Aluminium Composite Panel

Alupanel®

MULTIPANEL
MULTIPANEL
MULTIPANEL

ALUPANEL CERTIFICATIONS & GENERAL INFORMATION

Multipanel UK

...a **multi**tude of applications

TABLE OF CONTENTS

ALUPANEL Certification

CERTIFICATE OF INCORPORATION OF A PRIVATE LIMITED COMPANY

Company No. 5024774

The Registrar of Companies for England and Wales hereby certifies that

MULTIPANEL UK LIMITED

is this day incorporated under the Companies Act 1985 as a private company and that the company is limited.

Given at Companies House, Cardiff, the 23rd January 2004

THE OFFICIAL SEAL OF THE REGISTRAR OF COMPANIES

Companies House
— for the record —

The above information was communicated in non-legible form and authenticated by the Registrar of Companies under section 710A of the Companies Act 1985

TRADE MARKS REGISTRY

REGISTRATION CERTIFICATE

Trade Marks Act 1994 of Great Britain and Northern Ireland

The mark shown below has been registered under No. 2359125 as of the date 23 March 2004.

ALUPANEL

The mark has been registered in respect of:

Class 06:

Aluminium composite panels for signmaking, shop fitting and display items; aluminium panels for external cladding of buildings and structures.

In the name of Multipanel UK Ltd

Signed this day at my direction

ROB NUTCHEY, REGISTRAR

Dated: 26 November 2009

国建认证
GUOJIAN CERTIFICATION

QMS CERTIFICATE

Registration No.: 02506Q10096R1S

This is to certify that the quality management system of

MULTIPANEL UK LTD

has been found to comply with

GB/T19001-2000 idt ISO9001:2000

This registration is subject to the following area

Region Coverage: Middletown Barn Tedburn St Mary Exeter Devon UK EX6 6DT

Process/Activities Scope: Production And Market, Service Of Aluminium-Plastic Composite Panel

Initial Issuing Date: Jun-20-2003
Revaluation Date: Apr.-05-2006
Expiry Date: Apr.-04-2009

General Manager: 刘江涛

Approved organization will be monitored annually by GJC, and this certificate is valid when surveillance tag has been sticked to specified site on it. Effective certificate would be inquired to www.gj-c..cn

2006 PASS

surveillance tag site

surveillance tag site

SIGN OF CERTIFICATION

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT
IAF

CNAB

CNAB025-Q

北京国建联信认证中心有限公司

Add: No.11, SanLiHe Road HaiDian District, Beijing China, (100831) Tel: 010-88386260 Fax: 010-88370972 http: www.gj-c.cn

Certificate No: 04110E20070R0M

CNAS C041-E

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

This is to certify that

Multipanel UK LTD

Unit 6, Site 2,Oak Business Units,
Thorverton Road, Matford, Exeter Devon. EX2 8FS

Has been awarded this certificate for compliance with the standard

GB/T24001-2004 (idt ISO14001:2004)

Scope: *The Environmental Management Activities Is Related To The Production and Service of Aluminum Composite Panel and Coating Aluminum Coils and Panel*

Issue 2010/03/04 Expiry 2013/03/03 Initial Issue ****** Recertification ******

Surveillance conformity label should be pasted below for continual effectiveness of this certificate

President

Add: 5th Floor, Bldg.F,Century Craftwork Culture Square, No.4001 Fuqiang Road, Futian District, Shenzhen, China

http://www.eics.com.cn

CERTIFICATE OF CONFORMITY

UKTC

Certificate NO.TC 07/090020

Applicant: MUTLIPANEL UK LTD

Applicant Address: Middletown Barn, Tedburn St Mary, Exeter, Devon EX6 6DT, UK

Manufacturer: MUTLIPANEL UK LTD

Manufacturing Site: Middletown Barn, Tedburn St Mary, Exeter, Devon EX6 6DT, UK

Product Name: Aluminum Composite Panel

Model No. : Alupanel / Alupanel Lite / Alupanel Digital / Alupanel XT / Alupanel FP / Alupanel Nano / Ecopanel

THE TEST REPORT

Technical Construction File: TR07082030

Reference NO./Rev:

Codes/Standards Applied: EN 438 : 2005

Date of Issuance: 28.sep, 2007

Remarks:
This Certificate Is Only Valid For The Equipment And Configuration Described, And In Conjunction With The Test Data Detailed Above.

Conclusion Of Assessment:
We Hereby Confirm That the Technical Construction File and Manufacturing, Inspection And Testing processes For Above Mentioned Equipment Comply With The Essential Safety Requirements Of Construction Products Directive 89/106/EEC Applied Codes And Standards.

Chief Assessor:

UK Product Safety Test Center Limited
Room B, 1/F, LA BLDG, 66 CORPORATION ROAD
GRANGETOWN, CARDIFF, WALES, UK, CFLL TAW
info@uktc-gov.org.uk

Intertek

TEST REPORT NUMBER: SZHJ174957

APPLICANT: MULTIPANEL UK LTD
MIDDLETOWN BARN, TEDBURN ST MARY,
EXETER, DEVON, EX6 6DT,
UK

DATE: Nov 08, 2007

ATTN: ANDREW COCK

SAMPLE DESCRIPTION:
ONE (1) SUBMITTED SAMPLE SAID TO BE **RAL9016(WHITE).**
TESTED COMPONENTS:
(a) SILVER COLOR METAL SHEET.
(b) WHITE PAINT.
****

TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)
****

AUTHORIZED BY:
FOR INTERTEK TESTING SERVICES
SHENZHEN LTD.

BEN N.L. LIN
GENERAL MANAGER

Intertek Testing Services Shenzhen Ltd.-TFH Division
7/F., Shekou Technology Main Building, Industrial 7th Road, Shekou,Shenzhen, China
Tel: (86-755)2683 7000 Fax: (86-755)2683 7118/9 Postcode: 518067
www.intertek.com www.intertek-labtest.com.cn China Toll-Free: 800 999 1338

Intertek

TEST REPORT NUMBER: SZHJ174957

TESTS CONDUCTED

(A) TEST RESULT SUMMARY FOR RoHS DIRECTIVE :

TESTING ITEM	RESULT (a)
CADMIUM (Cd) CONTENT (mg/kg)	ND(<2)
LEAD (Pb) CONTENT (mg/kg)	ND(<2)
MERCURY (Hg) CONTENT (mg/kg)	ND(<2)
CHROMIUM (VI)(Cr^{6+}) RESULT (BY BOILING WATER EXTRACTION ON METAL) (mg/kg WITH $50cm^2$)#	NEGATIVE(<0.02)

mg/kg = MILLIGRAM PER KILOGRAM = ppm
mg/kg WITH $50cm^2$ = MILLIGRAM PER KILOGRAM WITH 50 SQUARE CENTIMETER
< = LESS THAN
ND = NOT DETECTED
# = ACCORDING TO IEC 62321, A POSITIVE RESULT INDICATES THE PRESENCE OF Cr(VI) COATING. IT IS THE Cr(VI) CONCENTRATION DETECTED IN THE BOILING-WATER-EXTRACTION SOLUTION AND SHOULD NOT BE INTERPRETED AS THE Cr(VI) CONCENTRATION IN THE COATING LAYER OF THE SAMPLE.

****

Intertek Testing Services Shenzhen Ltd.-TFH Division
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Intertek

TEST REPORT NUMBER: SZHJ174957

TESTS CONDUCTED

TESTING ITEM	RESULT (b)
CADMIUM (Cd) CONTENT (mg/kg)	ND(<2)
LEAD (Pb) CONTENT (mg/kg)	ND(<2)
MERCURY (Hg) CONTENT (mg/kg)	ND(<2)
CHROMIUM (VI) (Cr^{6+}) CONTENT (mg/kg) (FOR NON-METAL)	ND(<1)
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMOBIPHENYL (MonoBB)	ND(<5)
DIBROMOBIPHENYL (DiBB)	ND(<5)
TRIBROMOBIPHENYL (TriBB)	ND(<5)
TETRABROMOBIPHENYL (TetraBB)	ND(<5)
PENTABROMOBIPHENYL (PentaBB)	ND(<5)
HEXABROMOBIPHENYL (HexaBB)	ND(<5)
HEPTABROMOBIPHENYL (HeptaBB)	ND(<5)
OCTABROMOBIPHENYL (OctaBB)	ND(<5)
NONABROMOBIPHENYL (NonaBB)	ND(<5)
DECABROMOBIPHENYL (DecaBB)	ND(<5)
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMODIPHENYL ETHER (MonoBDE)	ND(<5)
DIBROMODIPHENYL ETHER (DiBDE)	ND(<5)
TRIBROMODIPHENYL ETHER (TriBDE)	ND(<5)
TETRABROMODIPHENYL ETHER (TetraBDE)	ND(<5)
PENTABROMODIPHENYL ETHER (PentaBDE)	ND(<5)
HEXABROMODIPHENYL ETHER (HexaBDE)	ND(<5)
HEPTABROMODIPHENYL ETHER (HeptaBDE)	ND(<5)
OCTABROMODIPHENYL ETHER (OctaBDE)	ND(<5)
NONABROMODIPHENYL ETHER (NonaBDE)	ND(<5)
DECABROMODIPHENYL ETHER (DecaBDE)	ND(<5)

mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT OF SAMPLE = ppm
< = LESS THAN
ND = NOT DETECTED
NOTE : DecaBDE IN POLYMERIC APPLICATIONS IS EXEMPTED ACCORDING TO ROHS DIRECTIVE AMENDMENT 2005/717/EC.
****

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7/F., Shekou Technology Main Building, Industrial 7th Road, Shekou,Shenzhen, China
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www.intertek.com www.intertek-isblast.com.cn China Toll-Free: 800 999 1338

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TEST REPORT NUMBER: SZHJ174957

TESTS CONDUCTED

(B) RoHS REQUIREMENT

RESTRICTED SUBSTANCES	LIMITS
CADMIUM (Cd)	0.01% (100 ppm)
LEAD (Pb)	0.1% (1000 ppm)
MERCURY (Hg)	0.1% (1000 ppm)
CHROMIUM (VI) (Cr^{6+})	0.1% (1000 ppm)
POLYBROMINATED BIPHENYLS (PBBs)	0.1% (1000 ppm)
POLYBROMINATED DIPHENYL EHTERS (PBDEs)	0.1% (1000 ppm)

THE ABOVE LIMITS WERE QUOTED FROM 2002/95/EC AND AMENDMENT 2005/618/EC FOR HOMOGENEOUS MATERIAL.

(C) TEST METHOD :

TESTING ITEM	TESTING METHOD	REPORTING LIMIT
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 -111/54/CDV, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 -111/54/CDV, BY ACID DIGESTION AND DETERMINED BY ICP - OES	2 mg/kg
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 -111/54/CDV, BY ACID DIGESTION AND DETERMINED BY ICP - OES	2 mg/kg
CHROMIUM (VI) (Cr^{6+}) CONTENT (FOR NON-METAL)	WITH REFERENCE TO IEC 62321 -111/54/CDV, BY ALKALINE DIGESTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	1 mg/kg
CHROMIUM (VI) (Cr^{6+}) CONTENT (FOR METAL)	WITH REFERENCE TO IEC 62321 -111/54/CDV, BY BOILING WATER EXTRACTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	0.02mg/kg with $50cm^2$
POLYBROMINATED BIPHENYLS (PBBs)& POLYBROMINATED DIPHENYL ETHERS (PBDEs)	WITH REFERENCE TO IEC 62321 - 111/54/CDV, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS AND HPLC	5 mg/kg

NOTE : TESTS WERE CONDUCTED WITH REFERENCE TO 111/54/CDV VERSION 2006-05-05 WHICH IS STILL A DRAFT METHOD AND SUBJECT TO FUTURE CHANGES PRIOR TO PUBLICATION.

DATE SAMPLE RECEIVED : NOV 03, 2007
TESTING PERIOD : NOV 03, 2007 TO NOV 07, 2007

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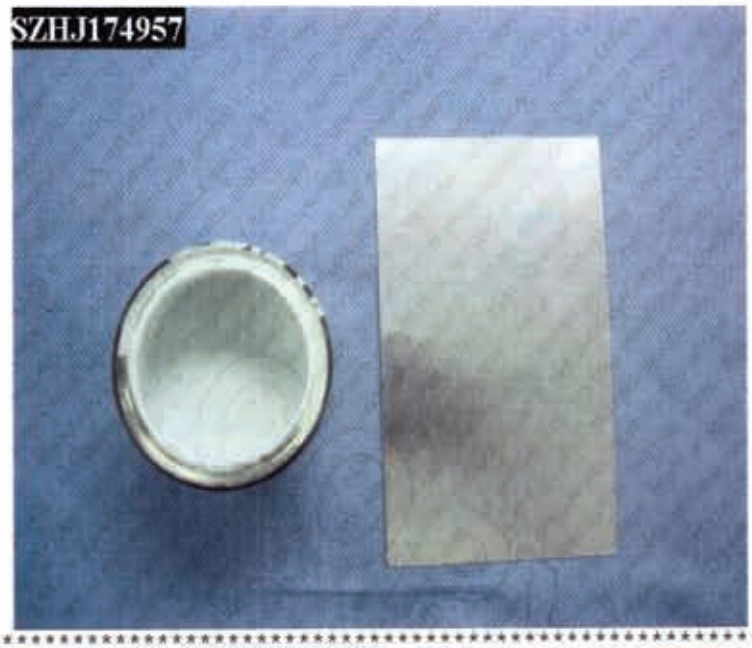
www.intertek.com www.intertek-iabtest.com.cn China Toll-Free: 800 999 1338

Intertek

TEST REPORT NUMBER: SZHJ174957

TESTS CONDUCTED



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END OF REPORT

Intertek Testing Services Shenzhen Ltd.-TFH Division
7/F., Shekou Technology Main Building, Industrial 7th Road, Shekou,Shenzhen, China
Tel: (86-755)2683 7000 Fax: (86-755)2683 7118/9 Postcode: 518067
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Intertek

Intertek Testing Services Building Products
Building T52-8, No. 1201 Gui Qiao Road,Jinqiao Development Area,
Pudong District, Shanghai, China 201206,
Telephone: +86 21 5031 9089
Facsimile: +86 21 3872 0003

Test Verification of Conformity

On the basis of the referenced test report(s), the sample(s) of the below product has been found to comply with the relevant harmonized standard(s) to the directive(s) listed on this verification at the time the tests were carried out.
The manufacturer may indicate compliance to said directive(s) by signing a DoC himself and applying the CE-marking to products identical to the tested sample(s). In addition, the manufacturer shall file and keep the documentation according to the rules of the applicable directive(s) and shall consider changes of the standard(s) if relevant. Additional requirements may be applicable such as additional directives or local laws.

Applicant Name & Address	:	Multipanel UK Ltd. Unit 6, Site 2, Oak Business Units, Thorverton Road, Matford, Exeter, Devon. EX2 8FS, UK
Product(s) Tested	:	Aluminum composite panel
Ratings and principal characteristics	:	Tensile strength, Flexural strength, Resistance to fixing, Release of dangerous substance (REACH), Durability, Reaction to fire (Class B-s1,d0), Bond strength, Artificial accelerating weathering, Density, Sound transmission, Thermal conductivity
Model(s)	:	ALUPANEL (2mm, 3mm, 4mm, 6mm) ALUPANEL LITE (2mm, 3mm, 4mm) ECOPANEL (2mm, 3mm) ALUPANEL DIGITAL SUPER 8 (8mm)
Brand name	:	ALUPANEL
Relevant Standard(s) / Specification(s) / Directive(s)	:	EN10002-1:2001, EN310:1993, EN13446:2002, EN1604:1997, EN13501-1:2002, EN319:1993, ISO4892-2:2006, EN1602:1997, ISO140-3:1995, EN 12664:2001, REACH
Verification Issuing Office Name & Address	:	Intertek Testing Services Ltd. Shanghai JinQiao Branch Building T52-8, No. 1201 Gui Qiao Road, Jinqiao Development Area, Pudong District, Shanghai, China 201206
Verification/Report Number(s)	:	AU09114039-1(R1)

NOTE 1: This verification is part of the full test report(s) and should be read in conjunction with it.

Signature

Name: Stanley Zhou

Position: Laboratory Manager

Date: March 10, 2010

www.intertek.com

Intertek

TEST REPORT

Report Reference No. ..... :	AU09114039-1(R1)
Prepared by (name and signature) .. :	Jodie Zhou
Approved by (name and signature).. :	Stanley Zhou
Date of issue ..... :	2010-03-10
Contents..... :	Total test report 8 pages including: Report text: 7 pages Appendix A for product photos: 1page
Testing Laboratory name ..... :	Intertek Testing Services Building Products
Address..... :	Building T52-8, No.1201 Gui Qiao Road, Jinqiao Development Area, Pudong District, Shanghai , China
Testing location..... :	Same as above
Applicant's name ..... :	MULTIPANEL UK LTD
Address..... :	Unit 6, Site 2, Oak Business Units, Thorverton Road, Matford, Exeter, Devon. EX2 8FS, UK
Test specification:	
Standard..... :	EN10002-1:2001, EN310:1993, EN13446:2002, EN1604:1997, EN13501-1:2002, EN319:1993, ISO4892-2:2006, EN1602:1997, ISO140-3:1995, EN 12664:2001, REACH
Non-standard test method..... :	N/A
Test item description..... :	Aluminum composite panel
Trade Mark..... :	ALUPANEL (ALUPANEL DIGITAL SUPER 8 / ALUPANEL LITE / ECOPANEL)
Model and/or type reference ..... :	ALUPANEL (2mm, 3mm, 4mm, 6mm) ALUPANEL LITE (2mm, 3mm, 4mm) ECOPANEL (2mm, 3mm) ALUPANEL DIGITAL SUPER 8 (8mm)
Manufacturer ..... :	Same as above
Rating(s)..... :	—

Summary of testing:

The submitted samples were tested in accordance with specified standards, and listed the result accordingly, refer to text for detail.

Intertek Testing Services Ltd., Shanghai JinQiao Branch
Building T52-8, No.1201 Gui Qiao Road, Jinqiao Development Area, Pudong District, Shanghai , China
Tel: 86-021-50319089 Fax: 86-021- 38720003
Report Template Revision Date:3 Feb. 2009

Test item particulars	
Classification of installation and use	Reaction to fire Class B-s1, d0
Supply Connection	—
Possible test case verdicts	
- Test case does not apply to the test object	N/A
- Test object does meet the requirement	P (Pass)
- Test object does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	2009-11-24
Date (s) of performance of tests	2009-12-1 to 2010-3-4

General remarks:

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Throughout this report a comma (point) is used as the decimal separator.

When determining the test result, measurement uncertainty has been considered.

General product information:

Aluminum composite panels, size (length×width×thickness):

2440mm×1220mm×2mm,

2440mm×1220mm×3mm,

2440mm×1220mm×4mm,

2440mm×1220mm×6mm,

2440mm×1220mm×8mm,

Product Photographs were presented in Appendix A

Intertek Testing Services Ltd., Shanghai JinQiao Branch
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Report Template Revision Date:3 Feb. 2009

Performance test		
Clause	Requirement - Test	Result
Density	The test was determined according to EN 1602. Measure the linear dimensions of test specimens. Calculate the volumes (V) of the test specimens from these measurements. Weigh each test specimen and record its mass (m) in kilograms. Calculate the apparent overall density (ρ) using the equation: ρ=m/V	Density range: 1046 kg/m^3 (8mm) 1100 kg/m^3 (6mm) 1242 kg/m^3 (4mm) 1143 kg/m^3 (3mm) 1384 kg/m^3 (2mm)
Tensile strength	The test was determined according to EN 10002-1. The specimen was only the aluminum sheet. Machined the specimen according to the standard. The test rate was 2MPa/s. Record the tensile strength and elongation at break.	Tensile Strength: 149MPa Elongation: 10.3%
Flexural strength	The test was determined according to EN 310. The modulus of elasticity in bending and bending strength are determined by applying a load to the centre of a test piece supported at two points. The modulus of elasticity is calculated by using the slope of the linear region of the load-deflection curve. The bending strength of each test piece is calculated by determining the ratio of the bending moment M, at the maximum load Fmax, to the moment of its full cross section. Series of both transverse and longitudinal test pieces are required.	Bending strength: Transverse: 55.1MPa Longitudinal: 52.8MPa Modulus of elasticity Transverse: 9804MPa Longitudinal: 9029MPa
Bond strength	The test was determined according to EN 319. Place the testing assembly in the grips and apply a force until rupture occurs. The load was applied at a constant rate of crosshead-movement throughout the test. Record the maximum load sustained by the test piece. The strength perpendicular to the plane of the board of was calculated according to the following formula: f=Fmax/(a×b) Fmax is the breaking load; a, b is the length and width of the test piece	Bond strength: 6.91MPa

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Report Template Revision Date:3 Feb, 2009

Performance test		
Clause	Requirement - Test	Result
Resistance to fixing	The test was determined according to EN 13446. Place the test piece in the test jig, ensuring the application of the withdrawal force was along the axis of the fastener. The load was applied at a constant rate of crosshead-movement throughout the test. Measure the maximum load and record the result. The withdrawal parameter f was calculated according to the following formula: f=Fmax/(d×lp) Fmax is the maximum withdrawal load lp is the depth of penetration of fastener d is the diameter of fastener	Withdrawal capacity: Edge withdrawal: 6.60MPa Surface withdrawal: 5.10MPa
Durability	The test was determined according to EN 1604. Condition the test specimens at 23°C±2 °C, 50%±5% relative humidity. Determine the initial length, width and thickness in the same atmosphere. Expose a set of test specimen to these conditions. Low temperature: -30 °C±3 °C High humidity: 20 °C±2 °C, 90%±5% relative humidity The duration of exposure was 24 hours. Determine the final length, width and thickness of the test specimens. Calculate the dimensional changes, $\Delta\varepsilon_l$, $\Delta\varepsilon_b$ and $\Delta\varepsilon_d$ in percentage from the individual measurements.	Low temperature: $\Delta\varepsilon_l$: -0.1% $\Delta\varepsilon_b$: -0.1% $\Delta\varepsilon_d$: -1.6% High humidity: $\Delta\varepsilon_l$: 0.0% $\Delta\varepsilon_b$: 0.0% $\Delta\varepsilon_d$: -0.8%
Artificial accelerating weathering	The test was determined according to ISO 4892-2. Expose the specimens and the radiometer continuously run. The radiant flux was 60W/m2 between 300nm and 400nm (0.51W/m²nm at 340nm). The weathering cycle consisted of a humidification period of 18 minutes and a drying period of 102 minutes at a black-standard temperature of 55℃ and 50% relative humidity. The overall weathering time was 300 hours.	No visible deterioration.

Intertek Testing Services Ltd., Shanghai JinQiao Branch
Building T52-6, No.1201 Gui Qiao Road, Jinqiao Development Area, Pudong District, Shanghai , China
Tel: 86-021-50319089 Fax: 86-021- 38720003
Report Template Revision Date:3 Feb. 2009

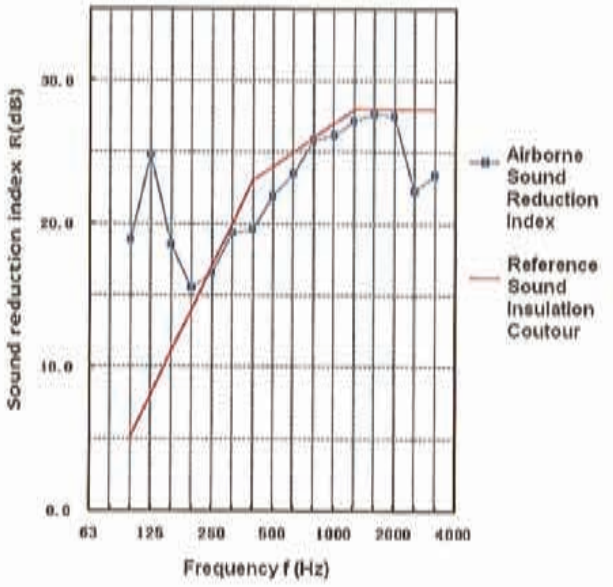
<table>
<tr><th colspan="3">Performance test</th></tr>
<tr><th>Clause</th><th>Requirement - Test</th><th>Result</th></tr>
<tr><td>Thermal Conductivity</td><td>The test was determined according to EN 12664.
By using the heat flow meter apparatus, the density of heat flow rate, heat flow rate, and the metering area that the heat flow rate crosses were measured; and the temperature difference across the specimen was measured by temperature sensors fixed at surfaces in contact with the specimens. Then thermal conductivity was calculated from measured density of heat flow rate, heat flow rate, metering area and temperature difference.</td><td>Thermal conductivity: 0.117W/mK</td></tr>
<tr><td>Reaction to fire</td><td>The test was determined according to EN 13501-1.
<table>
<tr><th colspan="2">Item</th><th>Requirement (Class B)</th><th>Result</th></tr>
<tr><td rowspan="3">SBI Test</td><td>Fire Growth rate Index 0.2MJ, W/s</td><td>≤120</td><td>104</td></tr>
<tr><td>Total Heat Release within 600s,MJ</td><td>≤7.5</td><td>3.2</td></tr>
<tr><td>Lateral Flame Spread</td><td><Edge of Specimen</td><td><Edge of Specimen</td></tr>
<tr><td rowspan="2">Smoke Production</td><td>Smoke Growth Rate s1, m^2/s^2</td><td>≤30</td><td>7</td></tr>
<tr><td>Total Smoke Production with 600s s1, m^2</td><td>≤50</td><td>50</td></tr>
<tr><td colspan="2">Flaming Droplets/ Particles d0</td><td>No flaming droplets/ particles occur within 600s</td><td>No flaming droplets/ particles occur within 600s</td></tr>
<tr><td>Ignitability Test</td><td>Exposure=30s, flame spread within 60s, mm</td><td>≤150</td><td><150</td></tr>
</table></td><td>Class B-s1, d0</td></tr>
</table>

Performance test		
Clause	Requirement - Test	Result

Sound Transmission

The test was determined according to ISO 140-3.
Sound source: Pink noise;
Environment: Source room volume 62m³. Receiving room volume 99 m³. Air temperature 12℃. Air humidity 51%.

Parameter	Sound reduction index R(dB)					
Frequency (Hz)	100	125	160	200	250	315
Value(dB)	18.8	24.8	18.5	15.5	16.5	19.3
Frequency (Hz)	400	500	630	800	1000	1250
value (dB)	19.6	21.9	23.5	25.8	26.2	27.1
Frequency (Hz)	1600	2000	2500	3150	4000	5000
value (dB)	27.7	27.5	22.3	23.3	/	/



The single-number rating Rw of the test specimen in such project description is 24dB.

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Report Template Revision Date:3 Feb, 2009

Performance test		
Clause	Requirement - Test	Result

Release of dangerous substance

The test was determined according to REACH.

By a combination of X-ray fluorescence spectroscopy, inductively coupled argon plasma spectrometry, gas chromatography- mass spectrometry, UV-VIS spectrophotometer, ion chromatography and gas chromatography- electron capture detected.

TESTING ITEM	RESULT (%(W/W)) PER TESTED PRODUCT
ANTHRACENE	<0.1
4,4'-DIAMINODIPHENYLMETHANE	<0.1
DIBUTYL PHTHALATE (DBP)	<0.1
COBALT DICHLORIDE*	<0.1
DIARSENIC PENTAOXIDE*	<0.1
DIARSENIC TRIOXIDE*	<0.1
SODIUM DICHOMATE*	<0.1
5-TERT-BUTYL-2,4,5-TRINITRO-M-XYLENE (MUSK XYLENE)	<0.1
BIS (2-ETHYLHEXYL) PHTHALATE (DEHP)	<0.1
HEXABROMOCYCLODODECANT (HBCDD) AND ALL MAJOR DIASTEREOISOMERS IDENTIFIED: ALPHA-HEXABROMOCYCLODODECANE BETA- HEXABROMOCYCLODODECANE GAMMA- HEXABROMOCYCLODODECANE	<0.1
ALKANES, C10-C13, CHLORO (SHORT CHAIN CHLORINATED PARAFFINS)	<0.1
BIS (TRIBUTYLTIN) OXIDE (TBTO)*	<0.1
LEAD HYDROGEN ARSENATE*	<0.1
TRIETHYL ARSENATE*	<0.1
BENZYL BUTYL PHTHALATE (BBP)	<0.1

Remark:

SVHC=Substance of very high concern

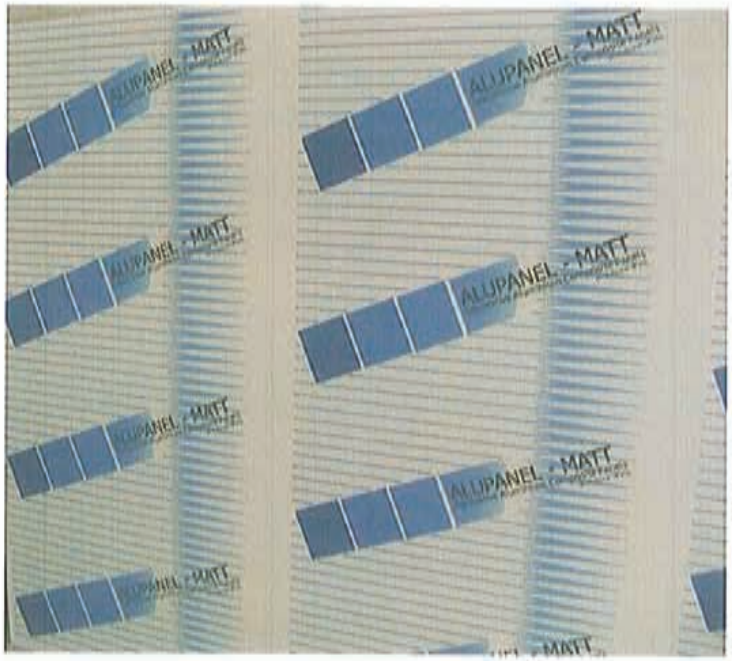
* =Determination was based on elemental analysis

According to specified test processes, content of all substances of very high concern (SVHC) in candidate list promulgated by European Chemicals Agency (ECHA), which are defined in article 57 of regulation (EC) No. 1907/2006 (REACH Regulation), are less than 0.1% (w/w) in submitted sample.

Intertek Testing Services Ltd., Shanghai JinQiao Branch
Building T52-8, No.1201 Gui Qiao Road, Jinqiao Development Area, Pudong District, Shanghai , China
Tel: 86-021-50319089 Fax: 86-021- 38720003

Appendix A

Product photos



**********End of Report**********

Intertek Testing Services Ltd., Shanghai JinQiao Branch
Building T52-8, No.1201 Gui Qiao Road, Jinqiao Development Area, Pudong District, Shanghai , China
Tel: 86-021-50319089 Fax: 86-021- 38720003
Report Template Revision Date:3 Feb, 2009

TEST REPORT

No. : GP060700581-02
Date : Sep.05.2006
Page: 1 of 1

MULTIPANEL UK LTD
OFFICE 4, MERRIOTT HOUSE, HENNOCK ROAD, MARSH BARTON EXETER, DEVON, EX2 8NJ, UK

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

Sample Name	ALUPANEL ALUMINIUM COMPOSITE PANEL
Product Serial No	MPAP4/5SB MPAP4/4SB MPAP4/3SB MPAP3/5SB MPAP3/4SB MPAP3/3SB
Test Required	Ignitability test
Test Method	For any of the five specimens tested, flaming does not reach the gauge mark within 20 seconds after flame application with bottom edge ignition and no drops
Date of Receipt	Jul 14,2006
Test Period	Jul 14,2006 to Sep 05 2006

Test results:

Specimen thickness: 3 mm

Time Lapse: pass

Conclusion: The tested material met the requirements for class B2 products according to DIN 4102-1:1998 clause 6.2

Note: The test has been subcontracted to the accredited laboratory

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

Signed for and on behalf of
SGS GOLD Standards
Technical Services Co., Ltd.

Cathy Peng
Technical Supervisor

LNE
Le progrès, une passion à partager
LABORATOIRE DE TRAPPES
29 avenue Roger Hennequin – 78197 Trappes Cedex
Tél. : 01 30 69 10 00 – Fax : 01 30 69 12 34

ESSAIS DE REACTION AU FEU SELON L'ARTICLE 5 DE L'ARRETE DU 21 NOVEMBRE 2002 MODIFIE, RELATIF AUX PRODUITS DE CONSTRUCTION ET D'AMENAGEMENT.

Demandeur : *Test applicant*	MULTIPANEL UK LTD Unit 6, Oak Business Units Thorverton Road, Matford Exeter, Devon EX2 8FS ROYAUME UNI
Date et référence de la commande : *Order date and reference*	Courrier du 10/09/2009
Marque commerciale : *Trademark*	ALUPANEL
Description des éprouvettes : *Sample description*	Panneau composite constitué d'une âme en polyethylène de 7,2 mm, revêtue sur chaque face de parements aluminiums de 0,4 mm (alliage alluminium 1100 H18) eux même recouverts de 2 couche de peinture polyeter de 15 µm.
Date de réception des éprouvettes : *Sample reception*	22/10/2009
Date de l'essai : *Date of test*	02/11/2009

A l'issue des essais de classement M, ce matériau présente un comportement au feu de type :
After M Classification testing, the material presents this fire behaviour :

M1	**POSE LIBRE, TRAIT DE SCIE ET CALFEUTRAGE DES CHANTS** *FREE STANDING, SAW CUT AND EDGES DRAUGHTPROOFING*

Les résultats des essais réalisés sont détaillés en annexe.
Testing results are detailed in annex.

CE DOCUMENT NE CONSTITUE PAS UN RAPPORT DE CLASSEMENT OFFICIEL.
THIS DOCUMENT DOES NOT CONSTITUTE AN OFFICIAL TEST REPORT.

Dossier N° K091185 - Résultats d'Essai N° 1 – Page 2/2

Annexe Page 1

Essai par rayonnement selon la norme NF P 92-501

Heat radiant test according to NF P 92-501 standard

	Eprouvette 1 *Sample 1*	Eprouvette 2 *Sample 2*	Eprouvette 3 *Sample 3*	Eprouvette 4 *Sample 4*
Remarques				
Moment de la 1ère inflammation (secondes) face exposée (ti1) *First ignition time (exposed side) (ti1)*	1027	_	1056	_
Moment de la 1ère inflammation (secondes) face non exposée (ti2) *First ignition time (non exposed side) (ti2)*	_	_	_	_
Hauteur de flamme maximale observée (cm) *Maximum flame height (cm)*	12	0	12	0
Somme des hauteurs de flamme Sh (cm) *Total flame height Sh (cm)*	54	0	39	0
Somme des durées de combustion effective ?T *Total burning time ?T*	173	0	144	0
$Q = \frac{100 \times \sum H}{n\sqrt{\sum \Delta T}}$	**0.40**	**0.00**	**0.31**	**0.00**
Chute de gouttes non enflammées *Non flaming drops fall*	Non	Non	Non	Non
Chute de gouttes enflammées *Flaming drops fall*	Non	Non	Non	Non
Type de comportement *Type of classification*	**M1**	**M1**	**M1**	**M1**

Coefficient Q moyen : *Mean Q coefficient*	**0.18**

Rappel des classements

Reminder of classifiactions

M1 : 0 < Q < 2,5
M2 : 2,5 < Q < 15
M3 : 15 < Q < 50
M4 : Q = 50

SGS

TEST REPORT

No. : GZML05110606
Date : Mar.03,2006
Page: 1 of 4

Multipanel UK Ltd

Office 4, Merriott House Hennock Road Marsh Barton Exeter Devon EX2 8NJ

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

Sample Name	:	ALUMINUM COMPOSITE PANEL
Manufacturer	:	Multipanel UK Ltd
Test Required	:	Flammability test.
Test Method	:	With reference to BS 476 Part 6 & Part 7
Date of Receipt	:	Nov.14,2005
Test Period	:	Nov.20,2005 to Jan.26,2006
Test result(s)	:	For further details, please refer to the following page(s)

******** To be continued********

Signed for and on behalf of
SGS-CSTC Standards
Technical Service Co., Ltd.

Michael Zhang
Senior Section Head

SGS

GZML 009363

SGS

TEST REPORT

No. : GZML05110606
Date : Mar.03,2006
Page: 2 of 4

Fire test according to BS476:Part 7:1987(as amended)

Conditioning:

The sample was conditioned to constant mass at a temperature of 23±2℃ and a relative humidity of 50±10% and maintained in the condition until required for testing.

Test Method:

The test was carried out in accordance with BS476: Part 7: 1997,the sponsor sampled the material and the specimens were cut from the sample to the dimensions set out in the standard by the sponsor. The specimens were tested as received.

The following were recorded:

a) The time at which the flame front crosses each vertical reference line;
b) The maximum extent of flame spread during first 1.5 min from start of the test;
c) The maximum extent of flame spread during the whole test;
d) The time (and distance) at which maximum flame spread is reached.

The flame spread at 1.5min and the final flame spread results were compared with the standard class limits and a classification was assigned.

Requirements:

The class limits for flame spread detailed in BS476: Part 7are set out below.

Classification	Flame spread at 1.5min (mm)	Final flame spread (mm)
Class 1	165(+25)	165(+25)
Class 2	215(+25)	455(+45)
Class 3	265(+25)	710(+75)
Class 4	Exceeding Class 3 Limits	

A definitive classification is based on a sample of six specimens and the figure in brackets gives the tolerances by which only one in six may exceed the class limit assigned.

*********To be continued*********

SGS

GZML 008362

SGS

TEST REPORT

No. : GZML05110606
Date : Mar.03,2006

Results:

Time for flame spread to reach (s) (mm)					Flame spread at 1.5min (mm)	Maximum flame spread (mm)	Time to reach maximum flame spread (s)
165	215	265	455	710			
---	---	---	---	---	60	60	60
					60	60	60
					60	60	60
					60	60	60
					60	60	60
					60	60	60

Conclusion: The sample met the performance requirements of Class 1

2. Fire test according to BS 476:Part 6:1989

Test Method:

The test was carried out in accordance with BS476:Part 6:1989. Prior to testing the sample the calibration of the equipment was determined to ensure compliance with the test limits set out in the standard.
The sponsor sampled the material and the specimens were cut from the sample received to the dimensions set out in the standard by the sponsor. The samples were tested loose laid onto 12mm Calcium Silicate board.

Temperature of the flue gases were measured to the nearest degree centigrade at the time intervals and periods set out below, taking zero time as the moment of ignition of the gas supply. The temperature was measured by means of two thermocouples with their measuring junctions located in the cowl of the apparatus as required in the standard.

The relevant temperature-time intervals were observed for each individual specimen and the calibration board according to the ranges 0 to 3 minutes every 30 seconds, 4 to 10 minutes every 1 minute and 12 to 20 minutes every 2minutes to give 3 time periods

*******To be continued********

GZML 009361

SGS

TEST REPORT

No. : GZML05110606
Date : Mar.03,2006
Page: 4 of 4

Calculation of Results:

Calculate the index of performance, s, and the fire propagation index, i, for each specimen in each time period according to BS476: Part 6. Then calculate the Total Fire propagation index, I, as follows. Total $I=i_1+i_2+i_3$

A definitive classification is based on a sample of at least three specimens

Requirements:

A class 0 is the highest National product performance classification for lining materials. To meet Class 0 a material has to meet the requirements laid down in the UK Building Regulations 1991 Approved Document B (Amendments 2002) appendix A paragraph 13 states that a composite material either:

a) Composed throughout of materials of limited combustibility, or
b) A Class 1 material which has a propagation index (I) of not more than 12 and a sub index (i_1) not more than 6 when tested to BS476 Part 6.

Results:

Number of specimens tested	Sub-index i_1	Sub-index i_2	Sub-index i_3	Total Fire propagation index I
3	0.00	0.20	2.60	2.60

Conclusion:

The sample met the requirements of Class 0 of the UK Building Regulations 1991 Approved Document B (Amendments 2002) appendix A paragraph 13

Note: -The test results relate only to the behaviour of the specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard
- The above tests were conducted in SGS U.K. Co., Ltd.

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

GZML 110936

Multipanel U.K. Ltd

Material Safety Data Sheet
Product Name: ALUPANEL AND ALUPANEL XT COMPOSITE MATERIAL

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Formula: Mixture
Product Use: Architectural panels, specialty applications.

Manufacturer/Supplier
Multipanel U.K. Ltd
Middletown Barn,
Tedburn St Mary,
Exeter, Devon EX6 6DT, UK
Tel: 0044 (0) 1392 455 152
Fax: 0044 (0) 1647 611 77

* * * Section 2 - Composition / Information on Ingredients * * *

Complete composition is provided below and may include some components classified as non-hazardous.

CAS #	Component	Percent
	Aluminum Face Sheets	-
7429-90-5	Aluminum	>92
7439-95-4	Magnesium	<5
7439-96-5	Manganese	<1.5
	Polymeric Core	-
Proprietary	Thermoplastic Polymer	<60
Proprietary	Fire Retardant	<25
Proprietary	Aramid polymer	<7
	Coatings	-
Not Available	Chromium compounds	5-10
Not Available	Nickel compounds	5-10
Not Available	Antimony compounds	2-10
7631-86-9	Silicon dioxide, amorphous	1-5
1333-86-4	Carbon black	1-5
Not Available	Cobalt compounds	1-5
Not Available	Copper compounds	1-5
13463-67-7	Titanium dioxide	<2
Not Available	Lead compounds including lead chromate	0-1

* * * Section 3 - Hazards Identification * * *

EMERGENCY OVERVIEW

Solid, panels. Various colors. Odorless. Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable.
Explosion/fire hazards may be present when (See Sections 5, 7 or 10 for additional information):
* Dust or fines are dispersed in the air.
* Chips, dust or fines are in contact with water.
* Dust or fines are in contact with certain metal oxides (e.g. rust).
* Molten metal is in contact with water/moisture or certain metal oxides (e.g. rust).
Dust and fume from processing can cause irritation of eyes, skin and upper respiratory tract. Contact with molten polymer can cause thermal burns. Combustion of the coatings can generate toxic and irritating gases.

POTENTIAL HEALTH EFFECTS

The following health effects are not likely to occur unless sawing or cutting generates dust or unless polymer is heated to melting.

Eyes

Can cause irritation.

Skin

Can cause irritation. Contact with molten polymer can cause thermal burns.

Inhalation

Can cause irritation of upper respiratory tract and other health effects listed below. Cancer and reproductive hazard.

Health Effects of Ingredients

Aluminum dust, fines and fumes Low health risk by inhalation. Generally considered to be biologically inert (milling, cutting, grinding).

Manganese dust or fumes Chronic overexposures: Can cause inflammation of the lung tissue, scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Titanium dioxide Can cause irritation of eyes and respiratory tract. Chronic overexposures: Can cause chronic bronchitis.

Considering the physical and chemical properties of aramid aluminum laminates and the fact that kevlar aramid fiber products in normal use represent minimal risk to human health, health hazards from fiber exposures secondary to handling aramid laminates is not expected to pose a significant risk to users.

Cobalt compounds Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause allergic reactions. Acute and chronic overexposures: Can cause respiratory sensitization, asthma, kidney damage and damage to the heart muscle (cardiomyopathy).

Antimony compounds Can cause irritation of eyes, skin and mucous membranes. Chronic overexposures: Can cause dermatitis, perforation of the nasal septum, weight loss, hair loss, chemical pneumonia, liver damage and kidney damage. Ingestion: Can cause abdominal cramps, diarrhea, dizziness, abnormal heart rhythm (arrhythmia) and death.

Copper compounds Can cause irritation of eyes, mucous membranes, skin and respiratory tract. Chronic overexposures: Can cause reduction in the number of red blood cells (anemia), skin abnormalities (pigmentation changes) and hair discoloration.

Nickel compounds Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause sensitization and allergic contact dermatitis. Chronic overexposures: Can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization and asthma. Associated with lung cancer, cancer of the vocal cords and nasal cancer. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)*.

Chromium (III) compounds Can cause irritation of eyes, skin and respiratory tract. IARC/NTP: Not classifiable as to their carcinogenicity to humans by IARC.

Hexavalent chromium (Chrome VI) Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause irritant dermatitis, allergic reactions and skin ulcers. Chronic overexposures: Can cause perforation of the nasal septum, respiratory sensitization, asthma, the accumulation of fluid in the lungs (pulmonary edema), lung damage, kidney damage, lung cancer, nasal cancer and cancer of the gastrointestinal tract. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)*.

Lead dust or fume Can cause irritation of eyes and upper respiratory tract. Acute overexposures: Can cause nausea and muscle cramps. Chronic overexposures: Can cause weakness in the extremities (peripheral neuropathy), abdominal cramps and other gastrointestinal tract effects, kidney damage, liver damage, central nervous system damage, damage to blood forming organs, blood cell damage and reproductive harm. Can cause reduced fertility and fetal toxicity in pregnant women. IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as possibly carcinogenic to humans by IARC (Group 2B)*. Certain inorganic lead compounds: IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as probably carcinogenic to humans by IARC (Group 2A)*.

Carbon black Can cause mechanical irritation of eyes, skin and upper respiratory tract. Chronic overexposures: Can cause chronic bronchitis and lung disease. IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B)*. Additional information: Studies with experimental animals (rats) by inhalation have found lung tumors and skin tumors.

Silica, amorphous Acute overexposures: Can cause dryness of eyes, nose and upper respiratory tract.

***IARC Classification Definitions**

Group 1: The agent is carcinogenic to humans. There is sufficient evidence that a causal relationship existed between exposure to the agent and human cancer.
Group 2A: The agent is probably carcinogenic to humans. Generally includes agents for which there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals. Group 2B: The agent is possibly carcinogenic to humans. Generally includes agents for which there is limited evidence in humans and less than sufficient evidence in experimental animals.

Medical Conditions Aggravated By Exposure to the Product and/or Components

Dust from processing: Asthma, chronic lung disease, skin rashes and secondary Parkinson's disease.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Dust from processing: Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

First Aid: Skin

Dust from processing: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists.
Molten polymer: If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel material from skin. Get medical treatment for thermal burns.

First Aid: Inhalation

Dust from processing: Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

* * * Section 5 - Fire Fighting Measures * * *

Flammable/Combustible Properties

This product does not present fire or explosion hazards as shipped. Small chips, turnings, dust and fines from processing may be readily ignitable.

Fire/Explosion

May be a potential hazard under the following conditions:
* Dust or fines dispersed in the air can be explosive. Even a minor dust cloud can explode violently.

* Chips, dust or fines in contact with water can generate flammable/explosive hydrogen gas. Hydrogen gas could present an explosion hazard in confined or poorly ventilated spaces.
* Dust or fines in contact with certain metal oxides (e.g., rust). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.
* Molten metal in contact with water/moisture or other metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with other metal oxides can initiate a thermite reaction. Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermite reactions/explosions.

Extinguishing Media

Use Class D extinguishing agents on dusts, fines or molten metal. Use coarse water spray on chips and turnings.

Unsuitable Extinguishing Media

DO NOT USE:
* Halogenated agents on small chips, dusts or fines.
* Water around molten metal.

These agents will react with the burning material.

Fire Fighting Equipment/Instructions

Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

* * * Section 6 - Accidental Release Measures * * *

Small/Large Spill

Collect scrap for recycling. If molten: Contain the flow using dry sand or salt flux as a dam. Do not use shovels or hand tools to halt the flow of molten aluminum. Allow the spill to cool before remelting as scrap.

* * * Section 7 - Handling and Storage * * *

Handling/Storage

Avoid generating dust. Avoid contact with sharp edges or heated material. Hot and cold aluminum are not visually different. Hot aluminum does not necessarily glow red.

Requirements for Processes Which Generate Dusts or Fumes

If processing of these products includes operations where dust or extremely fine particulate is generated, obtain and follow the safety procedures and equipment guides contained in Aluminum Association Bulletin F-1 and National Fire Protection Association (NFPA) brochures listed in Section 16. Cover and reseal partially empty containers. Use non-sparking handling equipment. Provide grounding and bonding where necessary to prevent accumulation of static charges during dust handling and transfer operations. (See Section 15).

Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used. Dust collection systems must be dedicated to aluminum dust only and should be clearly labeled as such. Do not co-mingle fines of aluminum with fines of iron, iron oxide (rust) or other metal oxides.

Do not allow chips, fines or dust to contact water, particularly in enclosed areas.

Avoid all ignition sources. Good housekeeping practices must be maintained.

Requirements for Remelting of Scrap Material and/or Ingot

Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off the water. Water and other forms of contamination on or contained in scrap are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment. If confined, even a few drops of water can lead to violent explosions.
All tooling and containers which come in contact with molten metal must be preheated or specially coated and rust free. Molds and ladles must be preheated or oiled prior to casting. Any surfaces that may contact molten metal (e.g., concrete) should be specially coated.

Drops of molten metal in water (e.g. from plasma arc cutting), while not normally an explosion hazard, can generate enough flammable hydrogen gas to present an explosion hazard. Vigorous circulation of the water and removal of the particles minimize the hazards.

During melting operations, the following minimum guidelines should be observed:
* Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage.
* Store materials in dry, heated areas with any cracks or cavities pointed downwards.
* Preheat and dry large or heavy items adequately before charging into a furnace containing molten metal. This is typically done by use of a drying oven or homogenizing furnace. The drying cycle should bring the internal metal temperature of the coldest item of the batch to 400°F and then hold at that temperature for 6 hours.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Engineering Controls

If dust is generated through processing: Use with adequate explosion-proof ventilation to meet the limits listed in Section 8, Exposure Guidelines.

Personal Protective Equipment

Respiratory Protection

If dust is generated through processing: Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8, Exposure Guidelines. Suggested respiratory protection: N100.

Eye Protection: Wear safety glasses/goggles to avoid eye injury.

Skin Protection: Wear appropriate gloves to avoid any skin injury.

General

Sampling to establish lead exposures is advised where exposures to airborne particulate or fumes are possible. Consult OSHA Lead Standard 29 CFR 1910.1025 for specific health/industrial hygiene precautions and requirements to follow when handling lead compounds.
Personnel who handle and work with molten polymer should utilize primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).

Exposure Guidelines

A: General Product Information

MULTIPANEL U.K. recommends an Occupational Exposure Limit for Chromium (VI) Compounds [both soluble and insoluble forms] of 0.25 ug/m3 TWA as chromium.
MULTIPANEL U.K. recommends Occupational Exposure Limits for Manganese of 0.05 mg/m3 TWA (total particulate) and 0.02 mg/m3 TWA (respirable fraction).
MULTIPANEL U.K. recommends an Occupational Exposure Limit for Nickel Compounds of 0.1 mg/m3 TWA.
MULTIPANEL U.K. recommends an Occupational Exposure Limit for Cobalt of 0.02 mg/m3 TWA.

B: Component Exposure Limits

Aluminum (7429-90-5)
ACGIH 10 mg/m3 TWA (metal dust)
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Manganese (7439-96-5)
ACGIH 0.2 mg/m3 TWA
OSHA 5 mg/m3 Ceiling (fume)

Chromium compounds (Not Available)
ACGIH 0.5 mg/m3 TWA (as Cr) (related to Chromium (III) compounds)
0.01 mg/m3 TWA (as Cr)
0.05 mg/m3 TWA (as Cr)
OSHA 0.1 mg/m3 Ceiling
OSHA 0.5 mg/m3 TWA (as Cr) (related to Chromium (III) Compounds)

Nickel compounds (Not Available)
ACGIH 0.2 mg/m3 TWA (inhalable fraction, as Ni) (related to Nickel insoluble inorganic compounds (NOS))
OSHA 1 mg/m3 TWA (as Ni) (related to Nickel insoluble compounds)

Carbon black (1333-86-4)
ACGIH 3.5 mg/m3 TWA
OSHA 3.5 mg/m3 TWA

Titanium dioxide (13463-67-7)
ACGIH 10 mg/m3 TWA
OSHA 15 mg/m3 TWA (total dust)

Lead compounds including lead chromate (Not Available)
ACGIH 0.05 mg/m3 TWA (related to Lead)
OSHA 50 µg/m3 PEL (as Pb); 30 µg/m3 Action Level (as Pb. Poison - see 29 CFR 1910.1025) (related to Lead)

Antimony compounds (Not Available)
ACGIH 0.5 mg/m3 TWA (related to Antimony)
OSHA 0.5 mg/m3 TWA (related to Antimony)

* * * Section 9 - Physical & Chemical Properties * * *

Physical State:	Solid panels	**Appearance:**	Various colors
Boiling Point:	Not applicable	**Melting Point:**	Aluminum: 900-1200°F (482-649°C); Polymer ~220°F (~104°C)
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Solubility in Water:	None	**Specific Gravity:**	See Density
Density:	Range: generally 1.10-2.27 g/cm3 (0.040-0.075 lb/in3)	**pH Level:**	Not applicable
Odor:	Odorless	**Odor Threshold:**	Not applicable
Octanol-Water Coefficient:	Not applicable		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Stability
Stable under normal conditions of use, storage, and transportation as shipped.

Conditions to Avoid

Chips, fines, dust and molten metal are considerably more reactive with the following:

* **Water:** Slowly generates flammable/explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Molten metal can react violently/explosively with water or moisture, particularly when the water is entrapped.
* **Heat:** Oxidizes at a rate dependent upon temperature and particle size.
* **Strong oxidizers:** Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) particularly when heated or molten.
* **Acids and alkalis:** Reacts to generate flammable/explosive hydrogen gas. Generation rate is greatly increased with smaller particles (e.g., fines and dusts).
* **Halogenated compounds:** Many halogenated hydrocarbons, including halogenated fire extinguishing agents, can react violently with finely divided aluminum.

* **Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides):** A violent thermite reaction generating considerable heat can occur. Reaction with aluminum fines and dusts requires only very weak ignition sources for initiation. Molten aluminum can react violently with iron oxide without external ignition source.
* **Iron powder and water:** An explosive reaction forming hydrogen gas occurs when heated above 1470°F (800°C).

Hazardous Decomposition

Combustion of the coatings can generate carbon monoxide, carbon dioxide, aldehydes, metal oxides (of lead, copper, cobalt and antimony) and oxides of nitrogen.

* * * Section 11 - Toxicological Information * * *

Health Effects of Ingredients

A: General Product Information

No information available for product.

B: Component Analysis - LD50/LC50

Magnesium (7439-95-4)
Oral LD50 Rat: 230 mg/kg

Manganese (7439-96-5)
Oral LD50 Rat: 9 g/kg

Thermoplastic Polymer (Proprietary)
Inhalation LC50 Mouse: 12 g/m3/30M

Fire Retardant (Proprietary)
Oral LD50 Rat: >5000 mg/kg

Silicon dioxide, amorphous (7631-86-9)
Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Carbon black (1333-86-4)
Oral LD50 Rat: >15400 mg/kg; Dermal LD50 Rabbit: >3 g/kg

Cobalt compounds (Not Available)
Oral LD50 Rat: >3000 mg/kg

Titanium dioxide (13463-67-7)
Oral LD50 Rat: >10000 mg/kg

Lead compounds including lead chromate (Not Available)
Oral LD50 Rat: >5000 mg/kg

Antimony compounds (Not Available)
Oral LD50 Rat: >10000 mg/kg

Carcinogenicity

A: General Product Information

No information available for product.

B: Component Carcinogenicity

Thermoplastic Polymer (Proprietary)
IARC Supplement 7, 1987; Monograph 19, 1979

Aramid polymer (Proprietary)
IARC Monograph 68, 1997 (listed under para-Aramid fibrils)

Chromium compounds (Not Available)
ACGIH A4 - Not Classifiable as a Human Carcinogen (related to Chromium (III) compounds)
A1 - Confirmed Human Carcinogen
A1 - Confirmed Human Carcinogen
IARC Monograph 49, 1990; Supplement 7, 1987; Monograph 23, 1980; Monograph 2, 1973
Monograph 49, 1990 (listed under Chromium and Chromium compounds); Supplement 7, 1987 (related to Chromium (III) Compounds)

Nickel compounds (Not Available)
ACGIH A1 - Confirmed Human Carcinogen (related to Nickel, inorganic compounds, insoluble (NOS))

Silicon dioxide, amorphous (7631-86-9)
IARC Monograph 68, 1997; Supplement 7, 1987

Carbon black (1333-86-4)
ACGIH A4 - Not Classifiable as a Human Carcinogen
IARC Monograph 65, 1996

Titanium dioxide (13463-67-7)
ACGIH A4 - Not Classifiable as a Human Carcinogen
IARC Monograph 47, 1989

Lead compounds including lead chromate (Not Available)
ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans (related to Lead)
IARC Supplement 7, 1987; Monograph 23, 1980 (evaluated as a group) (related to Lead)
NTP Reasonably Anticipated To Be A Carcinogen (related to Lead)

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available for product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Silicon dioxide, amorphous (7631-86-9)
96 Hr LC50 Brachydanio rerio: 5000 mg/L [static]
72 Hr EC50 Selenastrum capricornutum: 440 mg/L
48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L

Carbon black (1333-86-4)
24 Hr EC50 Daphnia magna: >5600 mg/L

Cobalt compounds (Not Available)
96 Hr LC50 Lepomis macrochirus: 752.4 mg/L [static]
30 min EC50 Pseudomonas putida: >10000 mg/L
24 Hr EC50 Daphnia magna Straus: >500 mg/L

Lead compounds including lead chromate (Not Available)
96 Hr LC50 Leuciscus idus: >10000 mg/L [static]
30 min EC50 Pseudomonas putida: >10000 mg/L
48 Hr EC50 water flea: 600 µg/L (related to Lead)

Antimony compounds (Not Available)
96 Hr LC50 Leuciscus idus: >10000 mg/L [static]

Environmental Fate
No information available for product.

* * * Section 13 - Disposal Considerations * * *

Disposal Instructions
Reuse or recycle material whenever possible. For disposal, characterize material in accordance with guidance under "US EPA Waste Number & Descriptions" and dispose of at an industrial landfill or other facility permitted to manage such material.

US EPA Waste Number & Descriptions

A: General Product Information
RCRA Status: Must be determined at time material is disposed. If material is disposed as waste, it must be characterized under RCRA according to 40 CFR, Part 261, or state equivalent in the U.S.

B: Component Waste Numbers
RCRA waste codes other than described under Section A may apply depending on use of product. Refer to 40 CFR 261 or state equivalent in the U.S.

* * * Section 14 - Transportation Information * * *

Special Transportation

	PSN #1	PSN #2	PSN #3	PSN #4
Proper Shipping Name:	Not regulated			
Hazard Class:	-			
UN NA Number:	-			
Packing Group:	-			
RQ:	-			
Other - Tech Name:	-			
Other - Marine Pollutant:	-			

* * * Section 15 - Regulatory Information* * *

Checked box(es) indicate that the chemical is subject to the associated regulatory requirements and/or appears on the associated chemical inventory list

Chemical Component: Aluminum			CAS # Proprietary	
40 CFR 261.33		CAA 40 CFR 112	TSCA inventory (US)	√
40 CFR 261 classified		SARA 40 CFR 311 and 312	AICS inventory (Australia)	√
RCRA Section 3001		SARA 40 CFR 372.65	EINECS inventory (Europe)	√
CERCLA RQ established		SARA 40 CFR 355	DSL inventory (Canada)	√
40 CFR 302.4		OSHA 1910 1000 Z-1 tables	ECL inventory (Korea)	√
wWA 40 CFR 311(b)(4)		OSHA 1910 subpart Z	ENCS inventory (Japan)	
CWA 40 CFR 307(a)			PICCS inventory (Phillipines)	√
			CHINA inventory	

Chemical Component: Aluminum			CAS # Proprietary	
40 CFR 261.33		CAA 40 CFR 112	TSCA inventory (US)	
40 CFR 261 classified		SARA 40 CFR 311 and 312	AICS inventory (Australia)	
RCRA Section 3001		SARA 40 CFR 372.65	EINECS inventory (Europe)	
CERCLA RQ established		SARA 40 CFR 355	DSL inventory (Canada)	
40 CFR 302.4		OSHA 1910 1000 Z-1 tables	ECL inventory (Korea)	
wWA 40 CFR 311(b)(4)		OSHA 1910 subpart Z	ENCS inventory (Japan)	
CWA 40 CFR 307(a)			PICCS inventory (Phillipines)	
			CHINA inventory	

Chemical Component: Polyethilen			CAS # Proprietary	
40 CFR 261.33		CAA 40 CFR 112	TSCA inventory (US)	√
40 CFR 261 classified		SARA 40 CFR 311 and 312	AICS inventory (Australia)	√
RCRA Section 3001		SARA 40 CFR 372.65	EINECS inventory (Europe)	
CERCLA RQ established		SARA 40 CFR 355	DSL inventory (Canada)	√
40 CFR 302.4		OSHA 1910 1000 Z-1 tables	ECL inventory (Korea)	√
wWA 40 CFR 311(b)(4)		OSHA 1910 subpart Z	ENCS inventory (Japan)	√
CWA 40 CFR 307(a)			PICCS inventory (Phillipines)	
			CHINA inventory	

* * * Section 16 - Other Information * * *

Disclaimer:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. The information above is provided on the condition that parties receiving the product make their own determination as to the suitability of the product for their particular purpose and assume the risk of use of the product. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. MULTIPANEL U.K. has no responsibility or liability for any damage or injury resulting from abnormal use or from any failure to adhere to recommended procedures. MULTIPANEL U.K. neither grants, nor shall the party receiving the product imply any authorization to practice any patented invention without a license.

Additional Comments

NA

Revision Notes:

ACB

<<<<< END OF MSDS>>>>>

ALUPANEL SPECIFICATIONS

Panel Dimensions	2mm	3mm	4mm
Panel Thickness	2	3	4
Aluminium Thickness		0.3	
Alupanel Weight	2.9	3.8	4.75
Standard Sizes	1220mmx2440mm 1500mmx3050mm	1220mmx2440mm 1500mmx3050mm 1500mmx4050mm	1500mmx3050mm 1500mmx4050mm
Dimensional Tolerances			
Thickness (mm)		- 0 + 0.2	
Width (mm)		±2	
Length (mm)		±3	
Diagonal (mm)		±5	
Thermal Expansion		2.4mm/m @100°C Temp Difference	
Aluminium Thickness (mm)		±0.02	
Surface Properties			
Paint Thickness (micron)		20	
Pencil Hardness		>HB	
Toughness of Coating		3T	
Temperature Resistance		-50oC to +90oC	
Impact Strength (kg cm2)		50	
Boiling Water Resistance		Boiling for 2hrs without change	
Acid Resistance		Immerse Surface in 2% HC1 for 24Hrs without change	
Alkali Resistance		Immersed surface in 2% NaOH for 24Hrs without change	
Oil Resistance		Immerse Surface in 20# engine oil for 24hrs without change	
Solvent Resistance		Cleaned 100 times with Dimethylbenzene without change	
Cleaning Resistance		>1000 times without change	
Peel Strength 180°		>5 Newton / mm	
Product Properties			
Sound Absorbtion NRC		0.05	
Sound Attenuation Rw db	23	24	25
Water Absorbtion % By Volume		0.01	
Thermal Performance R Values	0.0047	0.0057	0.0012
Core Composition		LDPE Polyethylene	
Fire Performance		Class 1 BS476 PT7 and Class O BS476 Pt 6 and 7 M1	

SGS

TEST REPORT

No. : GZML05110606
Date : Mar.03,2006
Page: 1 of 4

Multipanel UK Ltd

Office 4, Merriott House Hennock Road Marsh Barton Exeter Devon EX2 8NJ

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

Sample Name	:	ALUMINUM COMPOSITE PANEL
Manufacturer	:	Multipanel UK Ltd
Test Required	:	Flammability test.
Test Method	:	With reference to BS 476 Part 6 & Part 7
Date of Receipt	:	Nov.14,2005
Test Period	:	Nov.20,2005 to Jan.26,2006
Test result(s)	:	For further details, please refer to the following page(s)

******** To be continued********

Signed for and on behalf of
SGS-CSTC Standards
Technical Service Co., Ltd.

Michael Zhang
Senior Section Head

SGS

GZML 009363

Multipanel U.K. Ltd.

Aluminium Composite Panel

Multipanel U.K. Ltd

Unit 6, Oak Business Units
Thorverton Road
Matford
Exeter
Devon
EX2 8FS

Tel: 0044 (0)1392 823015
Fax: 0044 (0)1392 829502

Email: enquiries@multipaneluk.co.uk
www.multipaneluk.co.uk

Alupanel is available from the following stockist:

ALUPANEL
ALUPANEL
ALUPANEL