



- Applicant: BABY SOLUTIONS SA  
Via Magazzini Generali 10
- Test Subject: Happy Cover!  
Style No.: 51001.00
- Purpose of examination:
- (1) The ignitability of Blanket  
Test with reference to BS EN ISO 12952-1:2010
  - (2) The ignitability of Blanket  
Test with reference to BS EN ISO 12952-2:2010
  - (3) Test with reference to EN 71 - 3 : 1994 with amendment A1:2000 / AC: 2002 - Migration of certain elements  
As stated in the above specifications. Heavy metal analysis was determined by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES)
  - (4) **Azo-Dye Test**  
Regulation (EC) No. 1907/2006, Annex XVII, Entry 43 and its amendment Regulation (EC) No. 552/2009  
(Formerly restricted under 2002/61/EC & 2004/21/EC)  
Test in accordance with EN 14362-1:2012 (for textiles) or ISO 17234-1:2010 (for leather).  
The presence of 4-aminoazobenzene is determined by EN 14362-3:2012 or ISO 17234-2:2011.  
[Reporting Limit = 5.0mg/kg]
  - (5) **Carcinogenic and Allergenic Disperse Dye**  
Test with reference to DIN 54231:2005, LC-MS-MS analysis  
[Reporting Limit = 0.50 mg/L in extract, 7.50 mg/kg in sample]
  - (6) **Colour Fastness to Saliva and Perspiration**  
§64 LFGB B 82. 10 – 1 : 1985 – 06
  - (7) **Organotin Compounds Content Test (Tributyltin TBT/ Dioctyltin DOT/Di-n-butyltin DBT/Triphenyltin TPhT)**  
In house method test with reference to DIN EN ISO 17353:2005, solvent extraction with acidified methanol, followed by derivatization and GC-MS analysis  
[Reporting Limit = 0.025 mg/kg]
  - (8) **Formaldehyde Content Test**  
Client's specification test according to DIN EN ISO 14184-1:2011,  
Formaldehyde content determined by UV-Visible spectroscopy  
[Reporting Limit = 16mg/kg]

Note: No extract, abridgment or abstraction from a test report may be published or used to advertise a product without the written consent of the Director of TÜV SÜD Hong Kong Ltd. The results contained herein apply only to the particular sample tested and to the specific test carried out and not to samples of the current production line.



**(9) Total Lead Content Test**

Consumer Product Safety Improvement Act of 2008 (Section 101)  
Test in accordance with CPSC-CH-E1002-08 (Non-Metallic components)

[Reporting Limit = 10.0 mg/kg]

**(10) Pentachlorophenol (PCP) and Sum of Tetrachlorophenols (TeCP) Content Test**

Client's specification test with reference to DIN EN ISO 17070: 2006, followed by GC-ECD/GC-MSD analysis

[Reporting Limit = 0.05 mg/kg]

**(11) Flame Retardants Test**

In house method test with reference to US EPA 3550C:2007, extraction with organic solvent and analyzed by GC-MS

[Reporting Limit = 100 mg/kg for SCCP, 5 mg/kg for others]

**(12) Analysis of the 84 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 and June 2012

Analysis based on LCMS, GCMS, Headspace-GCMS, ICP-OES/AAS, UV-VIS and XRF.



Test result: Refer to section 3

Conclusion:



- |      |   |       |
|------|---|-------|
| (1)  | The submitted samples did not ignite when tested with BS EN ISO 12952-1:2010  |       |
| (2)  | The submitted samples ignited when tested with BS EN ISO 12952-2:2010   |       |
| (3)  | EN 71 - 3 : 1994 with amendment A1:2000 / AC: 2002 Migration of certain elements  | Pass  |
| (4)  | Azo-Dye Test  | Pass  |
| (5)  | Carcinogenic and Allergenous Disperse Dye   | Pass  |
| (6)  | Colour Fastness to Saliva and Perspiration  | Pass* |
| (7)  | Organotin Compounds Content Test (Tributyltin TBT/ Diocetyl tin DOT/Di-n-butyltin DBT/Triphenyltin TPhT)  | Pass* |
| (8)  | Formaldehyde Content Test   | Pass* |
| (9)  | Total Lead Content Test   | Pass  |
| (10) | Pentachlorophenol (PCP), Sum of Tetrachlorophenols (TeCP) Content Test  | Pass* |
| (11) | Flame Retardants Test   | Pass* |
| (12) | According to the specified scope and analytical techniques, the concentration of each of the 84 SVHC is <b>&lt;0.1% (w/w)</b> in the submitted sample(s). |       |

Remarks

- (1) The results relate only to the items tested.
- (2) Samples are tested as received.
- (3) "\*" denotes conclusion was drawn according to client's specification.

1. **Order**
- 1.1 **Customer's Reference**  
Nil
- 1.2 **Receipt Date of Test Sample, Location**  
Received on 2012-10-03, Hong Kong
- 1.3 **Date of Testing, Location**  
From 2012-10-03 to 2012-12-05, Hong Kong
- 1.4 **Document submitted**  
Nil

## 2. Description of the test subject

Sample No.	Color and Description	Photograph
001	Green fabric (blanket)	 
002	White fabric with green dot pattern (blanket)	
003	Dark green fabric with blue/ light green fabric (blanket)	
004	Green fabric with multicolor thread (blanket)	
005	White fabric with multicolor print (label)	
006	Blanket	



**3. Test Results**

**3.1 The ignitability of Blanket**

Test with reference to BS EN ISO 12952-1:2010

- Sample : 006
- Ignition source : Smouldering cigarette test
- Condition of test specimen : A minimum of 72 hours at 23±2°C and 50±4% R.H.
- Test Condition : Temperature: 23°C, Relative humidity: 57%
- Washing Procedure : ISO 6330:2000 Method 2A at 40±3°C (5 cycles) and dried in accordance with ISO 6330:2000, 8.5, Procedure E (tumble drying at low temperature)

The following test results relate only to the ignitability if the test specimen under the particular conditions of test. They are not intended as a means of assessing the full potential fire hazard of the bedding item in use.

Test Result:

**Smouldering cigarette (ignition source 0): Non-Ignition**

Criteria of ignition

Progressive smouldering ignition

	<u>Observation</u>
a) any test specimen that displays escalating combustion behavior, making it unsafe to continue the test, and that requires forcible extinction;	N.O.
b) any test specimen that smoulders until it is essentially consumed, after a period of 1 h following the application of the smouldering cigarette;	N.O.
c) any test specimen that produces externally detectable amounts of smoke, heat or glowing, after a period of 1 h following the application of the smouldering cigarette;	N.O.
d) any test specimen that, on final examination, shows evidence of active smouldering.	N.O.

Flaming ignition

	<u>Observation</u>
a) the occurrence of any flames initiated by a smouldering cigarette.	N.O.

Remarks: 1. N.O. denotes: Not observed  
 2. The following test results relate only to the ignitability if the test specimen under the particular conditions of test. They are not intended as means of assessing the full potential fire hazard of the bedding item in use.



**3.2 The ignitability of Blanket**

Test with reference to BS EN ISO 12952-2:2010

- Sample : 006
- Ignition source : Match flame equivalent
- Condition of test specimen : A minimum of 72 hours at 23±2°C and 50±4% R.H.
- Test Condition : Temperature: 23°C, Relative humidity: 57%
- Washing Procedure : ISO 6330:2000 Method 5A at 40±3°C (5 cycles) and dried in accordance with ISO 6330:2000, 8.5, Procedure E (tumble drying at low temperature)

The following test results relate only to the ignitability if the test specimen under the particular conditions of test. They are not intended as a means of assessing the full potential fire hazard of the bedding item in use.

Test Result:

**Smouldering cigarette (ignition source 1): Ignition**

Criteria of ignition

Progressive smouldering ignition

	<u>Observation</u>
a) any test specimen that displays escalating combustion behavior, making it unsafe to continue the test, and that requires forcible extinction;	--
b) any test specimen that smoulders until it is consumed, after a period of 15 min following the removal of the ignition source;	--
c) any test specimen that produces externally detectable amounts of smoke, heat or glowing, after a period of 15 min following the removal of the ignition source;	--
d) any test specimen that, on final examination, shows evidence of active smouldering.	--

Flaming ignition

	<u>Observation</u>
a) any test specimen that displays escalating combustion behavior, making it unsafe to continue the test, and that requires forcible extinction;	--
b) any test assembly that burns until it is consumed within the test duration;	--
c) any test specimen that continues to flame for more than 120 s after removal of the ignition source.	O.

Note: The sample was extinguished at 2 minutes and 26 seconds, because the flame continues more than 120s.

- Remarks:
1. O. denotes: Observed
  2. The following test results relate only to the ignitability if the test specimen under the particular conditions of test. They are not intended as means of assessing the full potential fire hazard of the bedding item in use.



**3.3 Test with reference to EN 71 - 3 : 1994 with amendment A1:2000 / AC: 2002 – Migration of certain element**

As stated in the above specifications. Heavy metal analysis was determined by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES).

Elements	Result [mg/kg]				Maximally Permissible Limits [mg/kg]
	Sample 001	Sample 002	Sample 003	Sample 004	
Soluble Antimony	<5.0	<5.0	<5.0	<5.0	60
Soluble Arsenic	<2.5	<2.5	<2.5	<2.5	25
Soluble Barium	<5.0	<5.0	<5.0	<5.0	1000
Soluble Cadmium	<5.0	<5.0	<5.0	<5.0	75
Soluble Chromium	<5.0	<5.0	<5.0	<5.0	60
Soluble Lead	<5.0	<5.0	<5.0	<5.0	90
Soluble Mercury	<5.0	<5.0	<5.0	<5.0	60
Soluble Selenium	<5.0	<5.0	<5.0	<5.0	500
<b>Conclusion</b>	Pass	Pass	Pass	Pass	

Elements	Result [mg/kg]		Maximally Permissible Limits [mg/kg]
	Sample 005		
Soluble Antimony	<5.0		60
Soluble Arsenic	<2.5		25
Soluble Barium	<5.0		1000
Soluble Cadmium	<5.0		75
Soluble Chromium	<5.0		60
Soluble Lead	<5.0		90
Soluble Mercury	<5.0		60
Soluble Selenium	<5.0		500
<b>Conclusion</b>	Pass		

Note: 1. mg/kg denotes milligram per kilogram  
 2. < denotes less than



### 3.4 Azo-Dye Test

Regulation (EC) No. 1907/2006, Annex XVII, Entry 43 and its amendment Regulation (EC) No. 552/2009 (Formerly restricted under 2002/61/EC & 2004/21/EC)

Test in accordance with EN 14362-1:2012 (for textiles) or ISO 17234-1:2010 (for leather).

The presence of 4-aminoazobenzene is determined by EN 14362-3:2012 or ISO 17234-2:2011.

[Reporting Limit = 5.0mg/kg]

#### List of Aromatic Amines

Forbidden Amine	Results [mg/kg]		
	001	002	003
01 4-aminobiphenyl	<5.0	<5.0	<5.0
02 Benzidine	<5.0	<5.0	<5.0
03 4-chloro-o-toluidine	<5.0	<5.0	<5.0
04 2-naphthylamine	<5.0	<5.0	<5.0
05 o-aminoazotoluene	<5.0	<5.0	<5.0
06 5-nitro-o-toluidine	<5.0	<5.0	<5.0
07 4-chloroaniline	<5.0	<5.0	<5.0
08 2,4-diaminoanisole	<5.0	<5.0	<5.0
09 4,4'-diaminodiphenylmethane	<5.0	<5.0	<5.0
10 3,3'-dichlorobenzidine	<5.0	<5.0	<5.0
11 3,3'-dimethoxybenzidine	<5.0	<5.0	<5.0
12 3,3'-dimethylbenzidine	<5.0	<5.0	<5.0
13 4,4'-methylenedi-o-toluidine	<5.0	<5.0	<5.0
14 p-cresidine	<5.0	<5.0	<5.0
15 4,4'-methylene-bis-(2-chloro-aniline)	<5.0	<5.0	<5.0
16 4,4'-oxydianiline	<5.0	<5.0	<5.0
17 4,4'-thiodianiline	<5.0	<5.0	<5.0
18 o-toluidine	<5.0	<5.0	<5.0
19 2,4-toluenediamine	<5.0	<5.0	<5.0
20 2,4,5-trimethylaniline	<5.0	<5.0	<5.0
21 2-methoxyaniline	<5.0	<5.0	<5.0
22 2,4-xylydine <sup>#</sup>	<5.0	<5.0	<5.0
23 2,6-xylydine <sup>#</sup>	<5.0	<5.0	<5.0
24 4-aminoazobenzene*	<5.0	<5.0	<5.0
<b>Method</b>	EN14362-1:2012	EN14362-1:2012	EN14362-1:2012
<b>Limit (Not applicable to composite testing)</b>	<30	<30	<30
<b>Conclusion</b>	Pass	Pass	Pass

- Note:
1. “#” denotes 2,4-xylydine and 2,6-xylydine are not under Regulation (EC) No.1907/2006 and they are for client’s reference.
  2. “<” denotes less than
  3. “mg/kg” denotes milligram per kilogram

\* Azo colorants that are able to form 4-aminoazobenzene, as generated under the current testing condition stated in EN 14362-1:2012 are aniline and 1,4-phenylenediamine. The presence of 4-aminoazobenzene is determined by EN 14362-3:2012 or ISO 17234-2:2011.

#### Interpretation of test results:

- (1) In the case of the measured value per amine component  $\leq 30$  mg/kg and according to the analysis carried out, the azo colourants banned under the Annex XVII of Regulation (EC) No. 1907/2006, REACH are not detected in the article submitted.
- (2) In the case of the measured value per amine component  $> 30$  mg/kg, the analysis result suggests that the submitted article was manufactured or treated with the azo colourants banned under Annex XVII of Regulation (EC) No. 1907/2006, REACH
- (3) In the case of the measured value per amine component being between 25 and 35 mg/kg, it is remarked that due to the inherent uncertainty of the detection method, the value represent a border line case.





### 3.4 Azo-Dye Test

Regulation (EC) No. 1907/2006, Annex XVII, Entry 43 and its amendment Regulation (EC) No. 552/2009 (Formerly restricted under 2002/61/EC & 2004/21/EC)

Test in accordance with EN 14362-1:2012 (for textiles) or ISO 17234-1:2010 (for leather).

The presence of 4-aminoazobenzene is determined by EN 14362-3:2012 or ISO 17234-2:2011.

[Reporting Limit = 5.0mg/kg]

#### List of Aromatic Amines

Forbidden Amine	Results [mg/kg]	
	004	005
01 4-aminobiphenyl	<5.0	<5.0
02 Benzidine	<5.0	<5.0
03 4-chloro-o-toluidine	<5.0	<5.0
04 2-naphthylamine	<5.0	<5.0
05 o-aminoazotoluene	<5.0	<5.0
06 5-nitro-o-toluidine	<5.0	<5.0
07 4-chloroaniline	<5.0	<5.0
08 2,4-diaminoanisole	<5.0	<5.0
09 4,4'-diaminodiphenylmethane	<5.0	<5.0
10 3,3'-dichlorobenzidine	<5.0	<5.0
11 3,3'-dimethoxybenzidine	<5.0	<5.0
12 3,3'-dimethylbenzidine	<5.0	<5.0
13 4,4'-methylenedi-o-toluidine	<5.0	<5.0
14 p-cresidine	<5.0	<5.0
15 4,4'-methylene-bis-(2-chloro-aniline)	<5.0	<5.0
16 4,4'-oxydianiline	<5.0	<5.0
17 4,4'-thiodianiline	<5.0	<5.0
18 o-toluidine	<5.0	<5.0
19 2,4-toluenediamine	<5.0	<5.0
20 2,4,5-trimethylaniline	<5.0	<5.0
21 2-methoxyaniline	<5.0	<5.0
22 2,4-xylydine <sup>#</sup>	<5.0	<5.0
23 2,6-xylydine <sup>#</sup>	<5.0	<5.0
24 4-aminoazobenzene*	<5.0	<5.0
<b>Method</b>	EN14362-1:2012	EN14362-1:2012
<b>Limit (Not applicable to composite testing)</b>	<30	<30
<b>Conclusion</b>	Pass	Pass

- Note:
1. “#” denotes 2,4-xylydine and 2,6-xylydine are not under Regulation (EC) No.1907/2006 and they are for client’s reference.
  2. “<” denotes less than
  3. “mg/kg” denotes milligram per kilogram

\* Azo colorants that are able to form 4-aminoazobenzene, as generated under the current testing condition stated in EN 14362-1:2012 are aniline and 1,4-phenylenediamine. The presence of 4-aminoazobenzene is determined by EN 14362-3:2012 or ISO 17234-2:2011.

#### Interpretation of test results:

- (1) In the case of the measured value per amine component  $\leq 30$  mg/kg and according to the analysis carried out, the azo colourants banned under the Annex XVII of Regulation (EC) No. 1907/2006, REACH are not detected in the article submitted.
- (2) In the case of the measured value per amine component  $> 30$  mg/kg, the analysis result suggests that the submitted article was manufactured or treated with the azo colourants banned under Annex XVII of Regulation (EC) No. 1907/2006, REACH
- (3) In the case of the measured value per amine component being between 25 and 35 mg/kg, it is remarked that due to the inherent uncertainty of the detection method, the value represent a border line case.



### 3.5 Carcinogenic and Allergenic Disperse Dye

Test with reference to DIN 54231:2005, LC-MS-MS analysis  
 [Reporting Limit = 0.50 mg/L in extract, 7.50 mg/kg in sample]

Sample	Result [mg/L]	Dye detected	Client's specification	Conclusion
001	N.D.	-	Not Detected	Pass
002	N.D.	-		Pass
003	N.D.	-		Pass
004	N.D.	-		Pass
005	N.D.	-		Pass

Note: 1. "<" denotes less than  
 2. "N.D." denotes not detected  
 3. "mg/L" denotes milligram per litre

Tested Dyestuffs :

**Carcinogenic Dyestuffs:**

C.I. Acid Red 26, C.I. Basic Red 9, C.I. Basic Violet 14, C.I. Disperse Blue 1\*, C.I. Disperse Yellow 3\*, C.I. Direct Black 38, C.I. Direct Blue 6, C.I. Direct Red 28, C.I. Disperse Orange 11

**Allergenic Dyestuffs:**

C.I. Disperse Blue 1\*, C.I. Disperse Blue 3, C.I. Disperse Blue 7, C.I. Disperse Blue 26, C.I. Disperse Blue 35, C.I. Disperse Blue 102, C.I. Disperse Blue 106, C.I. Disperse Blue 124, C.I. Disperse Brown 1, C.I. Disperse Orange 1, C.I. Disperse Orange 3, C.I. Disperse Orange 37, C.I. Disperse Orange 76\*\*, C.I. Disperse Red 1, C.I. Disperse Red 11, C.I. Disperse Red 17, C.I. Disperse Yellow 1, C.I. Disperse Yellow 3\*, C.I. Disperse Yellow 9, C.I. Disperse Yellow 39, C.I. Disperse Yellow 49, C.I. Disperse Yellow 23, C.I. Disperse Orange 149

\*: Both Allergenic and Carcinogenic; \*\*: equivalent to C.I. Disperse Orange 37

### 3.6 Colour Fastness to Saliva and Perspiration

§64 LFGB B 82. 10 – 1 : 1985 - 06

Sample	Result (Grade)		Client's specification	Conclusion*
	Colour fastness to saliva	Colour fastness to perspiration		
001	4-5	4-5	4-5	Pass
002	4-5	4-5	4-5	Pass
003	4-5	4-5	4-5	Pass
004	4-5	4-5	4-5	Pass
005	4-5	4-5	4-5	Pass

Note: 1. "\*" denotes conclusion was drawn according to client's specification

Notes on color change and staining grades:

- Grade 5 = Undetectable color change or staining
- Grade 4 = Slight color change and/or staining
- Grade 3 = Noticeable color change and/or staining
- Grade 2 = Considerable color change and/or staining
- Grade 1 = Severe color change and/or staining



**3.7 Organotin Compounds Content Test (Tributyltin TBT/ Dioctyltin DOT/Di-n-butyltin DBT/Triphenyltin TPhT)**

In house method test with reference to DIN EN ISO 17353:2005, solvent extraction with acidified methanol, followed by derivatization and GC-MS analysis  
 [Reporting Limit = 0.025 mg/kg]

Compounds	Results [mg/kg]		
	001	002	003
Dibutyltin (DBT)	<0.025	<0.025	<0.025
Tributyltin (TBT)	<0.025	<0.025	<0.025
Dioctyltin(DOT)	<0.025	<0.025	<0.025
Triphenyltin(TPhT)	<0.025	<0.025	<0.025
<b>Client's specification</b>	TBT, TPhT<0.5mg/kg DOT, DBT<1.0mg/kg		
<b>Conclusion*</b>	Pass	Pass	Pass

Compounds	Results [mg/kg]	
	004	005
Dibutyltin (DBT)	<0.025	<0.025
Tributyltin (TBT)	<0.025	<0.025
Dioctyltin(DOT)	<0.025	<0.025
Triphenyltin(TPhT)	<0.025	<0.025
<b>Client's specification</b>	TBT, TPhT<0.5mg/kg DOT, DBT<1.0mg/kg	
<b>Conclusion*</b>	Pass	Pass

- Note
1. "<" denotes less than
  2. "mg/kg" denotes milligram per kilogram
  3. "\*" denotes conclusion was drawn according to client's specification

**3.8 Formaldehyde Content Test**

Client's specification test according to DIN EN ISO 14184-1:2011, Formaldehyde content determined by UV-Visible spectroscopy  
 [Reporting Limit = 16mg/kg]

Sample	Result [mg/kg]	Client's Specification [mg/kg]	Conclusion*
001	<16	<16	Pass
002	<16		Pass
003	<16		Pass
004	<16		Pass
005	<16		Pass

- Note:
1. "mg/kg" denotes milligram per kilogram
  2. "<" denotes less than
  3. "\*" denotes conclusion was drawn according to client's specification



### 3.9 Total Lead Content Test

Consumer Product Safety Improvement Act of 2008 (Section 101)  
 Test in accordance with CPSC-CH-E1002-08 (Non-Metallic components)  
 [Reporting Limit = 10.0 mg/kg]

Sample	Result [mg/kg]	Limit [mg/kg]	Conclusion
001	<10.0	<100	Pass
002	<10.0	<100	Pass
003	<10.0	<100	Pass
004	<10.0	<100	Pass
005	<10.0	<100	Pass

Note: 1. "mg/kg" denotes milligram per kilogram  
 2. "<" denotes less than

### 3.10 Pentachlorophenol (PCP) and Sum of Tetrachlorophenols (TeCP) Content Test

Client's specification test with reference to DIN EN ISO 17070: 2006, followed by GC-ECD/GC-MSD analysis  
 [Reporting Limit = 0.05 mg/kg]

Element	Results [mg/kg]		
	001	002	003
2,3,5,6-Tetrachlorophenol	<0.05	<0.05	<0.05
2,3,4,6-Tetrachlorophenol	<0.05	<0.05	<0.05
2,3,4,5-Tetrachlorophenol	<0.05	<0.05	<0.05
Sum of TeCP	<0.05	<0.05	<0.05
Pentachlorophenol	<0.05	<0.05	<0.05
<b>Client's Specification</b>	<b>PCP &lt; 0.05 mg/kg</b>		
	<b>Sum of TeCP not detected</b>		
<b>Conclusion*</b>	Pass	Pass	Pass

Element	Results [mg/kg]	
	004	005
2,3,5,6-Tetrachlorophenol	<0.05	<0.05
2,3,4,6-Tetrachlorophenol	<0.05	<0.05
2,3,4,5-Tetrachlorophenol	<0.05	<0.05
Sum of TeCP	<0.05	<0.05
Pentachlorophenol	<0.05	<0.05
<b>Client's Specification</b>	<b>PCP &lt; 0.05 mg/kg</b>	
	<b>Sum of TeCP not detected</b>	
<b>Conclusion*</b>	Pass	Pass

Note: 1. "mg/kg" denotes milligram per kilogram  
 2. "<" denotes less than  
 4. "\*" denotes conclusion was drawn according to client's specification



**3.11 Flame Retardants Test**

In house method test with reference to US EPA 3550C, extraction with organic solvent and analyzed by GC-MS

[Reporting Limit = 100 mg/kg for SCCP, 5 mg/kg for others]

Flame Retardants		Result [mg/kg]		
		Sample 001	Sample 002	Sample 003
Polybrominated biphenyls (PBBs)	Monobromobiphenyl	N.D.	N.D.	N.D.
	Dibromobiphenyl	N.D.	N.D.	N.D.
	Tribromobiphenyl	N.D.	N.D.	N.D.
	Tetrabromobiphenyl	N.D.	N.D.	N.D.
	Pentabromobiphenyl	N.D.	N.D.	N.D.
	Hexabromobiphenyl	N.D.	N.D.	N.D.
	Heptabromobiphenyl	N.D.	N.D.	N.D.
	Octabromobiphenyl	N.D.	N.D.	N.D.
	Nonabromobiphenyl	N.D.	N.D.	N.D.
	Decabromobiphenyl	N.D.	N.D.	N.D.
Bis(2,3-dibromopropyl)phosphate		N.D.	N.D.	N.D.
Tris (2-chloroethyl) phosphate (TCEP)		N.D.	N.D.	N.D.
Tris-(2,3-dibromopropyl)-phosphate (TRIS)		N.D.	N.D.	N.D.
Tris(aziridinyl)phosphine oxide (TEPA)		N.D.	N.D.	N.D.
Pentabromodiphenyl ether (PentaBDE)		N.D.	N.D.	N.D.
Octabromodiphenyl ether (OctaBDE)		N.D.	N.D.	N.D.
Hexabromocyclododecane (HBCDD)		N.D.	N.D.	N.D.
SCCP		N.D.	N.D.	N.D.
<b>Client's specification</b>		<b>All flame retardants not detected</b>		
<b>Conclusion*</b>		Pass	Pass	Pass

- Note:
1. "N.D." denotes Not Detected
  2. "mg/kg" denotes milligram per kilogram
  3. "\*" denotes conclusion was drawn according to client's specification



**3.11 Flame Retardants Test**

In house method test with reference to US EPA 3550C, extraction with organic solvent and analyzed by GC-MS

[Reporting Limit = 100 mg/kg for SCCP, 5 mg/kg for others]

Flame Retardants		Result [mg/kg]	
		Sample 004	Sample 005
Polybrominated biphenyls (PBBs)	Monobromobiphenyl	N.D.	N.D.
	Dibromobiphenyl	N.D.	N.D.
	Tribromobiphenyl	N.D.	N.D.
	Tetrabromobiphenyl	N.D.	N.D.
	Pentabromobiphenyl	N.D.	N.D.
	Hexabromobiphenyl	N.D.	N.D.
	Heptabromobiphenyl	N.D.	N.D.
	Octabromobiphenyl	N.D.	N.D.
	Nonabromobiphenyl	N.D.	N.D.
	Decabromobiphenyl	N.D.	N.D.
Bis(2,3-dibromopropyl)phosphate		N.D.	N.D.
Tris (2-chloroethyl) phosphate (TCEP)		N.D.	N.D.
Tris-(2,3-dibromopropyl)-phosphate (TRIS)		N.D.	N.D.
Tris(aziridinyl)phosphine oxide (TEPA)		N.D.	N.D.
Pentabromodiphenyl ether (PentaBDE)		N.D.	N.D.
Octabromodiphenyl ether (OctaBDE)		N.D.	N.D.
Hexabromocyclododecane (HBCDD)		N.D.	N.D.
SCCP		N.D.	N.D.
<b>Client's specification</b>		<b>All flame retardants not detected</b>	
<b>Conclusion*</b>		Pass	Pass

- Note:
1. "N.D." denotes Not Detected
  2. "mg/kg" denotes milligram per kilogram
  3. "\*" denotes conclusion was drawn according to client's specification



**3.12 Analysis of the 84 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 and June 2012**  
**Analysis based on LCMS, GCMS, Headspace-GCMS, ICP-OES/AAS, UV-VIS and XRF.**

Parameters	Result	
	006	Limit
Eighty-Four substances of very high concern <sup>2</sup>	<0.1	<0.1% (w/w)

- Note:
1. "<" denotes less than
  2. 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 and June 2012.



# Technical Report No.60.160.12.14011.01

Dated 2013-01-30



No.	Substance Name	CAS	No.	Substance Name	CAS
1	Anthracene	120-12-7	28	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2
2	4,4'- Diaminodiphenylmethane	101-77-9	29	Tris(2-chloroethyl)phosphate (TCEP)	115-96-8
3	Dibutyl phthalate (DBP)	84-74-2	30	Acrylamide	79-06-1
4	Cobalt dichloride *	7646-79-9	31	Trichloroethylene	79-01-6
5	Diarsenic pentaoxide*	1303-28-2	32	Boric Acid*	10043-35-3 11113-50-1
6	Diarsenic trioxide *	1327-53-3	33	Disodium tetraborate, anhydrous*	1303-96-4 1330-43-4 12179-04-3
7	Sodium dichromate *	7789-12-0 10588-01-9	34	Tetraboron disodium heptaoxide, hydrate*	12267-73-1
8	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	35	Sodium chromate*	7775-11-3
9	Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7	36	Potassium chromate*	7789-00-6
10	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α – HBCDD, β-HBCDD, γ-HBCDD)	25637-99-4 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)	37	Ammonium dichromate*	7789-09-5
11	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	38	Potassium dichromate*	7778-50-9
12	Bis(tributyltin)oxide,(TBTO)*	56-35-9	39	Cobalt(II) sulphate *	10124-43-3
13	Lead hydrogen arsenate *	7784-40-9	40	Cobalt(II) dinitrate *	10141-05-6
14	Benzyl butyl phthalate (BBP)	85-68-7	41	Cobalt(II) carbonate*	513-79-1
15	Triethyl arsenate *	15606-95-8	42	Cobalt(II) diacetate*	71-48-7
16	Anthracene oil <sup>§</sup>	90640-80-5	43	2-Methoxyethanol	109-86-4
17	Anthracene oil, anthracene paste, distn. lights <sup>§</sup>	91995-17-4	44	2-Ethoxyethanol	110-80-5
18	Anthracene oil, anthracene paste, anthracene fraction <sup>§</sup>	91995-15-2	45	Chromium trioxide*	1333-82-0
19	Anthracene oil, anthracene-low <sup>§</sup>	90640-82-7	46	Acids generated from chromium trioxide and their oligomers: a. Chromic acid* b. Dichromic acid * c. Oligomers of chromic acid and dichromic acid*	7738-94-5 13530-68-2
20	Anthracene oil, anthracene paste <sup>§</sup>	90640-81-6	47	2-Ethoxyethyl acetate (2-EEA)	111-15-9
21	Pitch, coal tar, high temp. <sup>§</sup>	65996-93-2	48	Strontium chromate*	7789-06-2
22	Aluminosilicate Refractory Ceramic Fibres*	-	49	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP) <sup>§</sup>	68515-42-4
23	Zirconia Aluminosilicate, Refractory Ceramic Fibres*	-	50	Hydrazine	7803-57-8, 302-01-2
24	2,4-Dinitrotoluene	121-14-2	51	1-Methyl-2-pyrrolidone	872-50-4
25	Diisobutyl phthalate	84-69-5	52	1,2,3-Trichloropropane	96-18-4
26	Lead chromate*	7758-97-6	53	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6
27	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8			
-** denotes concentration of the SVHC was conversion of test results of the corresponding metal ion - <sup>§</sup> : The substances are UVCB (substance of unknown or variable composition, complex reaction products or biological material), the test results are calculated based on the main constituents.					



# Technical Report No.60.160.12.14011.01

Dated 2013-01-30



No.	Substance Name	CAS	No.	Substance Name	CAS
54	1,2-Dichloroethane	107-06-2	70	Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9
55	2,2'-Dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	71	Trilead diarsenate*	3687-31-8
56	2-Methoxyaniline, o-Anisidine	90-04-0	72	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2
57	4-(1,1,3,3-Tetramethylbutyl)phenol, (4-tert-Octylphenol)	140-66-9	73	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4
58	Arsenic acid*	7778-39-4	74	Diboron trioxide*	1303-86-2
59	Bis(2-methoxyethyl) ether	111-96-6	75	Formamide	75-12-7
60	Bis(2-methoxyethyl) phthalate	117-82-8	76	Lead(II) bis(methanesulfonate)*	17570-76-2
61	Calcium arsenate*	7778-44-1	77	1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (TGIC)	2451-62-9
62	Dichromium tris(chromate)*	24613-89-6	78	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	59653-74-6
63	Formaldehyde, oligomeric reaction products with aniline (technical MDA) <sup>§</sup>	25214-70-4	79	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8
64	Lead diazide*	13424-46-9	80	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1
65	Lead dipicrate*	6477-64-1	81	[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
66	Lead styphnate*	15245-44-0	82	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)#	548-62-9
67	N,N-dimethylacetamide (DMAC)	127-19-5	83	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol #	561-41-1
68	Pentazinc chromate octahydroxide*	49663-84-5	84	α,α-Bis[4-(dimethylamino)phenyl]-4(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)#	6786-83-0
69	Phenolphthalein	77-09-8	-	-	-

-<sup>§\*</sup> denotes concentration of the SVHC was conversion of test results of the corresponding metal ion  
-<sup>§</sup> The substances are UVCB (substance of unknown or variable composition, complex reaction products or biological material), the test results are calculated based on the main constituents.  
-<sup>#</sup> denotes the substance does only fulfil the criteria of REACH Art. 57 (a) if it contains Michler's ketone (CAS Number: 90-94-8) or Michler's base (CAS Number: 101-61-1) in a concentration ≥ 0.1% (weight / weight).

TÜV SÜD Hong Kong Ltd  
TÜV SÜD Group

Tested by:

Mannix Chan  
Project Manager  
Chemical Department



Reviewed by:

Christina Chan  
Laboratory Manager  
Chemical Department

- End of Report -

# General Terms and Conditions of TÜV SÜD Hong Kong Limited (hereinafter referred to as *the company*)

## 1. General Information and Definitions

- (1.1) In the event that an order for any services is placed, the Client shall accept the General Terms and Conditions. The General Terms and Conditions shall be applicable to all orders, resulting contracts and other arrangements, including all offers made or services provided by the Company or any of its affiliated companies. They are not applicable if and as far as they are in conflict with the regulations on services performed on behalf of governments, government bodies or any other public entity, or they are in conflict with mandatory provisions of local law. The Client's placement of orders as well as the conclusion of contracts with the Company shall be regarded as awareness and acceptance of these General Terms and Conditions.
- (1.2) The Company strongly recommends any Client or potential Client to read the full text of these General Terms and Conditions prior to placement of any order or conclusion of any contract with the Company. Ancillary agreements, promises and other statements made on the part of the Company staff or the experts called upon by them shall be binding only if they are expressly confirmed by the Company in writing. This shall also apply to any modifications of this clause.

## 2. Provision of Services

- (2.1) With due care and skill, the Company will provide services according to Client's specific instructions as made available by the Client. In the absence of Client's specific instructions, the following is deemed as instructions given to the Company:
- (a) The terms of any standard specification sheet or standard order form provided by the Company; and/or
- (b) Any relevant usage, practice or trade custom; and/or
- (c) Such methods the Company considers technically, operationally and/or on financial grounds appropriate.
- (2.2) No other party is entitled to give any instructions particularly on the scope and type of the services or the reports delivered, or on the resulting certificates (the "Reports of Findings"), unless the Company receives prior written instructions to the contrary from the Client. The Client hereby irrevocably authorizes the Company to deliver Reports of Findings to a third party where so instructed by the Client or, at the Company's discretion, where it implicitly follows from circumstances, trade custom, usage or practice.
- (2.3) The Information stated in the Report of Findings is derived from the results of inspection or testing procedures carried out in accordance with the instructions and/or Company's assessment of such results on the basis of any technical standards, trade custom or practice, or other circumstances which should in Company's professional experience be taken into account.
- (2.4) Reports of Findings issued after the testing of samples refer the Company's opinion only on samples under testing and not to the lot from which the samples were drawn.
- (2.5) Client agrees that the Company's sole responsibility is to be present at the time of the third party's intervention and to forward the results, or confirm the occurrence of the intervention, in case Client requests the Company to witness any third party's intervention. Client agrees that the Company will use the test methods for analysis as requested in the request form, and if none is stated in the form, the Company will choose the appropriate test methods for analysis.
- (2.6) The Reports of Findings issued by the Company will reflect the facts as recorded by it at the time of its intervention only and within the limits of the instructions received or, in the absence of such instructions, within the limits of the alternative parameters applied as provided for in Clause 2.1. The Company is under no obligation to refer to, or report upon, any facts or circumstances, which are outside the specific instructions received or alternative parameters applied.
- (2.7) The performance of all or part of the services may be delegated to an agent or subcontractor by the Company. The Client authorizes the Company to disclose all information necessary for such performance to the agent or subcontractor.
- (2.8) Documents reflecting engagements contracted between the Client and third parties or third party documents, e.g. sales contract copies, letters of credit, bills of lading, etc. should be made available to the Company. These are considered to be for information only, and do not extend or restrict the scope of the services or the obligations accepted by the Company.
- (2.9) The Company agrees that, by providing the services to the Client, it neither takes the place of Client or any third party, nor otherwise assumes, abridges, abrogates or undertakes to discharge any duty of the Client to any third party or that of any third party to the Client. Also, it does not release the Client or any third party from any of their obligations.
- (2.10) Depending on the nature of each sample, all samples given to the Company shall be retained for a maximum of 3 months or for such other shorter time period as the nature of the sample permits, and then sent back to Client or otherwise disposed of at the Company's discretion. After that time the Company will not be responsible for the samples. Storage of samples for more than 3 months shall incur a storage fee payable by the Client. If samples are returned to the Client, the Client will be billed a handling and freight fees. Special disposal charges will be billed to the Client if incurred.

## 3. Client's Obligations

The Client shall:

- (3.1) ensure that all required supporting documents, information and instructions as submitted are accurate, truthful and complete. These information are to be submitted in a timely not later than 2 working days from the date of which the services are requested by the Client
- (3.2) ensure to give all necessary access for the Company's representatives to the premises where the services are to be performed and to take all necessary steps to eliminate or remedy any obstacles to, or interruptions in the performance of the services;
- (3.3) make available any special equipment and personnel necessary for the performance of the services, if required;
- (3.4) ensure that for the safety and security of working conditions, sites and installations, all necessary measures are taken during the performance of services. In this respect, the Client will not rely on the Company's advice whether required or not;
- (3.5) inform the Company of any known hazards or dangers, actual or potential, associated with any order, samples, testing or any other service rendered by the Company well in advance. Those are, but are not limited to the presence or risk of radiation, environmental pollution or poisons-toxic or noxious or explosive elements or materials;
- (3.6) fully exercise all its rights and discharge all its liabilities under any relevant sales or other contract with a third party.

## 4. Fees and Payment

- (4.1) All Fees not agreed on between the Company and Client at the time the order is placed or a contract is concluded shall be determined by the Company's Schedule of Fees (which are subject to change). All applicable taxes shall be paid by Client, as far as mandatory laws do not provide otherwise.
- (4.2) Unless a specific period is established in the invoice, the Client shall pay upon receiving the invoice, but not later than 30 days from the relevant invoice date or within such other period as may be established by the Company in the invoice (the "Due Date").
- (4.3) The Client shall not be entitled to retain or defer due payment of any sums to the Company on account of any dispute, counter claim or set-off against the Company. The Company reserves the right to retain or defer any due payments if any dispute arises with or it raises any counterclaim against the Client. The Company is entitled to set off due payments against payments of the

Client.

- (4.4) For the collection of unpaid fees, the Company may decide to bring action in any court with competent jurisdiction. The corresponding collection costs, including attorney's fees and related costs, shall be borne by the Client, as far as the mandatory local law does not provide otherwise.
- (4.5) In case of any unforeseen problems or expenses arise while carrying out the services, the Company informs the Client. In such cases, the Company shall be entitled to charge additional fees to cover extra time and to invoice extra costs necessarily incurred to complete the services.
- (4.6) If the Company is unable to perform all or parts of the services for any cause whatsoever beyond the Company's control, including the failure by Client to comply with any of its obligations provided for in the foregoing Clause 3, the Company shall nevertheless be entitled to payments of:
- (1) The amount of all non-refundable expenses incurred by the Company; and
- (2) A proportion of the agreed fee equal to the proportion of the services actually carried out.

## 5. Suspension or Termination of Services

In any case mentioned below, the Company shall be entitled to either suspend or terminate the provision of the services immediately and without any liability:

- (5.1) Failure by the Client to comply with any of its obligations under these General Terms and Conditions and such failure is not remedied within 10 days after a notice of such failure has been delivered to the Client; or
- (5.2) Any suspension of payment, arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business by Client.

## 6. Liability and Indemnification

### (6.1) Limitation of Liability:

- (1) Clients seeking a guarantee against loss or damage should obtain appropriate insurance. The Company is neither an insurer nor a guarantor and disclaims all liability in such capacity.
- (2) Reports of Findings are issued on the basis of the information, documents and/or samples provided by, or on behalf of the Client and solely for the benefit of the Client who is obliged to act on the basis of such Reports of Findings. Neither the Company nor any of its staff, agents or subcontractors shall be liable to the Client nor to any third party for any actions taken or not taken on the basis of such Reports of Findings, or for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to the Company.
- (3) For any delayed, total or partial non-performance of the services arising directly or indirectly from any event beyond the Company's control, including failure by Client to comply with any of its obligations hereunder, the Company shall not be liable.
- (4) The liability of the Company in respect of any claim for loss, damage or expense of any nature and howsoever arising shall in no circumstances exceed a total aggregate sum equal to 10 times the amount of the fee paid in respect of the specific service which gives rise to such claim, and shall in any case not exceed the equivalent of 25,000 EUR in HKD.
- (5) For any indirect or consequential loss (including loss of profits), the Company shall not have any liabilities.
- (6) In case of any claim, the Client must give written notice to the Company within 30 days of discovery of the facts with all necessary documents to justify such claim. In any case, the Company shall be discharged from all liability for all claims for loss, damage or expense unless a lawsuit is brought within two years from:
- (i) the performance date of the Company for its services which refers to the claim; or
- (ii) the date when the service should have been completed in the event of any alleged non-performance.

- (6.2) Indemnification: Against all claims (actual or threatened) by any third party for loss, damage or expenses of whatsoever nature including all legal expenses and related costs and howsoever arising relating to the performance, purported performance or non-performance of any services, the Client shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors.

## 7. Obligation of Confidentiality, Copyright, Data Privacy Protection

- (7.1) The Company shall be authorized to make file copies of written documents, which have been made available to it for review and which are important for processing the order.
- (7.2) Insofar as Reports of Findings are prepared in the course of processing the order and which are subject to the protection of copyright, then the Company shall grant the Client a simple, non-transferable right to use, insofar as this is necessary and in accordance with the contractually presupposed purpose. Other rights shall not be transferred; in particular, the customer shall not be entitled to modify and/or edit audit reports or to make use of such outside of his business premises.
- (7.3) The Company and its staff which may be called in shall not disclose or use trade and business matters about which they have gained knowledge during the performance of their work without proper authorization.

## 8. Miscellaneous

- (8.1) The validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired, even if any one or more provisions of these General Conditions are found to be illegal or unenforceable in any respect.
- (8.2) Client shall not directly or indirectly entice, encourage or make any offer to Company's employees to leave their employment with the Company, during the course of providing the services and for a period of one year thereafter.
- (8.3) Use of the Company's corporate name or registered marks for advertising purposes is not permitted without the Company's prior written authorization.

## 9. Governing Law, Jurisdiction and Dispute Settlement

- (9.1) Unless specifically agreed otherwise, all disputes arising out or in connection with contractual relationship(s) hereunder shall be governed by the applicable laws and regulations of the Hong Kong S.A.R Region.
- (9.2) Place of performance for any obligation arising out of this contract shall be Hong Kong, the Place of TÜV SÜD Hong Kong Limited, unless otherwise expressly agreed by the parties.

## 10. Languages

In the event of any discrepancy between the English and the Chinese version of these General Terms and Conditions, the English version shall prevail.