



Test Report

Number: SZHH01091997

Applicant: DONGGUAN LIYANG TOYS LTD.
Floor 3, Building 2, Daxingwei Industry
Xianxi, Wusha, Changan Town,
Dongguan City, Guangdong Province

Date: Sep 26, 2016

Attn: 陈效

Sample Description:

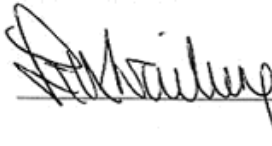

Two (2) pieces of submitted sample said to be :

- Item Name : **Spark.**
- Item No. : **BL-22585.**
- Reference No. : **BL-10895, BL-21585, BL-21585, BL-20585, BL-13485, BL-15485, BL-17485.**
- Labelled Age Group : Not Specified.
- Applicant Specified Age : Adult.
- Grading for Testing
- Packaging Provided by Applicant : No.
- Additional Material and Wet Paint Provided : No.
- Date Sample Received : Sep 13, 2016.



To be continued

Authorized by:
For Intertek Testing Services
Shenzhen Ltd.

Ben N.L. Lin
General Manager



Intertek Testing Services Shenzhen Ltd.- Hardlines

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Tests conducted:

As requested by the applicant, refer to attached page(s) for details.

Conclusion:

<u>Tested Sample</u>	<u>Standard</u>	<u>Result</u>
Tested components of submitted samples	Consent Judgment No. RG- 356892 for total Lead content based on the California Proposition 65	See test conducted
Submitted samples	EU REACH Regulation No 1907/2006 Article 33(1) Obligation to provide information of safe use (see REACH requirement in report for details)	Meet requirement
Tested components of submitted samples	Screening by XRF spectroscopy and chemical confirmation test for RoHS Directive 2011/65/EU	Pass

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Tests Conducted

1 Total Lead Content

Acid digestion method was used and total Lead content was determined by Inductively Coupled Argon Plasma Spectrometry.

Element	Result (mg/kg)	Reporting Limit	Limit
	Tested Component	(mg/kg)	(mg/kg)
	(1)		
Lead (Pb)	ND	10	90

Element	Result (mg/kg)	Reporting Limit	Limit
	Tested Component	(mg/kg)	(mg/kg)
	(2+3+4),(5+6),(7+8)		
Lead (Pb)	ND	10	100

The above limit was referred to the Consent Judgment No. RG- 356892 settled by superior court of the State of California for the county of Alameda, for toys based on the California Proposition 65.

ND = Not detected

Tested Components:

- (1) Dull white coating on plastic (body)
- (2) Black plastic excluding coating (body)
- (3) Black plastic (button)
- (4) Black plastic (battery box, cover of battery box)
- (5) Black plastic (washer)
- (6) Green PCB (PCB of cover of battery box)
- (7) Silver color metal (spring)
- (8) Gold color metal sheet (conducting plate)



Tests Conducted

2 (I) SVHC Testing Results

By Inductively Coupled Plasma Optical Emission Spectrometry, Ion Chromatography, UV-Visible Spectrophotometry, Gas Chromatographic - Mass Spectrometry, Liquid Chromatographic - Mass Spectrometry and High Performance Liquid Chromatography analysis.

Chemical Substance	Results % (w/w)	
	Tested groups	Whole product
	(1)to(3)	
All tested SVHCs in Chemical list	ND	ND

SVHC = Substance of very high concern

ND = Not detected

Reporting limit = 0.050%

Δ = Determination was based on elemental analysis. The content was calculated based on assumption of worst-case.

SVHC Chemical list:

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
1	Cobalt Dichloride Δ	7646-79-9	85	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5
2	Diarsenic Pentaoxide Δ	1303-28-2	86	Pentacosafuorotridecanoic acid	72629-94-8
3	Diarsenic Trioxide Δ	1327-53-3	87	Tricosafuorododecanoic acid	307-55-1
4	Lead Hydrogen Arsenate Δ	7784-40-9	88	Henicosafuoroundecanoic acid	2058-94-8
5	Triethyl Arsenate Δ	15606-95-8	89	Heptacosafuorotetradecanoic acid	376-06-7
6	Sodium Dichromate Δ	7789-12-0, 10588-01-9	90	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
7	Bis (Tributyltin) Oxide (TBTO) Δ	56-35-9	91	Cyclohexane-1,2-dicarboxylic anhydride [1] cis-cyclohexane-1,2-dicarboxylic anhydride [2] trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry].	85-42-7 13149-00-3 14166-21-3
8	Anthracene	120-12-7	92	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans-stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	25550-51-0 19438-60-9 48122-14-1 57110-29-9



Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
9	4,4'-Diaminodiphenylmethane (MDA)	101-77-9	93	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]	--
10	Hexabromocyclodecane (HBCDD) and All Major Diastereoisomers Identified (α -HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4 and 3194-55-6 (134237-50-6, 134237-51-7, 134237-52-8)	94	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	--
11	5-Tert-Butyl-2,4,6-Trinitro-m-Xylene (Musk Xylene)	81-15-2	95	Methoxyacetic acid	625-45-6
12	Bis (2-Ethylhexyl) Phthalate (DEHP)	117-81-7	96	N,N-dimethylformamide	68-12-2
13	Dibutyl Phthalate (DBP)	84-74-2	97	Dibutyltin dichloride (DBTC) Δ	683-18-1
14	Benzyl Butyl Phthalate (BBP)	85-68-7	98	Lead monoxide (Lead oxide) Δ	1317-36-8
15	Short Chain Chlorinated Paraffins (C ₁₀₋₁₃)	85535-84-8	99	Orange lead (Lead tetroxide) Δ	1314-41-6
16	Lead Chromate Δ	7758-97-6	100	Lead bis(tetrafluoroborate) Δ	13814-96-5
17	Lead Chromate Molybdate Sulphate Red (C.I. Pigment Red 104) Δ	12656-85-8	101	Trilead bis(carbonate)dihydroxide Δ	1319-46-6
18	Lead Sulfochromate Yellow (C.I. Pigment Yellow 34) Δ	1344-37-2	102	Lead titanium trioxide Δ	12060-00-3



Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
19	Tris (2-Chloroethyl) Phosphate	115-96-8	103	Lead titanium zirconium oxide Δ	12626-81-2
20	2,4-Dinitrotoluene	121-14-2	104	Silicic acid, lead salt Δ	11120-22-2
21	Diisobutyl Phthalate (DIBP)	84-69-5	105	Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), lead-doped Δ [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]	68784-75-8
22	Coal Tar Pitch, High Temperature	65996-93-2	106	1-bromopropane (n-propyl bromide)	106-94-5
23	Anthracene Oil	90640-80-5	107	Methyloxirane (Propylene oxide)	75-56-9
24	Anthracene Oil, Anthracene Paste, Distn. Lights	91995-17-4	108	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0
25	Anthracene Oil, Anthracene Paste, Anthracene Fraction	91995-15-2	109	Diisopentylphthalate (DIPP)	605-50-5
26	Anthracene Oil, Anthracene-low	90640-82-7	110	N-pentyl-isopentylphthalate	776297-69-9
27	Anthracene Oil, Anthracene Paste	90640-81-6	111	1,2-diethoxyethane	629-14-1
28	Acrylamide	79-06-1	112	Acetic acid, lead salt, basic Δ	51404-69-4
29	Boric Acid Δ	10043-35-3, 11113-50-1	113	Lead oxide sulfate Δ	12036-76-9
30	Disodium Tetraborate, Anhydrous Δ	1330-43-4, 12179-04-3, 1303-96-4	114	[Phthalato(2-)]dioxotrilead Δ	69011-06-9
31	Tetraboron Disodium Heptaoxide, Hydrate Δ	12267-73-1	115	Dioxobis(stearato)trilead Δ	12578-12-0

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
32	Sodium Chromate Δ	7775-11-3	116	Fatty acids, C16-18, lead saltsΔ	91031-62-8
33	Potassium Chromate Δ	7789-00-6	117	Lead cyanidateΔ	20837-86-9
34	Ammonium Dichromate Δ	7789-09-5	118	Lead dinitrateΔ	10099-74-8
35	Potassium Dichromate Δ	7778-50-9	119	Pentalead tetraoxide sulphateΔ	12065-90-6
36	Trichloroethylene	79-01-6	120	Pyrochlore, antimony lead yellowΔ	8012-00-8
37	2-Methoxyethanol	109-86-4	121	Sulfurous acid, lead salt, dibasicΔ	62229-08-7
38	2-Ethoxyethanol	110-80-5	122	TetraethylleadΔ	78-00-2
39	Cobalt Sulphate Δ	10124-43-3	123	Tetralead trioxide sulphateΔ	12202-17-4
40	Cobalt Dinitrate Δ	10141-05-6	124	Trilead dioxide phosphonateΔ	12141-20-7
41	Cobalt Carbonate Δ	513-79-1	125	Furan	110-00-9
42	Cobalt Diacetate Δ	71-48-7	126	Diethyl sulphate	64-67-5
43	Chromium Trioxide Δ	1333-82-0	127	Dimethyl sulphate	77-78-1
44	Chromic Acid Δ Dichromic Acid Δ Oligomers of Chromic Acid and Dichromic Acid Δ	7738-94-5 13530-68-2 --	128	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2
45	Strontium ChromateΔ	7789-06-2	129	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7
46	2-ethoxyethyl acetate (2-EEA)	111-15-9	130	4,4'-methylenedi-o-toluidine	838-88-0
47	1,2-Benzenedicarboxylic acid, di-C ₇₋₁₁ -branched and linear alkyl esters (DHNUP)	68515-42-4	131	4,4'-oxydianiline and its salts	101-80-4
48	Hydrazine	7803-57-8 302-01-2	132	4-aminoazobenzene	60-09-3
49	1-methyl-2-pyrrolidone	872-50-4	133	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7
50	1,2,3-trichloropropane	96-18-4	134	6-methoxy-m-toluidine (p-cresidine)	120-71-8

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
51	1,2-Benzenedicarboxylic acid, di-C ₆₋₈ -branched alkyl esters, C ₇ -rich (DIHP)	71888-89-6	135	Biphenyl-4-ylamine	92-67-1
52	Lead dipicrate Δ	6477-64-1	136	o-aminoazotoluene [(4-o-tolylazo-o-toluidine)]	97-56-3
53	Lead styphnate Δ	15245-44-0	137	o-toluidine	95-53-4
54	Lead azide; Lead diazide Δ	13424-46-9	138	N-methylacetamide	79-16-3
55	Phenolphthalein	77-09-8	139	Cadmium Δ	7440-43-9
56	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	140	Cadmium oxide Δ	1306-19-0
57	N,N-dimethylacetamide (DMAC)	127-19-5	141	Dipentyl phthalate (DPP)	131-18-0
58	Trilead diarsenate Δ	3687-31-8	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]	--
59	Calcium arsenate Δ	7778-44-1	143	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
60	Arsenic acid Δ	7778-39-4	144	Pentadecafluorooctanoic acid (PFOA)	335-67-1
61	Bis(2-methoxyethyl) ether	111-96-6	145	Cadmium sulphide Δ	1306-23-6

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
62	1,2-Dichloroethane	107-06-2	146	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0
63	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	147	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
64	2-Methoxyaniline; o-Anisidine	90-04-0	148	Dihexyl phthalate (DnHP)	84-75-3
65	Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8	149	Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7
66	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	150	Lead di(acetate) Δ	301-04-2
67	Pentazinc chromate octahydroxideΔ	49663-84-5	151	Trixylyl phosphate	25155-23-1
68	Potassium hydroxyoctaoxodizincate di-chromateΔ	11103-86-9	152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear (Diisohexyl phthalate(DIHP))	68515-50-4
69	Dichromium tris(chromate)Δ	24613-89-6	153	Cadmium chlorideΔ	10108-64-2
70	Aluminosilicate Refractory Ceramic Fibres Δ	(Index No. 650-017-00-8)	154	Sodium perborate; perboric acid, sodium saltΔ	--
71	Zirconia Aluminosilicate Refractory Ceramic Fibres Δ	(Index No. 650-017-00-8)	155	Sodium peroxometaborateΔ	7632-04-4

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
72	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	156	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1
73	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	157	2-benzotriazol-2-yl-4,6-ditert-butylphenol (UV-320)	3846-71-7
74	Diboron trioxide Δ	1303-86-2	158	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1
75	Formamide	75-12-7	159	Cadmium fluoride Δ	7790-79-6
76	Lead(II) bis(methanesulfonate) Δ	17570-76-2	160	Cadmium sulphate Δ	10124-36-4; 31119-53-6
77	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	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)	15571-58-1; 27107-89-7
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	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

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
79	4,4'-bis(dimethylamino) benzophenone (Michler's ketone)	90-94-8	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]	117933-89-8
80	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	164	Nitrobenzene	98-95-3
81	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	548-62-9	165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1
82	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	2580-56-5	166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3

Tests Conducted

	Chemical Substance	CAS No.		Chemical Substance	CAS No.
83	α,α-Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	6786-83-0	167	1,3-propanesultone	1120-71-4
84	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	561-41-1	168	Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4
--	--	--	169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8

As applicant's requirement, materials were screened in composite testing and results were reported in proportion with the whole product weight.

(II) Tested groups:

- (1) Plastic & PCB materials
- (2) Magnet materials
- (3) Metal materials



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Tests Conducted

Notes:

Substances of very high concern (SVHC) are classified as:
Carcinogenic, mutagenic or toxic to reproduction category 1 (proven on humans) and category 2 (proven on animals)

Persistent, bioaccumulative and toxic chemicals (PBT)

Very persistent and very bioaccumulative chemicals (vPvB)

Other similar substances such as endocrine disrupters

If the imported or manufactured volume of each individual SVHC in article is more than 0.1% (w/w) and if it exceeds 1 tonne per year across all product ranges, then importer or manufacturer require notification to the European Chemical Agency (ECHA). For substances included in the Candidate List on or after 1 December 2010, the notifications have to be submitted no later than 6 months after the inclusion. The following information has to be submitted for notification:

Identification of the registrant and the substance

Classification and labelling of the substance

Description of use of the substance and the article

Registration number, if available

Tonnage range

REACH requirement:

As per article 33(1) of regulation (EC) No. 1907/2006 (REACH), recipients of product must be provided with information of safe use if any of the tested substances (SVHC) exceeded 0.1% (w/w). A product meets the requirement of article 33(1) by default when no SVHC exceeds 0.1% (w/w).



Intertek Testing Services Shenzhen Ltd.- Hardlines

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Attention is drawn to the terms and conditions printed overleaf.

Tests Conducted

3 RoHS Chemical Test

(A) Screening Test by XRF Spectroscopy

Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) and Bromine (Br) content were measured with reference to IEC 62321-3-1 Edition 1.0 : 2013 by XRF spectroscopy and chemical confirmation test for RoHS restricted substances.

Screened Components	XRF Results		Chemical Confirmation Result
1	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
2	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
3	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
4	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
5	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	



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Screened Components	XRF Results		Chemical Confirmation Result
6	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
7	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
8	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
9	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
10	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
11	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	



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Screened Components	XRF Results		Chemical Confirmation Result
12	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
13	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
14a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Detected	
14b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
15	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
16	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	



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Screened Components	XRF Results		Chemical Confirmation Result
17	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
18	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
19	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
20	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
21	Cd	ND	PBBs: ND(<5mg/kg) PBDEs: ND(<5mg/kg)
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	Inconclusive	
22	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	



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Screened Components	XRF Results		Chemical Confirmation Result
23	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
24a	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
24b	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
24c	Cd	ND	Cr ⁶⁺ : Negative (<0.1µg/cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
24d	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
24e	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	



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Tests Conducted

Screened Components	XRF Results		Chemical Confirmation Result
25	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
26	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
27	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
28	Cd	ND	Cr ⁶⁺ : Negative (<0.1µg/cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
29	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
30	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	



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Screened Components	XRF Results		Chemical Confirmation Result
31	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
32	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
33	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	NT	
34	Cd	ND	Cr ⁶⁺ : Negative (<0.1µg/cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	
35	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	
36	Cd	ND	Cr ⁶⁺ : Negative (<0.1µg/cm ²)
	Pb	ND	
	Hg	ND	
	Cr	Inconclusive	
	Br	NT	



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Screened Components	XRF Results		Chemical Confirmation Result
37	Cd	ND	NT
	Pb	ND	
	Hg	ND	
	Cr	ND	
	Br	ND	

Detected = Below the lower screening limit of table (C) and pass

ND = Not detected

NT = Not tested

Positive = A positive test result indicated the concentration of Cr(VI) is greater than threshold of 0.13µg/cm² for boiling-water-extraction procedures by visual comparison / by UV-VIS Spectrophotometer analysis. The sample coating is considered to contain Cr(VI).

Negative = A negative test result indicated the concentration of Cr(VI) is less than threshold of 0.10µg/cm² for boiling-water-extraction procedures by UV-VIS Spectrophotometer analysis. The coating is considered a non-Cr(VI) based coating.

(B) XRF Screening Limits in mg/kg for Regulated Elements in Various Matrices

Element	Polymer Materials	Metallic Materials	Composite Materials
Cd	P ≤ 70 < X < 130 ≤ F	P ≤ 70 < X < 130 ≤ F	P ≤ 70 < X < 150 ≤ F
Pb	P ≤ 700 < X < 1300 ≤ F	P ≤ 700 < X < 1300 ≤ F	P ≤ 500 < X < 1500 ≤ F
Hg	P ≤ 700 < X < 1300 ≤ F	P ≤ 700 < X < 1300 ≤ F	P ≤ 500 < X < 1500 ≤ F
Cr	P ≤ 700 < X	P ≤ 700 < X	P ≤ 500 < X
Br	P ≤ 300 < X	Not applicable	P ≤ 250 < X

P = Pass

X = Inconclusive result

F = Fail

mg/kg = milligram per kilogram = ppm



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(C) Estimated Detection Limits in mg/kg for Regulated Elements in Various Matrices

Element	Polymer Materials	Metallic Materials	Composite Materials
Cd	50	70	70
Pb	100	200	200
Hg	100	200	200
Cr	100	200	200
Br	200	Not applicable	200

Disclaimers:

This XRF Screening and Chemical Confirmation Test Report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF Screening and Chemical Confirmation Test Report is sufficient for its/his/her purposes.

The results shown in this XRF Screening and Chemical Confirmation Test Report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis is required to obtain quantitative data.

(D) Chemical Confirmation Test Methods:

Testing Item	Testing Method	Reporting Limit
Polybrominated Biphenyls (PBBs)& Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321-6 Edition 1.0:2015, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg
Chromium (VI) (Cr ⁶⁺) Content	With reference to IEC 62321-7-1 Edition 1.0:2015, by boiling water extraction and determined by UV-VIS Spectrophotometer	0.10µg/cm ²

(E) RoHS Requirement:

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)



Test Report

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Tested Components:

- (1) Dull white coating on plastic (body)
 - (2) Black plastic excluding coating (body)
 - (3) Black plastic (battery box, cover of battery box)
 - (4) Black plastic (washer)
 - (5) Black plastic
 - (6) Dull gold color metal (washer)
 - (7) Gold color metal sheet (conducting plate)
 - (8) Silver color metal (terminal)
 - (9) White plastic
 - (10) Silver color metal (brush)
 - (11) Solder
 - (12) Semi-transparent plastic (washer)
 - (13) Black plastic
 - (14) Ic
 - (A) black plastic with material
 - (B) silver color metal (lead)
 - (15) Silver color metal (spring)
 - (16) Conformal coating with green solder mask & copper color metal pad & fibreboard (PCB)
 - (17) Semi-transparent plastic (washer)
 - (18) Black plastic (button)
 - (19) Black plastic with beige printing & material & silver color metal (SMD diode)
 - (20) Brown ceramic with silver color metal & solder (SMD capacitor)
 - (21) Black plastic with beige printing & material & silver color metal (SMD triode of all styles)
 - (22) Grey-black ceramic with silver color metal & solder (SMD capacitor)
 - (23) White ceramic with black material & white printing & silver color metal & solder (SMD resister of all styles)
 - (24) Switch
 - (A) black plastic (button)
 - (B) silver color metal (lid)
 - (C) silver color metal sheet
 - (D) black plastic (base)
 - (E) silver color metal (lead)
 - (25) Green plastic (washer)
 - (26) Black magnet
 - (27) Beige adhesive tape
 - (28) Silver color metal (case)
 - (29) Black magnet
 - (30) Copper color metal (washer)
 - (31) Dull white plastic
 - (32) Silver color metal sheet
 - (33) Black magnet with silver color metal & solder
 - (34) Silver color metal (axle)
 - (35) Semi-transparent plastic
 - (36) Silver-grey metal sheet
 - (37) Copper color enamelled wire
- *****



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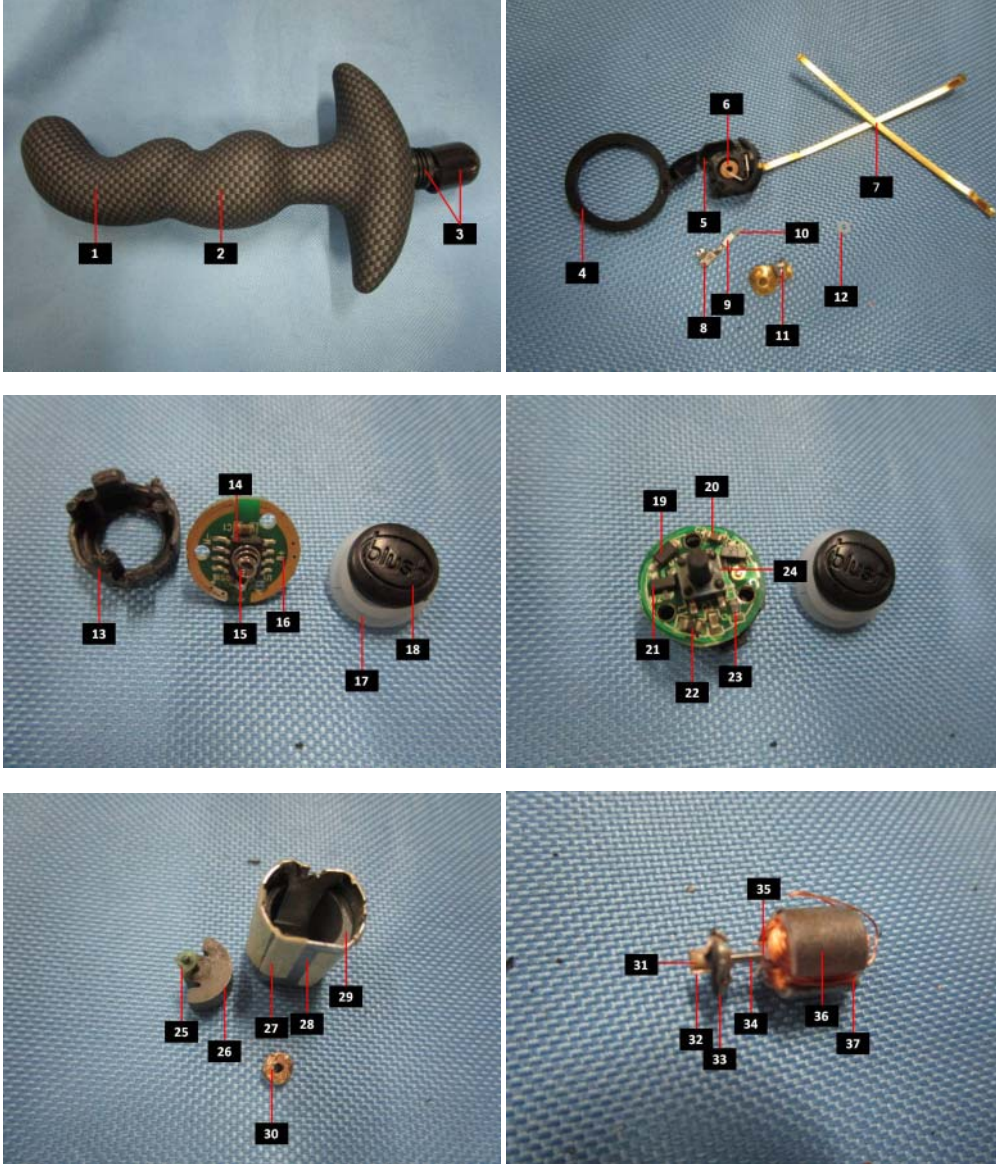
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Tests Conducted



End of report

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