



**Technical Report No. 64.164.17.04772.01B**

**Rev. 00**

**Dated 2017-09-22**

**Client:** JRL International Limited  
No.20 JianLong Street, JianLong Village, HengGang Town,  
LongGang District,ShenZhen City 518115

**Test Subject:** The submitted sample was identified and described by client as:  
Parts of Led strip

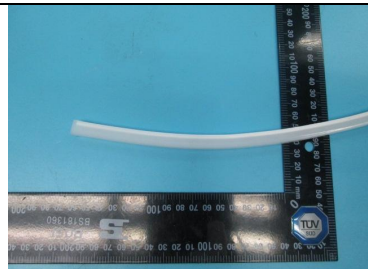

**Purpose of examination:** **REACH**  
Registration, Evaluation, Authorisation and restriction of Chemicals  
(REACH)  
EC No. 1907/2006  
–Analysis of the 174 substances of very high concern (SVHC) on the  
Candidate List for authorization, concerning Regulation (EC) No.  
1907/2006 as published on the European Chemicals Agency (ECHA)  
website in October 2008, January 2010, March 2010, June 2010, Decem-  
ber 2010, June 2011, December 2011, June 2012, December 2012, June  
2013, December 2013, June 2014, December 2014, June 2015, Decem-  
ber 2015, June 2016, January 2017 and July 2017.  
  
– Analysis based on LCMS, LCMSMS, GCMS, Headspace-GCMS,  
ICP-OES/AAS, UV-VIS and XRF.

**Test Result:** Refer to next page(s)

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## 1. Description of the test subject

### 1.1 Material List

Sample No.	Description	Photograph
001	White soft plastic shell	
002	Transparent soft plastic part	
* 003	PCB with Electronic components	

Remark: \* means the retest sample was provided by client on 2017-09-18.

### 1.2 Testing group

Group No.	Material	Sample
T1	Plastic	001+002
T2	Plastic	003



## **2 Order**

### **2.1 Date of Purchase Order**

2017-08-14

### **2.2 Receipt Date of Test Sample, Location**

2017-08-14, Guangzhou

### **2.3 Date of Testing**

2017-08-14 to 2017-09-22

### **2.4 Location of Testing**

The test was performed in TÜV SÜD Hong Kong Ltd. Chemical lab and the test results were reviewed at TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch.





### 3. 174 SVHCs Test Result

Analysis of the 174 substances of very high concern (SVHC) on the Candidate List for authorization, concerning Regulation (EC) No. 1907/2006 as published on the European Chemicals Agency (ECHA) website in October 2008, January 2010, March 2010, June 2010, December 2010, June 2011, December 2011, June 2012, December 2012, June 2013, December 2013, June 2014, December 2014, June 2015, December 2015, June 2016, January 2017 and July 2017.

Analysis based on LCMS, LCMSMS, GCMS, Headspace-GCMS, ICP-OES/AAS, UV-VIS and XRF. [Reporting Limit = 0.01 %]

Group No.:	Substance Name	CAS No.	Result (%)
T1	174 SVHCs	--	N.D.
T2	174 SVHCs	--	N.D.

- Note:
1. "N.D." denotes not detected (< Reporting Limit)
  2. "%" denotes percentage by weight
  3. Candidate List for authorization, concerning Regulation (EC) No 1907/2006 as published on the European Chemicals Agency (ECHA) website in October 2008, January 2010, March 2010, June 2010, December 2010, June 2011, December 2011, June 2012, December 2012, June 2013, December 2013, June 2014, December 2014, June 2015, December 2015, June 2016, January 2017 and July 2017.

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TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch  
TÜV SÜD Group



Engineer: Sam Luo  
Sam Luo

Technical Report checked: Ben Shao  
Ben Shao

- END OF TEST REPORT -





## APPENDIX I - 174 SUBSTANCES OF VERY HIGH CONCERN (SVHCs)

### 1. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN OCTOBER 2008 BY EC-HA

Substance Name	CAS NO.	EC NO.
Anthracene	120-12-7	204-371-1
4,4'- Diaminodiphenylmethane (MDA)	101-77-9	202-974-4
Dibutyl phthalate (DBP)	84-74-2	201-557-4
Cobalt dichloride*	7646-79-9	231-589-4
Diarsenic pentaoxide*	1303-28-2	215-116-9
Diarsenic trioxide*	1327-53-3	215-481-4
Sodium dichromate*	7789-12-0 and 10588-01-9	234-190-3
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4
Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	204-211-0
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: Alpha-HBCDD, Beta-HBCDD, Gamma-HBCDD	25637-99-4 and 3194-55-6 (134237-50-6, 134237-51-7, 134237-52-8)	247-148-4 and 221-695-9
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (SCCP)	85535-84-8	287-476-5
Bis(tributyltin)oxide (TBTO)*	56-35-9	200-268-0
Lead hydrogen arsenate*	7784-40-9	232-064-2
Benzyl butyl phthalate (BBP)	85-68-7	201-622-7
Triethyl arsenate*	15606-95-8	427-700-2



**2. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JANUARY  
2010 AND  
MARCH 2010 BY ECHA**

Substance Name	CAS NO.	EC NO.
Anthracene oil <sup>#</sup>	90640-80-5	292-602-7
Anthracene oil, anthracene paste, distn. lights <sup>#</sup>	91995-17-4	295-278-5
Anthracene oil, anthracene paste, anthracene fraction <sup>#</sup>	91995-15-2	295-275-9
Anthracene oil, anthracene-low <sup>#</sup>	90640-82-7	292-604-8
Anthracene oil, anthracene paste <sup>#</sup>	90640-81-6	292-603-2
Pitch, coal tar, high temp <sup>#</sup>	65996-93-2	266-028-2
2,4-Dinitrotoluene	121-14-2	204-450-0
Diisobutyl phthalate (DIBP)	84-69-5	201-553-2
Tris(2-chloroethyl)phosphate	115-96-8	204-118-5
Lead chromate*	7758-97-6	231-846-0
Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	215-693-7
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8	235-759-9
Acrylamide	79-06-1	201-174-7



### 3. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2010 BY ECHA

Substance Name	CAS NO.	EC NO.
Trichloroethylene	79-01-6	201-167-4
Boric acid*	10043-35-3 11113-50-1	233-139-2 234-343-4
Disodium tetraborate, anhydrous*	1330-43-4 12179-04-3 1303-96-4	215-540-4
Tetraboron disodium heptaoxide, hydrate*	12267-73-1	235-541-3
Sodium chromate*	7775-11-3	231-889-5
Potassium chromate*	7789-00-6	232-140-5
Ammonium dichromate*	7789-9-5	232-143-1
Potassium dichromate*	7778-50-9	231-906-6

### 4. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN DECEMBER 2010 BY ECHA

Substance Name	CAS NO.	EC NO.
Cobalt(II) sulphate*	10124-43-3	233-334-2
Cobalt(II) dinitrate*	10141-05-6	233-402-1
Cobalt(II) carbonate*	513-79-1	208-169-4
Cobalt(II) diacetate*	71-48-7	200-755-8
2-Methoxyethanol	109-86-4	203-713-7
2-Ethoxyethanol	110-80-5	203-804-1
Chromium trioxide*	1333-82-0	215-607-8
Acids generated from chromium trioxide and their oligomers*	7738-94-5 13530-68-2 not yet assigned	231-801-5 236-881-5 not yet assigned

### 5. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2011 BY ECHA

Substance Name	CAS NO.	EC NO.
2-Ethoxyethyl acetate (2-EEA)	111-15-9	203-839-2
Strontium chromate*	7789-06-2	232-142-6
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)#	68515-42-4	271-084-6
Hydrazine	7803-57-8, 302-01-2	206-114-9
1-Methyl-2-pyrrolidone	872-50-4	212-828-1
1,2,3-Trichloropropane	96-18-4	202-486-1
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	276-158-1





## 6. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN DECEMBER 2011 BY ECHA

Substance Name	CAS NO.	EC NO.
1,2-Dichloroethane	107-06-2	203-458-1
2,2'-Dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9
2-Methoxyaniline, o-Anisidine	90-04-0	201-963-1
4-(1,1,3,3-Tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	205-426-2
Aluminosilicate Refractory Ceramic Fibres (RCF)	--	---
Arsenic acid*	7778-39-4	231-901-9
Bis(2-methoxyethyl) ether	111-96-6	203-924-4
Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6
Calcium arsenate*	7778-44-1	231-904-5
Dichromium tris(chromate) *	24613-89-6	246-256-2
Formaldehyde, oligomeric reaction products with aniline (technical MDA) #	25214-70-4	500-036-1
Lead diazide*	13424-46-9	236-542-1
Lead dipicrate*	6477-64-1	229-335-2
Lead styphnate*	15245-44-0	239-290-0
N,N-dimethylacetamide (DMAC)	127-19-5	204-826-4
Pentazinc chromate octahydroxide*	49663-84-5	256-418-0
Phenolphthalein	77-09-8	201-004-7
Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9	234-329-8
Trilead diarsenate*	3687-31-8	222-979-5
Zirconia Aluminosilicate Refractory Ceramic Fibres (Zr-RCF) *	--	---

## 7. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2012 BY ECHA

Substance Name	CAS NO.	EC NO.
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	203-977-3
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9
Diboron trioxide*	1303-86-2	215-125-8
Formamide	75-12-7	200-842-0
Lead(II) bis(methanesulfonate)*	17570-76-2	401-750-5
1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (TGIC)	2451-62-9	219-514-3
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione ( $\beta$ -TGIC)	59653-74-6	423-400-0
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	202-027-5
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	202-959-2
[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with $\geq$ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	2580-56-5	219-943-6
[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with $\geq$ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	548-62-9	208-953-6
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with $\geq$ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	561-41-1	209-218-2
$\alpha,\alpha$ -Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with $\geq$ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	6786-83-0	229-851-8

## 8. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN DECEMBER 2012 BY ECHA

Substance Name	CAS NO.	EC NO.
Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	214-604-9
Pentacosafluorotridecanoic acid	72629-94-8	276-745-2
Tricosfluorododecanoic acid	307-55-1	206-203-2
Henicosfluoroundecanoic acid	2058-94-8	218-165-4
Heptacosfluorotetradecanoic acid	376-06-7	206-803-4
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated§	-	-
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§	-	-
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8
Cyclohexane-1,2-dicarboxylic anhydride (Hexahydrophthalic anhydride - HHPA)	85-42-7	
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
Methoxy acetic acid	625-45-6	210-894-6
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	284-032-2
Diisopentylphthalate (DIPP)	605-50-5	210-088-4
N-pentyl-isopentylphthalate	776297-69-9	-
1,2-Diethoxyethane	629-14-1	211-076-1
N,N-dimethylformamide; dimethyl formamide	68-12-2	200-679-5
Dibutyltin dichloride (DBT)	683-18-1	211-670-0
Acetic acid, lead salt, basic*	51404-69-4	257-175-3
Basic lead carbonate (trilead bis(carbonate)dihydroxide)*	1319-46-6	215-290-6
Lead oxide sulfate (basic lead sulfate)*	12036-76-9	234-853-7
[Phthalato(2-)]dioxotrilead (dibasic lead phthalate)*	69011-06-9	273-688-5
Dioxobis(stearato)trilead*	12578-12-0	235-702-8
Fatty acids, C16-18, lead salts*	91031-62-8	292-966-7
Lead bis(tetrafluoroborate)*	13814-96-5	237-486-0
Lead cyanamate*	20837-86-9	244-073-9
Lead dinitrate*	10099-74-8	233-245-9
Lead oxide (lead monoxide)*	1317-36-8	215-267-0
Lead tetroxide (orange lead)*	1314-41-6	215-235-6
Lead titanium trioxide*	12060-00-3	235-038-9
Lead Titanium Zirconium Oxide*	12626-81-2	235-727-4



Substance Name	CAS NO.	EC NO.
Pentalead tetraoxide sulphate*	12065-90-6	235-067-7
Pyrochlore, antimony lead yellow*	8012-00-8	232-382-1
Silicic acid, barium salt, lead-doped*	68784-75-8	272-271-5
Silicic acid, lead salt*	11120-22-2	234-363-3
Sulfurous acid, lead salt, dibasic*	62229-08-7	263-467-1
Tetraethyllead*	78-00-2	201-075-4
Tetralead trioxide sulphate*	12202-17-4	235-380-9
Trilead dioxide phosphonate*	12141-20-7	235-252-3
Furan	110-00-9	203-727-3
Propylene oxide; 1,2-epoxypropane; methyloxirane	75-56-9	200-879-2
Diethyl sulphate	64-67-5	200-589-6
Dimethyl sulphate	77-78-1	201-058-1
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	421-150-7
Dinoseb	88-85-7	201-861-7
4,4'-methylenedi-o-toluidine	838-88-0	212-658-8
4,4'-oxydianiline and its salts	101-80-4	202-977-0
4-Aminoazobenzene; 4-Phenylazoaniline	60-09-3	200-453-6
4-methyl-m-phenylenediamine (2,4-toluene-diamine)	95-80-7	202-453-1
6-methoxy-m-toluidine (p-cresidine)	120-71-8	204-419-1
Biphenyl-4-ylamine	92-67-1	202-177-1
o-aminoazotoluene	97-56-3	202-591-2
o-Toluidine; 2-Aminotoluene	95-53-4	202-429-0
N-methylacetamide	79-16-3	201-182-6
1-bromopropane; n-propyl bromide	106-94-5	203-445-0



## 9. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2013 BY ECHA

Substance Name	CAS NO.	EC NO.
Cadmium	7440-43-9	231-152-8
Cadmium oxide*	1306-19-0	215-146-2
Dipentyl phthalate (DPP)	131-18-0	205-017-9
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]	-	-
Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	223-320-4
Pentadecafluorooctanoic acid (PFOA)	335-67-1	206-379-9

## 10. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN DECEMBER 2013 BY ECHA

Substance Name	CAS NO.	EC NO.
Cadmium sulphide*	1306-23-6	215-147-8
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
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
Dihexyl phthalate	84-75-3	201-559-5
Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7	202-506-9
Lead di (acetate)	301-04-2	206-104-4
Trixylyl phosphate	25155-23-1	246-677-8

## 11. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2014 BY ECHA

Substance Name	CAS NO.	EC NO.
1, 2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	271-093-5
Cadmium chloride*	10108-64-2	233-296-7
Sodium perborate, perboric acid, sodium salt*	--	239-172-9, 234-390-0
Sodium peroxometaborate*	7632-04-4	231-556-4



## 12. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN DECEMBER 2014 BY ECHA

Substance Name	CAS NO.	EC NO.
Cadmium fluoride*	7790-79-6	232-222-0
Cadmium sulphate*	10124-36-4; 31119-53-6	233-331-6
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	223-346-6
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	247-384-8
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	239-622-4
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)	--	--

## 13. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2015 BY ECHA

Substance Name	CAS NO.	EC NO.
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
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	--	--

## 14. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN DECEMBER 2015 BY ECHA

Substance Name	CAS NO.	EC NO.
1,3-propanesultone	1120-71-4	214-317-9
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	223-383-8
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	253-037-1
Nitrobenzene	98-95-3	202-716-0
Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorononanoic acid and its sodium and ammonium salts	375-95-1; 21049-39-8; 4149-60-4	206-801-3



**15. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JUNE 2016 BY ECHA**

Substance Name	CAS NO.	EC NO.
Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	200-028-5

**16. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JANUARY 2017 BY ECHA**

Substance Name	CAS NO.	EC NO.
4,4'-isopropylidenediphenol (Bisphenol A)	80-05-7	201-245-8
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	335-76-2, 3830-45-3, 3108-42-7	206-400-3, -,221-470-5
p-(1,1-dimethylpropyl)phenol	80-46-6	201-280-9
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]	-	-

**17. REACH SVHCS ON THE CANDIDATE LIST, PUBLISHED IN JULY 2017 BY ECHA**

Substance Name	CAS NO.	EC NO.
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	355-46-4	206-587-1