1. The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA:

- <http://echa.europa.eu/web/guest/candidate-list-table> (Candidate list)

These lists are under evaluation by ECHA and may subject to change in the future.

2. Test results in this report are based on the tested sample.

This report refers to testing result of composite material group by equal weight proportion. The material in each composite test group may come from more than one article.

3. If a SVHC is found over 0.1% (w/w), client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

4. If the sample is a substance or mixture, and it directly exports to EU, client has the obligation to comply with the supply chain communication obligation under Article 31 of Regulation (EC) No. 1907/2006 and the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006.

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Test Sample:
Sample Description:

Sample No.	Material Type	Description
1	S/M	Electric Motor Lubrication Oil – Model/Part No.: Covers Oil and NP, NPW, PP, HH, FHH, Series for: P2AO, Mineral Oil (280-284-PW280SR-284 antileak-285-286, 400, 415, 420), TFL18, PMO300, PHC, DM, PSL(Esters), 250, SHC, LT200, PS207, HT300, AR456, AR465, Syn440, PWS (Silicones) & PDS

Material group references:

OM	:	Organic matter (natural and synthetic fabric, wood, paper and leather)
P	:	Polymer and Elastomer (PVC, PET, ABS, etc.)
M	:	Metals (alloy, stainless steel, aluminum, brass)
G/C	:	Glass and Ceramic
S/M	:	Substance or Mixture (desiccant, ink, chemical etc.)
PCB	:	Printed circuit board
B	:	Battery

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Test Method:

SGS In-House method - Analyzed by ICP-OES, GC-MS, UV-VIS, HPLC-DAD, HPLC-MS and colorimetric method

Test Result (per sample): Sample 1

No.	Substance Name	CAS No./ EC No.	RL (%)	Concentration (%)
-	All tested SVHC	-	-	ND

Notes:

- (1) The table above only shows detected SVHC, and SVHC that below RL are not reported. Please refer to Appendix for the full list of tested SVHC.
- (2) RL = Reporting Limit. All RL are based on homogenous material
 ND = Not detected (lower than RL), ND is denoted on the SVHC substance.
 NA^ = Upon further test verification on the specific detected element(s) of SVHC and also information provided from client, the possibility that the element(s) content originate from SVHC is very unlikely, even though their presence cannot be exclude entirely. It may be assumed that the detected element(s) have a non-SVHC source.
- (3) ^Δ CAS No. of diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD): 134237-50-6, 134237-51-7, 134237-52-8
[☆] CAS No. of 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; EC No. of those: 247-094-1, 243-072-0, 256-356-4, 260-566-1.
- (4) (For all SVHC testing)
 * The test result is based on the calculation of selected element(s) / marker(s) and to the worst-case scenario. For detail information, please refer to the SGS REACH website:
www.reach.sgs.com/substance-of-very-high-concern-analysis-information-page.htm

 Calculated concentration of boric compounds are based on the total boron for liquid, powder and paste samples and water extractive boron for other samples by ICP-OES.

 RL = 0.01% is evaluated for element (i.e. cobalt, arsenic, lead, chromium (VI), aluminum, zirconium, boron, strontium, zinc, antimony, titanium, barium and cadmium respectively), except molybdenum RL=0.001%, boron RL=0.005% (only for Lead bis(tetrafluoroborate)), chromium (VI) RL=0.005% (only for Pentazinc chromate octahydroxide).
- (5) (For 4 pigment substances in the latest 13 SVHC in candidate list)
[§] The substance is proposed for the identification as SVHC only where it contains Michler's ketone (CAS Number: 90-94-8) or Michler's base (CAS Number: 101-61-1) ≥0.1% (w/w).

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(6) (For all mixed testing)

Composite test has been performed in equal proportion for the components/material per client requested. And the result is calculated using the minimum sample weight.

(7) (For substance and preparation exported to Europe directly)

◇ SCL = Specific Concentration Limit. All SCL are set out in Regulation (EC) No 1272/2008 and Commission Regulation (EC) No 790/2009. Specific concentration limits and generic concentration limits are limits assigned to a substance indicating a threshold at or above which the presence of that substance in another substance or in a mixture as an identified impurity, additive or individual constituent leads to the classification of the substance or mixture as hazardous.

The SVHCs with lowest SCL values <0.1% include: Cobalt dichloride (SCL 0.01%), Cobalt(II) carbonate (SCL 0.01%), Cobalt(II) diacetate (SCL 0.01%), Cobalt(II) dinitrate (SCL 0.01%), Cobalt(II) sulphate (SCL 0.01%), 4-(1,1,3,3-tetramethylbutyl)phenol (SCL 0.025%), Cadmium chloride (SCL 0.01%).

+ Client has the obligation to comply with the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006, unless the use has been exempted from Authorization. Article 56(6) of Regulation (EC) No. 1907/2006 specified the concentration limit requirement of Authorization of SVHC in mixture.

The ECHA SVHC authorization list (Feb 18, 2011) is available at

http://echa.europa.eu/reach/authorisation_under_reach/authorisation_list_en.asp

These lists are under evaluation by ECHA and may subject to change in the future

(8) (for consultation list)

/ = Substances in the Consultation List of SVHC

(9) In consideration of the analysis requirement and the limit of sample volume, the screening test for the article is based on components / material enough to test.

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Sample Photo:



SGS authenticates the photo on the original report only

*** End of Report ***

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Appendix

No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Oct 28, 2008							
1	4,4'-Diaminodiphenylmethane (MDA)	101-77-9/ 202-974-4	0.050	2	5-tert-butyl-2,4,6-trinitro- <i>m</i> -xylene (musk xylene)	81-15-2/ 201-329-4	0.050
3	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8/ 287-476-5	0.050	4	Anthracene	120-12-7/ 204-371-1	0.050
5	Benzyl butyl phthalate (BBP)	85-68-7/ 201-622-7	0.050	6	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7/ 204-211-0	0.050
7	Bis(tributyltin)oxide (TBTO)	56-35-9/ 200-268-0	0.050	8	Cobalt dichloride*	7646-79-9/ 231-589-4	0.005
9	Diarsenic pentaoxide*	1303-28-2/ 215-116-9	0.005	10	Diarsenic trioxide*	1327-53-3/ 215-481-4	0.005
11	Dibutyl phthalate (DBP)	84-74-2/ 201-557-4	0.050	12	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4/ 247-148-4; 3194-55-6/ 221-695-9; (134237-50-6/-; 134237-51-7/-; 134237-52-8/-)	0.050
13	Lead hydrogen arsenate*	7784-40-9/ 232-064-2	0.005	14	Sodium dichromate*	7789-12-0/ 10588-01-9/ 234-190-3	0.005
15	Triethyl arsenate*	15606-95-8/ 427-700-2	0.005				
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jan 13, 2010							
16	2,4-Dinitrotoluene	121-14-2/ 204-450-0	0.050	17	Anthracene oil*	90640-80-5/ 292-602-7	0.050
18	Anthracene oil, anthracene paste*	90640-81-6/ 292-603-2	0.050	19	Anthracene oil, anthracene paste, anthracene fraction*	91995-15-2/ 295-275-9	0.050
20	Anthracene oil, anthracene paste; distn. Lights*	91995-17-4/ 295-278-5	0.050	21	Anthracene oil, anthracene-low*	90640-82-7/ 292-604-8	0.050
22	Diisobutyl phthalate	84-69-5/ 201-553-2	0.050	23	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)*	12656-85-8/ 235-759-9	0.005
24	Lead chromate*	7758-97-6/ 231-846-0	0.005	25	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2/ 215-693-7	0.005
26	Pitch, coal tar, high temp.*	65996-93-2/ 266-028-2	0.050	27	Tris(2-chloroethyl)phosphate	115-96-8/ 204-118-5	0.050

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Mar 30, 2010							
28	Acrylamide	79-06-1/ 201-173-7	0.050				
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jun 18, 2010							
29	Ammonium dichromate*	7789-09-5/ 232-143-1	0.005	30	Boric acid*	10043-35-3/ 233-139-2; 11113-50-1/ 234-343-4	0.005
31	Disodium tetraborate, anhydrous*	1303-96-4 1330-43-4 12179-04-3/ 215-540-4	0.005	32	Potassium chromate*	7789-00-6/ 232-140-5	0.005
33	Potassium dichromate*	7778-50-9/ 231-906-6	0.005	34	Sodium chromate*	7775-11-3/ 231-889-5	0.005
35	Tetraboron disodium heptaoxide, hydrate*	12267-73-1/ 235-541-3	0.005	36	Trichloroethylene	79-01-6/ 201-167-4	0.050
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Dec 15, 2010							
37	2-Ethoxyethanol	110-80-5/ 203-804-1	0.050	38	2-Methoxyethanol	109-86-4/ 203-713-7	0.050
39	Acids generated from chromium trioxide and their oligomers: Chromic acid Dichromic acid Oligomers of chromic acid and dichromic acid*	7738-94-5/ 231-801-5; 13530-68-2/ 236-881-5	0.005	40	Chromium trioxide*	1333-82-0/ 215-607-8	0.005
41	Cobalt(II) carbonate*	513-79-1/ 208-169-4	0.005	42	Cobalt(II) diacetate*	71-48-7/ 200-755-8	0.005
43	Cobalt(II) dinitrate*	10141-05-6/ 233-402-1	0.005	44	Cobalt(II) sulphate*	10124-43-3/ 233-334-2	0.005
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jun 20, 2011							
45	1,2,3-Trichloropropane	96-18-4/ 202-486-1	0.050	46	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6/ 276-158-1	0.050
47	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4/ 271-084-6	0.050	48	1-Methyl-2-pyrrolidone	872-50-4/ 212-828-1	0.050
49	2-Ethoxyethyl acetate	111-15-9/ 203-839-2	0.050	50	Hydrazine	7803-57-8 302-01-2/ 206-114-9	0.050
51	Strontium chromate*	7789-06-2/ 232-142-6	0.005				

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Dec 19, 2011							
52	1,2-Dichloroethane	107-06-2/ 203-458-1	0.050	53	2,2'-dichloro-4,4'- methylenedianiline (MOCA)	101-14-4/ 202-918-9	0.050
54	2-Methoxyaniline	90-04-0/ 201-963-1	0.050	55	4-tert-Octylphenol	140-66-9/ 205-426-2	0.050
56	Aluminosilicate Refractory Ceramic Fibres*	650-017-00-8 (Index no.)	0.005	57	Arsenic acid*	7778-39-4/ 231-901-9	0.005
58	Bis(2-methoxyethyl) ether	111-96-6/ 203-924-4	0.050	59	Bis(2-methoxyethyl) phthalate	117-82-8/ 204-212-6	0.050
60	Calcium arsenate*	7778-44-1/ 231-904-5	0.005	61	Dichromium tris(chromate)*	24613-89-6/ 246-356-2	0.005
62	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4/ 500-036-1	0.050	63	Lead diazide*	13424-46-9/ 236-542-1	0.005
64	Lead dipicrate*	6477-64-1/ 229-335-2	0.005	65	Lead styphnate*	15245-44-0/ 239-290-0	0.005
66	N,N-dimethylacetamide (DMAC)	127-19-5/ 204-826-4	0.050	67	Pentazinc chromate octahydroxide*	49663-84-5/ 256-418-0	0.005
68	Phenolphthalein	77-09-8/ 201-004-7	0.050	69	Potassium hydroxyoctaoxodizincatedichro mate*	11103-86-9/ 234-329-8	0.005
70	Trilead diarsenate*	3687-31-8/ 222-979-5	0.005	71	Zirconia Aluminosilicate Refractory Ceremic Fibres*	650-017-00-8 (Index no.)	0.005
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jun 18, 2012							
72	[4-[[4-anilino-1-naphthyl][4- (dimethylamino)phenyl]methyle ne]cyclohexa-2,5-dien-1- ylidene] dimethylammonium chloride (C.I. Basic Blue 26)	2580-56-5/ 219-943-6	0.050	73	[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	0.050
74	1,2-bis(2-methoxyethoxy) ethane (TEGDME; triglyme)	112-49-2/ 203-977-3	0.050	75	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4/ 203-794-9	0.050
76	4,4'-bis(dimethylamino) benzophenone (Michler's Ketone)	90-94-8/ 202-027-5	0.050	77	4,4'-bis(dimethylamino)-4''- (methylamino)trityl alcohol	561-41-1/ 209-218-2	0.050
78	Diboron trioxide*	1303-86-2/ 215-125-8	0.005	79	Formamide	75-12-7/ 200-842-0	0.050
80	Lead(II) bis(methanesulfonate)*	17570-76-2/ 401-750-5	0.005	81	N,N,N',N'-tetramethyl-4,4'- methylenedianiline (Michler's base)	101-61-1/ 202-959-2	0.050
82	TGIC (1,3,5- tris(oxiranylmethyl)-1,3,5- triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9/ 219-514-3	0.050	83	α,α-Bis[4- (dimethylamino)phenyl]-4 (phenylamino)naphthalene-1- methanol (C.I. Solvent Blue 4)	6786-83-0/ 229-851-8	0.050

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
84	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	0.050				
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Dec 19, 2012							
85	[Phthalato(2-)]dioxotrilead*	69011-06-9/ 273-688-5	0.005	86	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0/ 284-032-2	0.050
87	1,2-Diethoxyethane	629-14-1/ 211-076-1	0.050	88	1-Bromopropane	106-94-5/ 203-445-0	0.050
89	3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2/ 421-150-7	0.050	90	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated	-	0.050
91	4,4'-Methylenedi-o-toluidine	838-88-0/ 212-658-8	0.050	92	4,4'-Oxydianiline	101-80-4/ 202-977-0	0.050
93	4-Aminoazobenzene	60-09-3/ 200-453-6	0.050	94	4-Methyl-m-phenylenediamine	95-80-7/ 202-453-1	0.050
95	4-Nonylphenol, branched and linear	-	0.050	96	6-Methoxy-m-toluidine	120-71-8/ 204-419-1	0.050
97	Acetic acid, lead salt, basic*	51404-69-4/ 257-175-3	0.005	98	Biphenyl-4-ylamine	92-67-1/ 202-177-1	0.050
99	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5/ 214-604-9	0.050	100	C,C'-azodi(formamide) (ADCA)	123-77-3/ 204-650-8	0.050
101	Dibutyltin dichloride (DBT)	683-18-1/ 211-670-0	0.050	102	Diethyl sulphate	64-67-5/ 200-589-6	0.050
103	Diisopentylphthalate (DIPP)	605-50-5/ 210-088-4	0.050	104	Dimethyl sulphate	77-78-1/ 201-058-1	0.050
105	Dinoseb	88-85-7/ 201-861-7	0.050	106	Dioxobis(stearato)trilead*	12578-12-0/ 235-702-8	0.005
107	Fatty acids, C16-18, lead salts*	91031-62-8/ 292-966-7	0.005	108	Furan	110-00-9/ 203-727-3	0.050
109	Henicosafuoroundecanoic acid	2058-94-8/ 218-165-4	0.050	110	Heptacosafuorotetradecanoic acid	376-06-7/ 206-803-4	0.050
111	Hexahydro-2-benzofuran-1,3-dione, cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	85-42-7/ 201-604-9; 13149-00-3/ 236-086-3; 14166-21-3/ 238-009-9	0.050	112	Hexahydromethylphthalic anhydride, Hexahydro-4-methylphthalic anhydride, Hexahydro-1-methylphthalic anhydride, Hexahydro-3-methylphthalic anhydride	25550-51-0/ 247-094-1; 19438-60-9/ 243-072-0; 48122-14-1/ 256-356-4; 57110-29-9/ 260-566-1	0.050
113	Lead bis(tetrafluoroborate)*	13814-96-5/ 237-486-0	0.005	114	Lead cyanamidate*	20837-86-9/ 244-073-9	0.005
115	Lead dinitrate*	10099-74-8/ 233-245-9	0.005	116	Lead monoxide*	1317-36-8/ 215-267-0	0.005

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
117	Lead oxide sulphate*	12036-76-9/ 234-853-7	0.005	118	Lead tetroxide*	1314-41-6/ 215-235-6	0.005
119	Lead titanium trioxide*	12060-00-3/ 235-038-9	0.005	120	Lead titanium zirconium oxide*	12626-81-2/ 235-727-4	0.005
121	Methoxyacetic acid	625-45-6/ 210-894-6	0.050	122	N,N-Dimethylformamide	68-12-2/ 200-679-5	0.050
123	N-Methylacetamide	79-16-3/ 201-182-6	0.050	124	N-Pentyl-isopentylphthalate	776297-69-9 /-	0.050
125	o-Aminoazotoluene	97-56-3/ 202-591-2	0.050	126	o-Toluidine	95-53-4/ 202-429-0	0.050
127	Pentacosafuorotridecanoic acid	72629-94-8/ 276-745-2	0.050	128	Pentalead tetraoxide sulphate*	12065-90-6/ 235-067-7	0.005
129	Propylene oxide	75-56-9/ 200-879-2	0.050	130	Pyrochlore, antimony lead yellow*	8012-00-8/ 232-382-1	0.005
131	Silicic acid, barium salt, lead-doped*	68784-75-8/ 272-271-5	0.005	132	Silicic acid, lead salt*	11120-22-2/ 234-363-3	0.005
133	Sulfurous acid, lead salt, dibasic*	62229-08-7/ 263-467-1	0.005	134	Tetraethyllead*	78-00-2/ 201-075-4	0.005
135	Tetralead trioxide sulphate*	12202-17-4/ 235-380-9	0.005	136	Tricosafuorododecanoic acid	307-55-1/ 206-203-2	0.050
137	Trilead bis(carbonate)dihydroxide*	1319-46-6/ 215-290-6	0.005	138	Trilead dioxide phosphonate*	12141-20-7/ 235-252-2	0.005

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139	4-Nonylphenol, branched and linear, ethoxylated	-	0.050	140	Ammoniumpentadecafluoro octanoate (APFO)	3825-26-1/ 223-320-4	0.050
141	Cadmium	7440-43-9/ 231-152-8	0.005	142	Cadmium oxide*	1306-19-0/ 215-146-2	0.005
143	Di-n-pentyl phthalate	131-18-0/ 205-017-9	0.050	144	Pentadecafluorooctanoic acid (PFOA)	335-67-1/ 206-397-9	0.050

Candidate List of Substances of Very High Concern (SVHC) for authorization published on Dec 16, 2013

145	Cadmium sulphide*	1306-23-6/ 215-147-8	0.005	146	Dihexyl phthalate	84-75-3/ 201-559-5	0.050
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	0.050	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	0.050
149	Imidazolidine-2-thione; 2-imidazoline-2-thiol	96-45-7/ 202-506-9	0.050	150	Lead di(acetate)*	301-04-2/ 206-104-4	0.005
151	Trixylyl phosphate	25155-23-1/ 246-677-8	0.050				

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jun 16, 2014							
152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4/ 271-093-5	0.050	153	Cadmium chloride*	10108-64-2/ 233-296-7	0.005
154	Sodium perborate; perboric acid, sodium salt*	- / 234-390-0; 239-172-9	0.005	155	Sodium peroxometaborate*	7632-04-4/ 231-556-4	0.005
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Dec 17, 2014							
156	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7 / 223-346-6	0.050	157	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1 / 247-384-8	0.050
158	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate; DOTE	15571-58-1 / 239-622-4	0.050	159	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)	/	0.050
160	Cadmium fluoride*	7790-79-6 / 232-222-0	0.005	161	Cadmium sulphate*	10124-36-4; 31119-53-6 / 233-331-6	0.005
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jun15, 2015							
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	0.050	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]	/	0.050

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Dec 17, 2015							
164	1,3-propanesultone	1120-71-4 / 214-317-9	0.050	165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1 / 223-383-8	0.050
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3 / 253-037-1	0.050	167	Nitrobenzene	98-95-3 / 202-716-0	0.050
168	Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-hepta-decafluorononanoic acid and its sodium and ammonium salts	375-95-1; 21049-39-8; 4149-60-4 / 206-801-3	0.050				
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jun 20, 2016							
169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8 / 200-028-5	0.050				

No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jan 12, 2017							
170	4,4'-Isopropylidenediphenol (Bisphenol A)	80-05-7 / 201-245-8	0.050	171	4-Heptylphenol, branched and linear	-	0.050
172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	335-76-2; 3830-45-3; 3108-42-7/ 206-400-3; -; 221-470-5	0.050	173	p-(1,1-dimethylpropyl)phenol	80-46-6 / 201-280-9	0.050
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jul 7, 2017							
174	Perfluorohexane-1-sulphonic acid and its salts	-	0.010				

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No.	Substance Name	CAS No./ EC No.	RL (%)	No.	Substance Name	CAS No./ EC No.	RL (%)
Candidate List of Substances of Very High Concern (SVHC) for authorization published on Jan 15, 2018							
175	Chrysene	218-01-9/205-923-4	0.050	176	Benz[a]anthracene	56-55-3/200-280-6	0.050
177	Cadmium nitrate	10325-94-7/233-710-6	0.050	178	Cadmium hydroxide	21041-95-2/244-168-5	0.050
179	Cadmium carbonate	513-78-0/208-168-9	0.050	180	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[1.2.2.1.1 ^{6,9} .0 ^{2,13} .0 ^{5,10}]octadeca-7,15-diene ("Dechlorane Plus" TM) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	0.050
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	-	0.050				

Notes :

- 1 RL = Reporting Limit. All RL are based on homogenous material
- 2 # SCL = Specific Concentration Limit. All SCL are set out in Regulation (EC) No 1272/2008 and its amendments. Specific concentration limits and generic concentration limits are limits assigned to a substance indicating a threshold at or above which the presence of that substance in another substance or in a mixture as an identified impurity, additive or individual constituent leads to the classification of the substance or mixture as hazardous. The SVHCs with SCL values <0.1% are specified in the test result tables.

* The test result is based on the calculation of selected element(s) / marker(s) and to the worst-case scenario. For detail information, please refer to the SGS REACH website:

<http://www.sgs.com/en/Consumer-Goods-Retail/Toys-and-Juvenile-Products/Toys/REACH/Management-of-SVHC.aspx>

The client is advised to review the chemical formulation to ascertain above metal substances present in the article.

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RL = 0.01% for organic substances, 0.001% is evaluated for element (i.e. aluminum, antimony, arsenic, barium, boron, cadmium, calcium, chromium, chromium (VI), cobalt, lead, potassium, silicon, sodium, strontium, titanium, zirconium and zinc respectively), except molybdenum RL = 0.0001%.

▼ Regulation (EC) No 1272/2008 Classification, Labelling and Packaging of Substances and Mixtures, and its amendments.

+ Client has the obligation to comply with the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006, unless the use has been exempted from Authorization. Article 56(6) of Regulation (EC) No. 1907/2006 specified the concentration limit requirement of Authorization of SVHC in mixture.

The ECHA SVHC authorization list (Jun 13, 2017) is available at

<https://echa.europa.eu/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list>

This list is under evaluation by ECHA and may subject to change in the future.

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