

Fire Retardant Fabrics

Product overview (1 para write up about the overall product category – for e.g. **Fire retardant and fabrics/Special products/Arvind-JCB/Workwear**)

Arvind Polser Engineered Composite Ltd's FRP sheets are modern Building and Infrastructure products having diverse fields of application. The FRP sheets act as a suitable alternative where classical metal, fiber cement and asbestos based products are not ideal fit for the requirement. It acts as an ideal (opaque/translucent) roofing & wall panel for aggressive environments, made from polyester resin that ensures excellent resistance in corrosive environments. It can be adapted to suit any structure and can be manufactured in required Plain, Trapezoidal or Corrugated Profiles as Opaque or Translucent sheets. The FRP sheets find wide applications as Roof and Wall panels for:

- Residential and Industrial buildings, factories and warehouses,
- Industrial buildings which have exposure to the corrosive fumes; salt factories, fertilizer factories, paper mills, chemical plants, petrochemical plants, etc.
- Cladding and louvers of cooling towers.
- Applications where a light weight roofing sheet is required like sports arenas, patios, etc,
- As over roofing sheets for renovation of old metal or asbestos roofing.
- Specialised application like Military, Marine, Fire safety, Green House.
- Applications which require extremely hygienic conditions for operation; Hospitals, Food Processing plants, Pharmaceutical factories etc.

Key highlights of the product category

- The FRP sheets have high performance durability and are economical.
- The sheets are strong and resilient. They don't rust, rot, scale, mildew and dent thus ensuring a higher service life.
- The sheets can also be used in combination with roof and wall cladding panels made of other materials such as; asbestos cement, galvanized, aluminium, polyurethane sandwich panel, etc
- The sheets are light in weight which results into saving on the overall cost of construction as they do not require a heavy structure to be erected to carry out their weight.
- Application of various types of coats and protective films on the surface of the sheets results into higher durability against environmental degrading, UV exposure, and corrosive chemicals and longer service life.

Range of products under the broad product category: (rough and random example below)

- FIBRALAM
- DURASER
- DECOSER
- ISOBOARD
- ISOLITE
- DECOLITE

- KAMUFLAM
- FIBERWALL
- DURAWIND
- AEROPLAN
- ARMORPAN
- FIREPAN
- SERALAM
- AMB – Anti Microbial Surface

Individual product info required: (will need the below info for each of the products stated under “Range of Products” head)

- Product overview (a 1 para write up about the product)
- USP/Special features/Key highlights (7-10 bullet points)
- Key Technical features
- **Downloadable brochure**

1. FIBRALAM:

Fibralam offers a wide range of translucent sheets that combine optimal light transmission, weather resistance, blocking of harmful UV rays and many other benefits for your building. Fibralam panels made with Unsaturated Polyester UV Stabilized resin, are specifically designed to fit various light transmitting applications such as post frame buildings, pre-engineered metal buildings and greenhouses. The Fibralam sheets may be produced with a protective film or gelcoat layer on the sheet's surface in order to extend the service life of the product.

Product Features:

- Fibralam has an excellent resistance to general corrosion for surface contacts with strong chemicals, thus remaining virtually unaffected in many chemical environments.
- Fibralam sheets are strong and resilient. They don't rust, rot, scale, mildew and dent thus having a long service life.
- With application of Gel Coat and protective film on the sheets surface results into increasing its durability against environmental degrading, UV exposure, and corrosive chemicals.
- Use of UV stabilised resin helps with sufficient light transmission while stabilizing the harmful UV rays.
- Fibralam allows as high as 85% of light to transmit making it an cost effective solution for natural lighting in buildings.

- Fibralam sheets are light in weight. This, not only results in faster assembly of the roof but also diminishes the necessity of using a heavier metal construction underneath and therefore brings significant economies to the whole project.
- Fibralam sheets can also be used in combination with roof and wall cladding panels made of other materials such as; asbestos cement, galvanized, aluminium, polyurethane sandwich panel, etc.

Common Application:

- As roof-lights and sidelights of the metal buildings
- For roofing and cladding of interiors where daylight is needed
- Cooling towers
- Green houses
- Home improvement projects (patio covers, decorative partitions, screens, fencing, etc.)
- Parking lots and car-washing facilities.
- Natural lighting in PEB buildings.

Technical Specifications:

Surface (top/bottom) :	Standard, protective film, gelcoat,
Standard thickness :	0.9 - 1.2 mm (max. 4mm)
Standard length :	According to the requirement. (Also based on transportation limits)
Specific weight :	1.30 - 1.40 gr/cm ³
Light transmission :	80-85% (natural)
Service temperature :	Between -40°C, +120°C
Tensile strength :	720 kg/cm ²
Compressive strength :	920 kg/cm ²
Flexural strength :	1200 kg/cm ²
Thermal linear expansion coeff. :	2.7 x 10 ⁻⁵ °C ⁻¹
Water absorption :	%0.2
Barcol hardness :	>40 Barcol
Self ignition temperature :	487°C

Heat transmission coeff. :	~5 w/m ² °K
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2. DURASER:

DuraserFRP sheet range denotes the opaque FRP roofing and cladding sheets that are produced in the modern continuous lamination lines in required Plain, Trapezoidal or Corrugated Profiles. Duraser FRP sheets are modern building products which have many different fields of application. They bring solutions to the projects where classical metal, fiber cement and asbestos based products are not ideal fits for the requirements. Low Thermal conductivity, Resistance to corrosion, Negligible maintenance are few of the many advantages that Duraser offers.

Product Features:

- Duraser has a low thermal conductivity which results into maintaining ambient temperature inside the building compared to metal sandwich panels.
- Duraser sheets offer resistance to general corrosion of chemicals and sea water, thus having a better service life.
- Duraser sheets can also be produced with fire retardant resins and can be protected by fire retardant gelcoat on top surfaces.
- For new roofing projects Duraser sheets save the cost of construction since they do not require a heavy structure to carry out their weight.
- With application of Gel Coat and protective film on the sheets surface results into increasing its durability against environmental degrading, UV exposure, and corrosive chemicals.
- Duraser has an excellent resistance to general corrosion for surface contacts with strong chemicals, thus remaining virtually unaffected in many chemical environments.
- Duraser sheets are strong and resilient. They don't rust, rot, scale, mildew and dent thus having a long service life.

Common Application:

- Industrial buildings, factories and warehouses,
- Duraser sheets can be used in industrial buildings which have exposure to the corrosive fumes; salt factories, fertilizer factories, paper mills, chemical plants, petrochemical plants
- Duraser sheets can be used in all types of farm buildings.
- Duraser sheet also find its application into cooling tower and can be used as Cladding and louvers.
- Duraser has a wide applications where a light weight roofing sheet is required like sports arenas, patios, etc,
- As over roofing sheets for renovation of old metal or asbestos roofing

Technical Specifications:

Surface (top/bottom) :	Standart, protective film, U.V resistant film, U.V resistant gelcoat.
Standard thickness :	1.50 - 1.80 - 2.00 mm (up to 3.00 mm)
Standard length :	According to the requirement. (Also based on transportation limits)
Specific weight :	1.50 - 1.65 gr/cm ³
Service temperature :	Between -40°C, +120°C
Modulus of Elasticity :	≥ 4500 Mpa (ISO 14125)
Tensile strength :	≥ 50 Mpa (ASTM D 638)
Bending Strength	≥ 100 Mpa (ISO 14125)
Thermal linear expansion coeff. :	2.7 x 10 ⁻² °C ⁻¹
Water absorption :	%0.2
Barcol hardness :	>40 Barcol
Self ignition temperature :	487°C
Heat transmission coeff. :	~5 w/m ² °K
Self Ignition Temperature	487 °C

3. DECOSER:

Decoser Wall and Ceiling panels are new generation building materials which are specially engineered for buildings where minimum maintenance and maximum sanitation is required. Decoser resin rich surfaces are tough, strong, and easy to clean. Ideal for high traffic areas where hygiene and easy maintenance are a must.

Product Features :

- Decoser FRP panels are in compliance with HACCP STANDARDS and thus can be used in food processing and other related industries.
- Duraser sheets have perfect resistance against micro organisms, algae, mildew and fungus.
- Decoser sheets have high resistant against moisture. They do not rust, corrode and do not allow formation of mold and mildew.

- Ease of Cleaning: Dirt and grease could be cleaned off easily. The panel is highly resistant against chemicals and stains.
- Decoser panels are highly resistant against impacts, scratches and abrasion.
- Decoser sheets are easy to install.

Common Application:

- As suspended ceilings
- Interiors of Food processing plants
- Applications into Fisheries, Slaughterhouses, Dairies
- They can be used in Refrigerated warehouses
- High hygienic environment like Hospitals and Medical laboratories
- Chemical laboratories and Chemical plants
- Industrial kitchens
- Storage areas
- Car washes
- Prefabricated house walls
- Partition walls

Technical Specifications:

Thickness	2.3 mm (0,09")
Finish :	One side embossed
Colors:	white, almond, beige, grey, ivory, RAL colours
Flexural strength :	1.200 kg/cm ² (17.000 PSI)
Flex modulus :	42.180 kg/cm (2600.000 PSI)
Tensile strength:	565 kg/cm ² (8.000 PSI)
Tensile modulus:	66.560 kg/cm ² (943.000)Barcol
Barcol hardness:	50 Barcol
Water absorbtion:	% 0.17
Available fire grades:	Class A - Class C (ASTM E-84), Class 1 -3 (BS 476-7)

4. ISOBOARD :

ISOBOARD panels are manufactured by lamination of Decoser wall liner panels onto substrates such as plywood, OSB, EPS and XPS. The hybrid panels are rigid and robust in order to meet the requirements of different wall and ceiling applications.

Product Features :

- Isoboard panels are in compliance with HACCP STANDARDS.
- Isoboard panels are light weight materials but are also strong and durable.
- Easy to clean, easy to maintain. Can be easily cleaned with steam, detergent, water or high pressure sprayers

- The surface finish is stain resistant and impervious.
- Isoboard sheets are Chemical and Moisture resistant.
- Lightweight, flexible panel that is easy to install
- High impact resistance from shattering and scratches

Common Applications:

- As door panels for PVC frames
- Interiors of Food processing plants
- Applications into Fisheries, Slaughterhouses, Dairies
- They can be used in Refrigerated warehouses
- High hygienic environment like Hospitals and Medical laboratories
- Chemical laboratories and Chemical plants
- Industrial kitchens
- Storage areas
- Car washes
- Prefabricated house walls
- Partition walls

5. ISOLITE

ISOLITE are factory assembled insulating roof light panels which are manufactured by assembling two sheets of Fibralam translucent sheets with high density polyethylene foam spacers. Isolite panels are produced to match PUR, EPS and rock wool sandwich panels which are used for roofing and cladding of industrial buildings.

Product Features

- Isolite panels remain virtually unaffected in many chemical environments.
- They have an excellent resistance to general corrosion for surface contacts with strong chemicals.
- Isolite panels are resistant against high temperatures.
- Isolite has a low thermal transmission coefficient of $3 \text{ W/m}^2\text{K}$.

Common Applications

- As roof-lights and sidelights of the metal buildings
- For roofing and cladding of interiors where daylight is needed
- Cooling towers
- Green houses
- Home improvement projects (patio covers, decorative partitions, screens, fencing, etc.)
- Parking lots and car-washing facilities.

6. DECOLITE

DECOLITE are high quality translucent FRP panels which have superior resistance against UV and environmental degradation with respect to costly alternatives available in market. The hexagonal textured

bottom surface ensures a perfect refraction and an evenly distribution of daylight into the building. The protective coating on the upper surface act as a shield against aggressive environmental conditions.

Product Features

- Decolite panels are more aesthetically appealing.
- Light transmission through Decolite panels are as high as 90%.
- They have high resistance to aggressive environmental conditions.
- Better alternative in terms of quality and economy compared to other products.

Common Applications

- Hotels and tourist buildings.
- Shopping malls and recreational centres.
- Winter gardens, hobby greenhouses.
- Car ports and patios.
- The roof of sports arenas and swimming pools.
- Any kind of translucent decorative partitioning wall applications.

Technical Specifications:

Thickness	1.5 mm
Bending strength :	190 N/mm ²
Tensile strength:	65 N/mm ²
Tensile modulus:	8 N/mm ²
Specific Gravity	1.4

7. KAMUFLAM

KAMUFLAM camouflage roofing & cladding FRP panels have been developed as a superior roofing and cladding panel for military uses. The panels can be used as an alternative to metal and asbestos sheets. Being light in weight, it saves on the overall cost of erecting heavier metal structure for its support.

Product Features:

- Camouflage pattern is embedded and It does not need to be painted.
- Does not rust, rot and corrode and thus offer high service life.
- Easy to assemble, saves on the cost of labour.
- It has a superior mechanical strength because of use of glass fibres.

- The special surface coating on the outer surface provides a superb protection against the degrading effect of UV.
- The outer surface of the panels might be produced as non reflecting(mat) .
- In case of an explosion unlike the asbestos or metal sheets it does not create a shrapnel effect, it is just torn.
- It is possible to produce the panel in any military pattern..(Snow type, sahara type, etc..

Common Application:

- Roofing and cladding of military silos and warehouses.
- Modular military buildings. (Toilets, shower, shelters , barracks, etc.)
- Garages
- Military vehicle bodies.
- Roofing and cladding of barracks for the hunters

8. FIBERWALL

FIBERWALL panels are manufactured by the lamination of Decoser wall liner panels onto other materials. The hybrid panels are rigid and robust in order to meet the requirements of different wall and ceiling applications.

Product Features:

- Fiberwall panels are light weight materials but are also strong and durable
- The panels are Hygienic as well as Decorative.
- Fiberwall panels have granite looking effect.
- Impact and scratch resistant
- Easy to clean, easy to maintain
- Can be cleaned with steam, detergent, water or high pressure sprayers
- Easy to machine, easy to install
- Fiberwall panels are Chemical and Moisture resistant.

Common Application:

- Hotels and tourist buildings.
- Shopping malls and recreational centres.

9. DURAWIND

Durawind is a special purpose FRP panels, used to contain toxic air residues from being blown into the surroundings. Apart from this, Durawind can withstand wind load upto 115km/hr making it an

ideal choice for installation across highways as wind curtains to avoid high winds being blown into the neighbourhood.

Product Features:

- Both sides of the panels are produced with the Diamond Shield UV protection technology
- The panels are highly resistant to corrosion
- They have high mechanical strength due to the special fiberglass matrix
- They are resistant to 115 km/hr wind load

Common Application:

- Coal fired plants
- Ports
- Coal Storage and Handling Facilities
- Ash and Dust Containment
- Construction and Demolition Sites
- Cement Factories and Concrete Manufacturing Facilities
- Refill / Excavation Sites
- Highways

10.AEROPLAN

Aeroplan is a high quality FRP translucent multi wall panels. Aeroplan panel consists of two outer skins of FRP sheets and PMMA spacers in between, which form multi walls that will enhance heat and sound isolation. The FRP sheets that form the outer skins of the product have superior weathering performance and a high value of UV resistance to ensure a long service life.

Product Features:

- Aeroplan panels are light in weight.
- Aeroplane panels have a high rate of light transmission.
- The panels have a low heat transmission coefficient.
- Low UV transmittance upto 380nm of 0%
- Low solar energy transmittance

Common Application:

- Air Hangar doors
- Façade panels of commercial and industrial buildings.
- Translucent inner walls
- Architectural walls

Technical Specifications:

Surface (top/bottom)	Cracked ice or honeycomb
Outer Walls	3.0 mm thick Fibralam Diamond Shield FRP sheets
Spacers	3 mm PMMA spacers
Standard thickness	40 mm
Light Transmission	72%-78%
Barcol hardness	>40 Barcol
Self ignition temperature	487°C
Heat transmission coeff.	~2.5 W/m ² °K
Self Ignition Temperature	487 °C

11.ARMORPAN

Armorpan panels are designed for ballistics resistance. The panels are manufactured using specially constructed glass reinforcements in a speciality resin matrix.

Product features:

- Armorpan panels provide ultimate protection against bullets and blast fragments.
- Armorpan panels are high corrosion resistant and rust free products.
- Armorpan panels could be concealed behind a drywall or woodwork of walls, lecterns, desks and counters.
- Armorpan panels could be incorporated with bulletproof door and window systems.
- Armorpan panels does not contain any harmful or toxic materials, no formaldehyhde.
- Armorpan panels could be incorporated with bulleproof fencing systems.

Application Area:

- Military Transport Vehicles For Personel and/or Ammunition
- Military Baracks and Military Security Gates
- Target Ranges
- Navy Vessels and Coast Guard Ships
- Private Yachts
- Temporary or Mobile Bullet Proof Shield Applications for Law Enforcement Bodies

- Fencing of Strategic and Critical Public Utilities Such as Power Grids, Power Plants, Strategic and Sensitive Industrial Plants
- Banks and Foreign Money Exchange Offices
- Courthouses / Court Rooms
- Law Enforcement Stations
- Embassies & Consulates
- Public Safety Facilities
- VIP Hotel Rooms

12.FIRELAM

The first ever single skin FRP fire barrier with EN 13501 certification. Approved 20 minutes fire retardancy with high mechanical strength due to its 6.8 mm thick reinforced composite structure. Possibility to produce both as corrugated or flat panel.

Product features:

- Light weight compared to equivalent metal and cement based products.
- Simple to assemble on pultruded, wood or metal structures.
- Composite product with high level of corrosion and chemical resistance against general corrosion.
- Easy to drill and cut for further processing on site.
- Panels could be supplied as predrilled and fabricated with precise dimensions on CNC routers according to client requirements making it extremely easy to install on site.
- Very low water absorption percentage.
- Firelam panels are not effected by capillarity & frost.
- No risk of product deterioration due to environmental weathering that happens to fiber reinforced cement fire barriers in case of delayed jobsites.
- Easy to make fabrications with CNC routers and even with hand tools

Common Applications:

- Cooling Towers
- Chemical Plants
- Off Shore Platforms
- Modern Mining
- Fire protection of high rise buildings
- Inserts for producing fire resistant doors

13.SERALAM

SERALAM FRP panels are high quality, translucent FRP panels which can be made in trapezoidal, corrugated or flat glazings profiles. Seralam has been specifically designed for making of Greenhouse structures. The Seralamglazings combine durability and economy both for the existing greenhouse projects and the new ones. Seralam glazing can be produced with an extra protective layer on the top and on the bottom or with acrylic resin within the body to increase its durability against UV and chemical corrosives. Seralam glazing can not only be used as the sole cladding and roofing product in a project but also in combination with fibercement, galvanized steel, and PU sandwich metal roofing panels.

Product Features:

- The agricultural productivity in Seralam greenhouses is superior to other greenhouses that are constructed using other products.
- Seralam creates minimal amount of shading with a high translucency factor of 95%.
- Seralam’s low thermal conductivity minimizes energy costs compared to substitutes.
- The UV additive, blocks the harmful arrays of UV.
- Seralam is highly durable at a very wide range of operating temperatures (-40°C - +130°C).
- Seralamglazings are hygienic and do not let growth of microorganisms.
- Seralamglazings do not emit toxic materials throughout their operating life.
- Seralamglazings are easily cleaned, they do not rust or corrode.
- Seralam greenhouses have longer life span compared to nylon covered greenhouses.
- Seralam greenhouses require a lower cost steel frame/structure.
- Seralam greenhouses are more durable against wind load compared to other greenhouses.

Technical Specifications:

Surface (top/bottom)	Standart, protective film, gelcoat, Embossed
Standard thickness	0.9 - 1.2 mm (max. 4mm)
Standard length	According to the requirement. (Also based on transportation limits)
Specific weight	1.30 - 1.40 gr/cm3
Light transmission	90-95% (natural)
Service temperature	Between -40°C, +120°C
Tensile strength	720 kg/cm2

Compressive strength	920 kg/cm ²
Thermal linear expansion coeff.	2.7 x 10 ⁻⁵ °C ⁻¹
Water absorption	%0.2
Barcol hardness	>40 Barcol
Self ignition temperature	487°C
Heat transmission coeff.	~5 w/m ² °K

14.AMB - Anti Microbial Surface

AMB is a patented antimicrobial polymer upgrade available on most of “Arvind PolserEngineered Composite” range of FRP sheets , profiles and associated products. AMB is the latest technology for protecting the products surface against a broad spectrum of damaging microbes including bacteria, algae, mold, mildew and fungi by reducing the amount of microbes.

Product Features:

- The product is a registered and authorised in EU under the Biocidal Product Regulations.
- The AMB treatment does not alter the feel or look of the finished product.
- The AMB treatment provides a permanent non leaching barrier that actively destroys microorganisms that come into contact with it in a physical manner thus retaining its strength and effectiveness throughout the life of the product.
- The finished product is non toxic and non hazardous to ship, handle and work on.
- It does not contain heavy metals and also does not give off harmful metals.
- Resistant to organic solvents, strong acids and bases.
- It is thermally stable upto 494.6C

Common Applications:

- Food Production and Processing Facilities
- Dairy Enterprises
- Meat Processing Facilities
- Hospitals, Polyclinic Other Medical Enterprises
- Operating Rooms
- Laboratories
- Intensive Care Units
- Veterinary Clinics
- Clean Room facilities

Technical Specifications:

Flexural Modulus	2758 Mpa
Tensile strength	48 Mpa
Tensile Modulus	5516 Mpa
Thermal linear expansion coeff.	20 m/m°F
Water absorption	%0.15
Barcol hardness	45
Surface Burning Characteristics	Class C