

# Test Report

Report No. RLSHD000735900002

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**Applicant** NANTONG JIEHUA HEAT SHRINKABLE MATERIAL CO.,LTD.  
**Address** TONGJING ROAD, YUAN QIAO INDUSTRIAL AREA, NANTONG CITY,  
JIANGSU PROVINCE, P.R. CHINA

**Report on the submitted sample(s) said to be**

Sample Name PVC heat shrink tubing  
Sample Description Black PVC heat shrink tubing  
Part No. PVC  
Material PVC  
Sample Received Date Sep.16,2011  
Testing Period Sep.16,2011 to Sep.22,2011

**Test Requested** Please refer to the following page(s).

**Test Method** Please refer to the following page(s).

**Test Result(s)** Please refer to the following page(s).

**Summary** According to the analytical results, concentrations of 53 SVHC substances are less than 0.1% in the submitted sample.

Tested by \_\_\_\_\_

Approved by \_\_\_\_\_



Inspected by \_\_\_\_\_

Date \_\_\_\_\_

*Zhong Yijun*

Sep.22,2011

No. 13336599

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## Test Requested

As specified by client, to screen the 53 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; 2-ethoxyethyl acetate; Strontium chromate; 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters; Hydrazine; 1-methyl-2-pyrrolidone; 1,2,3-trichloropropane; 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich in the submitted sample.

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**Test Method**

Substance Name(s)	Test Method and Equipments	Substance Classification	Report Limit
Anthracene	Refer to US EPA 3550C:2007& US EPA 8270D:2007, GC-MS	PBT	0.005%
4,4'- Diaminodiphenylmethane	Refer to US EPA 8270D:2007, GC-MS	Carcinogen, cat. 2	0.005%
Dibutyl phthalate(DBP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat.2	0.005%
Cobalt dichloride*	Refer to US EPA 3052:1996/ BS EN14582:2007, ICP-OES/IC	Carcinogen, cat.2 Toxic for reproduction, cat2	0.01%
Diarsenic pentaoxide*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat.1	0.01%
Diarsenic trioxide*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat.1	0.01%
Sodium dichromate*	Refer to US EPA 3052:1996/ US EPA3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat.2; Mutagen, cat.2; Toxic for reproduction, cat.2	0.01%
Musk xylene	Refer to US EPA 3540C:1996, GC-MS	vPvB	0.005%
Bis(2-ethyl(hexyl)phthalate) (DEHP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat.2	0.005%
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996, GC-MS	PBT	0.005%
Short Chain Chlorinated Paraffins(SCCPs)	Refer to US EPA 3540C:1996, GC-MS	PBT; vPvB	0.01%
Bis(tributyltin)oxide (TBTO)*	Refer to US EPA 3052:1996/ ISO 17353:2004, ICP-OES/GC-MS	PBT	0.005%
Lead hydrogen arsenate*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat.1; Toxic for reproduction, cat.1	0.01%
Benzyl butyl phthalate(BBP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat.2	0.005%
Triethyl arsenate*	Refer to US EPA 3052:1996, ICP-OES	Carcinogen, cat.1	0.01%

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Substance Name(s)	Test Method and Equipments	Substance Classification	Report Limit
<sup>①</sup> Anthracene oil	Refer to US EPA 3550C:2007, GC-MS	PBT	0.05%
<sup>①</sup> Anthracene oil, anthracene paste, distn. Lights ****	Refer to US EPA 3550C:2007, GC-MS	PBT	0.05%
<sup>①</sup> Anthracene oil, anthracene paste, anthracene fraction	Refer to US EPA 3550C:2007, GC-MS	PBT	0.05%
<sup>①</sup> Anthracene oil, anthracene-low	Refer to US EPA 3550C:2007, GC-MS	PBT	0.05%
<sup>①</sup> Anthracene oil, anthracene paste	Refer to US EPA 3550C:2007, GC-MS	PBT	0.05%
<sup>①</sup> Coal tar pitch, high temperature	Refer to US EPA 3550C:2007, GC-MS	PBT; Carcinogen, cat.2	0.05%
Acrylamide	Refer to US EPA 3550C:2007, HPLC	Carcinogen, cat.2; Mutagen, cat.2	0.01%
<sup>②</sup> Aluminosilicate, Refractory Ceramic Fibres	Refer to US EPA 3052:1996, ICP-OES/SEM-EDS	Carcinogen, cat.2	0.05%
<sup>②</sup> Zirconia Aluminosilicate, Refractory Ceramic Fibres	Refer to US EPA 3052:1996, ICP-OES/SEM-EDS	Carcinogen, cat.2	0.05%
2,4-Dinitrotoluene	Refer to US EPA 3550C:2007, GC-MS	Carcinogen, cat.2	0.01%
Diisobutyl phthalate (DIBP)	Refer to EN 14372:2004, GC-MS	Toxic for reproduction, cat.2	0.005%
<sup>②</sup> 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%
<sup>②</sup> 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%
<sup>②</sup> 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%
Tris(2-chloroethyl)phosphate (TCEP)	Refer to US EPA 3550C:2007, GC-MS	Toxic for reproduction, cat.2	0.01%

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Substance Name(s)	Test Method and Equipments	Substance Classification	Report Limit
Trichloroethylene	Refer to US EPA 5021:1996, Headspace-GC/MS	Carcinogen, cat.2	0.005%
<sup>③</sup> Boric acid	Refer to US EPA 3052:1996, ICP-OES	Toxic for reproduction,cat2	0.01%
<sup>③</sup> Disodium tetraborate, anhydrous*****	Refer to US EPA 3052:1996, ICP-OES	Toxic for reproduction,cat2	0.01%
<sup>③</sup> Tetraboron disodium heptaoxide, hydrate*****	Refer to US EPA 3052:1996, ICP-OES	Toxic for reproduction,cat2	0.01%
<sup>④</sup> 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%
<sup>④</sup> Potassium chromate	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat.2; Mutagenic cat2	0.01%
<sup>④</sup> 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%
<sup>④</sup> 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%
<sup>⑤</sup> 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%
<sup>⑤</sup> 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%
<sup>⑤</sup> 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%
<sup>⑤</sup> Cobalt( II ) diacetate	Refer to US EPA 3052:1996 & in-house method/ICP-OES & IC	Toxic for reproduction,cat2 Carcinogen, cat 2	0.01%



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Substance Name(s)	Test Method and Equipments	Substance Classification	Report Limit
2-Methoxyethanol	Refer to US EPA 3550C:2007, GC-MS	Toxic for reproduction, cat 2	0.005%
2-Ethoxyethanol	Refer to US EPA 3550C:2007, GC-MS	Toxic for reproduction, cat 2	0.005%
<sup>⑤</sup> Chromium trioxide	Refer to US EPA 3052:1996 & US EPA 3060A:1996/ ICP-OES & UV-Vis	Carcinogen, cat 1; Mutagenic cat 2	0.01%
<sup>⑤</sup> Acids generated from chromium trioxide and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid	Refer to US EPA 3052:1996 & US EPA 3060A:1996/ ICP-OES & UV-Vis	Carcinogen, cat 2	0.01%
2-ethoxyethyl acetate	Refer to US EPA 3550C:2007, GC-MS	Toxic for reproduction, cat2	0.01%
Strontium chromate*	Refer to US EPA 3052:1996/ US EPA 3060A:1996, ICP-OES/UV-Vis	Carcinogen, cat.2	0.01%
<sup>①</sup> 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	Refer to EN14372:2004, GC-MS	Toxic for reproduction, cat2	0.01%
Hydrazine	Refer to US EPA 3550C:2007, GC-MS	Carcinogen, cat.2	0.01%
1-methyl-2-pyrrolidone	Refer to US EPA 3550C:2007, GC-MS	Toxic for reproduction, cat2	0.01%
1,2,3-trichloropropane	Refer to US EPA 3550C:2007, GC-MS	Carcinogen, cat.2 Toxic for reproduction, cat2	0.01%
<sup>①</sup> 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	Refer to EN14372:2004, GC-MS	Toxic for reproduction, cat2	0.01%

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**Test Result(s)**

Substance Name(s)	CAS No.	EC No.	Concentration(%)
Anthracene	120-12-7	204-371-1	N.D.
4,4'- Diaminodiphenylmethane	101-77-9	202-974-4	N.D.
Dibutyl phthalate(DBP)	84-74-2	201-557-4	N.D.
Cobalt dichloride*	7646-79-9	231-589-4	N.D.
Diarsenic pentaoxide*	1303-28-2	215-116-9	N.D.
Diarsenic trioxide*	1327-53-3	215-481-4	N.D.
Sodium dichromate*	7789-12-0/ 10588-01-9	234-190-3	N.D.
Musk xylene	81-15-2	201-329-4	N.D.
Bis(2-ethyl(hexyl)phthalate)(DEHP)	117-81-7	204-211-0	N.D.
Hexabromocyclododecane (HBCDD)	25637-99-4/ 3194-55-6	247-148-4/ 221-695-9	N.D.
Short Chain Chlorinated Paraffins(SCCPs)	85535-84-8	287-476-5	N.D.
Bis(tributyltin)oxide (TBTO)*	56-35-9	200-268-0	N.D.
Lead hydrogen arsenate*	7784-40-9	232-064-2	N.D.
Benzyl butyl phthalate(BBP)	85-68-7	201-622-7	N.D.
Triethyl arsenate*	15606-95-8	427-700-2	N.D.
<sup>①</sup> Anthracene oil	90640-80-5	292-602-7	N.D.
<sup>①</sup> Anthracene oil,anthracene paste, distn. Lights ****	91995-17-4	295-278-5	N.D.
<sup>①</sup> Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	N.D.
<sup>①</sup> Anthracene oil, anthracene-low	90640-82-7	292-604-8	N.D.
<sup>①</sup> Anthracene oil, anthracene paste	90640-81-6	292-603-2	N.D.
<sup>①</sup> Coal tar pitch, high temperature	65996-93-2	266-028-2	N.D.
Acrylamide	79-06-1	201-173-7	N.D.
<sup>②</sup> Aluminosilicate, Refractory Ceramic Fibres	-	650-017-00-8**	N.D.
<sup>②</sup> Zirconia Aluminosilicate, Refractory Ceramic Fibres	-	650-017-00-8**	N.D.
2,4-Dinitrotoluene	121-14-2	204-450-0	N.D.
Diisobutyl phthalate (DIBP)	84-69-5	201-553-2	N.D.
<sup>②</sup> Lead chromate	7758-97-6	231-846-0	N.D.
<sup>②</sup> Lead chromate molybdate sulphate red (C.I. Pigment Red 104)***	12656-85-8	235-759-9	N.D.
<sup>②</sup> Lead sulfochromate yellow (C.I. Pigment Yellow 34)***	1344-37-2	215-693-7	N.D.
Tris(2-chloroethyl)phosphate (TCEP)	115-96-8	204-118-5	N.D.

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**Test Result(s)**

Substance Name(s)	CAS No.	EC No.	Concentration(%)
Trichloroethylene	79-01-6	201-167-4	N.D.
<sup>③</sup> Boric acid	10043-35-3 11113-50-1	233-139-2 234-343-4	N.D.
<sup>③</sup> Disodium tetraborate, anhydrous*****	1330-43-4 12179-04-3 1303-96-4	215-540-4	N.D.
<sup>③</sup> Tetraboron disodium heptaoxide, hydrate*****	12267-73-1	235-541-3	N.D.
<sup>④</sup> Sodium chromate	7775-11-3	231-889-5	N.D.
<sup>④</sup> Potassium chromate	7789-00-6	232-140-5	N.D.
<sup>④</sup> Ammonium dichromate	7789-09-5	232-143-1	N.D.
<sup>④</sup> Potassium dichromate	7778-50-9	231-906-6	N.D.
<sup>⑤</sup> Cobalt(II) sulphate	10124-43-3	233-334-2	N.D.
<sup>⑤</sup> Cobalt(II) dinitrate	10141-05-6	233-402-1	N.D.
<sup>⑤</sup> Cobalt(II) carbonate	513-79-1	208-169-4	N.D.
<sup>⑤</sup> Cobalt(II) diacetate	71-48-7	200-755-8	N.D.
2-Methoxyethanol	109-86-4	203-713-7	N.D.
2-Ethoxyethanol	110-80-5	203-804-1	N.D.
<sup>⑤</sup> Chromium trioxide	1333-82-0	215-607-8	N.D.
<sup>⑤</sup> 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.
2-ethoxyethyl acetate	111-15-9	203-839-2	N.D.
Strontium chromate*	7789-06-2	232-142-6	N.D.
<sup>①</sup> 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	271-084-6	N.D.
Hydrazine	7803-57-8 302-01-2	206-114-9	N.D.
1-methyl-2-pyrrolidone	872-50-4	212-828-1	N.D.
1,2,3-trichloropropane	96-18-4	202-486-1	N.D.
<sup>①</sup> 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	276-158-1	N.D.



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## Note

1. -N.D. = Not Detected (<report limit)
2. -0.1% = 1000 mg/kg = 1000 ppm
3. -PBT= Persistent, Bioaccumulative, Toxic; vPvB=very Persistent very Bioaccumulative
4. -\*: Concentration value of Cobalt dichloride, Diarsenic pentaoxide, Diarsenic trioxide, Sodium dichromate, Lead hydrogen arsenate, Triethyl arsenate, Strontium chromate by the conversion from the test results of certain elements.  
Concentration value of Bis(tributyltin)oxide by the conversion from the test results of Tributyl Tins.
5. -\*\* : All 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).
6. -\*\*\*: C.I.: Colour Index
7. -\*\*\*\*: Light fractions from distillation
8. -\*\*\*\*\*: Concentration value of Disodium tetraborate, anhydrous and Tetraboron disodium heptaoxide, hydrate is evaluated by Disodium tetraborate, with no consider of the hydrate.
9. -<sup>①</sup>: 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.
10. -<sup>②</sup>: 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 certain elements.
11. -<sup>③</sup>: Concentration value of Boric acid; Disodium tetraborate, anhydrous; Tetraboron disodium heptaoxide, hydrate are calculated by the conversion from the test results of certain elements and confirmed by appropriate solvent extraction, meanwhile the book of materials is suggested to be checked for further confirmation.
12. -<sup>④</sup>: Concentration value of Sodium chromate; Potassium chromate; Ammonium dichromate; Potassium dichromate are calculated by the conversion from the test results of certain elements.
13. -<sup>⑤</sup>: 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 certain elements.

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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  $\geq 0.1$  % by weight for non-gaseous mixtures or  $\geq 0.2$  % by volume for gaseous mixtures.

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## Photo of the sample



\*\*\* End of report \*\*\*

This report is considered invalidated without the Special Seal for Inspection of the CTI. This report shall not be altered, increased or deleted. The results shown in this test report refer only to the sample(s) tested. Without written approval of CTI, this test report shall not be copied except in full and published as advertisement.

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