

Test Report

Report No. RLSHD000580260001

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Applicant CHANGZHOU JIAQI ELECTRICAL PRODUCT CO.,LTD

Address NO.72 CAILING INDUSTRIAL PARK FENGHUANG SOUTH ROAD CHANGZHOU
JIANGSU.CHINA

Report on the submitted sample(s) said to be

Sample Name DIODE
Sample Description Electronic Components
Sample Received Date Apr.7,2011
Testing Period Apr.7,2011 to Apr.13,2011


Test Requested As specified by client, to screen the forty-six substances of very high concern (SVHC) under Regulation(EC) No 1907/2006 of REACH, including: Anthracene; 4,4'-Diaminodiphenylmethane; Dibutyl phthalate; Cobalt dichloride; Diarsenic pentaoxide; Diarsenic trioxide; Sodium dichromate; Musk-xylene; Bis(2-ethyl(hexyl)phthalate)(DEHP); Hexabromocyclododecane(HBCDD); Short Chain Chlorinated Paraffins; Bis(tributyltin)oxide; Lead hydrogen arsenate; Benzyl butyl phthalate; Triethyl Arsenate; Anthracene oil; four types of Anthracene oil fractions; Coal tar pitch, high temperature; Acrylamide; Aluminosilicate, Refractory Ceramic Fibres; Zirconia Aluminosilicate, Refractory Ceramic Fibres; 2,4-Dinitrotoluene; Diisobutyl phthalate (DIBP); Lead chromate; Lead chromate molybdate sulphate red (C.I. Pigment Red 104); Lead sulfochromate yellow(C.I. Pigment Yellow 34); Tris(2-chloroethyl)phosphate (TCEP); Trichloroethylene; Boric acid; Disodium tetraborate, anhydrous; Tetraboron disodium heptaoxide, hydrate; Sodium chromate; Potassium chromate; Ammonium dichromate; Potassium dichromate; Cobalt(II) sulphate; Cobalt(II) dinitrate; Cobalt(II) carbonate; Cobalt(II) diacetate; 2-Methoxyethanol; 2-Ethoxyethanol; Chromium trioxide; Acids generated from chromium trioxide and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid in the submitted sample.

Test Method Please refer to the following pages.

Test Result Please refer to the following pages.

Summary According to the analytical results, concentrations of 46 SVHC substances are less than 0.1% in the submitted sample.

Tested by


Che
Techn.

Inspected by

Zhang Yijun

Approved by

Date

Apr.13,2011

No. 94639274

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Test Method

No.	Substance Name	Test Method and Equipment	Substance Classification	Report Limit
1	Anthracene	Refer to US EPA 3550C:2007 & US EPA 8270D:2007, GC-MS	PBT	0.005%
2	4,4'-Diaminodiphenylmethane	Refer to US EPA 8270D:2007, GC-MS	Carcinogen, cat. 2	0.005%
3	Dibutyl phthalate (DBP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat. 2	0.005%
4	Cobalt dichloride*	Refer to US EPA 3052:1996/ BS EN14582:2007, ICP-OES/IC	Carcinogen, cat. 2	0.01%
5	Diarsenic pentaoxide*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat. 1	0.01%
6	Diarsenic trioxide*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat. 1	0.01%
7	Sodium dichromate*	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat. 2; Mutagen, cat. 2; Toxic for reproduction, cat. 2	0.01%
8	Musk xylene	Refer to US EPA 3540C:1996, GC-MS	vPvB	0.005%
9	Bis(2-ethylhexyl)phthalate (DEHP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat. 2	0.005%
10	Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996, GC-MS	PBT	0.005%
11	Short Chain Chlorinated Paraffins (SCCPs)	Refer to US EPA 3540C:1996, GC-MS	PBT; vPvB	0.01%
12	Bis(tributyltin)oxide (TBTO)*	Refer to ISO 17353:2004 ICP-OES/GC-MS	PBT	0.005%
13	Lead hydrogen arsenate*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat. 1; Toxic for reproduction, cat. 1	0.01%
14	Benzyl butyl phthalate (BBP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat. 2	0.005%
15	Triethyl arsenate*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat. 1	0.01%

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No.	Substance Name	Test Method and Equipment	Substance Classification	Report Limit
16	^① Anthracene oil	In-house method, GC-MS	PBT	0.05%
17	^① Anthracene oil, anthracene paste, distn. Lights *	In-house method, GC-MS	PBT	0.05%
18	^① Anthracene oil, anthracene paste, anthracene fraction	In-house method, GC-MS	PBT	0.05%
19	^① Anthracene oil, anthracene-low	In-house method, GC-MS	PBT	0.05%
20	^① Anthracene oil, anthracene paste	In-house method, GC-MS	PBT	0.05%
21	^① Coal tar pitch, high temperature	In-house method, GC-MS	PBT; Carcinogen, cat.2	0.05%
22	Acrylamide	In-house method, HPLC	Carcinogen, cat.2; Mutagen, cat.2	0.01%
23	^② Aluminosilicate, Refractory Ceramic Fibres	In-house method, ICP-OES/SEM-EDS	Carcinogen, cat.2	0.05%
24	^② Zirconia Aluminosilicate, Refractory Ceramic Fibres	In-house method, ICP-OES/SEM-EDS	Carcinogen, cat.2	0.05%
25	2,4-Dinitrotoluene	In-house method, GC-MS	Carcinogen, cat.2	0.01%
26	Diisobutyl phthalate (DIBP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat.2	0.005%
27	^② Lead chromate	Refer to US EPA 3052:1996/US EPA 3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat.2; Toxic for reproduction, cat.1	0.05%
28	^② Lead chromate molybdate sulphate red (C.I. Pigment Red 104)***	Refer to US EPA 3052:1996/US EPA 3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat.2; Toxic for reproduction, cat.1	0.05%
29	^② Lead sulfochromate yellow (C.I. Pigment Yellow 34)***	Refer to US EPA 3052:1996/US EPA 3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat.2; Toxic for reproduction, cat.1	0.05%
30	Tris(2-chloroethyl)phosphate (TCEP)	In-house method, GC-MS	Toxic for reproduction, cat.2	0.01%

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No.	Substance Name	Test Method and Equipment	Substance Classification	Report Limit
31	Trichloroethylene	Refer to US EPA 5021:1996, Headspace-GC/MS	Carcinogen, cat.2	0.005%
32	^③ Boric acid	Refer to US EPA 3052:1996, ICP-OES	Toxic for reproduction,cat2	0.01%
33	^③ Disodium tetraborate, anhydrous*****	Refer to US EPA 3052:1996, ICP-OES	Toxic for reproduction,cat2	0.01%
34	^③ Tetraboron disodium heptaoxide, hydrate*****	Refer to US EPA 3052:1996, ICP-OES	Toxic for reproduction,cat2	0.01%
35	^④ Sodium chromate	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-vis	Carcinogen, cat.2; Mutagenic cat2; Toxic for reproduction,cat2	0.01%
36	^④ Potassium chromate	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-vis	Carcinogen, cat.2; Mutagenic cat2	0.01%
37	^④ Ammonium dichromate	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-vis	Carcinogen, cat.2; Mutagenic cat2; Toxic for reproduction,cat2	0.01%
38	^④ Potassium dichromate	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-vis	Carcinogen, cat.2; Mutagenic cat2; Toxic for reproduction,cat2	0.01%

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No.	Substance Name	Test Method and Equipment	Substance Classification	Report Limit
39	[®] Cobalt(II) sulphate	Refer to US EPA 3052:1996 & in-house method/ICP-OES & IC	Toxic for reproduction,cat.2; Carcinogen, cat 2	0.01%
40	[®] Cobalt(II) dinitrate	Refer to US EPA 3052:1996 & in-house method/ICP-OES & IC	Toxic for reproduction,cat.2; Carcinogen, cat 2	0.01%
41	[®] Cobalt(II) carbonate	Refer to US EPA 3052:1996 & in-house method/ICP-OES & IC	Toxic for reproduction,cat.2 Carcinogen, cat. 2	0.01%
42	[®] Cobalt(II) diacetate	Refer to US EPA 3052:1996 & in-house method/ICP-OES & IC	Toxic for reproduction, cat.2 ; Carcinogen, cat. 2	0.01%
43	2-Methoxyethanol	Refer to US EPA 3550C:2007 /GC-MS	Toxic for reproduction, cat. 2	0.005%
44	2-Ethoxyethanol	Refer to US EPA 3550C:2007 /GC-MS	Toxic for reproduction, cat. 2	0.005%
45	[®] Chromium trioxide	Refer to US EPA3052:1996 & US EPA3060A:1996/ ICP-OES & UV-Vis	Carcinogen, cat. 1; Mutagenic cat. 2	0.01%
46	[®] Acids generated from chromium trioxide and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid	Refer to US EPA3052:1996 & US EPA3060A:1996/ ICP-OES & UV-Vis	Carcinogen, cat 2	0.01%

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Test Result

No.	Substance Name	CAS No.	EC No.	Concentration (%)
1	Anthracene	120-12-7	204-371-1	N.D.
2	4,4'- Diaminodiphenylmethane	101-77-9	202-974-4	N.D.
3	Dibutyl phthalate(DBP)	84-74-2	201-557-4	N.D.
4	Cobalt dichloride*	7646-79-9	231-589-4	N.D.
5	Diarsenic pentaoxide*	1303-28-2	215-116-9	N.D.
6	Diarsenic trioxide*	1327-53-3	215-481-4	N.D.
7	Sodium dichromate*	7789-12-0/ 10588-01-9	234-190-3	N.D.
8	Musk xylene	81-15-2	201-329-4	N.D.
9	Bis(2-ethyl(hexyl)) phthalate (DEHP)	117-81-7	204-211-0	N.D.
10	Hexabromocyclododecane (HBCDD)	25637-99-4/ 3194-55-6	247-148-4/ 221-695-9	N.D.
11	Short Chain Chlorinated Paraffins(SCCPs)	85535-84-8	287-476-5	N.D.
12	Bis(tributyltin)oxide (TBTO)*	56-35-9	200-268-0	N.D.
13	Lead hydrogen arsenate*	7784-40-9	232-064-2	N.D.
14	Benzyl butyl phthalate(BBP)	85-68-7	201-622-7	N.D.
15	Triethyl arsenate*	15606-95-8	427-700-2	N.D.
16	^① Anthracene oil	90640-80-5	292-602-7	N.D.
17	^① Anthracene oil,anthracene paste, distn. Lights ****	91995-17-4	295-278-5	N.D.
18	^① Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	N.D.
19	^① Anthracene oil, anthracene-low	90640-82-7	292-604-8	N.D.
20	^① Anthracene oil, anthracene paste	90640-81-6	292-603-2	N.D.
21	^① Coal tar pitch, high temperature	65996-93-2	266-028-2	N.D.
22	Acrylamide	79-06-1	201-173-7	N.D.
23	^② Aluminosilicate, Refractory Ceramic Fibres	-	650-017-00-8**	N.D.
24	^② Zirconia Aluminosilicate, Refractory Ceramic Fibres	-	650-017-00-8**	N.D.
25	2,4-Dinitrotoluene	121-14-2	204-450-0	N.D.
26	Diisobutyl phthalate (DIBP)	84-69-5	201-553-2	N.D.

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No.	Substance Name	CAS No.	EC No.	Concentration (%)
27	² Lead chromate	7758-97-6	231-846-0	N.D.
28	² Lead chromate molybdate sulphate red(C.I. Pigment Red 104)***	12656-85-8	235-759-9	N.D.
29	² Lead sulfochromate yellow (C.I. Pigment Yellow 34)***	1344-37-2	215-693-7	N.D.
30	Tris(2-chloroethyl)phosphate (TCEP)	115-96-8	204-118-5	N.D.
31	Trichloroethylene	79-01-6	201-167-4	N.D.
32	³ Boric acid	10043-35-3 11113-50-1	233-139-2 234-343-4	N.D.
33	³ Disodium tetraborate, anhydrous*****	1330-43-4 12179-04-3 1303-96-4	215-540-4	N.D.
34	³ Tetraboron disodium heptaoxide, hydrate*****	12267-73-1	235-541-3	N.D.
35	⁴ Sodium chromate	7775-11-3	231-889-5	N.D.
36	⁴ Potassium chromate	7789-00-6	232-140-5	N.D.
37	⁴ Ammonium dichromate	7789-09-5	232-143-1	N.D.
38	⁴ Potassium dichromate	7778-50-9	231-906-6	N.D.
39	⁵ Cobalt(II) sulphate	10124-43-3	233-334-2	N.D.
40	⁵ Cobalt(II) dinitrate	10141-05-6	233-402-1	N.D.
41	⁵ Cobalt(II) carbonate	513-79-1	208-169-4	N.D.
42	⁵ Cobalt(II) diacetate	71-48-7	200-755-8	N.D.
43	2-Methoxyethanol	109-86-4	203-713-7	N.D.
44	2-Ethoxyethanol	110-80-5	203-804-1	N.D.
45	⁵ Chromium trioxide	1333-82-0	215-607-8	N.D.
46	⁵ Acids 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	N.D.

Note:

-N.D. = Not Detected (<report limit)

-0.1% = 1000 mg/kg = 1000 ppm

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- PBT= Persistent,Bioaccumulative,Toxic; vPvB=very Persistent very Bioaccumulative
- *:Concentration value of Cobalt dichloride by the conversion from the test results of Cobalt and Chlorine.
Concentration value of Diarsenic pentaoxide, Diarsenic trioxide, Sodium dichromate, Lead hydrogen arsenate, Triethyl arsenate by the conversion from the test results of corresponding heavy metal.
Concentration value of Bis(tributyltin)oxide by the conversion from the test results of Tributyl Tins.
- **:¹All refractory ceramic fibres are covered by index number 650-017-00-8 in Annex VI of the Regulation on Classification, Labeling and Packaging of chemical substances and mixtures, the so called CLP Regulation (Regulation (EC) No 1272/2008).
- ***: C.I.: Colour Index
- ****:Light fractions from distillation
- *****:Concentration value of Disodium tetraborate, anhydrous and Tetraboron disodium heptaoxide, hydrate is evaluated by Disodium tetraborate, with no consider of the hydrate.
- ^①:In view of the substances are established as UVCB substances (substances of unknown or variable composition, complex reaction products or biological materials) consisting of different and variable constituents, the test results are calculated based on the main constituents of the representative compounds for substances.
- ^②:In view of the substance contain variable substances, the test results are calculated based on main constituents of the representative compounds for the substances, and the test results of the representative compounds are calculated based on the result of specified heavy metal elements.
- ^③:Concentration value of Boric acid;Disodium tetraborate, anhydrous;Tetraboron disodium heptaoxide, hydrate are calculated by the conversion from the test results of corresponding elements and confirmed by appropriate solvent extraction, meanwhile the book of materials is suggested to be checked for further confirmation.
- ^④: Concentration value of Sodium chromate;Potassium chromate;Ammonium dichromate; Potassium dichromate are calculated by the conversion from the test results of corresponding metals.
- ^⑤: Concentration values of Cobalt(II) sulphate, Cobalt(II) dinitrate, Cobalt(II) carbonate, Cobalt(II) diacetate, Chromium trioxide ,Chromic acid, Dichromic acid, and Oligomers of chromic acid and dichromic acid are calculated by the conversion from the test results of corresponding heavy metals.

Remark:

- 1:As the concentration of above substance that identified is based on the worst case scenario.
Further investigation is required for confirmation of the presence of the substance in the sample.
- 2:The report limit is evaluated based on the representative substances.

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Appendix

1. Any supplier of an article containing a substance that is included in the Candidate List in a concentration above 0.1% weight by weight (w/w) has the duty to communicate information in accordance with Article 33 of European Union regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

1) Any supplier shall provide the recipient of the article with sufficient information to allow safe use of the article including, as a minimum, the name of that substance.

2) On request by a consumer any supplier shall provide the consumer with sufficient information to allow safe use of the article including, as a minimum, the name of that substance within 45 days of receipt of the request, free of charge.

2. The supplier of a substance that is included in the Candidate List on their own shall provide the recipient of the substance with a safety data sheet for free compiled in accordance with Article 3 and Annex II of REACH.

3. The supplier of a mixture that containing a substance that is included in the Candidate List shall exchange information in accordance with Article 31, Article 32, and Annex II of REACH.

1) Any supplier shall provide the recipient of the mixture with a safety data sheet for free where a preparation meets the criteria for classification as dangerous in accordance with Directives 1999/45/EC.

2) Any supplier shall provide the recipient of the mixture with a safety data sheet for free where a preparation does not meet the criteria for classification as dangerous in accordance with Directive 1999/45/EC, but contains any substance that is included in the Candidate List in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures or ≥ 0.2 % by volume for gaseous mixtures.

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Photo of the sample



*** End of report ***

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No. 1996, New Jinqiao Road, Pudong New District, Shanghai