



Test Report

No. GZSCR0512109168/LP Date : JAN 06, 2006 Page 1 of 6

KINGBOARD LAMINATES (MACAO COMMERCIAL OFFSHORE) LIMITED
AV. DA PRAIA GRANDE NO.599, EDIFICIO COMMERCIAL RODRIGUES, 3RD ANDAR B. MA CAU


Report on the submitted sample said to be 覆铜板 KB-3151CTI

SGS Ref. No. : GZ051218685EC-7.1, 2047827/EC
Sample Receiving Date : DEC 20 2005
Testing Period : DEC 20 - 30 2005

Test Requested : With reference to RoHS Directive 2002/95/EC for testing item 1) – 5)

- 1) To determine the Cadmium Content in the submitted sample.
- 2) To determine the Lead Content in the submitted sample.
- 3) To determine the Mercury Content in the submitted sample.
- 4) To determine the Hexavalent Chromium Content on the submitted sample.
- 5) Determination of PBBs (polybrominated biphenyls), PBDEs (Polybrominated diphenylethers) of the submitted sample.
- 6) To determine of PCBs (Polychlorinated biphenyl) of submitted sample.
- 7) To determine of Polychlorinated Naphthalene of the submitted sample.
- 8) To determine of Chlorinated Paraffin (C10~C13) of the submitted sample.
- 9) To determine the Tributyltin (TBT), Triphenyltin (TPT) of the submitted sample.
- 10) To determine the Mirex of the submitted sample.
- 11) To determine Formaldehyde Content in the submitted sample.
- 12) Identification of PVC Material.
- 13) Analysis of Azo Dye on the submitted sample.
- 14) To determine the Asbestos Fibres in the submitted sample.
- 15) To determine the Halogen (Cl) contents of submitted sample.

Signed for and on behalf of
SGS-CSTC Ltd.



Zhang Li, Amy
Sr. Engineer

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GZCM 424247

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- Test Method : 1-3) With reference to EPA Method 3051/ 3052.
Analysis was performed by Inductively Coupled Argon Plasma-Atomic Emission Spectrometry (ICP-AES).
- 4) With reference to EPA Method 3060A & 7196A.
The sample was alkaline digested by using EPA Method 3060A, and then analyzed by using Colorimetric method 7196A (by UV-Vis Spectrophotometer).
 - 5) With reference to EPA Method 3540C/ 3550C. Analysis was performed by GC/MS or LC/ MS.
 - 6) With reference to SGS in-house method. Analysis was performed by GC/ECD.
 - 7) With reference to SGS in-house method. Analysis was performed by GC/MS.
 - 8) With reference to SGS in-house method. Analysis was performed by GC/ECD.
 - 9) With reference to DIN 38407-13. Analysis was performed by GC/FPD.
 - 10) With reference to SGS in-house method. Analysis was performed by GC-ECD.
 - 11) With reference to BS EN ISO 14184-1:1999 – Textile – Determination of Formaldehyde Part 1: Free and hydrolyzed formaldehyde (water extraction method).
 - 12) Analysis was performed by Fourier Transform Infrared Spectroscopy.
 - 13) As per EN 14362-1:2003. By Gas Chromatographic Mass Spectrometry (GC-MS)/Thin Layer Chromatography (TLC) Technique.
 - 14) In-house method-TPE/002/A of "Identification of Asbestos Bulk Samples" which is based on the Asbestosis Research Council's Technical Note 3, "Recommendations for the Sampling and Identification of Asbestos in Asbestos Products".
 - 15) With reference to pr EN14582 Method B. Analysis was performed by IC method.

Test Results : 1-15) Please refer to next page.

Conclusion : 1-5) When tested as specified, the submitted sample complies with the requirements of Commission Decision of 18 Aug 2005 amending Directive 2002/95/EC notified under document 2005/618/EC.

Comment : 13) Based on the test result, azo colorants which can release one or more of the listed amines by cleavage of their azo group/s were not detected in sample (s) or the commodity submitted.

Forbidden Arylamines for Azo Dye Regulations

- No. 1-22 – Commission of the European Communities: Directive 2002/61/EC adopted by the Council on 19 July 2002

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Test Report

No. GZSCR0512109168/LP Date : JAN 06, 2006 Page 3 of 6

Test Results

| 1-4) Test Item | No.1 | Detection Limit | Limit |
|---|------|-----------------|----------|
| Cadmium (Cd) | ND | 2 ppm | 100 ppm |
| Lead (Pb) | ND | 2 ppm | 1000 ppm |
| Mercury (Hg) | ND | 2 ppm | 1000 ppm |
| Hexavalent Chromium (Cr ⁶⁺) | ND | 2 ppm | 1000 ppm |

(Results shown are of the total weight of samples)

Note : ppm = mg/kg
 ND = Not Detected
 Not detected is reported when the reading is less than detection limit value
 Test results were obtained by SGS affiliated laboratory

5)

| Flame Retardants | No.1 | Detection Limit | Limit |
|--|------|-----------------|------------|
| Polybrominated Biphenyls (Mono - Deca) | ND | 50 ppm | 1000 ppm |
| Monobromobiphenyl | ND | 5 ppm | -- |
| Dibromobiphenyl | ND | 5 ppm | -- |
| Tribromobiphenyl | ND | 5 ppm | -- |
| Tetrabromobiphenyl | ND | 5 ppm | -- |
| Pentabromobiphenyl | ND | 5 ppm | -- |
| Hexabromobiphenyl | ND | 5 ppm | -- |
| Heptabromobiphenyl | ND | 5 ppm | -- |
| Octabromobiphenyl | ND | 5 ppm | -- |
| Nonabromobiphenyl | ND | 5 ppm | -- |
| Decabromobiphenyl | ND | 5 ppm | -- |
| Polybrominated Diphenylethers (Mono - Nona) | ND | 45 ppm | 1000 ppm |
| Monobromodiphenyl ether | ND | 5 ppm | -- |
| Dibromodiphenyl ether | ND | 5 ppm | -- |
| Tribromodiphenyl ether | ND | 5 ppm | -- |
| Tetrabromodiphenyl ether | ND | 5 ppm | -- |
| Pentabromodiphenyl ether | ND | 5 ppm | -- |
| Hexabromodiphenyl ether | ND | 5 ppm | -- |
| Heptabromodiphenyl ether | ND | 5 ppm | -- |
| Octabromodiphenyl ether | ND | 5 ppm | -- |
| Nonabromodiphenyl ether | ND | 5 ppm | -- |
| Decabromodiphenyl ether* | ND | 5 ppm | See remark |

Note : ppm = mg/kg
 ND = Not Detected
 Not detected is reported when the reading is less than detection limit value.
 Test results were obtained by SGS affiliated laboratory

Remark: * Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.

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Test Report

No. GZSCR0512109168/LP Date : JAN 06, 2006 Page 4 of 6

Test Result (Cont'd) :

| <u>Compounds</u> | <u>No.1</u> | <u>Detection Limit</u> |
|----------------------------------|-------------|------------------------|
| PCBs (Polychlorinated Biphenyls) | ND | 5 ppm |

Note : ppm = mg/kg
ND = Not Detected
Not detected is reported when the reading is less than detection limit value
Test results were obtained by SGS affiliated laboratory

| <u>Compounds</u> | <u>No.1</u> | <u>Detection Limit</u> |
|----------------------------------|-------------|------------------------|
| 1-Chloronaphthalene | ND | 0.5 ppm |
| 2-Chloronaphthalene | ND | 0.5 ppm |
| 1,4-Dichloronaphthalene | ND | 0.5 ppm |
| 1,2,3-Trichloronaphthalene | ND | 0.5 ppm |
| 1,2,3,4-Tetrachloronaphthalene | ND | 0.5 ppm |
| 1,2,3,4,5-Pentachloronaphthalene | ND | 0.5 ppm |
| Octachloronaphthalene | ND | 1.0 ppm |

Note : ppm = mg/kg
ND = Not Detected
Not detected is reported when the reading is less than detection limit value
Test results were obtained by SGS affiliated laboratory

| <u>Compounds</u> | <u>No.1</u> | <u>Detection Limit</u> |
|----------------------|-------------|------------------------|
| Chlorinated Paraffin | ND | 50 ppm |

Note : ppm = mg/kg
ND = Not Detected
Not detected is reported when the reading is less than detection limit value
Test results were obtained by SGS affiliated laboratory

| <u>Test Item</u> | <u>No.1</u> | <u>Detection Limit</u> |
|--------------------|-------------|------------------------|
| Tributyltin (TBT) | ND | 0.03 ppm |
| Triphenyltin (TPT) | ND | 0.03 ppm |

Note : ppm = mg/kg
ND = Not Detected
Not detected is reported when the reading is less than detection limit value
Test results were obtained by SGS affiliated laboratory

| | <u>CAS</u> | <u>No.1</u> | <u>Detection Limit</u> |
|-----------|------------|-------------|------------------------|
| 10) Mirex | 2385-85-5 | N.D. | 0.05 ppm |

Note : ppm = mg/kg
ND = Not Detected
Not detected is reported when the reading is less than detection limit value

| | <u>No.1</u> | <u>Detection Limit</u> |
|--------------------------|-------------|------------------------|
| 11) Formaldehyde Content | ND | 10 mg/kg |

Note : ppm = mg/kg
ND = Not Detected
Not detected is reported when the reading is less than detection limit value

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12)
Sample
No.1

Conclusion
The sample does not contain Poly (Vinyl chloride)

Note : Test results were obtained by SGS affiliated laboratory

Test Results (Cont'd) :

| 13) No. | Forbidden Amines Substances | CAS-No. | No.1 |
|-----------------------|--|----------|-------------|
| 1. | 4-aminodiphenyl/xenylamine/ Biphenyl-4-ylamine | 92-67-1 | n.d. |
| 2. | Benzidine | 92-87-5 | n.d. |
| 3. | 4-chlor- <i>o</i> -toluidine | 95-69-2 | n.d. |
| 4. | 2-naphthylamine | 91-59-8 | n.d. |
| 5. | <i>o</i> -aminoazotoluene/ 4- <i>o</i> -tolylazo- <i>o</i> -toluidine/ 4-amino-2',3-dimethylazobenzene | 97-56-3 | n.d. |
| 6. | 2-amino-4-nitrotoluol/5-nitro- <i>o</i> -toluidine | 99-55-8 | n.d. |
| 7. | <i>p</i> -chloranilin/4-chloroaniline | 106-47-8 | n.d. |
| 8. | 2,4-diaminoanisol/ 4-methoxy- <i>m</i> -phenylenediamine | 615-05-4 | n.d. |
| 9. | 4,4'-diaminodiphenylmethane/ 4,4-methylenedianiline | 101-77-9 | n.d. |
| 10. | 3,3'-dichlorobenzidine/ 3,3'-dichlorobiphenyl-4,4'-ylenediamine | 91-94-1 | n.d. |
| 11. | 3,3'-dimethoxybenzidine/ <i>o</i> -dianisidine | 119-90-4 | n.d. |
| 12. | 3,3'-dimethylbenzidine/4,4'-bi- <i>o</i> -Toluidine | 119-93-7 | n.d. |
| 13. | 3,3'-dimethyl-4,4'-diaminodipenylmethane/ 4,4'-methylenedi- <i>o</i> -toluidine | 838-88-0 | n.d. |
| 14. | <i>p</i> -cresidin/6-methoxy- <i>m</i> -toluidine | 120-71-8 | n.d. |
| 15. | 4,4'-methylen-bis-(2-chloro-aniline)/ 2,2'-dichloro-4,4'methylene-dianiline | 101-14-4 | n.d. |
| 16. | 4,4'-oxydianiline | 101-80-4 | n.d. |
| 17. | 4,4'-thiodianiline | 139-65-1 | n.d. |
| 18. | <i>o</i> -toluidine/2-aminotoluene | 95-53-4 | n.d. |
| 19. | 2,4-toluylendiamine/ 4-methyl- <i>m</i> -phenylenediamine | 95-80-7 | n.d. |
| 20. | 2,4,5-trimethylaniline | 137-17-7 | n.d. |
| 21. | 4-aminoazobenzene* | 60-09-3 | n.d. |
| 22. | <i>o</i> -anisidine/ 2-methoxyaniline | 90-04-0 | n.d. |
| Overall Rating | | | PASS |

Relevant Requirement (2002/61/EC) :
No relevant amine exceeding 30 ppm (mg/kg)

Note : n.d. = not detectable
Detection Limit = 5 ppm (mg/kg)
Test results were obtained by SGS affiliated laboratory

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Test Report

No. GZSCR0512109168/LP Date : JAN 06, 2006 Page 6 of 6

Test Results (Cont'd) :

| | | |
|------------------|--|----------------|
| 14) | | <u>No.1</u> |
| <u>Compounds</u> | | |
| Asbestos Fibres | | Not – detected |

Remark : Test was conducted by outsider laboratory

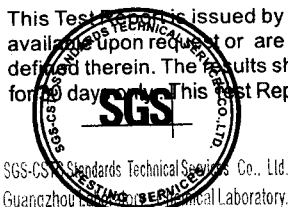
| | | | |
|------------------|----------------|-------------|------------------------|
| 15) | | | |
| <u>Test Item</u> | <u>CAS No.</u> | <u>No.1</u> | <u>Detection Limit</u> |
| Chlorine (Cl) | 007782-50-5 | N.D. | 50 ppm |

- Note :
- 1) ppm = mg/kg
 - 2) N.D. = Not detected
 - 3) Not detected was reported when the reading is less than detection limit value
 - 4) Test results were obtained by SGS affiliated laboratory.

Sample Description :
 No.1 Brown Plastic / Coppery Metal w/ Red Printing

*** End of Report ***

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