



تكنوبوند .. قطاع الكلاسيك

Techno Bond

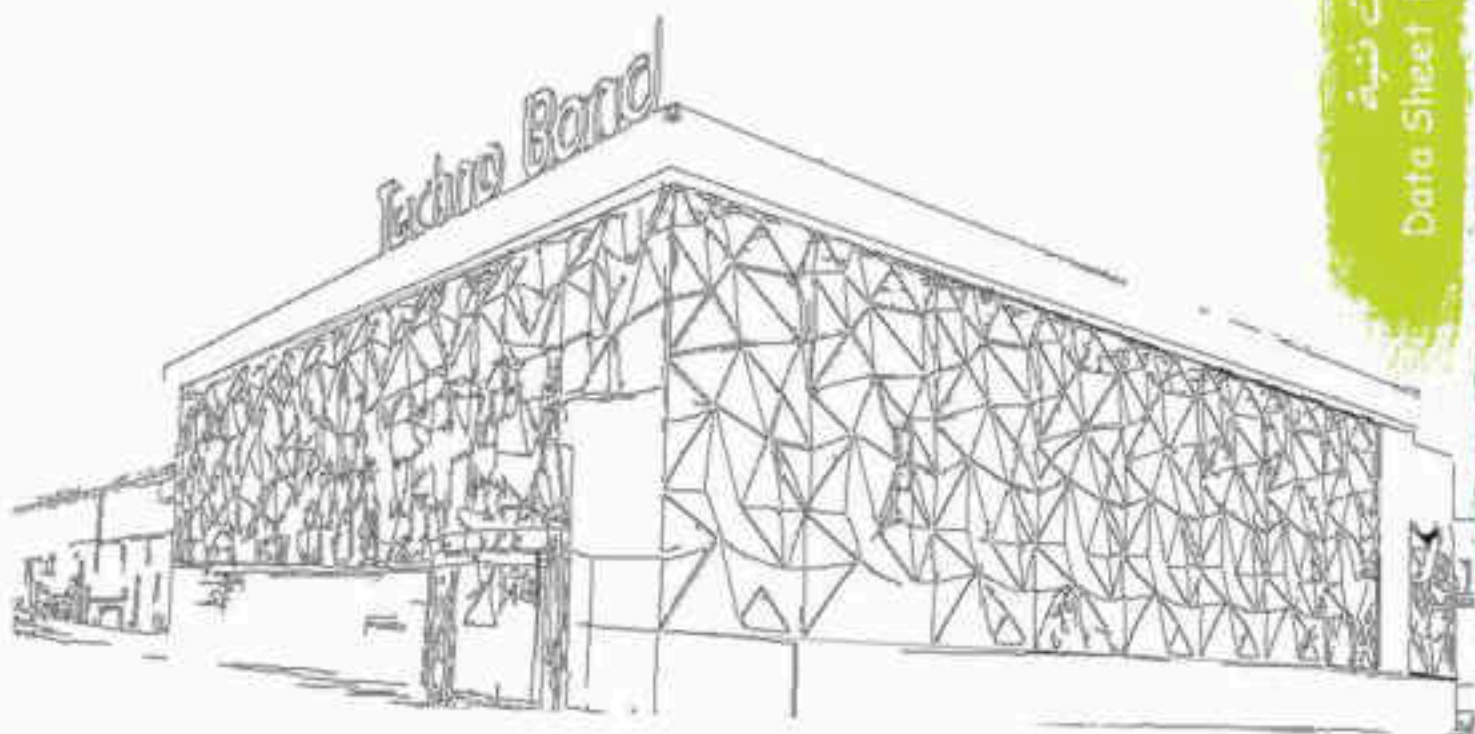
شركة ألواح الخليج

البيانات الفنية

تصنيف النوع

FR B1 = FR 3

بيانات فنية
Data Sheet FR B1 FR 3



Aluminium Composite Panels-Techno Bond

Techno Bond Copyright Version 2026-2027



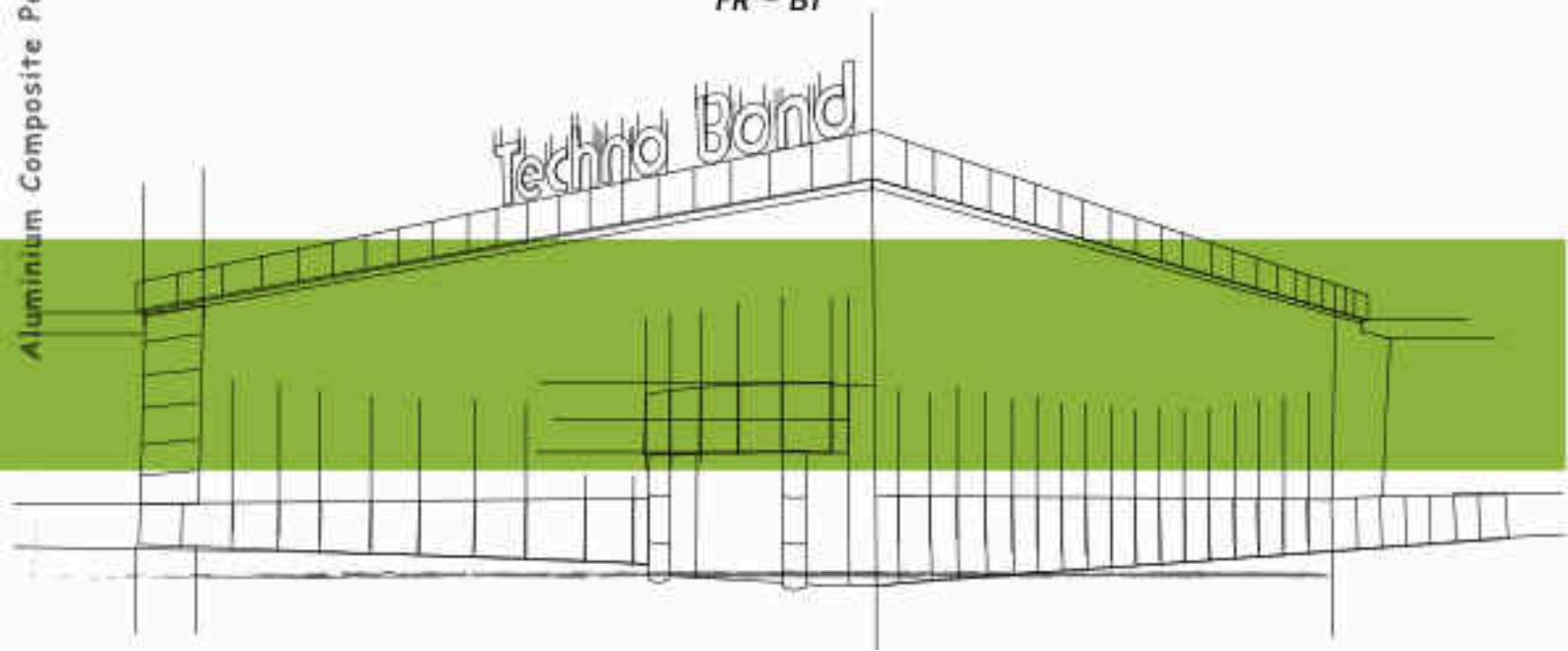
المواصفات الفنية لمنتج «تكنو بوند» المقاوم للحريق **B1**

Techno Bond is the most widespread in the Arab and African world the largest factory for producing cladding panels in the Middle East and Africa. In addition to advanced production lines with a production capacity of 7,000,000 square meters annually, a product approved by all government authorities in the Kingdom of Saudi Arabia and other countries, and the most widespread in the Kingdom of Saudi Arabia. The factory works around the clock to provide customers' requests in the fastest time. You are guaranteed for 20 years against manufacturing defects.

TECHNO BOND **Aluminium Composite Panels**

Technical Data Sheet
FR - B1

Aluminium Composite Panel - Techno Bond





Contents

Techno Bond Product Composition	5
• Typical Composition of TECHNO BOND Products	6
Techno Bond Standard Composition	7
• Physical Properties	8
• Mechanical Properties	9
• Thermal Conductivity	12
• U Value	12
• Sound Acoustic	13
• WEATHER RESISTANCE TEST	14
Techno Bond (FR B1) Behavior Against Fire	17
• Fire Performance	18
Processing Methods	20
Quality Certification	22
• SASO CERTIFICATES	23
• THOMAS BELL-WRIGHT CERTIFICATES	24
• Wimpey Laboratories LLC.	25
• ISO CERTIFICATES	74
• ISO Certificates	75
• ISO Certificates	76
• LEED CERTIFICATES	77
• Beckers-Spectrum CERTIFICATES	78
Production Steps	89
Finishing and Colours	93
Summary	97
WARRANTY CERTIFICATE	99

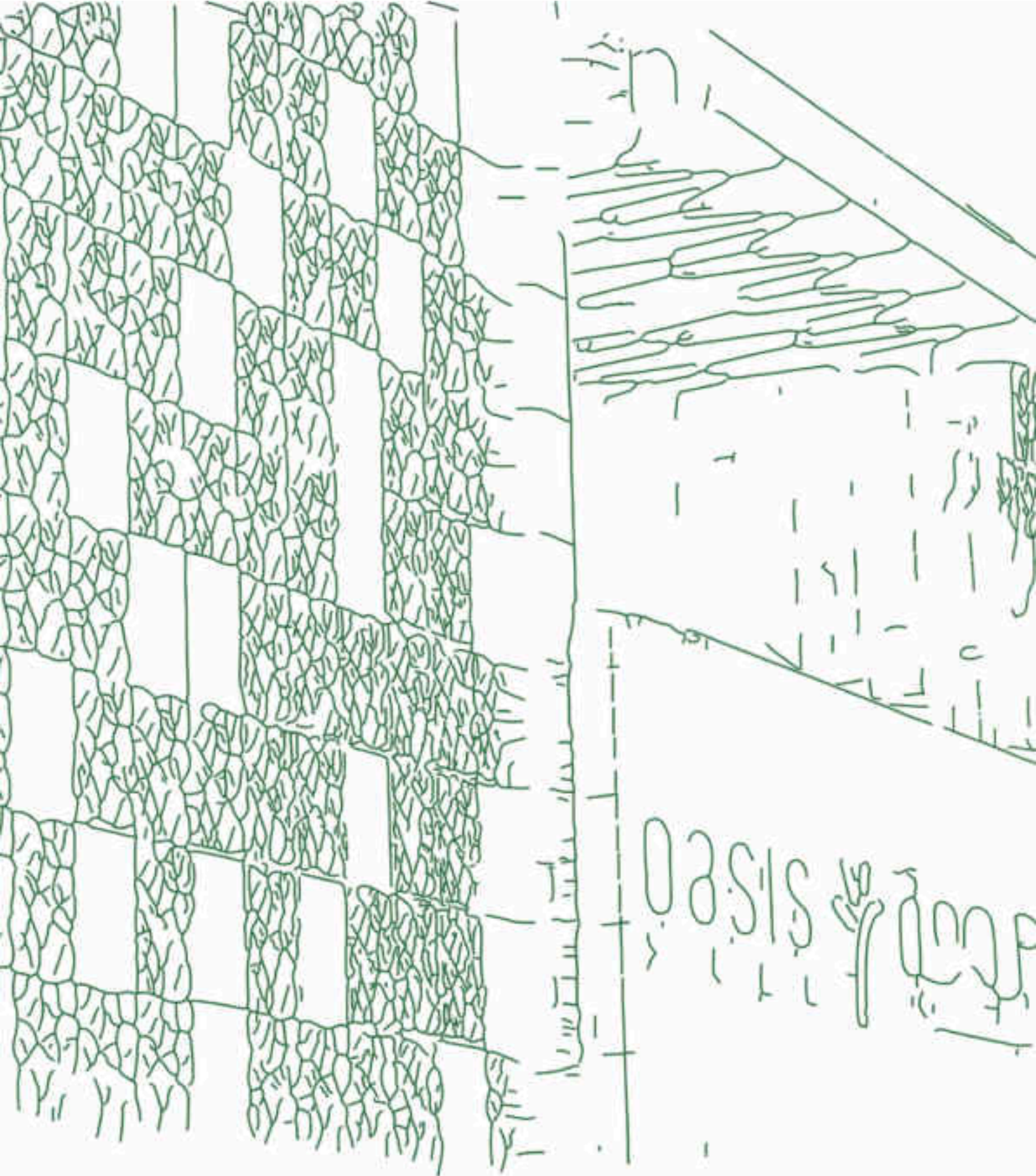


Figure 1

Figure 1



1 | Techno Bond Product Composition

Techno Bond B1 offers one of the most reliable products in the market today. Two 0.4mm thickness sheets of aluminium alloy 3003/5005 on top (coated with PVDF) and bottom (Primer Paint) are sandwiched with FR non-combustible inorganic mineral as core material. The core material is free of voids and air spaces, providing excellent corrosion resistance.

Techno Bond FR B1 Composition

TOP ALUMINUM SHEET

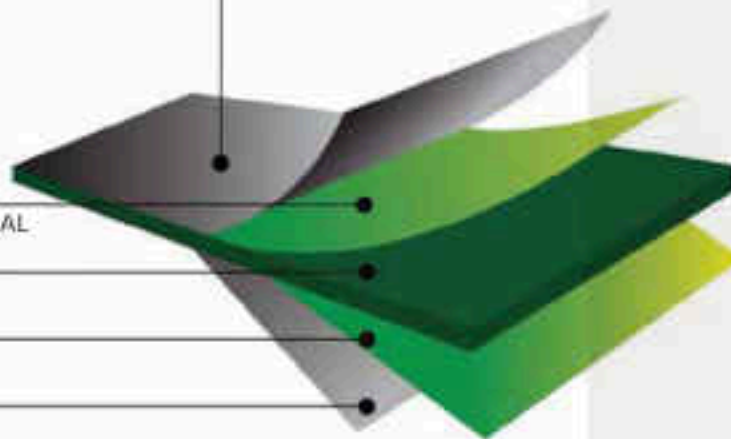
Protective Film
PVDF Coating
Primer

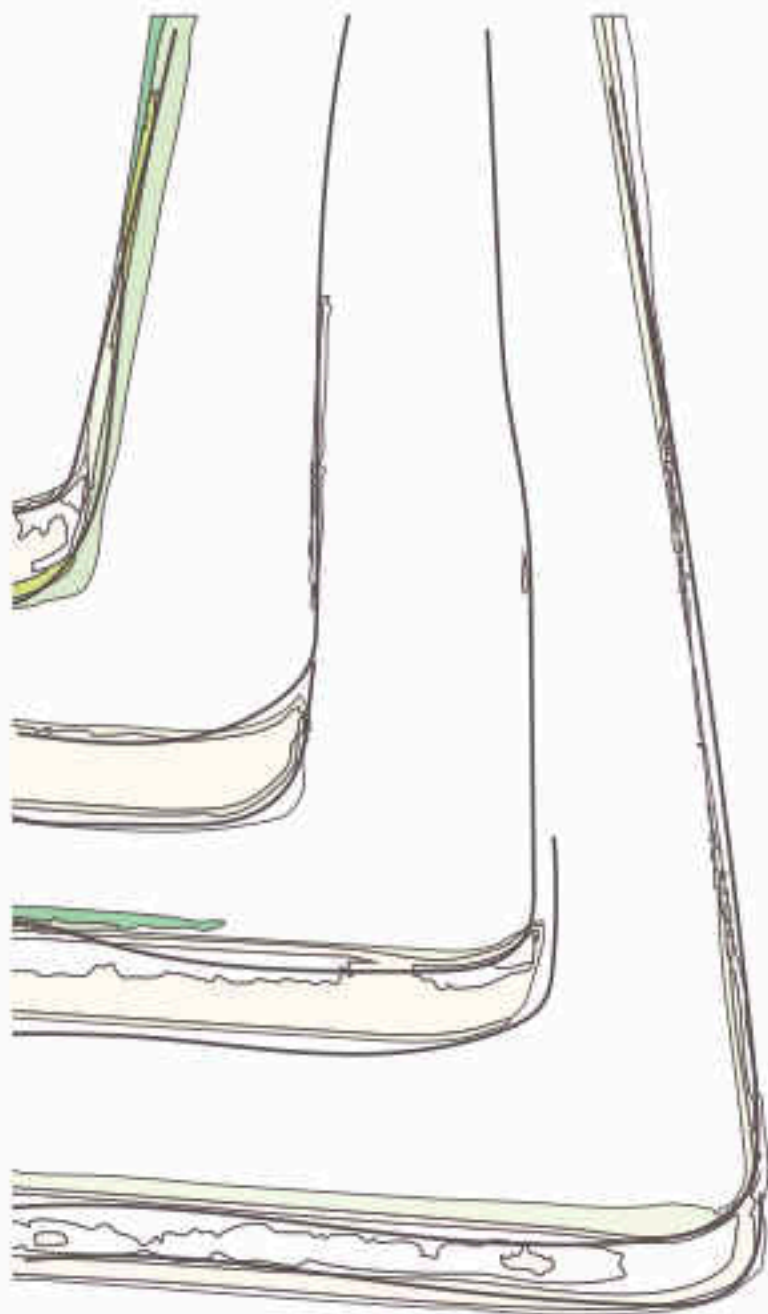
ADHESIVE

FILLED NON COMBUSTIBLE MINERAL
CORE TYPE (B1) + POLYETHYLENE

ADHESIVE

BOTTOM ALUMINUM
Protective Film
PVDF Coating
Primer





شركة ألواح الخليج

- Typical Composition of TECHNO BOND Products



2 Techno Bond Standard Composition

Thickness (tolerance ± 0.2 mm)	Standard width (tolerance ± 0.2 mm)	Bow tolerance
4 mm	1000, 1500, 1575mm	0.8% Of any 1828mm panel dimension
Skin Thickness	Length (tolerance ± 2.0 mm)	Squareness tolerance
0.4mm - 0.5mm	2440, 3660, 4200mm	Max 5.0mm



ACP Panel Dimensions

Length
 5800 (Standard)
 2440 (Non Standard)
 3660 (Non Standard)
 4200 (Non Standard)

Width
 1250(Standard)
 1000(Non Standard)
 1500(Non Standard)
 1575(Non Standard)



ACP Panel Sizes



Panel Tolerances

● Physical Properties

Techno Bond B1 Characteristics

Description	Technobond B1		Unit	Method
Thickness	0.4	0.5	mm	Calliper
Weight	7 - 7.5	7.20 - 8.20	Kg/m ²	Calibrated weighing device
Density	1.95		Kg/m ³	Calculated Value
Specific gravity	1.9		-	Calculated Value
Surface spread of flame	Class 1		-	BS 476: Part 7: 1997
Adhesion	No Cracks		-	ISO 7438:2016



• Mechanical Properties

Mechanical Properties for Aluminum Skin According to ASTM standards

Description	Standard	Unit	Avg. Result
Skin Thickness	Calliper	mm	0.4 - 0.5
Alloy	ASTM B209M	-	3003 - 5005 H26
Modulus of Elasticity	ASTM B209M	N/mm ²	69000
Yield Strength	ASTM B209M	N/mm ²	145
Tensile Strength	ASTM B209M	N/mm ²	180-200
Elongation	ASTM B209M	%	3.4

Mechanical Properties for Composite Panel According to ASTM standards

Description	Standard	Unit	Avg. Result
Section modulus	ASTM C393	cm ³ /m	1.55
Rigidity	ASTM D790	kN cm ² /m	1600-1850
Yield strength	ASTM E8	N/mm ²	34-40
Tensile strength	ASTM E8	N/mm ²	44-45
Elongation	ASTM E8	%	> 3.84%
Linear thermal expansion	ASTM D696	2.4mm/m for temperature difference @ 100° C	

Mechanical Properties of the Aluminum Skin According to DIN Standards

Description	Standard	Unit	Method
Skin Thickness	Calliper	mm	0.5
Alloy	DIN 1745-1	-	3.0517
Modulus of Elasticity	DIN 1745-1	N/mm ²	69000
Yield Strength	DIN 1745-1	N/mm ²	140-165
Tensile Strength	DIN 1745-1	N/mm ²	170-210
Elongation	DIN 1745-1	%	3.9

Mechanical Properties of the Composite Panel According to DIN Standards

Description	Standard	Unit	Method
Section modulus	DIN 53293	cm ³ /m	1.52
Rigidity	DIN 53293	kN cm ² /m	1700-1950
Yield strength	DIN 53293	N/mm ²	34-40
Tensile strength	DIN 53293	N/mm ²	44- 45
Elongation	DIN 53293	%	>3.84%
Linear thermal expansion	DIN 53293	2.32mm/m for temperature difference @ 100° C	



Mechanical Properties of the Aluminum Skin According to EN Stan-

Description	Standard	Unit	Method
Skin Thickness	Calliper	mm	0.5
Alloy	EN 573-3	-	EN AW/ 3003 - 5005
Modulus of Elasticity	EN 485-2:2008	N/mm ²	70000
Yield Strength	EN 485-2:2008	N/mm ²	142-150
Tensile Strength	EN 485-2:2008	N/mm ²	175-190
Elongation	EN 485-2:2008	%	3.6

Mechanical Properties of Composite Panel According to EN Standards

Description	Standard	Unit	Method
Section modulus	EN 14509	cm ³ /m	1.54
Rigidity	EN 14509	kN cm ² /m	1650-1900
Yield strength	EN 14509	N/mm ²	34-40
Tensile strength	EN 14509	N/mm ²	44-45
Elongation	EN 14509	%	>3.84%
Linear thermal expansion	EN 14509	2.4mm/m for temperature difference @ 100° C	

• Thermal Conductivity

VV₂₂

Material	Thermal Conductivity (W/m K)
4mm Techno Bond FRB1	0.45
Solid Aluminum	205
Steel	50.2
Polyurethane	0.02
Glass wool	0.04
Brick	0.28
Concrete	0.80
Gypsum board	0.13
0°C	0.024

• U Value

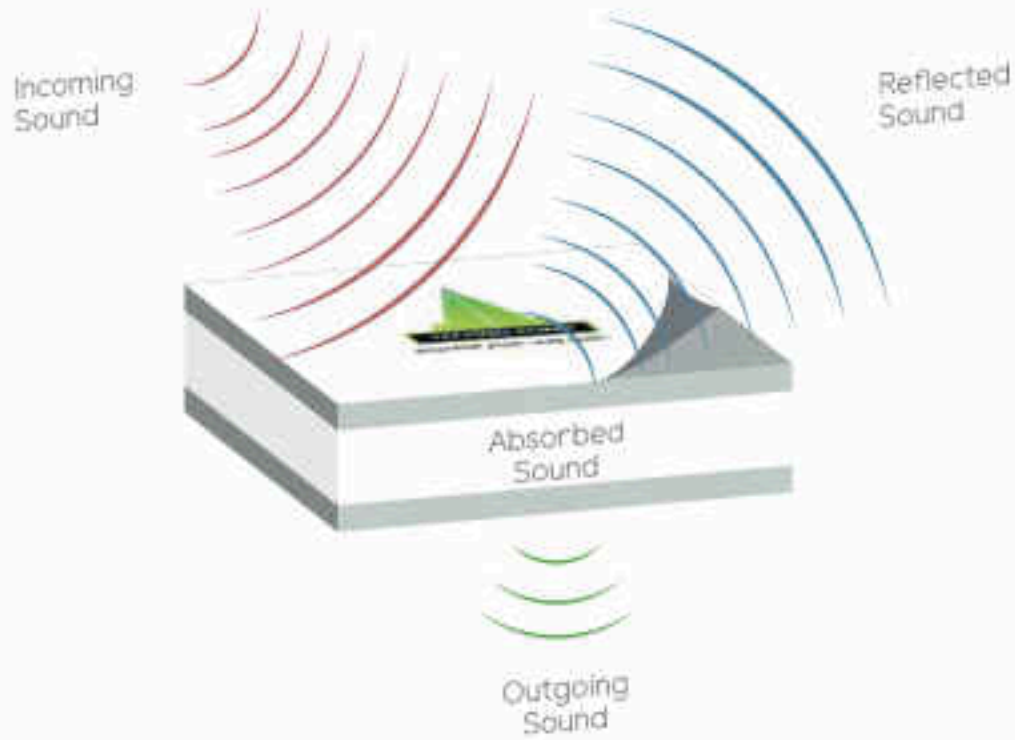
Thermal Properties - Techno Bond U-Value

Panel Thickness	Thermal Resistance $1/L = R$ (m ² K/W)	Heat Transmittance Coefficient (U-Value) (W/m ² ·K)
3mm	0.0069	5.65
4mm	0.0103	5.54
6mm	0.0172	5.34



• Sound Acoustic

Techno Bond cladding panels have a high sound transmission class according to the ASTM E413 standard, with an estimated value of 20-27 dB.



WEATHER RESISTANCE TEST

TECHNO BOND WEATHER RESISTANCE

intertek

Total Quality Assured

Test Report

Issue Date: 2021-10-11

Intertek Report No. 2107080035HF-001

Test Items, Method and Results

Test Item: Resistance to artificial weathering - Fluorescent UV lamps

Test Sample: UV Test (Coating test)

Test Method: ASTM D4587-11(2019) Cycle 4

Light Source: UVA-340

The Exposure cycle:

1) 8 hours dry, Irradiance: 0.89 W/m^2 at 340 nm, Black-panel temperature: $60^\circ\text{C} \pm 2.5^\circ\text{C}$

2) 4 hours condensation, Irradiance: UV lamps off, Black-panel temperature: $50^\circ\text{C} \pm 2.5^\circ\text{C}$

Test Duration: 2000 hours

Test Result:

Exposure time	ΔL^*	Δa^*	Δb^*	ΔE^*	Grey scale	Observation
2000 hours	1.08	0.02	-0.06	1.08	4-5	Part showed slight color change

LTD. 2021-10-11 14:00:00



After test



Features of Technobond Products



Fire Proofing



ECO Friendly



Corrosion Proofing



Various Designs



Fast Application



Easy Maintenance



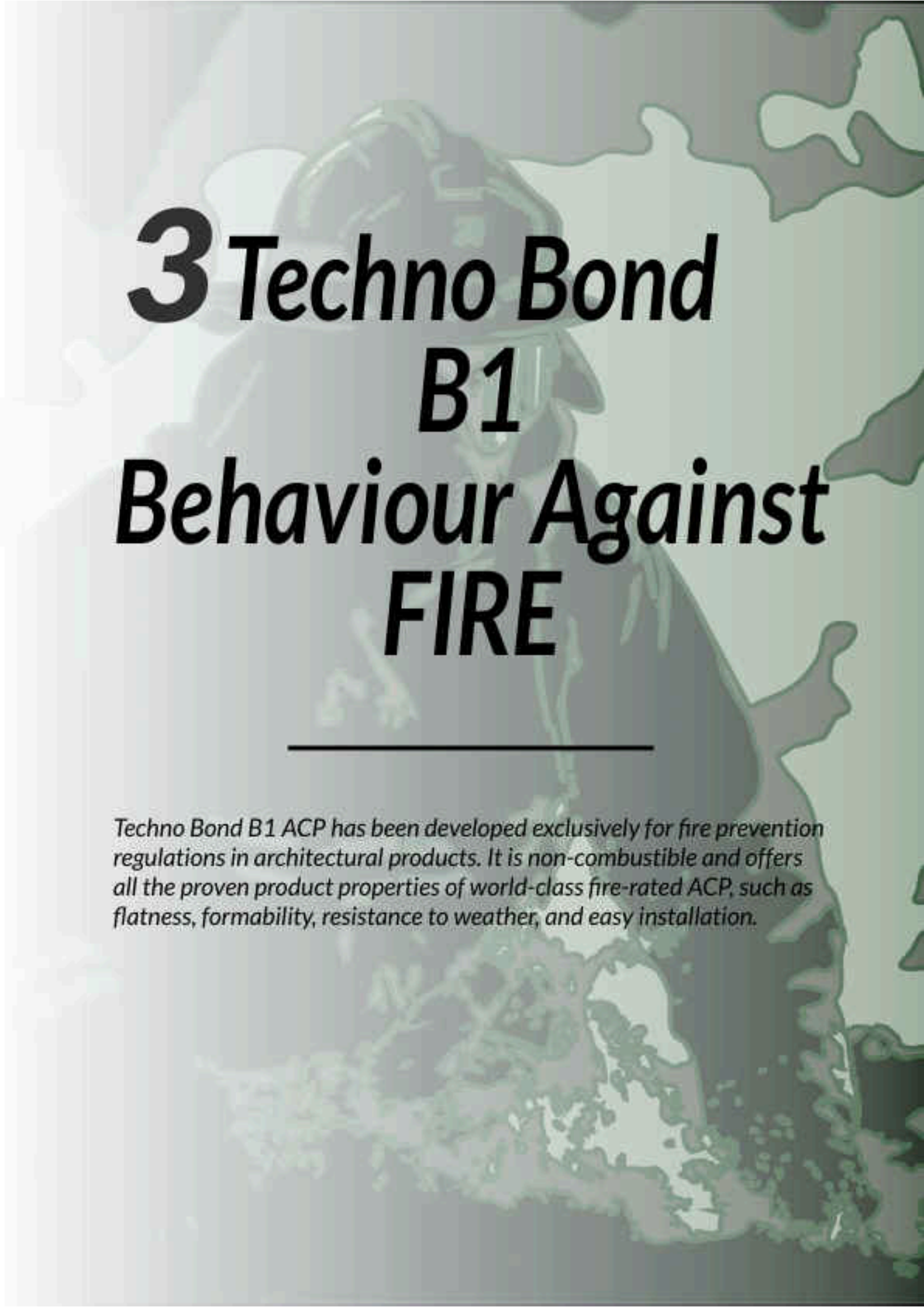
Oil Resistance



Custom Colours



Pollution Resistance



3 Techno Bond B1 Behaviour Against FIRE

Techno Bond B1 ACP has been developed exclusively for fire prevention regulations in architectural products. It is non-combustible and offers all the proven product properties of world-class fire-rated ACP, such as flatness, formability, resistance to weather, and easy installation.



Techno Bond (FR B1) Behavior Against Fire

1. Fire is restricted when in contact with the non-combustible mineral-filled core
2. No droplets are formed, as per international standard tests, which helps keep fire under control. As Techno Bond B1 panels do not fall off its place, it also works as barrier to prevent oxygen from reaching fire.
3. Panels do not fall off, and act as a barrier preventing oxygen from reaching the fire
4. Despite offering high fire safety, the panels maintain their original properties such as:
Flatness
Strength
Durability
Easy maintenance
5. Completely free of radiation and smoke-free

Simple installation



INTERNAL OR EXTERNAL FIRE INCIDENT

Techno Bond B1

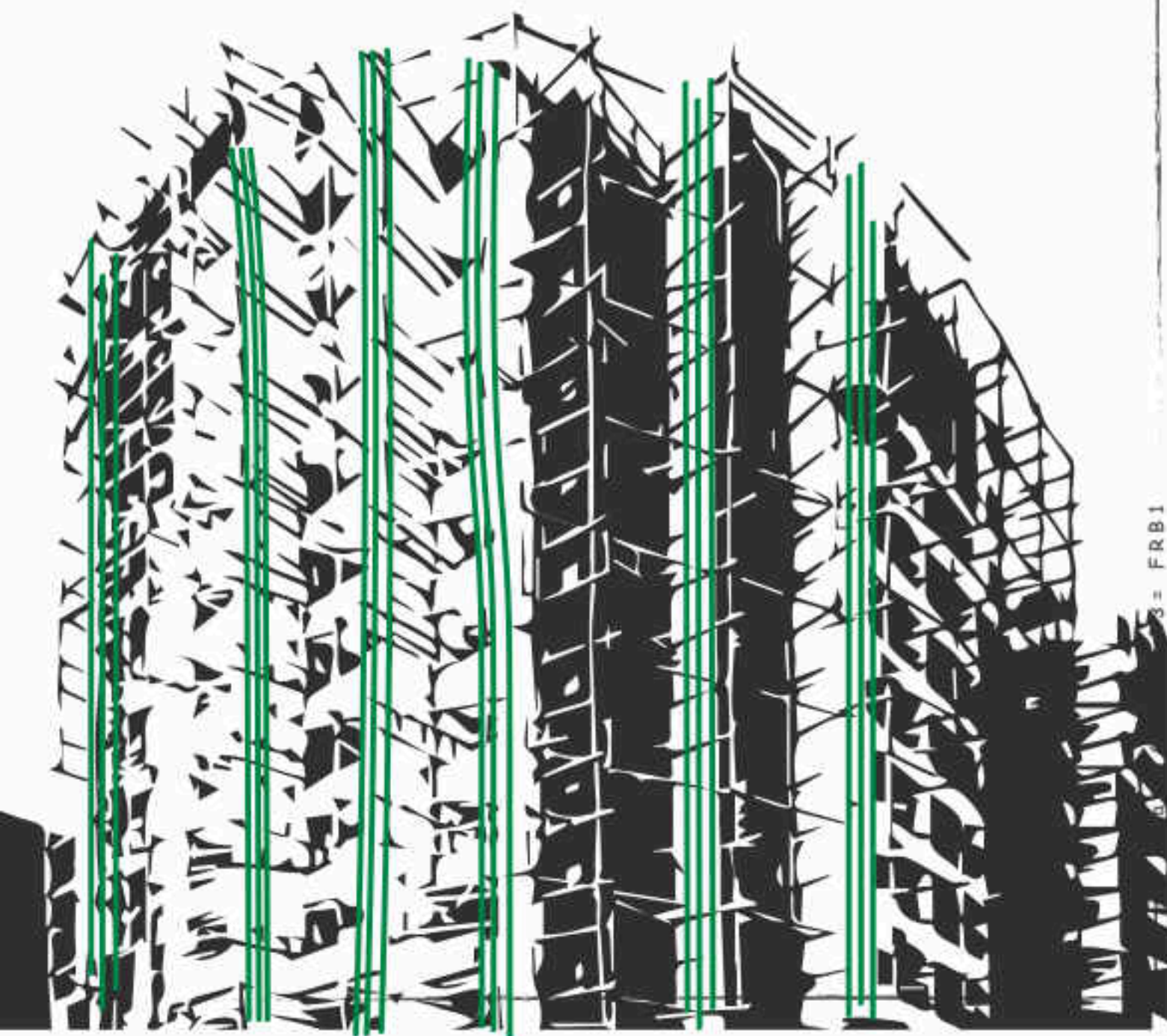


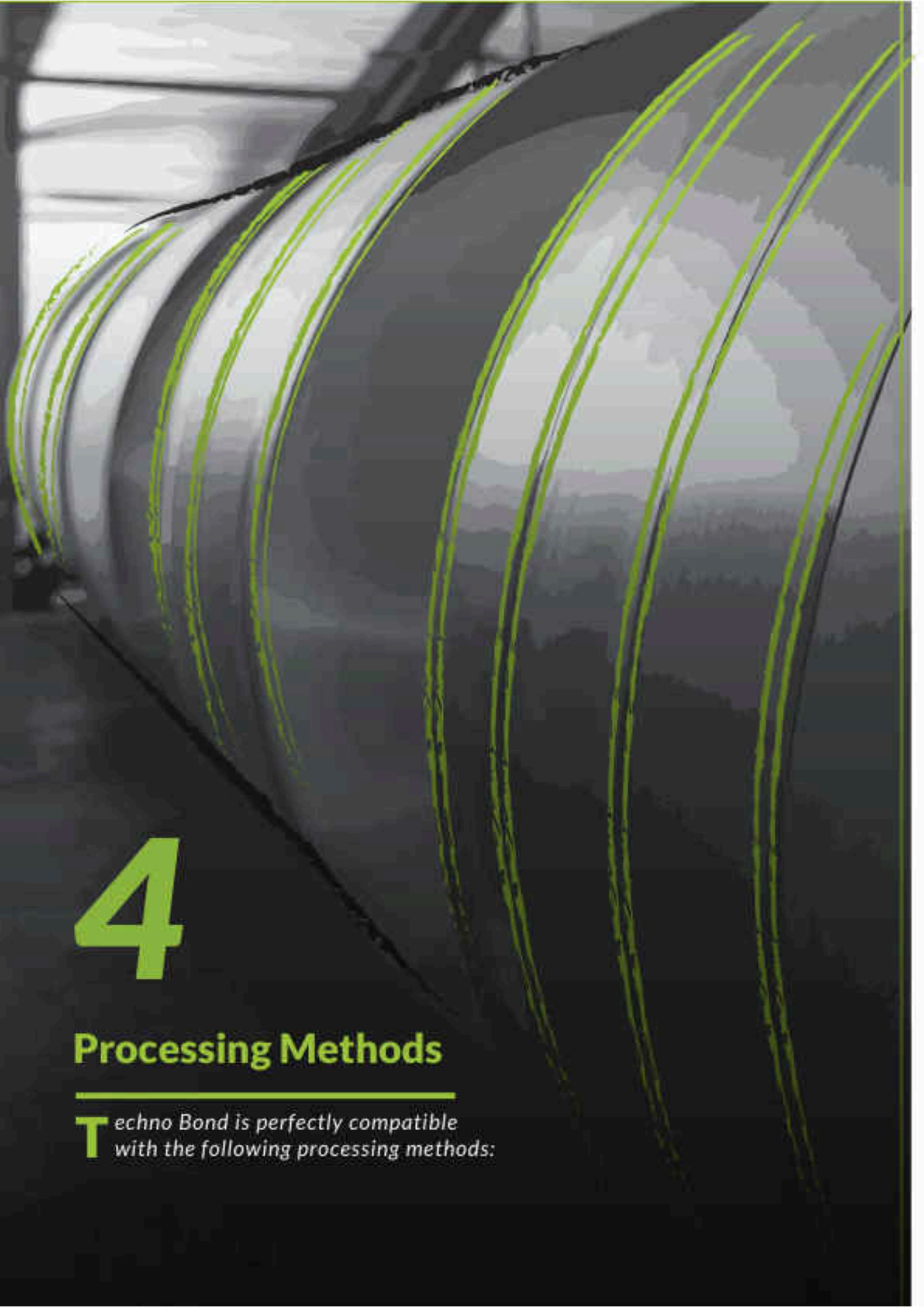
Regular ACP



• Fire Performance

Thickness	4	mm	Calliper
Core Thickness	3	mm	Calliper
Core Material	High mineral filled inorganic non-combustible		
Combustible Ingredients Within Core Material	< 10	%	
Flash-ignition Temperature	520	°C	ASTM D1929
Self-ignition Temperature	530	°C	ASTM D1929
Shear Strength	1,025	psi	ASTM D732
Thermal resistance	0.063	m ² K/W	ASTM C518-15
Heat transmittance coefficient	5.54	W/m ² K	ASTM C518-15
Linear thermal expansion	116	/m.°C	ASTM D696-16
Thermal conductivity	0.103	W/m-K	ASTM C518-15
Heat Deflection	115	°C	ASTM D648





4

Processing Methods

Techno Bond is perfectly compatible with the following processing methods:



5 Quality Certification

أهم شهادات جودة شركة ألواح الخليج
« تكنوبوند » للنوع المقاوم للحريق فئة

FR-B1
2025-2026



SASO CERTIFICATES



الهيئة السعودية للمواصفات والمقاييس والجودة
Saudi Standards, Metrology and Quality Org.

شهادة ترخيص باستخدام علامة الجودة License For Use of The Quality Mark

رقم الترخيص: 20250717281 License Number:

أشكر الهيئة السعودية للمواصفات والمقاييس والجودة (SASO) على منحها ترخيصاً باستخدام علامة الجودة (SASO Quality Mark) على المنتجات التالية، بعد استيفاء المتطلبات المطلوبة وفقاً للمراجع المرجعية ذات الصلة.

المستفيد:	شركة ألواح البلاط الصناعية شركة شخص واحد
عنوان المنشأة:	شارع العميد 3155، حي الفيصلية، وحدة رقم 1، مخرج IV، الرياض 12882-7638، السعودية
موقع خط الإنتاج:	الرياض - حي الفيصلية
المراجع القياسية:	SASO-2752-2019
العلامة التجارية:	TECHNO BOND
المنتج:	ألواح الألومنيوم المركبة للتخسبات الخارجية والتشطيبات الداخلية
تاريخ منح:	2025/05/12
تاريخ التجديد:	-
تاريخ الانتهاء:	2028/05/12

مدير عام الإدارة العامة لشهادات
Director General of Certification Department

المهندس / خالد بن محمد القملة
Eng. Khalid M. Alnamiah



يُطلب من المستفيد التحقق من صحة هذه الشهادة على الموقع الإلكتروني للهيئة السعودية للمواصفات والمقاييس والجودة (SASO) وأن أي تغيير أو تعديل في هذه الشهادة يؤثر على صحتها.

الهيئة العامة للمواصفات والمقاييس
Saudi Standards, Metrology and Quality Org.

الهاتف: 11671 11671
Fax: 11671 11671

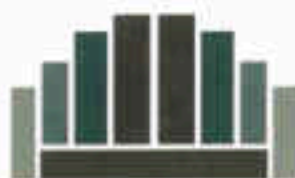
T: 011009085
F: 011009085

054-44128 1636
1388/2024

www.saso.gov.sa
info@saso.gov.sa



• THOMAS BELL-WRIGHT CERTIFICATES



THOMAS BELL-WRIGHT
A POWER GROUP COMPANY



In accordance with IAS accreditation to ISO/IEC 17065
Certification is Hereby Granted
to

Alwah Alkhaleej Industrial Co.

Al-Ameedd St., Al-Faisaliyah Dist., Riyadh,
12881, Kingdom of Saudi Arabia

for

"Techno Bond FR-B1"

4 mm thick Aluminium Composite Panel

(BS EN 13501-1:2018, ASTM E84-23d, and ASTM D1929-23)

which, subject to limitations described on the following pages and continued
listing on www.tbwcert.com, complies with Product Certification Scheme

*SD03 Exterior Wall Assemblies, Curtain Walls, Building Materials,
Products & Assemblies*

In witness whereof, this Certificate is issued this 2nd day of July 2025



Sandy Dweik

Sandy Dweik
Chief Executive Officer

Nicholas Purcell

Nicholas Purcell
Director of Certification

Certificate Number: TBW0301148

Initial registration: July 2, 2025

Issued: July 2, 2025

Expiration: July 1, 2028

File Name: YH123_CRT_SD03RX_FR-B1_Issue_1148_11

Issue 1

This certificate and schedules are held in force for regular factory inspections by Thomas Bell-Wright International Consultants (TBWIC).
Refer to www.tbwcert.com or contact TBWIC Certification Division to validate the current status of the Certification.
This certificate remains a property of Thomas Bell-Wright International Consultants.
P.O. Box 20285, Dubai, UAE | Tel: +971 4 625 1111 | Email: certification@bellwright.com | Web: www.bellwright.com
This document must not be reproduced without the express permission of Thomas Bell-Wright International Consultants.
© TBWIC Scheme Certificate issue & issued Mar 2024



Wimpey Laboratories LLC.



مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS ASTM E 84-19 AS PER SASO 2752:2019

ALWAH AL KHALEJ INDUSTRIAL CO
KINGDOM OF SAUDI ARABIA.

Sample Description	Aluminium Composite Panel
Lab Report No.	WD-R-240311-0649
Sample No.	WD-S-240311-0629
Date Received	11/03/2024
Date Tested	26/04/2024
Date Reported	10/05/2024
Classification	FR B1 = FR 3





مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

Report No: WD-R-240311-0649

(Page 2 of 7)

10/05/2024

Sample No: WD-S-240311-0629

INTRODUCTION

Determination of the flame spread index and the smoke developed index of Aluminium Composite Panel, as per ASTM E84; Standard Test Method for Surface Burning Characteristics of Building Materials as per SASO 2752:2019 specification.

SPECIMEN DESCRIPTION

The description of the specimen given below has been prepared from information provided by the client:

Product description	Aluminium Composite Panel
Manufacturer	ALWAH AL KHALEEJ INDUSTRIAL CO
Trade Name	Technobond
FR Class	FR B1 = FR 3
Aluminum panels Thickness0020	0.5 mm
Total panel thickness	4.0mm



شؤون: ٢٢٧١١٢٢٢ • فاكس: ٢٢٧١١٢٢٢ • بريد إلكتروني: info@wimpeylab.com • الموقع الإلكتروني: www.wimpeylab.com
 تليفون: ٢٢٧١١٢٢٢ • فاكس: ٢٢٧١١٢٢٢ • بريد إلكتروني: info@wimpeylab.com • الموقع الإلكتروني: www.wimpeylab.com
 TEL: +971 4 3273123 • FAX: +971 4 2365008 • P.O.BOX: 123276 • DUBAI • UNITED ARAB EMIRATES
 E-mail: info.dub@wimpeylab.com Website: www.wimpeylab.com



10/05/2024

No. of panels	8
Dimensions per panel	Panel 1-7: 1000 x 600 x 4.0mm (l x w x thk) (measured) Panel 8: 395 x 600 x 4.0mm (l x w x thk) (measured)
Total dimension	7395 x 600 x 4.0mm (measured)
Specimen Placement	The eight (8) panels of 4.0 mm thick Aluminium Composite Panel were butt jointed end-to-end. The test specimen was placed directly to the tunnel ledges with the top side (fire side) towards the flame source

METHOD OF TEST

1) Placing of test specimen

The test specimen consisted of eight (8) panels of 4.0mm thick Aluminium Composite Panel. The dimensions per panel was 1000 x 600 x 4.0mm (l x w x t), 395 x 600 x 4.0mm (l x w x t) and was butt jointed end-to-end. The total dimension of the specimen was 7395 x 600 x 4.0mm (l x w x t).

2) Test Method

The specimen was placed in the ceiling position, supported horizontally on the ledges of the Steiner Tunnel. The top side (fire side) was exposed face down to the ignition source during the 10-minute test duration.

Flame Spread and Smoke Density were measured, and the results were compared against standard calibration materials (fiber-cement board, heptane and red oak flooring).

3) Conditioning

The specimen was stored in room temperature for 7 days prior to the test ranging from 20.2°C to 25.8°C and 45% to 55% relative humidity.



الهاتف: ٥٧١ | ٣٣٧٣٣٣ • الفاكس: ٥٧١ | ٣٣٧٣٣٣ • ج.ب. ١٢٣٣٩ • دبي • الإمارات العربية المتحدة
TEL: +971 4 3373333 • FAX: +971 4 3363308 • P.O. BOX 123379 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dubai@wmsayleah.com Website: www.wmsayleah.com



Report No: WD-R-240311-0649
Sample No: WD-S-240311-0629

(Page 4 of 7)

10/05/2024

Observation

The Data and Observation

Observation	
Ignition Time (min:sec)	None
Time to the maximum flame front advance (min:sec)	None
Maximum flame spread (ft)	None
Time to end of tunnel reached (min:sec)	Not Reached
Maximum temp recorded at the exposed thermocouple located near the end of the tunnel (°F/°C)	563/295
Dripping (min:sec)	None
Flaming on the floor (min:sec)	None
After flame on the top (min:sec)	None
After flame on the floor (min:sec)	None
Delamination (min:sec)	None
Sagging (min:sec)	None
Shrinkage (min:sec)	None
Max FS Time (min)	9.08
FS*Time Area (ft*min)	None
Smoke Area (%A*min)	230
Red Oak Smoke Area (%A*min)	84.6

4) Summary of Results

The test specimen has been evaluated in accordance with ASTM E84-21a Standard Test Method for Surface Burning Characteristics of Building Materials.

The test results are:

Parameter	Result	Specification as per SASO 2752:2019
FLAME SPREAD INDEX (FSI)	55	51 - 75
SMOKE DEVELOPED INDEX (SDI)	250	< 450
CLASSIFICATION AS PER ASTM E84-21a	B	
CLASSIFICATION AS PER SASO 2752:2019	FR3-ACP (B S1 d0)	

Results are valid for tested configuration only



شماره تماس: +971 4 3075123 • فاكس: +971 4 3075308 • P.O BOX 120279 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dxb@wimpeylab.com Website: www.wimpeylab.com



مختبرات ويمبي ش.ذ.م.
WIMPEY LABORATORIES L.L.C.

Report No: WD-R-240311-0649
Sample No: WD-S-240311-0629

(Page 5 of 7)

10/05/2024

Classification

The following information is designed to help put these test results into context. Flame Spread Index and Smoke Developed Index results from an ASTM E84 test are often used by regulatory agencies to approve materials for various application. For example, the International Building Code 2018, Section 803.1.2 requires that:

Interior wall and ceiling finish materials shall be classified in accordance with ASTM E84 or UL 723- 10th Ed. 2008. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class

Class A: Flame spread index 0 - 25; smoke-developed index 0 - 450.

Class B: Flame spread index 26 - 75; smoke-developed index 0 - 450.

Class C: Flame spread index 76 - 200; smoke-developed index 0 - 450.

5) Limitations

Testing of materials that melt, drip or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by the testing materials that remain in place.

Remark: The tested sample meets the requirements as per SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C

S. Srath Kumar
Head of Department
Tested by: SC*



Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

* subcontracted to civil defense approved laboratory

-End of text-



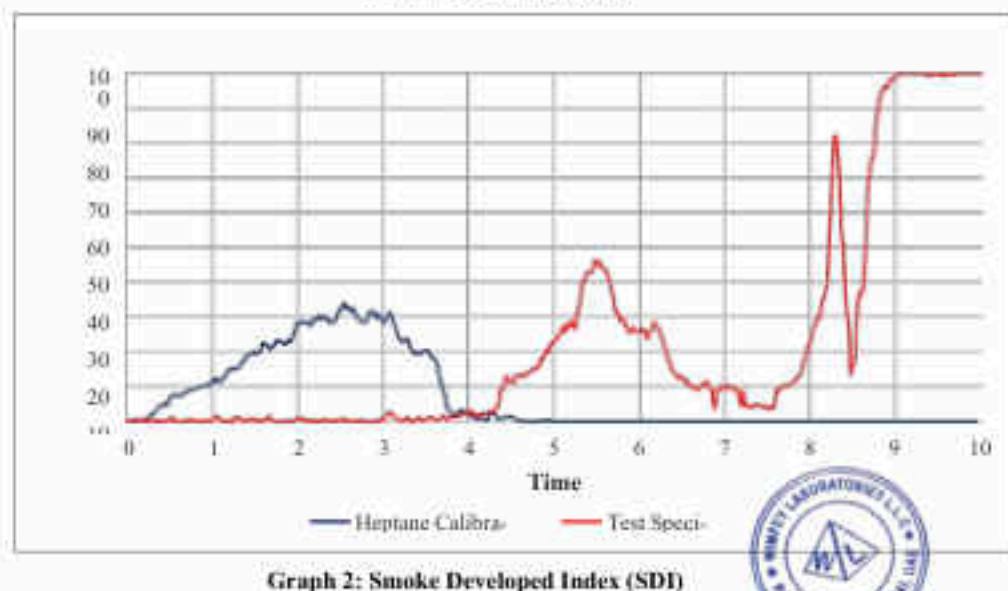
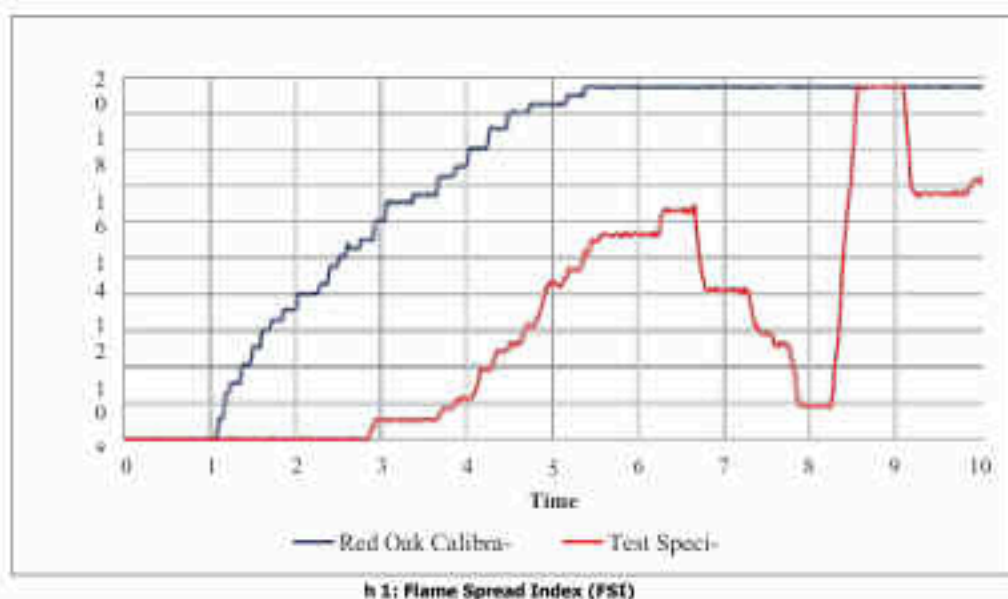
مختبرات ويمبي ش.ذ.م.م
WIMPEY LABORATORIES LLC

Report No: WD-R-240311-0649
Sample No: WD-S-240311-0629

(Page 6 of 7)

10/05/2024

ANNEX 1 – GRAPHS



شعبان ١٤٤٥ هـ / ١٠ / ٢٠٢٤ م
تلفون: +٩٧١ ٤ ٣٢٧٣١٢٣ • فاكس: +٩٧١ ٤ ٢٣٨٥٣٠٨ • ب.خ. ١٢٣٢٧٩ • د.ب. • الإمارات العربية المتحدة
E-mail: info.dub@wimpeylab.com • Website: www.wimpeylab.com



مختبرات ويمبي ش.ذ.م.
WIMPEY LABORATORIES LLC

Report No: WD-R-240311-0649
Sample No: WD-S-240311-0629

(Page 7 of 7)

10/05/2024

ANNEX 1 – PHOTOS

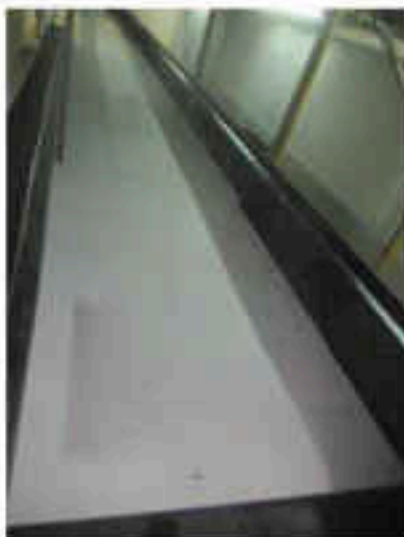


Photo 1: Specimen before the test.
(Non-Fire Side)



Photo 2: Specimen before the test.
(Fire Side)



Photo 3: Specimen after the test.
(As seen from the fire-end)



Photo 4: Specimen after the test.
(As seen from the exhaust end)



مختبرات ويمبي ش.م.م.
WIMPEY LABORATORIES L.L.C.

CLASSIFICATION OF REACTION TO FIRE PERFORMANCE IN ACCORDANCE WITH EN 13501-1:2007+A1:2009

**ALWAH AL KHALEEJ INDUSTRIAL CO
KINGDOM OF SAUDI ARABIA.**

Sample Description	Aluminium Composite Panel
Lab Report No.	WD-R-240311-0651
Sample No.	WD-S-240311-0631
Date Received	11/03/2024
Date Tested	26/04/2024
Date Reported	30/04/2024
Classification	FR B1 = FR 3



تلفون: +971 4 2271117 • فاكس: +971 4 2271227 • ص.ب: 123279 • دبي • الإمارات العربية المتحدة
TEL: +971 4 2271117 • FAX: +971 4 2271227 • P.O.BOX: 123279 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dxb@wimpeylab.com Website: www.wimpeylab.com



Report No: WD-R-240311-0651
Sample No: WD-S-240311-0631

(Page 2 of 4)

30/04/2024

INTRODUCTION

This classification has been made in compliance with the procedures provided in Standard EN 13501-1:2007+A1:2009: "Classification in terms of the behavior to fire of construction products and building elements. Part 1: Classification made from the data gathered during fire reaction tests".

SPECIMEN DESCRIPTION

The description of the specimen given below has been prepared from information provided by the client.

Product description	Aluminium Composite Panel
Manufacturer	ALWAH AL KHALEEJ INDUSTRIAL CO
Trade Name	Technobond
FR Class	FR B1 = FR 3
Aluminum panels Thickness	0.5 mm
Total panel thickness	4.0 mm
Coating Type	PVDF Coating





مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

Report No: WD-R-240311-0651
Sample No: WD-S-240311-0631

(Page 3 of 4)

30/04/2024

METHOD OF TEST

1) Conditioning

The specimen was stored in room temperature for 7 days prior to the test ranging from 20.2°C to 25.8°C and 45% to 55% relative humidity.

TEST RESULTS

The Data and Observation

Test Method	Parameter	Specification as per SASO 2752:2019	Result	Compliance
EN ISO 11925:2011	$F_s \leq 150\text{mm}$ within 60s	-	$F_s < 150\text{mm}$	Yes
	Ignition of Paper		No	
EN 13823:2012+A1:2016	$FIGRA_{0.2\text{MJ}} \leq 120 \text{ W/s}$	$FIGRA_{0.2\text{MJ}} \leq 120 \text{ W/s}$	0.00	Yes
	LFS, m	LFS < edge of the sample	< edge of specimen	Yes
	THR600s 7.5 MJ	THR600s $\leq 7.5 \text{ MJ}$	0.30	Yes
	$SMOGR_A \leq 30 \text{ m}^2/\text{s}^2$	$SMOGR_A \leq 30 \text{ m}^2/\text{s}^2$	0.00	Yes
	$TSP600s \leq 50 \text{ m}^2$	$TSP600s \leq 50 \text{ m}^2$	30.32	Yes
	Fall of drop-lets/particles in flames within 600 s	-	NO flaming droplets / particles occur with 600 s	Yes





مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

Report No: WD-R-240311-0651

(Page 4 of 4)

30/04/2024

Sample No: WD-S-240311-0631

1) CLASSIFICATION

The product, ACP FR3, related to their fire reaction behavior, is classified as:

Fire Behavior	Smoke Production		Drops In Flames	
B	S	1	d	0

Results are valid for tested configuration only.

Field of Application

Products with commercial reference: Technobond FR3 are manufactured in different thicknesses, with the thickness of the core layer as a variable parameter. After performing the test with the smallest thickness 4 mm, noting that the results comply with the same classification, by extension it is concluded that:

The product range Technobond FR3 with a thickness 4 mm is included in the following Class

Fire Reaction Classification as per SASO 2752:2019
CLASS B-s1,d0 – FR3 ACP

2) Limitations

This classification standard does not represent any type approval neither a product Certification

Remark: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C

S.Sarath Kumar
Head of Department

Tested by: SC*

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

* subcontracted to civil defense approved laboratory



-End of text-



مختبرات ويمبي ش.ذ.م.
WIMPEY LABORATORIES L.L.C.

ANNEXURE – A

PHOTOS



Before Test



After Test

تلفون: +971 4 3273123 • فاكس: +971 4 2385308 • ب.ص. 123279 • دبي • الإمارات العربية المتحدة
TEL: +971 4 3273123 • FAX: +971 4 2385308 • P.O.BOX: 123279 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dxb@wimpeylab.com Website: www.wimpeylab.com



مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES LLC

Test Method for Determining Ignition Temperature ASTM D1929-20 AS PER SASO 2752:2019

**ALWAH AL KHALEEJ INDUSTRIAL CO
KINGDOM OF SAUDI ARABIA.**

Sample Description	Aluminium Composite Panel
Lab Report No.	WD-R-240311-0650
Sample No.	WD-S-240311-0629
Date Received	11/03/2024
Date Tested	11/04/2024
Date Reported	14/05/2024
Classification	FR B1 = FR 3



تلفون: +971 4 3273123 • فاكس: +971 4 2385308 • P.O BOX: 123279 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dxb@wimpeylab.com Website: www.wimpeylab.com

TEST REPORT ON SELF IGNITION TEMPERATURE

Client	Alwah Al Khaleej Industrial Co (Techno Bond)		
Sample No	WD-S-240311-0630	Report No	WD-R-240311-0650
Date Received	11/03/2024	Test Completion Date	11/03/2024 – 13/05/2024
Tested by	SC	Date Reported	14/05/2024

Introduction

Further to the request received from **M/s Alwah Al Khaleej Industrial Co (Techno Bond)**, dated 11th of March 2024, the below mentioned sample was tested for Self ignition temperature as per - ASTM D1929-20 as per SASO 2752:2019

Product Details

Product Description	Technobond
Nominal size declared:	125 X 580 x 0.5 cm
Aluminum sheet Alloy Grade:	Alloy 3000 series
Aluminum panels Thickness	0.5
Total Panel Thickness	4
Coating Type:	PVDF

METHOD OF TEST

1) Test Procedure

The test specimen were evaluated in accordance with ASTM D1929-20, Standard test method for determining ignition temperature of plastics

Flash ignition temperature (FIT) and spontaneous ignition temperature (SIT) was then determined.

2) Conditioning

Test specimen was stored in room temperature for a minimum of 40 hours prior to the test ranging from 21 to 25°C and 45 to 55% relative humidity.





Report No WD-R-240311-0650

TEST OBSERVATIONS

Observation	Results
Flash Ignition	
Airflow rate, Q_a	2.4
Flash ignition at nozzle, min:sec	2:58
Flaming combustion of the specimen, min:sec	2:50
Glowing combustion of the specimen, min:sec	Not Observed
Explosion, min:sec	Not Observed
Rapid rise in temperature T_1 above that of T_2	Not Observed
Lowest Air Temperature T_2 at which flash observed, °C	390
Spontaneous Ignition	
Airflow rate, Q_a	2.5
Flaming combustion of the specimen, min:sec	3:30
Glowing combustion of the specimen, min:sec	Not Observed
Lowest Air Temperature T_2 at which flash observed, °C	387

SUMMARY OF RESULTS

The test specimen has been evaluated in accordance with ASTM D1929-20, Standard test method for determining ignition temperature.

The test results are:

FLASH IGNITION TEMPERATURE (FIT), °C	390
SPONTANEOUS IGNITION TEMPERATURE (SIT), °C	387
Specifications as per SASO 2752:2019	≥ 343



Results relate only to the specimen tested and there is no pass or fail criteria for ASTM D1929-20. Standard

الهاتف: ٩٧١ ٤ ٣٣٧٦١٣٣ • الفاكس: ٩٧١ ٤ ٣٣٦٥٢٠٨ • ص.ب: ١٣٣٧٩ • دبي • الإمارات العربية المتحدة
TEL: +971 4 3377323 • FAX: +971 4 3365308 • P.O.BOX: 123379 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dab@wimpexlab.com Website: www.wimpexlab.com



Report No WD-R-240311-0650

LIMITATIONS

"These test results relate only to the behavior of test specimens under the particular conditions of the test. They are not intended to be used, and shall not be used, to assess the potential fire hazards of a material in use." - Clause 9.1.10 of ASTM D1929-20.

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S.Sarith Kumar
Head of Department

Test results relate only to the samples tested

This report shall not be reproduced except in full, without the written approval of the laboratory.

This test was done by subcontracting



-End of text-



ANNEXURE – A

TEST PHOTOS



Before Test



After Test



TEST METHOD FOR RATE OF BURNING AND/OR EXTENT AND TIME OF BURNING OF PLASTICS IN A HORIZONTAL POSITION ASTM D635-22 AS PER SASO 2752:2019

**ALWAH AL KHALEEJ INDUSTRIAL CO
KINGDOM OF SAUDI ARABIA.**

Sample Description	Aluminium Composite Panel
Lab Report No.	WD-R-240311-0651
Sample No.	WD-S-240311-0629
Date Received	11/03/2024
Date Tested	11/04/2024
Date Reported	14/05/2024
Classification	FR B1 = FR 3





TEST REPORT ON RATE OF BURNING

Client	Alwah Al Khaleej Industrial Co (Techno Bond)		
Sample No	WD-S-240311-0630	Report No	WD-R-240311-0651
Date Received	11/03/2024	Test Completion Date	11/04/2024
Tested by	SC	Date Reported	14/05/2024

Introduction

Further to the request received from **M/s Alwah Al Khaleej Industrial Co (Techno Bond)**, dated 11th of March 2024, the below mentioned sample was tested for Rate of Burning as per ASTM D635-22 as per SASO 2752:2019

Product Details

Product Description	Technobond
Nominal size declared:	125 X 580 x 0.5 cm
Aluminium sheet Alloy Grade:	Alloy 3000 series
Aluminum panels Thickness	0.5
Total Panel Thickness	4
Coating Type:	PVDF

Category Designation

The behavior of specimens shall be classified HB (HB = horizontal burning) if, a.) There is no visible signs of combustion after the source is removed, or b.) The flame front does not pass the 25 mm reference mark, or c.) The flame front passes the 25 mm reference mark but does not reach the 100 mm reference mark, or d.) The flame front reaches the 100 mm reference mark and the linear burning rate does not exceed 40 mm/min for specimens having a thickness between 3 and 13 mm or 75 mm/min for specimens having a thickness less than 3 mm.

Conditioning

Test specimen was stored in room temperature for a minimum of 40 hours prior to the test ranging from 21 to 25°C and 45 to 55% relative humidity.



Report No WD-R-240311-0651

TEST PROCEDURE

All conditioning of test specimens and test conditions were at standard laboratory conditions unless otherwise reported. Refer to the test related photos in Section 9. Calibration certificates available upon request. ASTM D635, Rate of Burn The linear rate of burn of the material was determined utilizing a laboratory burner (ICN: Y002875) inside of a fire hood (ICN: 005985). A specimen was supported horizontally at one end and exposed to a gas flame at the free end for 30 seconds. After 30 seconds or when the flame contacted the 25-mm mark, the gas flame was removed from the specimen, and the rate of burn was measured with a timer until the flame contacted the 100-mm mark or the flame self extinguished

TEST OBSERVATIONS

Test Results						
Sample No.	Did Flame Reached 25 mm mark less than 30 seconds (Yes/No)	If 'Yes' duration of the flame (seconds)	If continues to burn after removal of the test flame		Linear burning rate (V)	Result
			Duration of the test flame between 25 to 100mm mark (seconds)	Damaged length (mm)		
1	No	-	N/A	N/A	-	P
2	No	-	N/A	N/A	-	P
3	No	-	N/A	N/A	-	P
Self extinguishing properties with burn rate					< 10mm	P
Category Designation:		HB (HB = horizontal burning)				
Calculations : Linear burning rate $V = (60L/t)$ mm/min.						
V is the linearburning rate in mm/minute						
L - damaged length, in millimeters						
t - time, in seconds						

Results relate only to the specimen tested and there is no pass or fail criteria for ASTM D635-22, Standard.

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-





Report No WD-R-240311-0650

ANNEXURE – A

TEST PHOTOS



METHODS OF EXPOSURE TO LABORATORY LIGHT SOURCES

SASO ISO 16474-2:2015 AS PER SASO 2752:2019

**ALWAH AL KHALEEJ INDUSTRIAL CO
KINGDOM OF SAUDI ARABIA.**

Sample Description	Aluminium Composite Panel
Lab Report No.	WD-R-240311-0651
Sample No.	WD-S-240311-0629
Date Received	11/03/2024
Date Tested	11/03/2024 – 13/05/2024
Date Reported	14/05/2024
Classification	FR B1 = FR 3





TEST REPORT ON ACCELERATED WEATHERING

Client	Alwah Al Khaleej Industrial Co (Techno Bond)		
Sample No	WD-S-240311-0630	Report No	WD-R-240311-0650
Date Received	11/03/2024	Test Completion Date	11/03/2024 – 13/05/2024
Tested by	SU	Date Reported	14/05/2024

Introduction

Further to the request received from **M/s Alwah Al Khaleej Industrial Co (Techno Bond)**, dated 11th of March 2024, the below mentioned sample was tested for Condensation by means of Condensation apparatus as per SASO ISO 16474-2:2015 as per SASO 2752:2019

Product Details

Product Description	Technobond
Nominal size declared:	125 X 580 x 0.5 cm
Aluminum sheet Alloy Grade:	Alloy 3000 series
Aluminum panels Thickness	0.5
Total Panel Thickness	4
Coating Type:	PVDf

Test Results

Light source: Xenon-arc lamps
Test duration: 1500 Hours

Test		Result	Standard Requirements as per SASO 2752/2019	Remark
Accelerated Weathering	Color change, ΔE	0.99	≤ 3	Pass
	Gloss change	4	≤ 10	Pass
	Other ageing performance	No Change	No change	Pass

Remarks: None.

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-

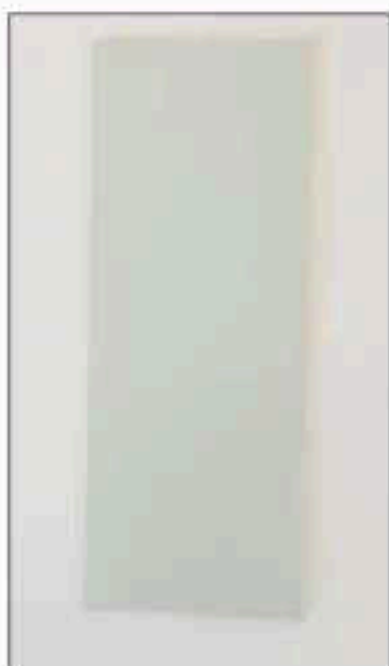


مختبرات ويمبي ش.ذ.م.م
WIMPEY LABORATORIES L.L.C.

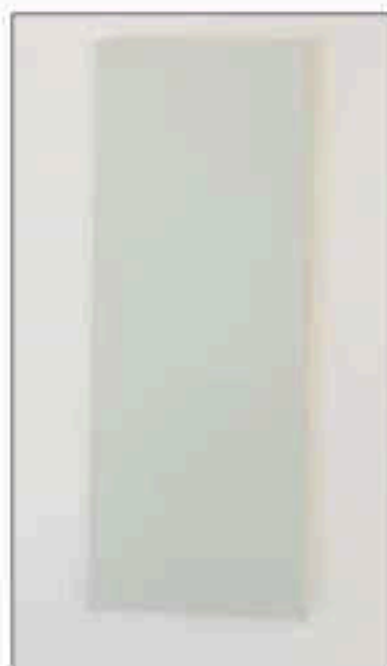
Report No. WD-R-240311-0650
Sample No. WD-S-240311-0630

ANNEXURE – A

SAMPLE PHOTOS



Before Test



After Test



تليفون: +971 4 2222122 • فاكس: +971 4 2222123 • بريد إلكتروني: info.dxb@wimpeylab.com • الموقع الإلكتروني: www.wimpeylab.com
الإمارات العربية المتحدة • دبي • 1111111 • 1111111 • 1111111 • 1111111
TEL: +971 4 2222122 • FAX: +971 4 2222123 • P.O. BOX: 123279 • DUBAI • UNITED ARAB EMIRATES
E-mail: info.dxb@wimpeylab.com Website: www.wimpeylab.com

**TEST REPORT ON DRUM PEEL**

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/19
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	13/01/2024
Test Method	ASTM D1781	Date Reported	15/01/2024
Room Temperature	23 °C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

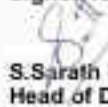
Test Results

No. of Specimen	Width (mm)	Thickness (mm)	Result (kg/25mm)
1	25.0	4.21	129.5
2	25.0	4.18	124.6
3	25.0	4.19	120.2
4	25.0	4.20	128.4
5	25.0	4.21	131.3
Average			126.8
Standard Requirements as per SASO 2752			>100 N.mm/mm

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019.

Signed for and on behalf of Wimpey Laboratories L.L.C.


S. Sarath Kumar
Head of Department



Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory
-End of text-

TEST REPORT ON THERMAL CONDUCTIVITY

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/20
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	16/01/2024
Test Method	ASTM C518-21	Date Reported	19/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Thermal conductivity	W/mk	0.0611
Standard Requirements as per SASO 2752		≤4.5W/mk

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Issued for and on behalf of Wimpey Laboratories L.L.C


Sarath Kumar
Head of Department



These results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



مختبرات ويمبي ش.م.م.
WIMPEY LABORATORIES L.L.C.

TEST REPORT ON LINEAR THERMAL EXPANSION

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/7
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Sample Reference	N.G	Date Received	23/12/2023
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Tested	13/01/2024
Test Specification	SASO 2752:2019.	Date Reported	15/01/2024
Test Method	ASTM D696-16	Relative Humidity	50%
Room Temperature	23°C	Tested By	SP

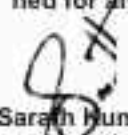
Test Results

Test	Unit	Result
Linear Thermal Expansion	$\mu\text{m}/\text{m}^{\circ}\text{C}$	89.5
Standard Requirements as per SASO 2752:2019		$\leq 200 \mu\text{m}/\text{m}^{\circ}\text{C}$

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm.
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Issued for and on behalf of Wimpey Laboratories L.L.C.


Sarah Humar
Head of Department



Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-

TEST REPORT ON CHEMICAL RESISTANCE

	Alwah Al Khaleej Trading Co (Techno Bond)		
	N.G	Lab Report No.	WD-R-231223-0371/16
	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
	SASO 2752:2019.	Date Tested	11/01/2024
	SASO ISO 2812-1:2014	Date Reported	15/01/2024
	23°C	Sampled Reference	N.G
	50%	Tested By	SP

	Unit	Result
stance	-	No Change
stance	-	No Change
tance	-	No Change
sistance	-	No Change
Standard Requirements as per SASO 2752		No Change

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

parameter meets the standard requirements of SASO 2752:2019

half of Wimpey Laboratories L.L.C.



the samples, and reproduced except in full, without the written approval of the laboratory.
-End of text-



مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

TEST REPORT ON COATING THICKNESS

Client	Alwath Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/9
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Sample Reference	N.G	Date Received	23/12/2023
Client	Alwath Al Khaleej Trading Co (Techno Bond)	Date Tested	27/12/2023
Test Specification	SASO 2752:2019	Date Reported	15/01/2024
Method	ISO 2360:2012	Relative Humidity	50%
Room Temperature	23°C	Tested By	SP

Results

Front Wall (Front Face)

Weld Metal (Tensile Test)		
Test	Unit	Result
Coating Thickness	Microns	33.5
		32.6
		30.6
		31.4
		32.7
Average		32.2
Standard Requirements as per SASO 2752:2019		≥30µm

Back Wall (Back Face)

Air Wall (Back Face)		
Test	Unit	Result
Coating Thickness	Microns	24.5
		23.8
		25.2
		24.7
		26.1
Average		24.9
Standard Requirements as per SASO 2752:2019		≥23μm

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019
Issued for and on behalf of Wimpey Laboratories L.L.C.


Ravi Kumar
Head of Department

Results relate only to the samples tested.
Report shall not be reproduced except in full, without the written approval of the laboratory.
-End of text-



TEST REPORT ON PENCIL HARDNESS

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/10
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019	Date Tested	28/12/2023
Test Method	SASO GSO ISO 15184:2015	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Pencil Hardness	-	3H
Standard Requirements as per SASO 2752:2019		≥HB

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C

S. Saran Kumar
Head of Department

Test results relate only to the sample tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.
-End of text-



**TEST REPORT ON 180° PEEL STRENGTH**

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/5
Sample Description	Aluminum Composite Panel	Request No.	WD-Q-231223-0112
Sample Reference	N.G	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019	Date Tested	23/12/2023
Test Method	SASO ISO 8510-2:2008	Date Reported	15/01/2024
Test Temperature	23° C	Wimpey Ref No	23122303
Relative Humidity	50%	Tested By	SP

Test Results

Sample Reference	Width (mm)	Maximum Load (N)	Peel Strength (N/mm)
WD-S-231223-0371	25	233.5	9.34
	25	262.5	10.5
	25	230.8	9.23
	25	257.5	10.3
	25	241.0	9.64
Average		245.1	9.80
Standard Requirements as per SASO 2752:2019			≥ 9 N/mm

Designation	Type: FR 3 = FR B1 Aluminum Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.


S. Sarath Kumar
Head of Department



Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



TEST REPORT ON SELF IGNITION TEMPERATURE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/24
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752-2019	Date Tested	25/01/2024
Test Method	SASO ASTM D1929:2015	Date Reported	03/02/2024
Room Temperature	23°C	Sampled By	N.G
Relative Humidity	50%	Tested By	SC

Test Results

Test	Unit	Result
Self Ignition Temperature	°C	371
Standard Requirements as per SASO 2752-2019		≥ 343

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.
This test was done by subcontracting



-End of text-



TEST REPORT ON STAIN RESISTANCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/15
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019	Date Tested	12/01/2024
Test Method	SASO ISO 11998:2007	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Stain Resistance	%	1.2
Standard Requirements as per SASO 2752		≤5%

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.
-End of text-



TEST REPORT ON APPEARENCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/2
Sample Description	Aluminum Composite Panel	Request No.	WD-Q-231223-0112
Sample Reference	N.G	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019	Date Tested	28/12/2023
Test Temperature	23°C	Date Reported	15/01/2024
Relative Humidity	50%	Tested By	SP
Wimpey Ref No	23122303		

Test Result

Test	Unit	Test Method	Result	Standard Requirements as per SASO 2752:2019
Appearance	-	SASO ISO 4628/ SASO ASTM D2244	ACP was clean visually free from scratches, stains, concaves and convexes. Both faces of the panel didn't have revealed plastics. No blemishes, wave, bubbles, spot, cut or defects observed - Satisfactory	Fire-Retardant Aluminum Composite Panels (FR-ACP) shall be clean, visually free from scratch, stains, concaves and convexes. The coatings shall not have any missing part, wave, bubbles, spot, cut or damage going through the coatings. Both faces of the panel shall not have revealed plastics.

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S.Sarath Kumar
Head of Department



Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of Test-

**TEST REPORT ON GLOSS**

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/8
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Sample Reference	N.G	Date Received	23/12/2023
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Tested	27/12/2023
Test Specification	SASO 2752:2019	Date Reported	15/01/2024
Test Method	SASO ISO 2813:2015	Relative Humidity	50%
Room Temperature	23°C	Tested By	SP

Test Results

Test	Unit	Result
Gloss deviation	-	2.6
Standard Requirements as per SASO 2752:2019		≤10

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



TEST REPORT ON FIRE RETARDANT PROPERTIES

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/24
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752-2019	Date Tested	25/01/2024
Room Temperature	23°C	Date Reported	03/02/2024
Relative Humidity	50%	Tested By	SC

Test Results

Test	Test Method	Unit	Result
Surface Burning	SASO ASTM E84:2018	-	SDI = 248 FSI = 41
Single Flame	SASO ISO 11925-2:2014	-	With 30s exposure time, no flame spread observed in excess of 150 mm vertically from the point of application of the test flame within 60 s from the time of application. - Pass
Thermal Attack	13823:2019+A1:2014	m ² /s ²	SMOGR - 17
		m ²	TSP600s - 25
		W/s	MJ = 82
			THR600s = 2.9MJ
			FIGRA0.2 = 90 W/s
		-	No signs of flaming, droplets/particles occur within 600 s & no signs of lateral flame spread (LFS) to the edge of the specimen

TEST REPORT ON
PACKING AS PER SASO

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The above tested Parameters meets the standard requirements of SASO 2752-2019.

Signed for and on behalf of Wimpey Laboratories LLC

S. Sarath Kumar
Head of Department

Test results relate only to the sample tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This test was done by subcontracting

-End of text-



TEST REPORT ON IMPACT RESISTANCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/13
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Test Specification	SASO 2752:2019.	Date Received	23/12/2023
Test Method	ISO 6272-2 : 2014	Curing Time	N.A
Mass of Falling Weight	1kg	Date Tested	05/01/2024
Height of test	100cm	Date Reported	15/01/2024
Method of Application	N.A	Test Temperature	23°C
Coating Thickness	27 microns	Relative Humidity	50%
Substrate Used	Metal Panels as per ISO 1514:2016	Test Type	Pass/Fail test using specified mass.
Sampled Reference	N.G	Tested By	SP

Test Result

Test	Observation	Result
Impact Resistance	No Peel off or crack observed when 1 kg weight is dropped at a height of 100 cm	Pass
Standard Requirements as per SASO 2752:2019		≥1kg,100cm no peel off, no cracks

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarathi Kumar
Head of Department

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

- End of text -

TEST REPORT ON PACKING

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/18
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	10/01/2024
Test Method	SASO 2752:2019.	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Packing	-	Marking is labelled on the back side of each panel
Standard Requirements as per SASO 2752		Marking shall be labelled on the back side of each panel

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.


S. Sarath Kumar
Head of Department



Test results relate only to the samples tested

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



مختبرات ويمبي ش.م.م.
WIMPEY LABORATORIES L.L.C.

TEST REPORT ON ACCELERATED WEATHERING

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/22
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019	Date Tested	To Follow
Test Method	SASO ISO 16474-2:2015	Date Reported	
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Light source: Xenon-arc lamps
Test duration: 2000 Hours

Test		Result	Standard Requirements as per SASO 2752/2019	Remark
Accelerated Weathering	Color change, ΔE	To Follow	≤ 3	To Follow
	Gloss change	To Follow	≤ 10	To Follow
	Other ageing performance	No change	No change	To Follow

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: None.

Signed for and on behalf of Wimpey Laboratories L.L.C.

Safath Kumar
Head of Department



Test results relate only to the samples tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.
-End of text-

TEST REPORT ON ADHESION

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/12
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	04/01/2024
Test Method	SASO ISO 2409:2014	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

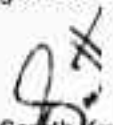
Test Results

Test	Unit	Result
Adhesion	-	Grade 1
Standard Requirements as per SASO 2752:2019		Grade 1

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.


S. Samth Kumar
 Head of Department



Test results relate only to the sample tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.
 -End of text-

**TEST REPORT ON COATING FLEXIBILITY**

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/11
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	28/12/2023
Test Method	SASO ISO 17132:2010	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results**Front Face:**

Test	Unit	Result
Coating Flexibility	-	No cracks or damage in coating-Pass
Standard Requirements as per SASO 2752:2019		≤2 without any cracks or damage on the coating

Back Face:

Test	Unit	Result
Coating Flexibility	-	No cracks or damage in coating-Pass
Standard Requirements as per SASO 2752		≤3 without any cracks or damage on the coating
Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm	

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-

TEST REPORT ON HEAT DEFLECTION

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/6
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Sample Reference	N.G	Date Received	23/12/2023
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Tested	10/01/2024
Test Specification	SASO 2752:2019	Date Reported	15/01/2024
Test Method	SASO ISO 75-2:2014	Relative Humidity	50%
Room Temperature	23°C	Tested By	SP

Test Results

Test	Unit	Result
Heat Deflection	°C	90
Standard Requirements as per SASO 2752:2019		≥85°C

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C


S. Sarah Kumar
 Head of Department



Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



TEST REPORT ON SHEAR STRENGTH

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/4
Sample Description	Aluminum Composite Panel	Request No.	WD-Q-231223-0112
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Sample No.	WD-S-231223-0371
Test Specification	SASO 2752:2019.	Wimpey Ref No	23122303
Test Method	ASTM C393/C393-16	Date Received	23/12/2023
Test Temperature	23°C	Date Tested	13/01/2024
Relative Humidity	50%	Date Reported	15/01/2024
Sample Reference	N.G	Tested By	SP

Test Results

Back Face:

Sample Reference	Width (mm)	Thickness (mm)	Maximum Load (N)	Shear Strength (N/mm ²)
WD-S-231223-0371	25.5	4.18	2654.1	24.9
	25.5	4.19	2436.1	22.8
	25.5	4.22	2808.6	26.1
	25.5	4.20	2913.1	27.2
	25.5	4.18	2568.8	24.1
Average				25.0
Standard Requirements as per SASO 2752:2019				≥20N/mm ²

Front Face:

Sample Reference	Width (mm)	Thickness (mm)	Maximum Load (N)	Shear Strength (N/mm ²)
WD-S-231223-0371	25.5	4.18	2366.3	22.2
	25.5	4.20	2795.3	26.1
	25.5	4.21	3124.0	29.1
	25.5	4.17	3200.7	30.1
	25.5	4.20	3030.9	28.3
Average				27.2
Standard Requirements as per SASO 2752:2019				≥22N/mm ²

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



TEST REPORT ON ABRASION RESISTANCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/14
Sample Description	Comply Sheet DCL	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	08/01/2024
Test Method	ASTM D968-17	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Abrasion Resistance	L/μm	8
Standard Requirements as per SASO 2752:2019		≥2 L/μm

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Senth Kumar
Head of Department

Test results relate only to the sample tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-





مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

TEST REPORT ON PACKING

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/18
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	10/01/2024
Test Method	SASO 2752:2019.	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Packing	-	Marking is labelled on the back side of each panel
Standard Requirements as per SASO 2752		Marking shall be labelled on the back side of each panel

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	--

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S.Sarath Kumar
Head of Department



Test results relate only to the samples tested

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-

TEST REPORT ON BENDING STRENGTH & MODULUS

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/3
Sample Description	Aluminum Composite Panel	Request No.	WD-Q-231223-0112
Sample Reference	N.G	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	15/01/2024
Test Method	ASTM C393 / C393M - 16	Date Reported	15/01/2024
Test Condition	Temperature: 23°C Relative Humidity: 50%	Tested By	SP
Wimpey Ref No	23122303		

Test Results

Front Face:

Sample Reference	Span Length (mm)	Width (mm)	Thickness (mm)	Max. Load @ Failure (N)	Bending Strength (N/mm ²)	Bending Modulus (N/mm ²)
WD-S-231223-0371	150.0	75.0	4.18	657	177.2	24500
	150.0	75.0	4.19	696	183.5	23900
	150.0	75.0	4.22	688	183.7	27300
	150.0	75.0	4.20	678	185.6	24200
	150.0	75.0	4.18	681	183.6	25300
Average					182.7	25040
Standard Requirements as per SASO 2752:2019					≥100 N/mm ²	≥20000N/mm ²

Back Face:

Sample Reference	Span Length (mm)	Width (mm)	Thickness (mm)	Max. Load @ Failure (N)	Bending Strength (N/mm ²)	Bending Modulus (N/mm ²)
WD-S-231223-0371	150.0	75.0	4.18	628	169.3	22100
	150.0	75.0	4.20	611	160.7	20600
	150.0	75.0	4.21	627	167.8	23100
	150.0	75.0	4.17	630	173.8	24300
	150.0	75.0	4.20	610	163.7	22400
Average					167.1	22500
Standard Requirements as per SASO 2752:2019					≥60 N/mm ²	≥15000N/mm ²

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-



TEST REPORT ON THERMAL RESISTANCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/21
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752:2019.	Date Tested	13/01/2024
Test Method	ASTM C518-21	Date Reported	15/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Thermal Resistance	$m^2 \cdot k/W$	0.0654
Standard Requirements as per SASO 2752		$\geq 0.06 m^2 \cdot k/W$

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C.

S. Sarath Kumar
Head of Department

Test results relate only to the samples tested.

This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-

TEST REPORT ON SALT FOG RESISTANCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/23
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752-2019	Date Tested	30/12/2023-20/01/2024
Test Method	SASO ISO 11997-1:2007	Date Reported	27/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Salt Fog Resistance (500 hours)	-	Grade 2
Standard Requirements as per SASO 2752-2019		Grade 2

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C


S. Sarathy Kumar
Head of Department



Test results relate only to the samples tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.
-End of text-



TEST REPORT ON SALT FOG RESISTANCE

Client	Alwah Al Khaleej Trading Co (Techno Bond)		
Product Name	N.G	Lab Report No.	WD-R-231223-0371/23
Sample Description	Aluminum Composite Panel	Sample No.	WD-S-231223-0371
Source	Alwah Al Khaleej Trading Co (Techno Bond)	Date Received	23/12/2023
Test Specification	SASO 2752-2019	Date Tested	30/12/2023-20/01/2024
Test Method	SASO ISO 11997-1:2007	Date Reported	27/01/2024
Room Temperature	23°C	Sampled Reference	N.G
Relative Humidity	50%	Tested By	SP

Test Results

Test	Unit	Result
Salt Fog Resistance (500 hours)	-	Grade 2
Standard Requirements as per SASO 2752-2019		Grade 2

Designation	Type: FR 3 = FR B1 Aluminium Thickness: 0.5 mm Total Thickness: 4mm
-------------	---

Remarks: The tested parameter meets the standard requirements of SASO 2752:2019

Signed for and on behalf of Wimpey Laboratories L.L.C


S. Sath Kumar
Head of Department



Test results relate only to the samples tested.
This report shall not be reproduced except in full, without the written approval of the laboratory.
-End of text-

• ISO CERTIFICATES



Certificate of Registration (Occupational Health & Safety Management System)

QFS MANAGEMENT SYSTEMS LLP

This is to Certify that the Occupational Health & Safety Management System of

ALWAH ALKHALLE TRADING COMPANY

ALAMID STREET, ALMUSALYAH DISTRICT, EAST 19, RIYADH, SAUDI ARABIA

is in accordance with the requirement of the Occupational Management System Standard detailed below

ISO 45001:2018

This certificate is valid for the following product or service range

MANUFACTURING OF FIRE RATED ALUMINUM COMPOSITE PANELS.

ISO Code: 11

Certificate Number: SCC/INT/11/AL/2021

1st Serv. Due on: 19.11.2021

Initial Date of Certification: 19.11.20

2nd Serv. Due on: 19.11.2022

Date of Certificate: 19.11.2020

Date of Expiry: 19.11.2021

Director:

Date: 19.11.2020



ISO 45001:2018
GB-488



The validity of certificate is subject to regular surveillance audit once or before above mentioned dates and its only valid after successful surveillance with continuation letter issued by QFS. It is issued subject to the continual availability of access at any time and without notice to the above named organization's premises for the purpose of assessment and surveillance regarding the standard named above and QFS terms and conditions.

QFS MANAGEMENT SYSTEMS LLP

A27, 1st, Sector 16, Noida 201301, U.P., India
www.qfs.com
email: admin@qfs.com

Accredited by Standards Council of Canada

• ISO CERTIFICATES



Certificate of Registration

(Environmental Management System)

QFS MANAGEMENT SYSTEMS LLP

This is to Certify that the Environmental Management System of

ALWAH ALKHALIFEH TRADING COMPANY

ALAMID STREET, ALFAISALIYAH DISTRICT, EAST AL RASSAH, SAUDI ARABIA

is in accordance with the requirement of the Environmental Management System Standard detailed below

ISO 14001:2015

This certificate is valid for the following product or service range

MANUFACTURING OF FIRE RATED ALUMINUM COMPOSITE PANELS.

ISO Code: 15

Certificate Number: QCC/IN/017/11/AL/1518

1st Serv. Due on: 19.11.2020

Initial Date of Certification: 10.11.2019

2nd Serv. Due on: 19.11.2020

Date of Certificate: 10.11.2019

Date of Expiry: 19.11.2020

Director:

Date: 10.11.2019



The validity of certificate is subject to regular surveillance audit on or before above mentioned dates and its only valid after successful surveillance with continuation letter issued by QFS. It is issued subject to the continual availability of access at any time and without notice to the above named organization's premises for the purpose of assessment and surveillance regarding the standard named above and QFS terms and conditions.

QFS MANAGEMENT SYSTEMS LLP

427 JN, Sector 15, Noida 201301, U.P., India

www.qfsmgmt.com

email: admin@qfsmgmt.com

Accredited by Standards Council of Canada

• ISO CERTIFICATES



Certificate of Registration (Quality Management System)

QFS MANAGEMENT SYSTEMS LLP

This is to Certify that the Quality Management System of

ALWAH ALKHALEEL TRADING COMPANY

ALAMID STREET, ALKHALEEL DISTRICT, EXIT 9, JEDDAH, SAUDI ARABIA

Has been found to be of the Quality Management System Standard

ISO 9001:2015

This certificate is valid for the following product or service range

MANUFACTURING OF FIRE RATED ALUMINIUM COMPOSITE PANELS

Certificate Number: SC/IN/157/AL/2015

1st Sur. Due on: 19.11.2016

Initial Date of Certification: 1.11.2015

2nd Surv. Due on: 19.11.2016

Date of Certificate: 1.11.2015

Date of Expiry: 19.11.2016

Director:

Date: 1.11.2015



ISO Accredited
CMLB



The validity of certificate is subject to regular surveillance audit on or before above mentioned dates and its only valid after successful surveillance with certification letter issued by QFS. It is issued subject to the continued availability of access at any time and without notice to the above named organization's premises for the purpose of assessment and surveillance regarding the standard named above and QFS terms and conditions.

QFS MANAGEMENT SYSTEMS LLP

427-16, Sector 16, Gurgaon 201301, U.P, India
www.qfsccerts.com
email: admin@qfsccerts.com

Accredited by Standards Council of Canada



• LEED CERTIFICATES



Alwath Alkhaleej Industrial Co. Member ID#00817 | 0858 | 40421



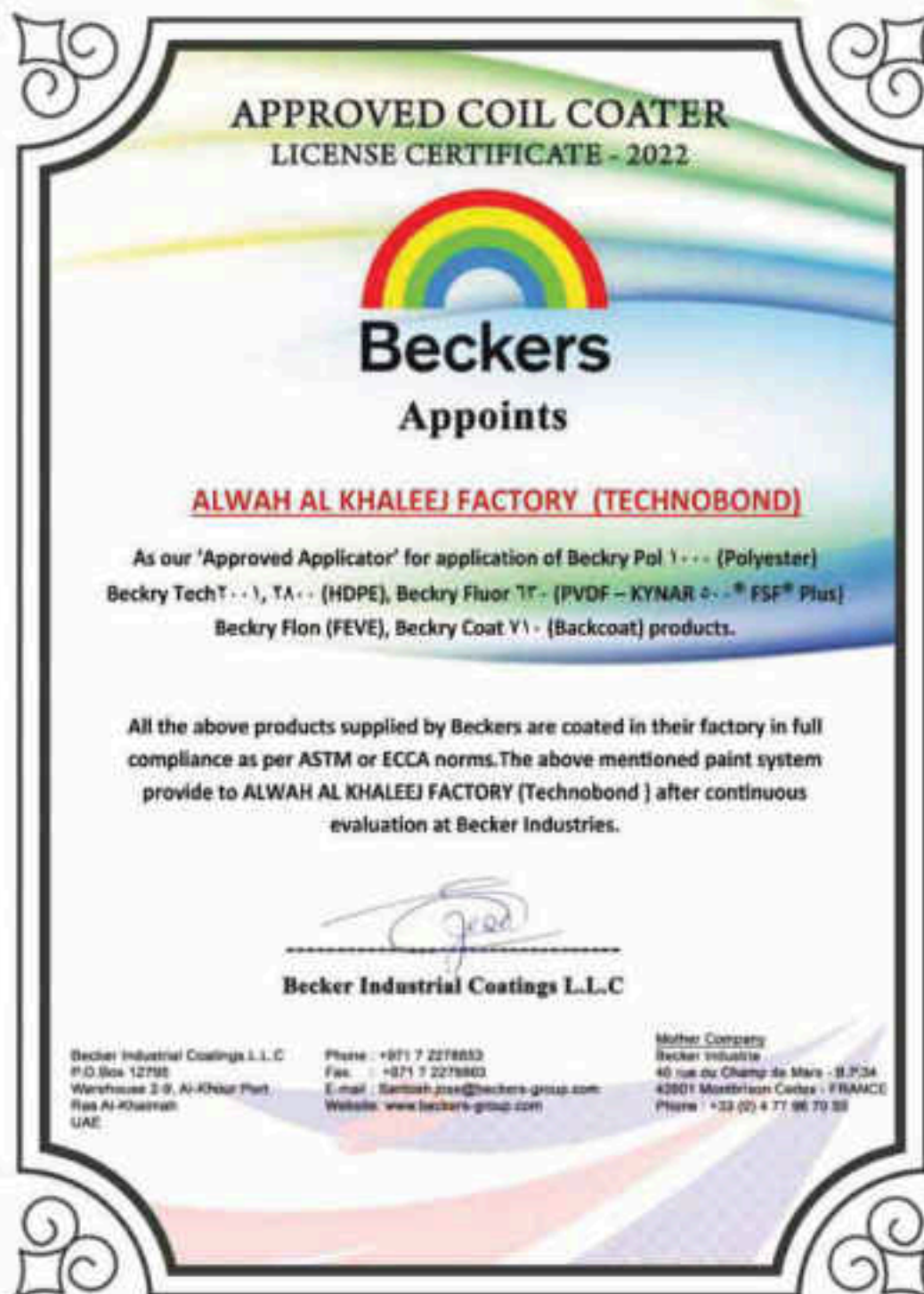
LEED

TechnoBond products directly support the LEED (Leadership in Energy and Environmental Design) Green Building Rating System developed by the U.S. Green Council



Color your world

Beckers -Spectrum CERTIFICATES





ARKEMA INNOVATIVE
MATERIALS FOR
A SUSTAINABLE WORLD

KYNAR500®FSF®

POLYVINYLIDENE FLUORIDE BASED COATINGS

LICENSE CERTIFICATE



BECKER INDUSTRIAL COATINGS, L.L.C.

Has successfully met all requirements set forth by Arkema Inc. and has been licensed to produce coatings in United Arab Emirates with 100% KYNAR 500®FSF® PVDF resin for the year 2022. The coating shall maintain a minimum of 70% PVDF resin content.

Paul LAVALÉE
GLOBAL MARKET MANAGER

Kynar®, Kynar 500®, and FSF® are registered trademarks belonging to Arkema Inc. Coating formulations based on Kynar 500®FSF® PVDF resin can only be supported by Arkema licensees. Product sold by licensee shall not include any Acetopolymer other than Kynar 500®FSF® PVDF resin.

**AGC CHEMICALS EUROPE
COMMERCIAL CENTRE**

World Trade Center
Zuidplein 80, H Tower, Level 9
1077 XV Amsterdam, The Netherlands

Tel: +31 (0) 20 880 4170
Fax: +31 (0) 20 880 4188
email: enquiries@agce.com
www.agce.com

Date: 17-07-2018

Dear Sirs,

This is to confirm that Spectrum Dubai has been buying our Lumiflon resins since a few years. To my understanding, Spectrum do not buy FEVE resins from other producers.

It would be our pleasure to deliver our Lumiflon resins to Spectrum, for Spectrum to produce the Lumiflon based coatings for the Riyadh Metro project.

Please let me know if I can be of further help.

Best regards

Ben Runhaar

Product & Marketing Manager Lumiflon

P.P.



Exova Warringtonfire
Hartwood Road
Warrington
WA1 2DS
United Kingdom

T: +44 (0) 1925 855119
F: +44 (0) 1925 855419
E: warrington@exova.com
W: www.exova.com



BS 476: Part 7: 1997



Method For Classification Of The Surface Spread Of Flame Of Products

A Report To: Becker Industrial Coatings LLC

Document Reference: 370231

Date: 11th January 2017

Issue No.: 2

Page 1

Testing
Advising
Assuring

Registered Office: Exova (UK) Ltd, Lichfield Industrial Estate, Newbridge, Midsbrough, CH10 6PL, United Kingdom. Reg No. 5070429
This report is issued in accordance with our terms and conditions, a copy of which is available on request.





Date : 31/8/2016

PVdF 2-COAT AAMA 2605-05 COMPLIANCE CERTIFICATE

ARCHITECTURAL MATERIAL SPECIFICATIONS - PROPRIETARY COATING PAINT IN PVdF		
The BeckeryFluor630 PVdF system is formulated with 70:30 ratio of PVdF- Acrylic. PVdF binder in this coating shall consist 70% Polyvinylidene Fluoride (PVdF) Kynar 500 resin for excellent outdoor durability, formability and chemical resistance. Paint system shall comply to American Architectural Manufacturers Association (AAMA) 2605-05 High Performance Organic Coatings on Coil Coated Architectural Aluminum Substrates.		
COATING THICKNESS		
PVdF PRIMER	-	5 – 7 µm
PVdF TOP COAT	-	18 – 20µm
TOTAL THICKNESS	-	23 – 25µm

ARCHITECTURAL MATERIAL SPECIFICATIONS - PROPRIETARY COATING PAINT IN PVdF (PERFORMANCE SPECIFICATIONS)		
Tests	AAMA 2605-05 Requirements	BeckeryFluor 630 PVdF coating System Performance
Colour Uniformity (ASTM D2244)	Consistent with colour range	Complied
Specular Gloss (ASTM D523 @ 60°)	Low, Medium, to High	Gloss Range : 25 - 35 unit
Pencil Hardness (ASTM D3363) Borel Eagle Turquoise	HB minimum hardness	Complied
Film Adhesion (11 ± 1 mm cross hatch)		
1) Dry Adhesion (18°C - 22°C)	100% Adhesion	Excellent - No Removal
2) Wet Adhesion (38°C @ 24 hours)	100% Adhesion	Excellent - No Removal
3) Boiling Water Test (99°C - 100°C @ 20 mins)	100% Adhesion	Excellent - No Removal
Reverse Impact Resistance : Adhesion Impact	Load = 1.5 * metal thickness	Excellent - No Removal
Coating Flexibility : T-Bend (ASTM 4145)	2T NR, Minute cracking permissible	Complied
Abrasion Resistance (ASTM D968)	Abrasion Coeff : 40 lts/ml minimum	Complied
Chemical Resistance		
1) Mariatic Acid Resistance (15mins Spot Test)	No blister and visual change	Complied
2) Mortar Resistance (24 hours Pat Test)	No adhesion loss or visual change	Complied
3) Nitric Acid Resistance (30 min Vapour Test)	Delta E ≤ 5.0 (Hunterlab)	Complied
4) Detergent Resistance (72 hours Immersion Test)	No adhesion loss or visual change	Complied

Beckers Group
Beckers Industrial Coatings LLC
P.O. BOX - 12785
Al Khair Port - Wadi Hessa 2-3
Ras Al Khaima, U.A.E.

Phone : +971 (0)7 2278863
Fax : +971 (0)7 2278863
info-uae@beckers-group.com
www.beckers-group.com



Date : 31/8/2016

PVdF 3-COAT AAMA 2605-05 COMPLIANCE CERTIFICATE

ARCHITECTURAL MATERIAL SPECIFICATIONS - PROPRIETARY COATING PAINT IN PVdF	
The BeckeryFluor630 PVdF system is formulated with 70:30 ratio of PVdF: Acrylic. PVdF binder in this coating shall consist 70% Polyvinylidene Fluoride (PVdF) Kynar 500 resin for excellent outdoor durability, formability and chemical resistance. Paint system shall comply to American Architectural Manufacturers Association (AAMA) 2605-05 High Performance Organic Coatings on Coil Coated Architectural Aluminum Substrates.	
COATING THICKNESS	
PVdF PRIMER	- 5 - 7 µm
PVdF TOP COAT	- 18 - 20µm
PVdF CLEAR COAT	- 13 - 15µm
TOTAL THICKNESS	- 36 - 42µm

ARCHITECTURAL MATERIAL SPECIFICATIONS - PROPRIETARY COATING PAINT IN PVdF (PERFORMANCE SPECIFICATIONS)		
Tests	AAMA 2605-05 Requirements	BeckeryFluor 630 PVdF coating System Performance
Colour Uniformity (ASTM D2244)	Consistent with colour range	Complied
Specular Gloss (ASTM D523 @ 60°)	Low, Medium, to High	Gloss Range : 25 - 35 unit
Pencil Hardness (ASTM D3363) Beral Eagle Turquoise	HB minimum hardness	Complied
Film Adhesion (11 x 1 mm cross hatch)		
1) Dry Adhesion (18°C - 27°C)	100% Adhesion	Excellent - No Removal
2) Wet Adhesion (38°C @ 24 hours)	100% Adhesion	Excellent - No Removal
3) Boiling Water Test (99°C - 100°C @ 20 mins)	100% Adhesion	Excellent - No Removal
Reverse Impact Resistance / Adhesion Impact	load = 1.5 * metal thickness	Excellent - No Removal
Coating Flexibility : T-Bond (ASTM #145)	2TNR, Minute cracking permissible	Complied
Abrasion Resistance (ASTM D968)	Abrasion Coeff : 40 hrs/mil minimum	Complied
Chemical Resistance		
1) Muriatic Acid Resistance (15mins Spot Test)	No blister and visual change	Complied
2) Mortar Resistance (24 hours Pat Test)	No adhesion loss or visual change	Complied
3) Nitric Acid Resistance (30 min Vapour Test)	Delta E ≤ 5.0 (Hunterlab)	Complied
4) Detergent Resistance (72 hours Immersion Test)	No adhesion loss or visual change	Complied

Beckers Group
Becker Industrial Coatings LLC
P.O BOX : 12790
Ajloun Port - Ware House 2 -B
Ras Al Khaima, U.A.E.

Phone : +971 (0)7 2278800
Fax : +971 (0)7 2278800
info-uae@beckers-group.com
www.beckers-group.com



Date : 23/8/2016

PVdF 4-COAT AAMA 2605-05 COMPLIANCE CERTIFICATE

ARCHITECTURAL MATERIAL SPECIFICATIONS - PROPRIETARY COATING PAINT IN PVdF	
The BeckeryFluor630 PVdF system is formulated with 70:30 ratio of PVdF: Acrylic. PVdF binder in this coating shall consist 70% Polyvinylidene Fluoride (PVdF) Kynar 500 resin for excellent outdoor durability, formability and chemical resistance. Paint system shall comply to American Architectural Manufacturers Association (AAMA) 2605-05 High Performance Organic Coatings on Coil Coated Architectural Aluminum Substrates.	
COATING THICKNESS	
PVdF PRIMER	- 5 – 7 µm
PVdF BARRIER COAT	- 18 – 20µm
PVdF TOP COAT	- 18 – 20µm
PVdF CLEAR COAT	- 18 – 20µm
TOTAL THICKNESS	- 59 – 67µm

ARCHITECTURAL MATERIAL SPECIFICATIONS - PROPRIETARY COATING PAINT IN PVdF (PERFORMANCE SPECIFICATIONS)		
Tests	AAMA 2605-05 Requirements	BeckeryFluor 630 PVdF coating System Performance
Colour Uniformity (ASTM D2244)	Consistent with colour range	Complied
Specular Gloss (ASTM D523 @ 60°)	Low, Medium, to High	Gloss Range : 30-40 unit
Pencil Hardness (ASTM D3363) Berol Eagle Turquoise	HB minimum hardness	Complied
Film Adhesion (11 x 1 mm cross hatch)		
1) Dry Adhesion (18°C – 27°C)	100% Adhesion	Excellent - No Removal
2) Wet Adhesion (38°C @ 24 hours)	100% Adhesion	Excellent - No Removal
3) Boiling Water Test (99°C - 100°C @ 20 mins)	100% Adhesion	Excellent - No Removal
Reverse Impact Resistance : Adhesion Impact	Load = 1.5 * metal thickness	Excellent - No Removal
Coating Flexibility : T-Bond (ASTM 4145)	2T NR, Minute cracking permissible	Complied
Abrasion Resistance (ASTM D968)	Abrasion Coeff : 40 hrs/mil minimum	Complied
Chemical Resistance		
1) Muriatic Acid Resistance (15mins Spot Test)	No blister and visual change	Complied
2) Mortar Resistance (24 hours Pat Test)	No adhesion loss or visual change	Complied
3) Nitric Acid Resistance (30 mins Vapour Test)	Delta E ≤ 5.0 (Hunterlab)	Complied
4) Detergent Resistance (72 hours Immersion Test)	No adhesion loss or visual change	Complied

Beckers Group
Beckers Industrial Coatings LLC
P.O. BOX - 12796
Al-Rhoor Port - Warehouse 2 - B
Ras Al Khaimah, U.A.E.

Phone : +971 (0)7 2278853
Fax : +971 (0)7 2278883
info-uae@beckers-group.com
www.beckers-group.com



Date: 28/06/2018

To,

M/s Alwah Alkalcej Factory
Riyadh,
Kingdom of Saudi Arabia.

Dear Sir,

Spectrum Industries is a leading and specialized paint manufacturer in the Middle East for Coil, Can, Extrusion and Ultratec coating systems. Spectrum Industries has been established in 2004, as an organization we are a part of Ghotash group.

Spectrum Industries is the first global licensee for Kynar Aquatex-Arkema USA and also the first and only licensee for Kynar Aquatex in EMEA with exclusivity for Middle East and India. We are the first paint company in the Middle East to have KYNAR500 FSF license to produce PVDF coatings from Arkema USA.

Spectrum Industries has a state of art manufacturing facility in Dubai Investment Park and has specialized itself in the production of Coil Coatings, Can Coatings, Extrusion Coatings and Ultratec Coatings. The plant is well equipped and has a total Production Capacity of 10,000.00 Tons/annum and also five dispensing units at various customer sites.

Spectrum Industries meets the international standards of coating systems for coil coating application as set by ECCA (European Coil Coating Association) , ASTM, AAMA and NCCA (National Coil Coating Association). The company is set up with state-of-the-art testing laboratory in order to ensure the compliance of our products to set standards.

Following are some of our prestigious and iconic projects where we have supplied PVDF paints,

- Riyadh Metro
- Jeddah Airport
- Dubai Metro
- Dubai Airport
- Qatar Metro
- Grand Mosque Abu Dhabi

Regards,


Chandrashekar Nayak,
Spectrum Industries LLC





TECHNICAL DATA SHEET

PVDF ULTRANAR TOPCOAT BLUE (3-COAT) (SI - 14124)

Ultramar 500 Coatings is a poly vinylidene di fluoride resin (KYNAR 500 FSF) based finish containing high performance pigments. It has excellent resistances against weathering, corrosion, hardness, chemicals and abrasion. Meets or exceeds the requirements of AAMA 2605 - 98 specification. It is specially designed for roller (Roll) coating application.

Paint - Liquid Properties:

Viscosity	100 - 140 secs Ford 4 cup @ 30°C	ASTM D 1200 - 94
Specific Gravity	1.14 - 1.24 gm/cm ³	ASTM D 1475 - 98
Solids by weight	46 - 54 %	ASTM D 2369 - 98
Solid by Volume	30 - 36 %	Internal Calculation Method
Coverage	240 - 290 SqM / Kg / μ	Internal Calculation Method
Storage	6 months	

Application:

Primer	PolyUrethane Primer, CPU 701
Primer Dry Film Thickness	5 - 8 microns
Cure Temperature range	232°C - 241 °C
Topcoat	PVDF ULTRANAR TOPCOAT BLUE - SI- 14124
Topcoat Dry Film Thickness	19 - 21 microns
Cure Temperature range	241°C - 249 °C
Clear Coat	FEVE CLEAR COAT
Clear coat Dry Film Thickness	14 - 16 microns
Cure Temperature range	232°C - 241 °C
Substrates	Pretreated Aluminum

***Film Properties:

*Solvent Resistance	> 100 MEK double rubs	ASTM D 5402
*T - Bend Test	No Tape Off., 1T - 2T	ASTM D 4145
*Pencil Hardness	Mitsubishi Uni Pencil Minimum "F"	ASTM D 3363
*Cupping	> 6 mm. NTO**	ECCA - T6
*Cross Cut Adhesion	100/100 NC, NTO**	ASTM D - 3359 - 97
*Reverse Impact	No Tape Off. 40 - 80 Inch Lbs	ASTM D 2794
*Gloss @ 60°	75 - 85 Units	ASTM D 323
*Acid Resistance(5% HCl)	24 Hrs, Pass	AAMA620
*Alkali Resistance(5% NaOH)	24 Hrs, Pass	AAMA620
QUV - B, Resistance(2000 Hrs)	Color Diff. DE<2	ASTM 4587-91
QUV - B, Resistance(2000 Hrs)	Gloss Retention > 85%	ASTM 4587-91
Humidity Resistance (1000 Hrs)	Pass	ASTM D 2247
Salt Spray (1000 Hrs)	Pass	ASTM B 117

* Depending on substrate gauge, quality & Number of Coating Layers

** NC : - - No Crack ; NTO : - - No Tape Off

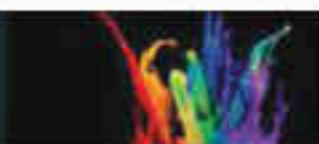
***Film properties are tested on Spectrum Primer, CPU701 with "SPECTRUM - CF - 101 ULTRANAR PVDF TOPCOAT - FEVE CLEARCOAT"

Suggested Application Layers might change based on the project location and other requirements.

The statements in this publication are based on our present knowledge and experience. Due to the number of possible influences in the processing and application of our products, these statements do not exempt the user from making his own tests and experiments. They cannot be taken as legally binding assurance regarding certain properties or suitability for the particular application. Any possible patent rights as well as existing laws and provisions must be observed as the responsibility of the user.



P.O. Box - 52181, Dubai, U.A.E., Email : info@spectrumindustries.ae
Tel : +971 - 488 411 97, Fax : +971 - 488 477 51


SPECTRUM
 INDUSTRIES LLC


TECHNICAL DATA SHEET

PVDF ULTRANAR TOPCOAT RED (3-COAT) (SI - 14115)

Ultramar 500 Coatings is a poly vinylidene di fluoride resin (KYNAR 500 FSF) based finish containing high performance pigments. It has excellent resistances against weathering, corrosion, hardness, chemicals and abrasion. Meets or exceeds the requirements of AAMA 2605 - 86 specification. It is specially designed for roller (Coil) coating application.

Paint - Liquid Properties:

Viscosity	100 - 140 secs Ford 4 cup @ 30°C	ASTM D 1200 - 94
Specific Gravity	1.14 - 1.24 gm/cm ³	ASTM D 1475 - 98
Solids by weight	46 - 54 %	ASTM D 2369 - 98
Solid by Volume	30 - 36 %	Internal Calculation Method
Coverage	240 - 290 SqM / Kg / μ	Internal Calculation Method
Storage	6 months	

Application:

Primer	PolyUrethane Primer, CPU 701
Primer Dry Film Thickness	5 - 8 microns
Cure Temperature range	232°C - 241 °C
Topcoat	PVDF ULTRANAR TOPCOAT RED - SI- 14115
Topcoat Dry Film Thickness	19 - 21 microns
Cure Temperature range	241°C - 249 °C
Clear Coat	FEVE SPARKLE CLEAR COAT - SI - 14117
Clear coat Dry Film Thickness	14 - 16 microns
Cure Temperature range	232°C - 241 °C
Substrates	Pretreated Aluminum

***Film Properties:

*Solvent Resistance	> 100 MEK double rubs	ASTM D 5402
*T - Bend Test	No Tape Off., 1T - 2T	ASTM D 4145
*Pencil Hardness	Mitsubishi Uni Pencil Minimum "F"	ASTM D 3363
*Cupping	> 6 mm, NTO**	ECCA - T6
*Cross Cut Adhesion	100/100 NC, NTO**	ASTM D - 3359 - 97
*Reverse Impact	No Tape Off. 40 - 80 Inch Lbs	ASTM D 2794
*Gloss @ 60°	75 - 85 Units	ASTM D 523
*Acid Resistance(5% HCl)	24 Hrs, Pass	AAMA620
*Alkali Resistance(5% NaOH)	24 Hrs, Pass	AAMA620
QUV - B, Resistance(2000 Hrs)	Color Diff. DE<2	ASTM 4587-91
QUV - B, Resistance(2000 Hrs)	Gloss Retention > 85%	ASTM 4587-91
Humidity Resistance (1000 Hrs)	Pass	ASTM D 2247
Salt Spray (1000 Hrs)	Pass	ASTM B 117

* Depending on substrate gauge, quality & Number of Coating Layers

** NC : - - No Crack : NTD : - - No Tape Off

*** Film properties are tested on Spectrum Primer, CPU701 with "SPECTRUM - CP - 101 ULTRANAR PVDF TOPCOAT + FEVE CLEARCOAT"

* Suggested Application Layers might change based on the project location and other requirements.

The statements in this publication are based on our present knowledge and experience. Due to the number of possible influences in the processing and application of our products, these statements do not exempt the user from making his own tests and experiments. They cannot be taken as legally binding assurance regarding certain properties or suitability for the particular application. Any possible patent rights as well as existing laws and provisions must be observed as the responsibility of the user.



P.O. Box - 52181, Dubai, U.A.E., Email : info@spectrumindustries.ae
 Tel : +971 - 483 411 97, Fax : +971 - 483 477 51



TECHNICAL DATA SHEET

ULTRAFON SPRAKLE FEVE CLEAR COAT (SI - 14117)

Ultrafon Coatings is a specialized Fluoro Carbon resin based finish containing high performance pigments. It has excellent resistance against weathering, corrosion, hardness, chemicals and abrasion. Meets or exceeds the requirements of AAMA 2605 - 98 specification. It is specially designed for roller (Coil) coating application.

Paint - Liquid Properties:

Viscosity	90 - 110 secs Ford 4 cup @ 30°C	ASTM D 1200 - 94
Specific Gravity	1.02 - 1.10 gm/cm ³	ASTM D 1475 - 98
Solids by weight	40 - 48 %	ASTM D 2369 - 98
Solid by Volume	30 - 36 %	Internal Calculation Method
Coverage	320 - 350 SqM / Kg / μ	Internal Calculation Method
Storage	6 months	

Application:

Primer	PolyUrethane Primer, CPU 700
Primer Dry Film Thickness	5 - 8 microns
Cure Temperature range	232°C - 241 °C
Topcoat	PVDF ULTRANAR TOPCOAT - SI - 14115
Topcoat Dry Film Thickness	18 - 20 microns
Cure Temperature range	241°C - 249 °C
Clear Coat	ULTRAFON FEVE SPRAKLE CLEAR COAT - SI - 14117
Clear Coat Dry Film Thickness	15 - 18 microns
Cure Temperature range	232°C - 241°C
Substrates	Pretreated Aluminum

***Film Properties:

*Solvent Resistance	> 100 MEK double rubs	ASTM D 5402
*T - Bend Test	No Tape Off, 1T - 2T	ASTM D 4145
*Pencil Hardness	Mitsubishi Uni Pencil Minimum "F"	ASTM D 3363
*Cupping	> 6 mm, NTO**	ECCA - T6
*Cross Cut Adhesion	100/100 NC, NTO**	ASTM D - 3359 - 97
*Reverse Impact	No Tape Off 40 - 80 inch Lbs	ASTM D 2794
*Acid Resistance(5% HCl)	24 Hrs, Pass	AAMA620
*Alkali Resistance(5% NaOH)	24 Hrs, Pass	AAMA620
QUV - B, Resistance(2000 Hrs)	Color Diff. DE<2	ASTM 4587-91
QUV - B, Resistance(2000 Hrs)	Gloss Retention > 85%	ASTM 4587-91
Humidity Resistance (1000 Hrs)	Pass	ASTM D 2247
Salt Spray (1000 Hrs)	Pass	ASTM B 117

* Depending on substrate gauge, quality & Number of Coating Layers

** NC --- No Crack / NTO --- No Tape Off

The statements in this publication are based on our present knowledge and experience. Due to the number of possible influences in the processing and application of our products, these statements do not exempt the user from making his own tests and experiments. They cannot be taken as legally binding assurance regarding certain properties or suitability for the particular application. Any possible patent rights as well as existing laws and provisions must be observed as the responsibility of the user.



P.O. Box - 52161, Dubai, U.A.E., Email : info@spectrumindustries.ae
Tel : +971 - 488 411 57, Fax : +971 - 488 477 51



5

Production Steps

● **Our Production Line**

We have four automatic production lines, with an annual production capacity of 8,000,000 square meters of aluminum composite panels.

Utilizing the latest innovations in ACP machine technology, our high-speed lines ensure consistent quality and outstanding product performance.

Production Technique of Techno Bond Aluminum Composite Panels

The material is spread homogeneously inside the block, as its upper and lower surfaces are joined with glue.

The composite material is initially formed by the coalescing of the top and bottom aluminum layers, the non-combustible FR core, and the adhesive under specific pressure and temperature conditions.

The thickness of the Techno Bond composite panel is determined during this process. This thickness remains constant and does not vary throughout the entire production process.

Once the Techno Bond composite panel has taken its initial shape, it is processed through heating and cooling units.

Protective Foil

The protective aluminum foil of the Techno Bond composite panel ensures that the product reaches its destination without losing any of its physical properties.

It provides high UV resistance, easy and clean disassembly, and is standardized according to RoHS. The assembled Techno Bond composite panel must be disassembled at an angle of 180°.

The disassembly of the composite panel must be carried out within 30 days after installation is completed.

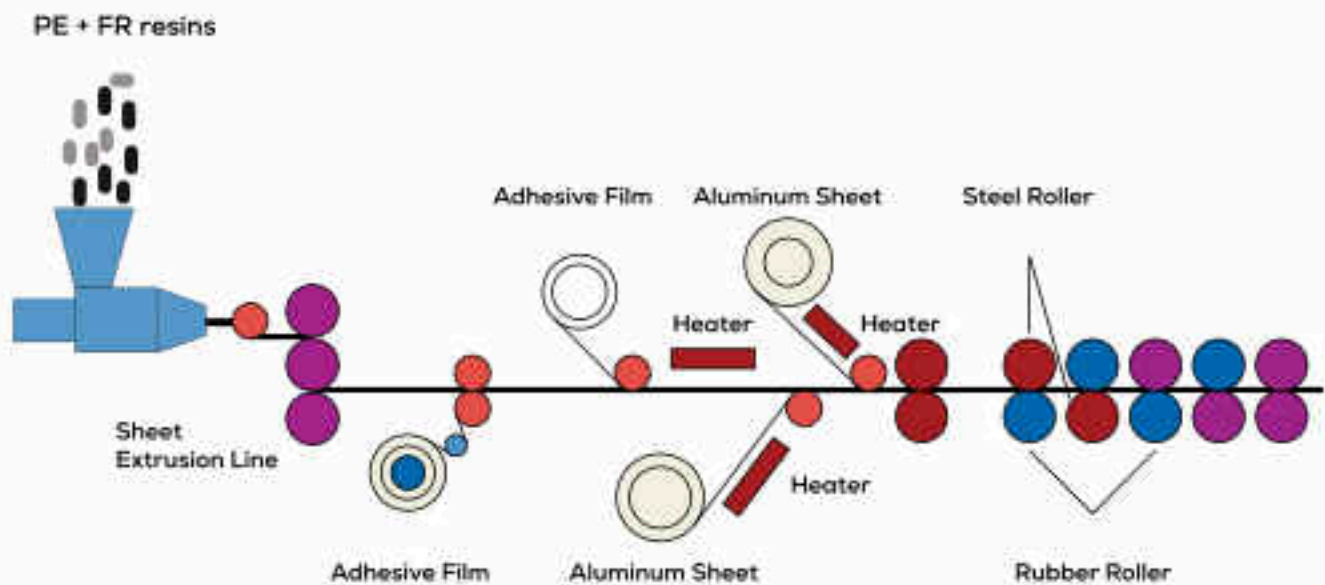


Techno Bond FR-B1

Production Steps



Typical Building Panel Lamination Line





Bending Limit

FR B1 panels can be bent using a press brake or a 3-roll bending machine.

The smallest radius that can be applied without causing wrinkles on the panel's surface is called the bend radius.

In a 3-roll machine, the bending diameter depends on the roll diameter, panel length, and machine type.

Thickness	Techno Bond FR B1
4mm	100mm
6mm	120mm

6 **Finishing and Colours**

Techno Bond offers a wide range of colors, patterns, and finishes, in addition to custom-made colors that highlight architectural styles.

With our latest technology and cutting-edge processes, TechnoBond coating is well known for its variety of styles and durability that meet clients' needs and expectations.

Techno Bond...

	Techno Bond B1	Unit	Method
Colour change	Only slight colour change	-	ISO 16474-2:2013 Cycle 1
Gloss deviation @20	81	-	ISO 2813:2014
Coating thickness	38	µm	ISO 2360:2003
Pencil hardness	3H	-	ISO 15184:2012
Coating flexibility	No cracks	-	ISO 17132:2007
Adhesion	Grade 0	MPa	ISO 2409:2013
Impact resistance	50 (No peel off, no crack)	kg.cm	ISO 6272-2:2011
Brush resistance	10000 of No change	-	ISO 11998-2006
Stain resistance	< (5%) Resistant	-	SASO 2752
Chemical resistance	Resistant	-	SASO 2752
Alkali resistance	Resistant	-	SASO 2752
Oil resistance	Resistant	-	SASO 2752
Solvent resistance	Resistant	-	ISO 2812-2:2007
Hot water resistance			

Resistance to Liquids

5% HCl	No visible change on both front and back faces	-	ISO 2812-1:2017
5% NaOH	No visible change on both front and back faces	-	ISO 2812-1:2017
20# Engine Oil	No visible change on both front and back faces	-	ISO 2812-1:2017
3% Detergent	No visible change on both front and back faces	-	ISO 2812-1:2017

180° Peel Test

Peel strength (Length direction)	10.52	N/mm	ISO 8510-2:2006
----------------------------------	-------	------	-----------------

Types of available Paintings and Finishes Techniques

We are proudly introducing our unique, high-end, and exclusive painting factory in Saudi Arabia, offering premium-quality colors and fast delivery of both samples and materials. Using the latest techniques and methods available in the market, we provide cutting-edge painting technology with a 20-year guarantee.

We offer the most advanced techniques in the market today.

Our Aluminium coil Alloy (3003/5005 series) is coated with KYNAR 500 based on polyvinylidene fluoride (PVDF), utilized with at least 70% resin, all in cooperation with Becker's French coatings.

PVDF

Polyvinylidene Fluoride (PVDF) is the most commonly used coating for commercial and industrial projects. It offers excellent resistance to weathering, chalking, and UV exposure over time.

FEVE

Similar to PVDF coatings, FEVE (Fluoroethylene Vinyl Ether) coatings deliver high durability and reliability with eco-friendly properties. They meet and exceed the requirements of AAMA 2605.

Nano Coating

Techno Bond Nano PVDF composite panels are equipped with hydrophobic and lyophobic surfaces, offering outstanding water and dirt resistance, anti-graffiti, and self-cleaning capabilities.

Anti-bacterial Coating

A PVDF-based coating enhanced with chemical agents to prevent bacterial growth on contact surfaces. It can be both passive and active in its antibacterial function.

SMP

SMP paint systems are a blend of polyester and silicon intermediates. Silicon enhances gloss retention and weather resistance, extending the coating's life.

Brush Finish Coating

A brushed finish is achieved by drawing a brush across the leveled surface, resulting in a fine, directional texture.

Texture Finish Coating

This involves adding sand or other texturizing agents to thick paint, producing varied finishes in both thickness and surface profile.

Epoxy

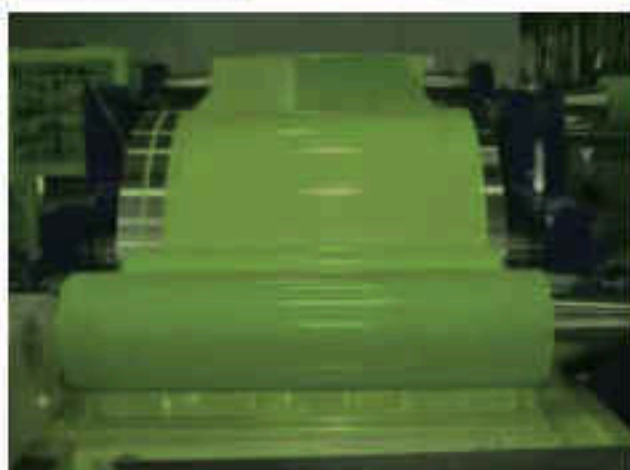
An epoxy coating consists of two components: an epoxy resin and a polyamine hardener (catalyst). The result is a tough, chemical-resistant surface.

Anodized

Anodizing is an electrochemical process that transforms the metal surface into a durable, corrosion-resistant, and decorative anodic oxide finish.

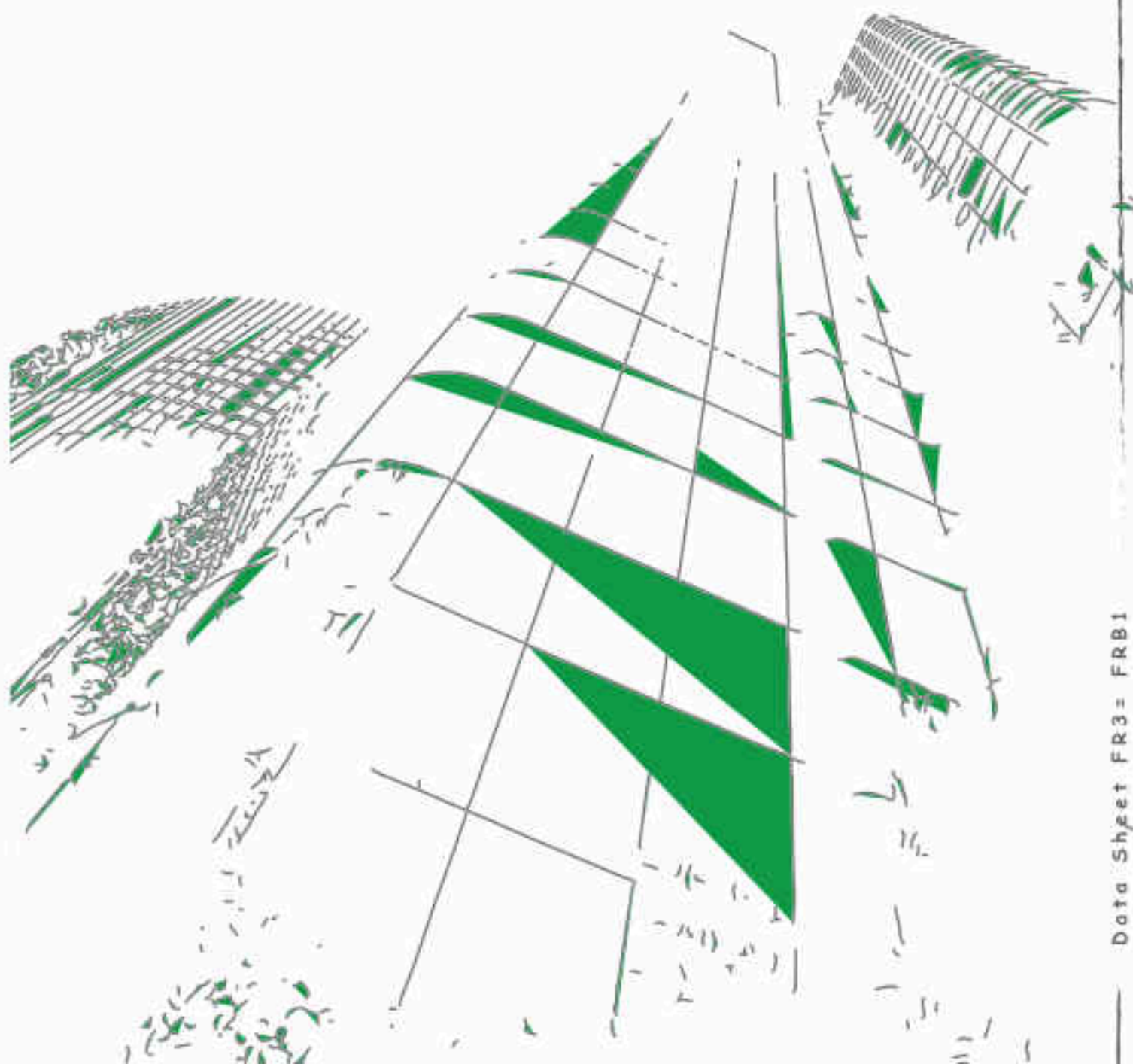
PUPA

High Build PUPA coating system





8 Summary of Full Test



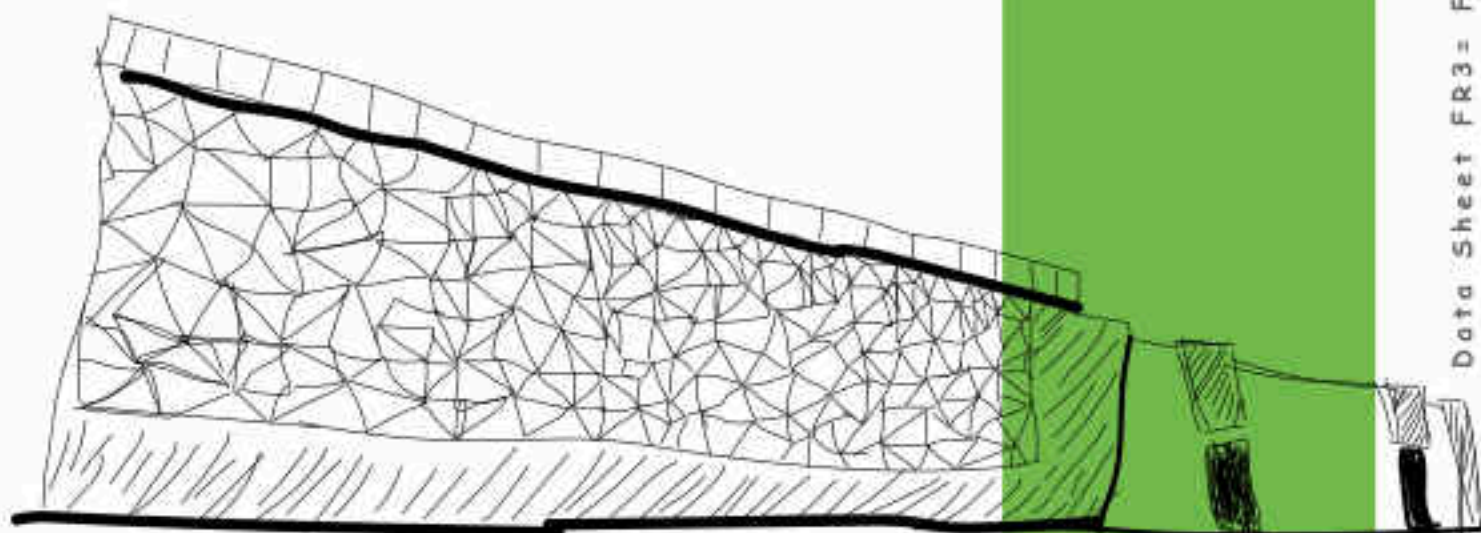
Data Sheet FR3= FRB1

Summary of Full Tests

Full Tests	certificate
SASO Certificate	ISO 9001 ISO 14001 ISO 45001
Fire Behaviour Tests	ASTM E119-20 ASTM E84 ASTM D1929 ASTM D635-18 ASTM D732 NFPA 285 EN13501-1
Mechanical & Physical Tests	Bureau Veritas ISO 6361-5:2011 EN 13832:2010+A1 EN ISO 11925-2:2010 ISO 6892-1:2016 ISO 7438:2016 ISO 16474-2:2013 ISO 16474-2:2013 ASTM D2244-16 ISO 2813:2014 ISO 2630-2017 ISO 28211:2017-Method A ISO 8150-2:2006 ISO 6892-1:2016 LEED
Coating Tests	KYNAR 500 FSF ARKEMA Beckers Beckry "flour 630 PVDF 3L" AAMA 2605 PPG Spectrum AGC UV Test 2000 EN13501-1
Aluminum Mill finish Tests	OARK GARMCO



8 | WARRANTY CERTIFICATE



Data Sheet FR3= FRB1

شهادة ضمان لمدة عشرون عام

شركة ألواح الخليج (TECHNO BOND) FR B1 = FR3



الفرع /
المندوب /
رقم العميل /

المكرم

السيد / السادة :
اسم المشروع :
موقع المشروع :

تقر شركة ألواح الخليج (تكنوبوند) بأن منتجها (FR B1 = FR3) مطابق للمواصفات العالمية وأنه مقاوم للحريق ومقاوم لتغير اللون وتفكك شرائح الألمنيوم، وجميع عيوب الصناعة على مدار عشرون عاماً من تاريخ تسليم المنتج للعميل .

Techno Bond Company Acknowledges That FR B1 = FR3 Products Is Identical To The International Standards Besides Resistant To Fire, Color Change Or Any Manufacturing Defects Along Twenty Years.

توقيع المدير العام

التاريخ

الكمية

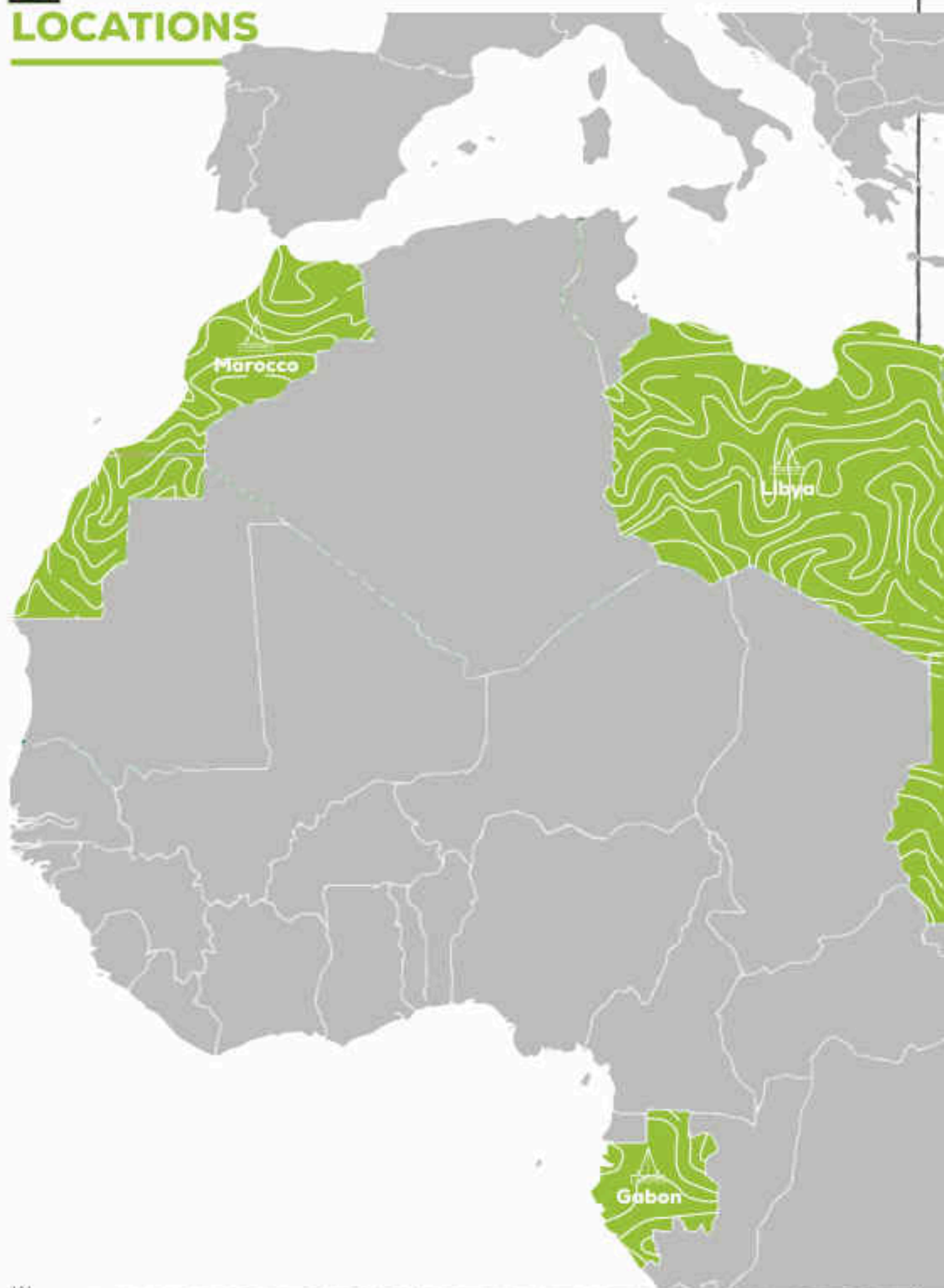
رقم اللون

رقم الفاتورة





LOCATIONS







Techno Bond

Is deservedly the largest Cladding Factory in the middle east & Africa.

Our company has continued to invest in cutting edge technology, offering an outstanding performance, durability and costly wise products over time. Technobond adequately meets with all the official standards and specific criteria, naturally making it one of the most leading competitors in the market today.

The factory works around the clock to provide customers' requests in the fastest time. You are guaranteed for 20 years against manufacturing defects.





Techno Bond



بيانات فنية
Data Sheet FR B1 FR 3



تكنوبوند .. صنّاع الكمالدينج



☎ (+96) 2777701514



☎ (+2) 01100057000



☎ (+96) 895525400



☎ (+97) 333575871