



experience the difference.



**ALSTONE**<sup>®</sup>  
**ALCOMB**  
Aluminium Honeycomb Panel

THE LEGACY OF  
18+ YEARS OF DELIVERING  
OVER 500+ MILLION Sq. Ft.  
OF ACPs,

**NOW DELIVERS EVEN MORE.**

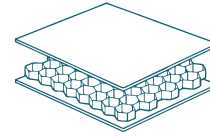
**ALSTONE<sup>®</sup>**





**THE NEXT LEVEL OF  
EXTERIOR CLADDING.**

# INTRODUCING ALUMINIUM HONEYCOMB PANELS.



## THE ALSTONE LEGACY

**Alstone** is the ideal choice of material when you want to create that high-impact design statement with spectacular and long-lasting architecture. Alstone has a strong history of dependability, quality, and stability. Today, it is the favored option of architects, builders, and installers for quality Aluminium Composite Panels, having been in the market for 18+ years and more. Alstone is readily accessible to fulfil all your needs, owing to a vast range of stock, a wide range of levels, an eye-pleasing color spectrum, and a constant product development and ongoing research. Alstone is a leading manufacturer of High-Pressure Laminate (HPL) and Fire Rated Composite Panel in India. It was founded in 2004 and has a manufacturing operation near Dehradun.. At Alstone, the company's strict adherence to quality is matched by a constant concentration on employing using the best raw materials, maintaining the highest production standards, and deploying innovative technologies. With an innovative culture, a strong focus on research and development, and a customer-centric approach. For every application, Alstone reliably produces a strong, dependable, and adaptable product.

**Pan India presence:** The company has offices across India, including Delhi, Noida, Pune, Bengaluru, Indore, Kochi, Kolkata, Lucknow, Ranchi, Mumbai, Raipur, Jaipur, Patna, Bhubaneshwar, Hubli and Hyderabad. Further, the company's network is strengthened by 16 warehouse-cum-offices, 2 production bases, and over 400 dealer-partner agreements, with more in the offing. Alstone is rapidly expanding its footprint to cover countries in its close vicinity as well as those further afield.



**ALSTONE<sup>®</sup>**

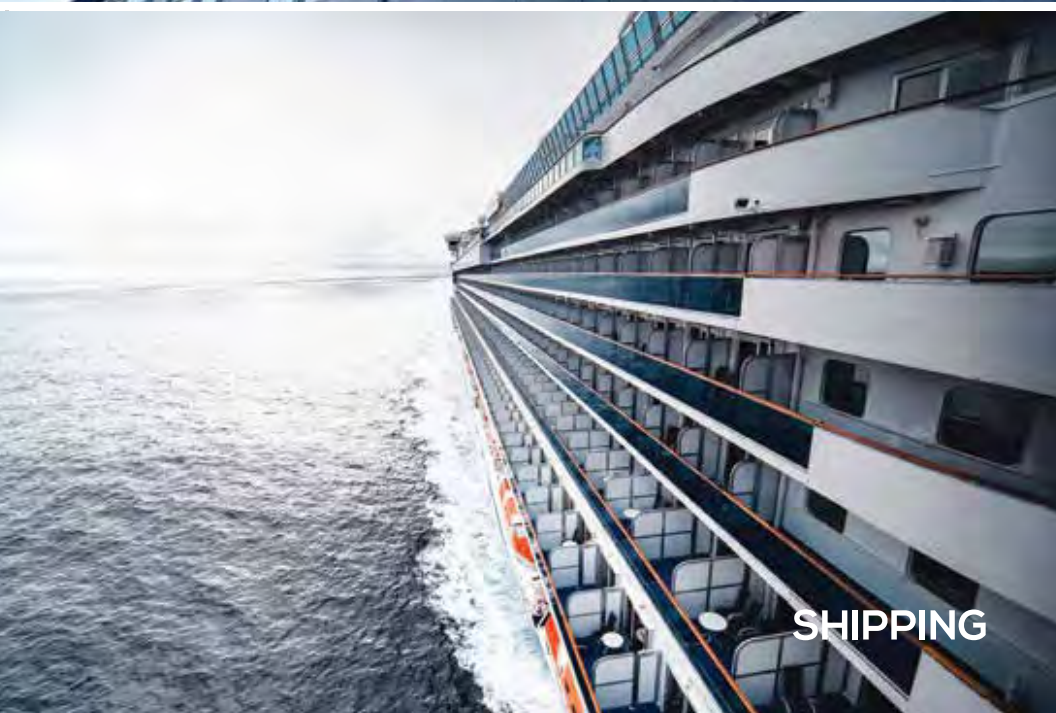




ARCHITECTURE & CONSTRUCTION



AVIATION



SHIPPING



RAILWAYS



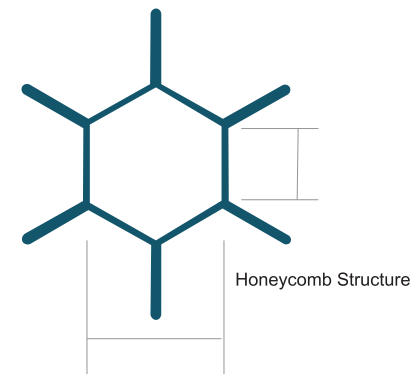
CLEAN ROOMS



TRANSPORT

# EXPERIENCE THE DIFFERENCE.

**Alstone ALCOMB** is a light and robust panel formed of two aluminium alloy sheets facing each other and a honeycomb core formed out of aluminium foils – a true inspiration of the natural hexagonal honeycomb. It is lighter than other materials due to its unique honeycomb structure. It also improves the rigidity and stability of the body. These panels are eco-friendly because they are entirely recyclable and reusable. Aluminium alloy is a non-combustible material that works well as a fire retardant and fire prevention material. We can build upon the trust that our customers already repose in us by extending a 15-year warranty on our Honeycomb panels, thanks to superior quality-control procedures that include rigorous testing under the most stringent standards.



## APPLICATIONS

### Construction/ Architecture

- Building Facades
- Ceiling and Flooring Panels
- Partitions
- Clean Rooms
- Furniture

### Industrial

- Heating
- Ventilation
- Flow Straightening (Air & Liquid)
- Light Diffusers
- Electromagnetic Shielding

### Marine

- Interior Panels & Partitions
- Ceiling & Flooring Panels
- Hulls & Bulkheads
- Doors

### Automotive

- Commercial Vehicles
- Military Vehicles
- Access Ramps
- Caravans and Motorsport
- Energy Absorbers

### Railways

- Doors
- Floors
- Galley & Sanitary Modules
- Energy Absorbers
- Furniture
- Walls
- Dividing Panels

### Aviation

- Flight Control Surfaces
- Rudder
- Aileron
- Spoiler
- Flap

**ALSTONE**  
**ALCOMB**  
Aluminium Honeycomb Panel

# WHY HONEYCOMB?



NON COMBUSTIBLE



LIGHT WEIGHT



HIGH STRENGTH



IMPACT RESISTANT



HEAT RESISTANT



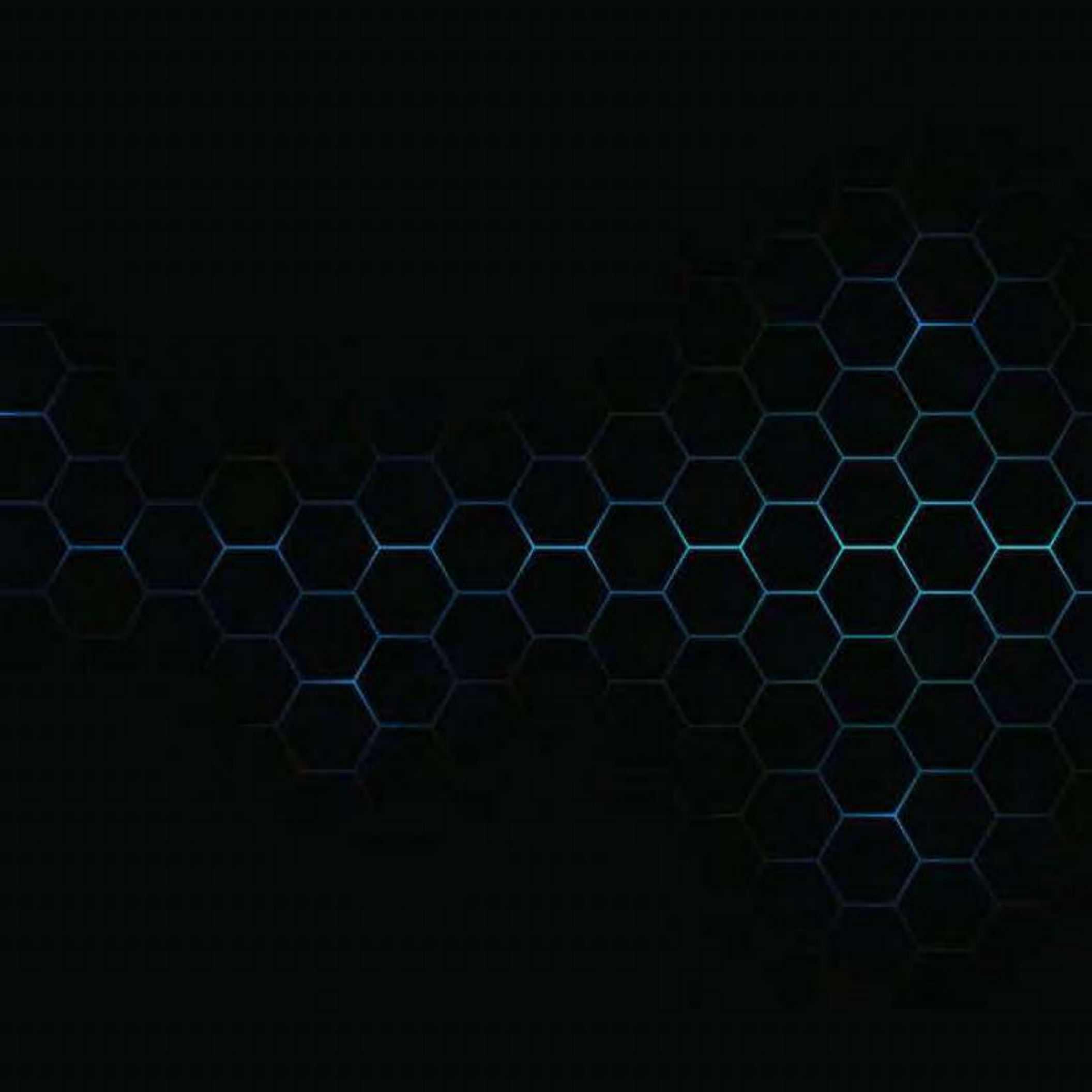
SOUND RESISTANT



100% RECYCLABLE

ALSTONE<sup>®</sup>  
**ALCOMB**  
Aluminium Honeycomb Panel







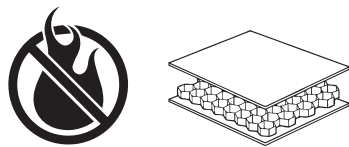
**NON-COMBUSTIBLE**

**A2 GRADE**

# FIRE PROTECTION, A2 GRADE

A deadly trio of fuel, oxygen, and heat leads to the ignition of any kind of fire. The best way to prevent the fire is to break the chain by removing just one element out of the three.

**Alstone ALCOMB** does just that by eliminating the fuel and replacing combustible LDPE core with non-combustible Aluminum Honeycomb Core. Thus, preventing the spread of fire.



**ALSTONE**  
**ALCOMB**  
Aluminium Honeycomb Panel





LIGHT WEIGHT



# LIGHTWEIGHT, LOW DENSITY & HIGHLY EFFICIENT

The honeycomb panel's core layer is a conventional cellular structure, with continuous polygonal cells that are regularly aligned, resulting in a solid part of the honeycomb panel with a tiny cross-sectional area and a lower density than other sandwich materials. Honeycomb panels thus become the lightest in weight in the same volume because their density is substantially lower than that of standard sheets such as laminates and steel sheets.

Honeycomb panels meet the standards for "lightweight, energy-saving, and environmentally beneficial" materials for architecture, aerospace, engineering and marine applications - due to their low density and lightweight feature.



**ALSTONE**  
**ALCOMB**  
Aluminium Honeycomb Panel







# HIGH ON STRENGTH & EXCELLENT RIGIDITY

According to mechanical analysis, the structure of honeycomb panel is connected with each other like I-beams. The skin sheet bears the in-plane load like I-beam flange, function of honeycomb core is similar to the web of I-beam, bearing shear stress, connecting and support both skin sheet.

However, different with I-beam web, the honeycomb core is not a thin rib but a dense reinforcement. The core layer is bonded to the entire surface of the board, and the height of core layer is much larger than the thickness of skin sheet, which makes section inertia moment multiplied, the overall stability is also increased while the overall stiffness is increased.



IMPACT RESISTANT



# UNMATCHED IMPACT RESISTANCE & VIBRATION DAMPING

Impact energy is successfully absorbed when the honeycomb panel is subjected to external impact because the impact force can be turned into the plastic deformation energy of the honeycomb core.

By inspecting the dented area and depth of impact site during the self-dropping ball impact test on the aluminium honeycomb panel, it was seen that there is no crack, showing that the aluminium honeycomb panel's toughness is better, its impact resistance is stronger and most of the energy can be absorbed by its deformation. The effect of dampening on the honeycomb is minimal – that is simply unmatched in the category.





# FAVOURABLE HEAT & SOUND INSULATION

Although the honeycomb panel's substance has no heat or sound insulation characteristics, aluminium is a good conductor of both heat and sound. The honeycomb panel, on the other hand, has a unique structure that allows it to function well – both in terms of heat and sound insulation. The core is a cellular structure with a hexagonal hole that takes up most of the space.

The cells are hexagonal column-shaped closed spaces once the honeycomb core and skin sheet are combined, and the air layer between the skin sheets is also separated into a plurality of closed cells, restricting airflow and making heat conversion and transmission difficult. Because sound waves propagation is considerably limited in this structure, the honeycomb panel provides excellent heat and sound insulation.



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HEAT & SOUND INSULATION



# NO POLLUTION, ENERGY CONSERVING & PRO-ENVIRONMENT

Aluminum alloy is used as the raw material for aluminium honeycomb panels since it is non-radioactive and does not emit any dangerous gases. Honeycomb panels can also be entirely recycled, conserving both resources and energy while also meeting energy conservation and environmental protection criteria.

Furthermore, the honeycomb panel reduces the burden on the vehicle, increases power, lowers fuel consumption, and minimises pollution while conserving energy.



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100% RECYCLABLE





# TECHNICAL SPECIFICATION

ALLOY SPECIFICATIONS		
Top Coil	AA 3003, AA 5005	H16, H24
Honeycomb Core	AA 3003	H16

(Customised Specifications Available on Request)

PANEL PROPERTIES			
Top Coil Thickness	0.7mm, 0.5mm		
Bottom Coil Thickness	0.7mm, 0.5mm		
Panel Width	1220mm		
Panel Length	2440mm, 3050mm, 3660mm		
Panel Thickness	6mm	12mm	25mm
Weight (kg/m <sup>2</sup> )	3.4	4	4.5

(Customised Specifications Available on Request)

HONEYCOMB CORE PROPERTIES	
Honeycomb Cell Size (D)	3/8" or 9.5mm
Honeycomb Foil Thickness	0.05mm-0.08mm

# TEST CERTIFICATE



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**Dr. Jayant Jain**  
Associate Professor

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Date: 02-02-2022

**Alstone Honeycomb Panel, 25mm thick**

Sr.No	Mechanical property	Test method	Units	Results
1	Tensile Strength	ASTM E8	MPa	9.22
2	Yield strength	ASTM E8	MPa	7.62
3	Elongation	ASTM E8	%	11.1%
4	Flexural Rigidity EI	DIN 53293	KNcm <sup>2</sup> /m	11608
5	Section Modulus Z	DIN 53293	mm <sup>3</sup>	1910.4
6	Shear Punch Strength	ASTM D732	MPa	4.6
7	Flexural Strength	ASTM D7264	MPa	4.69
8	Compressive Strength	ASTM C365	MPa	0.57
9	Crush Strength	ASTM-C 365	MPa	0.57
10	Bonding Strength Between Foil	ASTM D903	N/25mm	28.60
11	Cell Size	Physical	Shape and size	Hexagonal, side length 6.5 mm
12	Alloy	-	Aluminum alloy	AA 3003
13	Foil Thickness	Physical	mm	0.70
14	Tensile Strength	ASTM E8	MPa	154.9
15	Yield Strength	ASTM E8	MPa	133.5
16	Elongation	ASTM E8	%	18.9
17	Modulus of Elasticity	ASTM E8	GPa	76.96
18	Density	AMS-C 7438	g/cm <sup>3</sup>	0.595
19	Inorganic Analysis by Xray Spectrometer (EDX Analysis)	ASTM E 1508	-	Attached in Page 4

Test results pertain to samples submitted to us




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02/02/2022  
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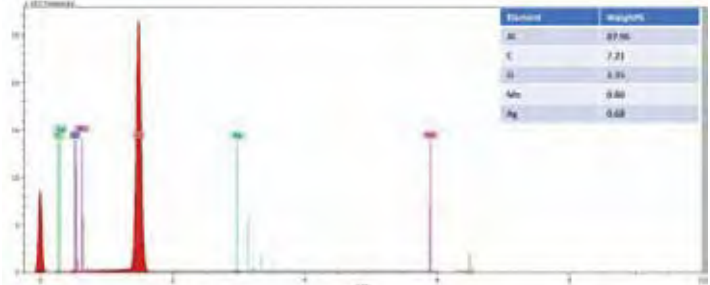
भारतीय प्रौद्योगिकी संस्थान दिल्ली  
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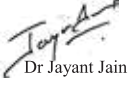
**Dr. Jayant Jain**  
Associate Professor

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Associate Professor

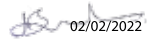
**Inorganic (EDX) Analysis**  
 Alstone Honeycomb Panel Skin (25mm) – Bottom Coil



Test results pertain to samples submitted to us



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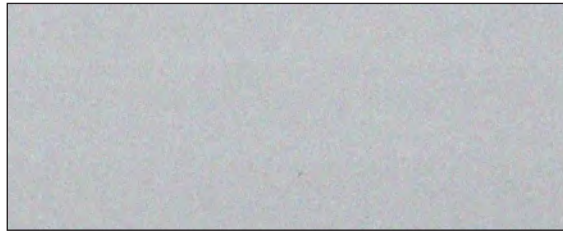


02/02/2022  
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## METALLIC SERIES



AH-301 BRIGHT SILVER



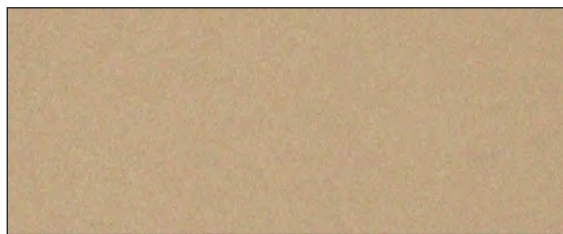
AH-302 METALLIC SILVER



AH-303 CHAMPAGNE GOLD



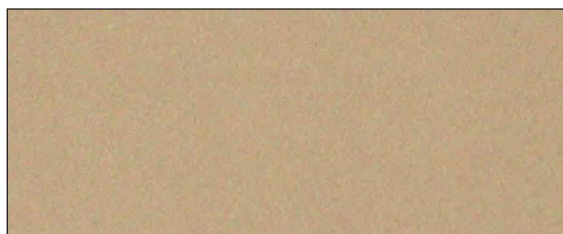
AH-304 METALLIC BRONZE



AH-305 SUPER GOLD



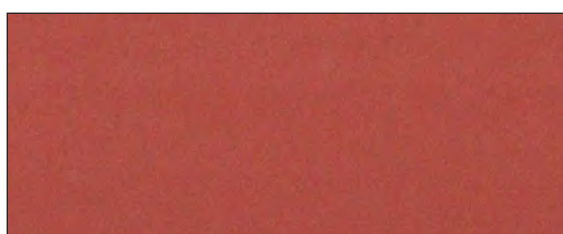
AH-306 COPPER METALLIC



AH-307 MAGIC GOLD



AH-308 BLACK SILVER



AH-309 WINE METALLIC



AH-310 BLUE SILVER

\* Product color may vary from actual shade. Please refer shade card / sample for actual shade before placing the order.

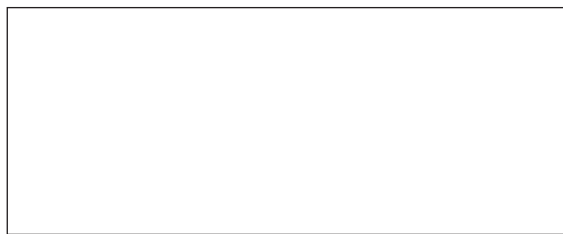
## SOLID SERIES



AH-311 BRIGHT WHITE



AH-312 IVORY WHITE



AH-313 PURE WHITE



AH-314 DHOLPUR BEIGE



AH-315 DHOLPUR RED



AH-316 SIGNAL RED



AH-317 DARK GREY



AH-318 COAL BLACK



AH-319 LIGHT BLUE



AH-320 DARK BLUE

## WOODEN SERIES



AH-401

NOVACENTOPINE



AH-402

ROYAL TEAK



AH-403

TIENO



AH-404

DARK TEAK



AH-405

AMERICAN WALNUT





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**ALSTONE®**

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