Test Report

Applicant SUZHOU TIANMAI THERMAL TECHNOLOGY CO.,LTD.
Address NO.6,HUIKAI RD,LUZHI TOWN,WUZHONG AREA

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

Sample Name TMA-12,15,23,30,60,65 series
Sample Received Date May.28,2013
Testing Period May.28,2013 to Jun.4,2013

Test Requested As specified by client, to screen the 138 substances of very high concern(SVHC) under Regulation(EC) No 1907/2006 of REACH in the submitted sample(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 138 SVHC substances are all less than 0.1%(w/w) in the submitted sample(s).

Tested by Chen Lijuan Reviewed by Zhong Yijun

Approved by Su Hongwei Date Jun.4,2013

Su Hongwei
Senior Laboratory Manager

No. 1102178500

Test Report

Test Result(s)

No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
1	Anthracene	120-12-7	204-371-1	N.D.	0.005%
2	4,4'- Diaminodiphenylmethane	101-77-9	202-974-4	N.D.	0.005%
3	Dibutyl phthalate(DBP)	84-74-2	201-557-4	N.D.	0.005%
4	Cobalt dichloride*	7646-79-9	231-589-4	N.D.	0.01%
5	Diarsenic pentaoxide*	1303-28-2	215-116-9	N.D.	0.01%
6	Diarsenic trioxide*	1327-53-3	215-481-4	N.D.	0.01%
7	Sodium dichromate*	7789-12-0/ 10588-01-9	234-190-3	N.D.	0.01%
8	Musk xylene	81-15-2	201-329-4	N.D.	0.005%
9	Bis(2-ethyl(hexyl)phthalate)(DEHP)	117-81-7	204-211-0	N.D.	0.005%
10	Hexabromocyclododecane (HBCDD)	25637-99-4/ 3194-55-6	247-148-4/ 221-695-9	N.D.	0.005%
11	Short Chain Chlorinated Paraffins(SCCPs)	85535-84-8	287-476-5	N.D.	0.01%
12	Bis(tributyltin)oxide (TBTO)*	56-35-9	200-268-0	N.D.	0.005%
13	Lead hydrogen arsenate*	7784-40-9	232-064-2	N.D.	0.01%
14	Benzyl butyl phthalate(BBP)	85-68-7	201-622-7	N.D.	0.005%
15	Triethyl arsenate*	15606-95-8	427-700-2	N.D.	0.01%
16	①Anthracene oil	90640-80-5	292-602-7	N.D.	0.05%
17	①Anthracene oil, anthracene paste, distn. Lights ****	91995-17-4	295-278-5	N.D.	0.05%
18	①Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	N.D.	0.05%
19	①Anthracene oil, anthracene-low	90640-82-7	292-604-8	N.D.	0.05%
20	①Anthracene oil, anthracene paste	90640-81-6	292-603-2	N.D.	0.05%
21	①Coal tar pitch, high temperature	65996-93-2	266-028-2	N.D.	0.05%
22	Acrylamide	79-06-1	201-173-7	N.D.	0.01%
23	2,4-Dinitrotoluene	121-14-2	204-450-0	N.D.	0.01%
24	Diisobutyl phthalate (DIBP)	84-69-5	201-553-2	N.D.	0.005%
25	②Lead chromate	7758-97-6	231-846-0	N.D.	0.05%
26	②Lead chromate molybdate sulphate red (C.I. Pigment Red 104)***	12656-85-8	235-759-9	N.D.	0.05%
27	②Lead sulfochromate yellow (C.I. Pigment Yellow 34)***	1344-37-2	215-693-7	N.D.	0.05%
28	Tris(2-chloroethyl)phosphate (TCEP)	115-96-8	204-118-5	N.D.	0.01%

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No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
29	Trichloroethylene	79-01-6	201-167-4	N.D.	0.005%
30	③Boric acid	10043-35-3 11113-50-1	233-139-2 234-343-4	N.D.	0.01%
31	③Disodium tetraborate, anhydrous*****	1330-43-4 12179-04-3 1303-96-4	215-540-4	N.D.	0.01%
32	③Tetraboron disodium heptaoxide, hydrate*****	12267-73-1	235-541-3	N.D.	0.01%
33	Sodium chromate*	7775-11-3	231-889-5	N.D.	0.01%
34	Potassium chromate*	7789-00-6	232-140-5	N.D.	0.01%
35	Ammonium dichromate*	7789-09-5	232-143-1	N.D.	0.01%
36	Potassium dichromate*	7778-50-9	231-906-6	N.D.	0.01%
37	Cobalt(Ⅱ) sulphate*	10124-43-3	233-334-2	N.D.	0.01%
38	Cobalt(Ⅱ) dinitrate*	10141-05-6	233-402-1	N.D.	0.01%
39	Cobalt(Ⅱ) carbonate*	513-79-1	208-169-4	N.D.	0.01%
40	Cobalt(Ⅱ) diacetate*	71-48-7	200-755-8	N.D.	0.01%
41	2-Methoxyethanol	109-86-4	203-713-7	N.D.	0.005%
42	2-Ethoxyethanol	110-80-5	203-804-1	N.D.	0.005%
43	Chromium trioxide*	1333-82-0	215-607-8	N.D.	0.01%
44	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.	0.01%
45	2-ethoxyethyl acetate	111-15-9	203-839-2	N.D.	0.01%
46	Strontium chromate*	7789-06-2	232-142-6	N.D.	0.01%
47	①1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	271-084-6	N.D.	0.01%
48	Hydrazine	7803-57-8 302-01-2	206-114-9	N.D.	0.01%
49	1-methyl-2-pyrrolidone	872-50-4	212-828-1	N.D.	0.01%
50	1,2,3-trichloropropane	96-18-4	202-486-1	N.D.	0.01%
51	①1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	276-158-1	N.D.	0.01%

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Test Result(s)

No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
52	Dichromium tris(chromate)*	24613-89-6	246-356-2	N.D.	0.01%
53	Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9	234-329-8	N.D.	0.01%
54	Pentazinc chromate octahydroxide*	49663-84-5	256-418-0	N.D.	0.01%
55	②Aluminosilicate Refractory Ceramic Fibres (RCF) **	-	-	N.D.	0.05%
56	②Zirconia Aluminosilicate Refractory Ceramic Fibres (Zr-RCF) **	-	-	N.D.	0.05%
57	①Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	500-036-1	N.D.	0.01%
58	Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6	N.D.	0.005%
59	2-Methoxyaniline (o-Anisidine)	90-04-0	201-963-1	N.D.	0.005%
60	4-(1,1,3,3-tetramethylbutyl)phenol (4-tert-Octylphenol)	140-66-9	205-426-2	N.D.	0.005%
61	1,2-Dichloroethane	107-06-2	203-458-1	N.D.	0.005%
62	Bis(2-methoxyethyl) ether	111-96-6	203-924-4	N.D.	0.005%
63	Arsenic acid*	7778-39-4	231-901-9	N.D.	0.01%
64	Calcium arsenate*	7778-44-1	231-904-5	N.D.	0.01%
65	Trilead diarsenate*	3687-31-8	222-979-5	N.D.	0.01%
66	N,N-dimethylacetamide (DMAC)	127-19-5	204-826-4	N.D.	0.005%
67	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9	N.D.	0.005%
68	Phenolphthalein	77-9-8	201-004-7	N.D.	0.005%
69	Lead diazide*	13424-46-9	236-542-1	N.D.	0.01%
70	Lead 2,4,6-trinitro-m-phenylene dioxide (Lead styphnate)*	15245-44-0	239-290-0	N.D.	0.01%
71	Lead dipicrate*	6477-64-1	229-335-2	N.D.	0.01%

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Test Result(s)

No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
72	1,2-bis(2-methoxyethoxy) ethane (TEGDME; triglyme)	112-49-2	203-977-3	N.D.	0.01%
73	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9	N.D.	0.01%
74	③ Diboron trioxide	1303-86-2	215-125-8	N.D.	0.01%
75	Formamide	75-12-7	200-842-0	N.D.	0.01%
76	Lead(II) bis methanesulfonate*	17570-76-2	401-750-5	N.D.	0.01%
77	TGIC(1,3,5-tris(oxiranylmethyl)-1, 3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	219-514-3	N.D.	0.01%
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	423-400-0	N.D.	0.01%
79	4,4'-bis(dimethylamino) benzophenone (Michler's ketone)	90-94-8	202-027-5	N.D.	0.01%
80	N,N,N',N'-tetramethyl-4,4'-methylene dianiline (Michler's base)	101-61-1	202-959-2	N.D.	0.01%
81	[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	N.D.	0.01%
82	[4-[[4-anilino-1-naphthyl] [4-(dimethylamino)phenyl] methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride(C.I. Basic Blue 26)	2580-56-5	219-943-6	N.D.	0.01%
83	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	6786-83-0	229-851-8	N.D.	0.01%
84	4,4'-bis(dimethylamino)-4"-(methylamino)trityl alcohol	561-41-1	209-218-2	N.D.	0.01%

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Test Result(s)

No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
85	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	214-604-9	N.D.	0.05%
86	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]	-	-	N.D.	0.05%
87	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8	N.D.	0.05%
88	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	-	-	N.D.	0.05%
89	Henicosafluoroundecanoic acid	2058-94-8	218-165-4	N.D.	0.05%
90	Pentacosafluorotridecanoic acid	72629-94-8	276-745-2	N.D.	0.05%
91	Cyclohexane-1,2-dicarboxylic anhydride, cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	85-42-7, 13149-00-3, 14166-21-3	201-604-9, 236-086-3, 238-009-9	N.D.	0.05%
92	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	N.D.	0.05%
93	Heptacosafluorotetradecanoic acid	376-06-7	206-803-4	N.D.	0.05%
94	Diisopentylphthalate(DIPP)	605-50-5	210-088-4	N.D.	0.05%

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Test Result(s)

No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
95	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	284-032-2	N.D.	0.05%
96	N-pentyl-isopentylphthalate	776297-69-9	-	N.D.	0.05%
97	Methoxyacetic acid	625-45-6	210-894-6	N.D.	0.05%
98	Tricosafluorododecanoic acid	307-55-1	206-203-2	N.D.	0.05%
99	1,2-Diethoxyethane	629-14-1	211-076-1	N.D.	0.05%
100	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	421-150-7	N.D.	0.05%
101	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	202-453-1	N.D.	0.05%
102	N-methylacetamide	79-16-3	201-182-6	N.D.	0.05%
103	Pentalead tetraoxide sulphate*	12065-90-6	235-067-7	N.D.	0.01%
104	Biphenyl-4-ylamine	92-67-1	202-177-1	N.D.	0.05%
105	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	201-861-7	N.D.	0.05%
106	Dioxobis(stearato)trilead*	12578-12-0	235-702-8	N.D.	0.01%
107	Lead dinitrate*	10099-74-8	233-245-9	N.D.	0.01%
108	Tetralead trioxide sulphate*	12202-17-4	235-380-9	N.D.	0.01%
109	Lead monoxide (lead oxide)*	1317-36-8	215-267-0	N.D.	0.01%
110	Lead titanium trioxide*	12060-00-3	235-038-9	N.D.	0.01%
111	4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	N.D.	0.05%
112	Acetic acid, lead salt, basic*	51404-69-4	257-175-3	N.D.	0.01%
113	Dimethyl sulphate	77-78-1	201-058-1	N.D.	0.05%
114	Furan	110-00-9	203-727-3	N.D.	0.05%
115	Pyrochlore, antimony lead yellow*	8012-00-8	232-382-1	N.D.	0.01%
116	Tetraethyllead*	78-00-2	201-075-4	N.D.	0.01%
117	[Phthalato(2-)]dioxotrilead*	69011-06-9	273-688-5	N.D.	0.01%
118	Diethyl sulphate	64-67-5	200-589-6	N.D.	0.05%
119	Lead cyanamidate*	20837-86-9	244-073-9	N.D.	0.01%
120	Silicic acid ($H_2Si_2O_5$), barium salt (1:1), lead-doped*	68784-75-8	272-271-5	N.D.	0.01%
121	Trilead dioxide phosphonate*	12141-20-7	235-252-2	N.D.	0.01%
122	*o*-Toluidine	95-53-4	202-429-0	N.D.	0.05%

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Test Result(s)

No.	Substance Name(s)	CAS No.	EC No.	Concentration (%)	Report Limit
123	*o*-aminoazotoluene	97-56-3	202-591-2	N.D.	0.05%
124	4-aminoazobenzene	60-09-3	200-453-6	N.D.	0.05%
125	6-methoxy-*m*-toluidine (*p*-cresidine)	120-71-8	204-419-1	N.D.	0.05%
126	Dibutyltin dichloride (DBTC)	683-18-1	211-670-0	N.D.	0.05%
127	Lead titanium zirconium oxide*	12626-81-2	235-727-4	N.D.	0.01%
128	Methyloxirane (Propylene oxide)	75-56-9	200-879-2	N.D.	0.05%
129	1-bromopropane (n-propyl bromide)	106-94-5	203-445-0	N.D.	0.05%
130	Trilead bis(carbonate)dihydroxide*	1319-46-6	215-290-6	N.D.	0.01%
131	Fatty acids, C16-18, lead salts*	91031-62-8	292-966-7	N.D.	0.01%
132	Orange lead (lead tetroxide)*	1314-41-6	215-235-6	N.D.	0.01%
133	Sulfurous acid, lead salt, dibasic*	62229-08-7	263-467-1	N.D.	0.01%
134	4,4'-oxydianiline and its salts	101-80-4	202-977-0	N.D.	0.05%
135	Lead oxide sulfate*	12036-76-9	234-853-7	N.D.	0.01%
136	Lead bis(tetrafluoroborate)*	13814-96-5	237-486-0	N.D.	0.01%
137	Silicic acid, lead salt*	11120-22-2	234-363-3	N.D.	0.01%
138	N,N-dimethylformamide	68-12-2	200-679-5	N.D.	0.05%

Test Method:

Refer to US EPA3052:1996, US EPA 3050B:1996, US EPA3060A:1996, US EPA 3550C:2007, US EPA 3540C:1996, ISO 17353:2004(E), BS EN 14582:2007, EN 14372:2004(E) for sample pretreatment.

Analyzed by ICP-OES, SEM-EDS, UV-Vis, IC, HPLC, GC-MS and LC-MS-MS.

Tested Sample/Part Description Mixed test, grey ,dark grey , light purple solid

Test Report

Note:

1. w/w = weight by weight; 0.1% = 1000 mg/kg =1000 ppm
2. N.D. = Not Detected (<report limit)
3. *: Concentration value of the substance 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.
4. **: 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).
5. ***: C.I.: Colour Index
6. ****: Light fractions from distillation
7. *****: Concentration value of Disodium tetraborate, anhydrous and Tetraboron disodium heptaoxide, hydrate is evaluated by Disodium tetraborate, with no consider of the hydrate.
8. 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.
9. 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.
10. ③: Concentration value of Boric acid; Disodium tetraborate, anhydrous; Tetraboron disodium heptaoxide, hydrate; Diboron trioxide 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.
11. As specified by client, the test was conducted by mixing several samples together. The result(s) shown on this report may be different from the content of any homogeneous material.

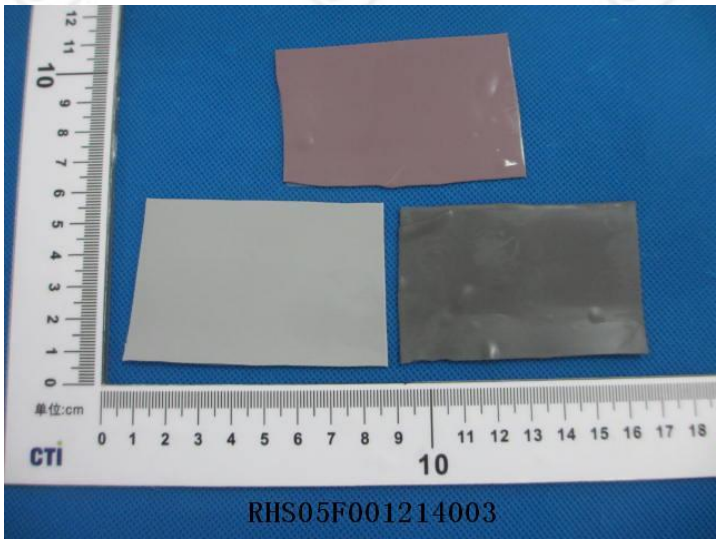
Test Report

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.

Test Report

Photo(s) of the sample(s)



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