



# SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

19, University Road, Delhi – 110007 (India)  
An ISO - 9001, 14001 & OHSAS 18001 Certified Institute

Website : [www.shriraminstitute.org](http://www.shriraminstitute.org)  
E-mail id : [customercare@shriraminstitute.org](mailto:customercare@shriraminstitute.org)

## TEST CERTIFICATE

NO : C1/0000008132

Report Rev NO : 1

**Issued To :**

**Client Code : (KOLK01A0421)**  
**ALUDECOR LAMINATION PRIVATE**  
**LIMITED,**  
**SUIT NO. 52, 5TH FLOOR,**  
**IRN MUKHERJEE ROAD,**  
**KOLKATA**  
**WEST BENGAL-700001**

Date : 9/22/2015  
Job No : 11011516/1/50  
Booking No : PJ1516/1/54  
Booking Date : 7/14/2015  
Customer Ref No. :  
Customer Ref Dt. :


One sample described as Aluminum Composite Panel, A- marked as AL 33D, with 0.3 mm thick aluminium coil, was received.

"The sampling was not carried out by Shriram Institute for Industrial Research. The sample particulars provided in the test certificate are based on declaration by the party".

<u>S.No.</u>	<u>Tests</u>	<u>Results</u>	<u>Protocol/method used</u>
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**Mechanical Properties of Aluminium Coil/Aluminium skin:**

1.	Tensile strength, MPa	142	As per guidelines of ASTM E 8
2.	Elongation, %	3	As per guidelines of ASTM E 8
3.	0.2 % proof Stress, MPa	131	As per guidelines of ASTM E8
4.	Modulus of Elasticity, MPa	60783	As per guidelines of ASTM E 8

  
**AUTHORISED SIGNATORY**  
EMPLOYEE CODE:( 4159 )





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### Paint Properties of Aluminium Coil/Aluminium skin :

5.	Top coat paint thickness, micron	27	Using Alcometer
6.	Gloss at 60° angle	25	As per guidelines of ASTM D 523
7.	Formability (T-Bend)	No cracks in the Coating by tape observed at 0T.	As per guidelines of ASTM D 4145
8.	Reverse Impact (Cross Hatch)	No lifting of the Paint by tape was observed.	As per guidelines of ASTM D 3359
9.	Hardness-Pencil		As per guidelines of ASTM D 3363
	a) Gauge Hardness	No cut on the surface of the film is observed.	
	b) Scratch Hardness	No rupture or scratch of the coating is observed up to 6H.	
10.	Abrasion Resistance (Falling sand)	Substrate not exposed after 50 Liter of sand.	As per guidelines of ASTM D 968
11.	Surface Resistance, $\Omega$	$1.5 \times 10^{12}$	As per guidelines of ASTM D 257
12.	Adhesion test		As per guidelines of ASTM D 3359
	(i) Dry	The edges of cuts are completely smooth, non of square of the lattice is detached.	
	(ii) Wet	The edges of cuts are	

  
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completely smooth,  
non of square of the  
lattice is detached.

(iii) Boiling Water

The edges of cuts are  
completely smooth,  
non of square of the  
lattice is detached

### 13. Chemical Resistance Test

As per guidelines of  
ASTM D 543

(i) 10% HCl  
( 1 hrs)

No visual Change  
as decomposition,  
discoloration swelling,  
clouding, bubbling,  
is observed.

(ii) 20 %  $H_2SO_4$   
(72 hrs)

No visual Change  
as decomposition,  
discoloration swelling,  
clouding, bubbling,  
is observed.

(iii) 20% NaOH  
(18 hrs)

No visual Change  
as decomposition,  
discoloration swelling,  
clouding, bubbling,  
is observed.

(iv) 3% Detergent solution  
(38° for 72 hrs)

No visual Change  
as decomposition,  
discoloration swelling,  
clouding, bubbling,  
is observed.

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### Physical Properties of Aluminium Composite Panel

14.	Thickness of Panel, mm	3.0	Using Micrometer.
15.	Aluminium Coil Thickness, mm Top	0.3	Using micrometer
16.	Aluminium Coil grade (skin) (Chemical analysis %by mass)	Grade 3105	As per ASTM B209 M Arc spectrophotometer
	Copper	0.026	
	Silicon	0.35	
	Iron	0.43	
	Manganese	0.38	
	Aluminium	98.40	
	Magnesium	0.34	
	Chromium	<0.01	
	Tin	<0.01	
	Zinc	<0.01	
17.	Weight, Kg/ m <sup>2</sup>	4.0	Weighing Balance & Vernier Caliper

### Mechanical Properties of Aluminium composite Panel:

18.	Tensile strength, MPa	37	As per guidelines of ASTM E 8
19.	Elongation, %	16	As per guidelines of ASTM E 8
20.	0.2 % proof Stress, MPa	30	As per guidelines of ASTM E8
21.	Flexural Strength, MPa	89	As per guidelines of ASTM D 790
22.	Formability (T-bend, top painted surface)	No cracking of Paint was observed	As per guidelines of As per ASTM D 1737
23.	Bond Strength, MPa	See note*	As per guidelines of ASTM D 1623
24.	Water Absorption, % (23±1°C for 24 hours)	Nil	As per guidelines of ASTM D 570

  
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## TEST CERTIFICATE

NO. : C1/0000015499

### Issued To:

Client Code : A0421  
ALUDECOR LAMINATION PRIVATE  
LIMITED,  
SUIT NO. 52, 5TH FLOOR,  
IRN MUKHERJEE ROAD,  
KOLKATA  
WEST BENGAL-700001  
Kind Attn: MR. PARVEEN MAHAJAN

Date 12/10/2015

Job No. 1509-1-141-3950

Booking No. RG1516/1/5973

Booking Date 29/09/2015

Customer Ref No. -

Customer Ref Date 29/09/2015

### Sample Description :

ONE SAMPLE DESCRIBED AS ALUMINIUM COMPOSITE PANEL (ACP), 3 MM ACP, MARKED AS AL33D WITH 0.3MM THICK ALUMINUM COIL, WAS RECEIVED.

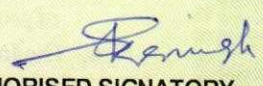
The sampling was not carried out by Shriram Institute for Industrial Research. The sample details provided in the test certificate are based on the declaration by the party.

S.No	Tests	Results	Protocol Adopted
1	Flexural Modulus, MPa	14860	ASTM D 790-08
2	Shear Strength, MPa	15	ASTM D 732-08
3	Peel Strength, N/mm	9	ASTM D-903-08

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DOR:29-09-2015

DOC:09-10-2015

  
AUTHORISED SIGNATORY  
EMPLOYEE CODE : ( 4158 )