



SATTVA FIREPLAST™



Your Guardian in Extremes



- ✔ Chill in the Warmth
- ✔ Cool in the Heat
- ✔ Always Fireproof *

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* Fire Resistance upto 1250°C

New Heat Barrier

For OLD and NEW Buildings

Architect

Design Freedom

- **No design constraints** - Any design can be made suitable for tropical climate. Easy group housing designs.
- **Goodbye to trussed roof** - No need for truss structure or roof tiles/sheet for heat proofing.
- **Aesthetic Friendly** - Roof tiles, if required, can be mounted on Sattva Fireplast plastered slope roof or may be designed to suit the environmental compulsions.
- **Design Flexibility** - Enormous design flexibilities to suit the Architect's imagination.
- **Light weight** - Additional floors, structures, fire walls etc. can be constructed using Sattva Fireplast.

Builder

Execution Safe & Easy

- **Protects Quality** - Direct replacement of conventional / Ready-Mix Plaster.
- **Crack free** - Protects structure from developing cracks due to extreme heat.
- **Save Labour & Time** - Better labour output, better surface finish and speedy completion of project.
- **Easy Transportation & Storage** - Packed and light weight makes handling easy.
- **Save Maintenance Cost** - Reduce maintenance requirements substantially.

Sattva Fireplast, a climate control ready-mix plaster used like internal and external plastering (Roof, Wall & Ceiling) of a building. Sattva Fireplast ensures cool interior in summer and warm interior in winter making it a perfect material for a future compatible building.

User

Life Comfort

- Cool Interior during summer
- Warm Interior during winter
- Double the life of a building
- No more plaster cracks/spalling due to extreme heat
- Exceptional thermal insulation
- Energy saving "green" product
- Completely fire proof
- Better acoustics - Good for high traffic area
- Vermine and Termite resistant
- Durable & easy to apply
- Ultra light weight reduces high rise structural building costs
- Application same as like Conventional Plaster
- No special skill required
- Permanent solution for weather change

Roof (RCC Flat or Slope) Plaster/Screed

Sattva Fireplast plaster/screed thickness - Minimum 12 - 24 mm or as required to suit the climate condition at the location. FRP 1030/1045 (Sattva Fireplast + Water)

Internal/External Wall & Ceiling Plaster

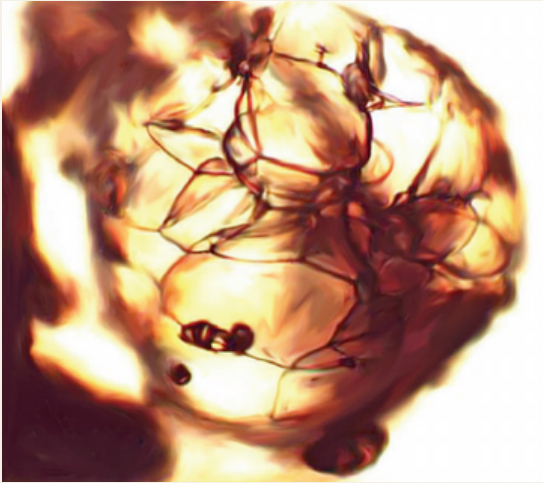
Sattva Fireplast plaster thickness - Minimum 12 mm or as required to suit the climate condition at the location. FRP 1030/1045 (Sattva Fireplast + Water)

Sattva FirePlast + Water = Unmatched
Plaster Power – Redefining Strength,
Resilience, and Safety!

1.0 MATERIAL AND PROPERTIES

1.1 Introduction

Sattva Fireplast a heat-proofing plaster and screed aggregate (also known as Sattva Fireplast) used for plastering and many other applications derived out from unique Inorganic glass property. Sattva Fireplast processed form is ideally suited for use with cementitious and other binders. It also has truly exceptional fireproofing properties.



Sattva Fireplast Granule (250X magnification)

Your basic raw material made from Unique Inorganic glass ore. It is crushed and passed through a series of specially developed processing equipments and through this **patented process crushed grains** are converted into a multitude of well sealed glass beads. It also alters the chemistry of the glass and results in a higher melting point. Under the microscope, each tough bead comprises a froth of glass-walled closed cells each enclosing a near vacuum. Inorganic glass granule is therefore best described as comprising millions of tiny sealed "thermos flasks". This makes absolutely unique, unrivalled insulating and fireproofing properties.

Also visit:

Sattva Fireplast Product introduction & details:
<https://www.youtube.com/@sattvafireplast>

1.2 Excellent thermal insulator

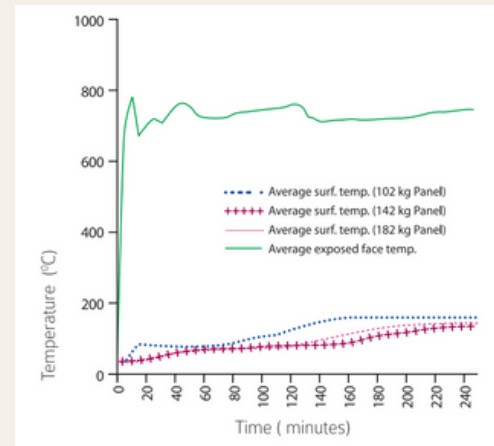
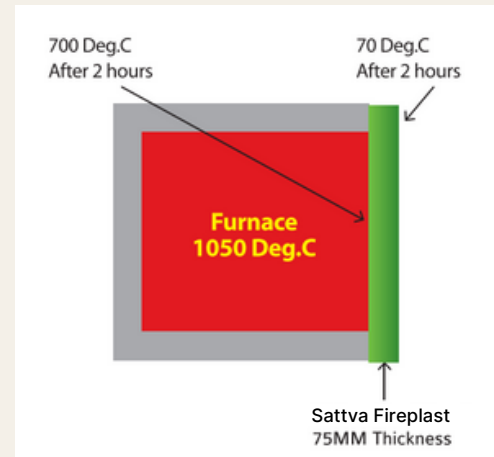
The thermal property of Sattva Fireplast is very low due to its low density and physical structure. The 'k' value of Sattva Fireplast in loose form. The K value will be as follows:

- a) Unique Inorganic granule in loose state : 0.05 W/m °C
- b) Sattva Fireplast FRP 1045 : 0.13 W/m °C
- c) Sattva Fireplast FRP 1030+/1030 : 0.15 W/m °C

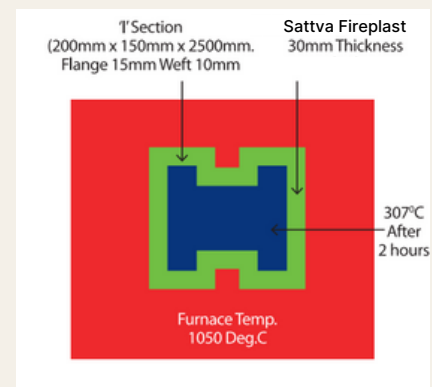
Note: The 'k' value of a conventional cement plaster is 0.72 W/m °C.

Test Data

1. A Furnace Test in which one panel of the furnace has been removed and replaced by Sattva Fireplast panel thickness of 75mm. The furnace has then been put to test for a period of 2 hours and the result has been mentioned in the table below.



2. A Furnace Test in which an 'I' section has been plastered 30mm thickness of FRP 1045 and this 'I' section has been put in a furnace and tested for a period of 2 hours and the result has been mentioned in the table below.



1.3 Ultra lightweight

Density in the loose state (unique Inorganic granule) is 100 kg/m³. when Sattva Fireplast, practical mortar densities ranging from 300 kg/m³ to 1000 kg/m³ can be achieved. The Sattva Fireplast mortar will therefore float on water.

The approx. density at various Sattva Fireplast grade follows:

FRP 1030+/1030 : 770 kg/m³

FRP 1045 : 670 kg/m³

HRP 1060 : 480 kg/m³

FRP 1100 : 360 kg/m³

Note: Conventional plaster Mortar (Cement + River Sand (1:4)) Mortar will have a density of approx. 2000 kg/m³.

1.4 Exceptional Fire Resistance

Despite its high melting point of 1250°C, Sattva Fireplast can maintain its structural integrity at high temperatures due to its thermal insulating property. The latter ensures a very high thermal gradient on the outer surface during fire conditions resulting in very low temperatures immediately below the fire exposed surface. Indeed, even if the surface melts, it coalesces into molten glass beads which insulate and protect the interior.

1.5 Superior Strength

Ultra lightweight mortar are generally weak and, in the case of aerated mortar, are extremely vulnerable to total slump shortly after casting, especially if any vibration or disturbance is present. Sattva Fireplast mortar does not rely on air-entrainment and can be cured under any conditions of vibration. Once cured, the product exhibits surprising strength in comparison to other lightweight mortar. Strength varies with density but practical strengths in the range up to 23 MPa are quite achievable.

1.6 Adhesion (Spray or Plaster)

Sattva Fireplast can be plastered (without the use of additives) either with a trowel or by spray to most common surfaces with good adhesion. In the case of doubtful/smooth surfaces, a recognised cleaning procedure, followed by the application of a bonding agent, i.e a plaster grip primer, is recommended. In this case, Sand plaster will even adhere to smooth steel.

1.7 Low Water Permeability

The Sattva Fireplast can be deemed to be completely watertight without the use of any additives. Substrate corrosion is therefore minimised.

1.8 Zero Smoke and Zero Fumes

Due to its inorganic structure "Sattva Fireplast" evolves. zero smoke and zero fumes under fire conditions.

1.9 Amazing resistance to spalling

Under fire conditions and, more severely, under water quench conditions following extreme heat, (e.g. from a fire hose) conventional mortar will spall and lose its integrity. Sattva Fireplast exhibits no such tendency and, following a fire, the material generally need not be replaced.

1.10 No weather effect

No effect on the structure due to frequent changes in the weather i.e. switching of weather generally affects the conventional plaster and mortar, but has no effect on Sattva Fireplast plaster/screed. Substrate corrosion is therefore substantially reduced extending the life of the concrete structure.

1.11 Improved Acoustic Properties

Being a soft material with the vacuum feature in the Sattva Fireplast it improves the acoustic properties of the building.

1.12 Test Reports / Approvals

3rd Party Test Reports are available periodically include mobile hydrocarbon fire tests, plus density, permeability, smoke emission, strength tests and abrasion tests.

1.13 Green Product Certification

GRIHA and IGBC are applied for.

2.0 PRODUCT PACKAGING

Sattva Fireplast is supplied in polypropylene bag with detailed mixing instructions.

Printed instruction on Sattva Fireplast bag



MIXING INSTRUCTIONS

Code		Water	Use For	Approximate Compacted Volumetric Yield
FRP 1030+ and FRP 1030		9 to 11 Litres	Plaster Mix	± 0.31 m ³  93 Litres
		8 to 10 Litres	Screed Mix	± 0.031 m ³  31 Litres
FRP 1045		8 to 10 Litres	Plaster Mix	± 0.31 m ³  93 Litres
		7 to 9 Litres	Screed Mix	± 0.031 m ³  31 Litres
HRP 1060		7 to 9 Litres	Screed Mix	± 0.035 m ³  35 Litres
HRP 1100		7 to 9 Litres	Screed Mix	± 0.035 m ³  35 Litres

Note 1 : During Plaster application PRESS APPLY the mix on the wall /ceiling / roof surfaces.

Note 2 : Sattva Fireplast screeds must be thoroughly compacted before allowing to dry, Inadequate compaction will result in a reduction of final compressive strength.

SATTVA FIREPLAST SUITABILITY GUIDE

Typical Applications	FRP 1030	FRP 1045	FRP 1060	FRP 1100
Plaster - External	✓	✗	✗	✗
Plaster - Internal	✓	✓	✗	✗
Light Weight Screeds	✓	✓	✗	✗
Built - Up Floors	✓	✓	✗	✗
Insulating Roof Decks	✓	✓	✓	✗
Fire Seals	✓	✓	✓	✓
Castables	✓	✓	✓	✓
Spray Applications	✓	✓	✓	✗
Cast Thermal Insulation	✗	✗	✓	✓

✓ Suitable ✗ Not Suitable

For more details visit : www.sattvafireplast.com Made in India

3.0 APPLICATION

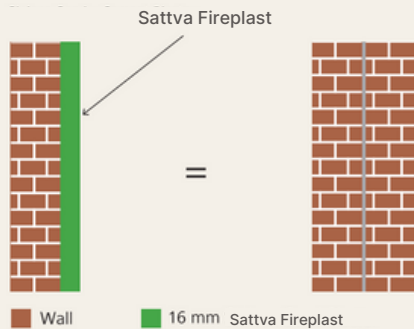
Also visit Sattva Fireplast - Mixing & Application procedure:
<https://www.youtube.com/watch?v=vOHWrNfwr7Y>

3.1 Applications of Sattva Fireplast

- 1) External and internal plastering
- 2) Heat proofing/insulating roof decks.
- 3) Light weight mortar screed for metal roof.
- 4) Building up of floors
- 5) Fire proofing of structures and fire seals
- 6) Pre-cast Items
- 7) Cast thermal insulations
- 8) Architectural design applications
- 9) As loose-fill (without cement) to fill cavities for thermal insulation purposes.

DOUBLE WALL?

With just a 16mm plaster on either side (inside or outside) of the wall would give a difference in room temperature same as having a two double clay bricks wall as shown in the picture.



3.2 Typical Plastering Yield

This applies to all sattva fireplast grid mentioned in the table of Typical Properties above.

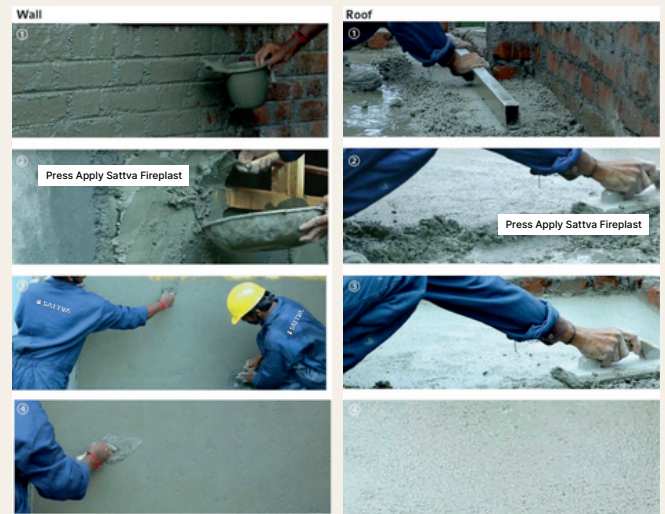
In the cases of general plastering applications, Sattva Fireplast can give the following plastering yield.

- 1) For internal/external wall and ceiling plaster - Sattva Fireplast FRP 1030 at 12mm thickness is 25-28 sq. ft. in a bag
- 2) For roof plaster (Screed) - Sattva Fireplast FRP 1030 at 24mm thickness is 14-15 sq. ft. in a bag.

3.3 Plaster Mixing Methods

1. General : All the principles of good mortar practice apply to Sattva Fireplast mixes
2. Mixing :
 - a) Add the correct amount of water (refer to the Typical Property Table and note that the water quantity is given in litres per Sattva Fireplast bag). The product may appear very dry, especially if hand-mixed, but this is correct. It is important to monitor the amount of water added since small differences in water content have a large effect on overall consistency and slump.

b) Mix, but do not overdo, mixing time about 30-40 second in a mechanical mixer is all that is required (longer mixing entrains too much air).



3.4 Plastering

1. Use conventional plastering methods for plastering Sattva Fireplast plaster. However, press apply the plaster on the surface instead of throwing.
2. Guniting Sattva Fireplast mortar may also be guniting. Because lower air velocities are used than for ordinary guniting procedures, the rebound is lower. A further advantage is that the rebound can be re-used.

3.5 Some Very Important Tips

1. The water content is extremely important. Too much water will yield poor results and lead to shrinkage, weak mortar and cracking.
2. When plastering, use any plaster grip primer. Particular attention should be paid to the degree to which the plaster has set prior to levelling with straight edge. As with any plaster, it should be set sufficiently so that it is difficult to cause an indentation by applying thumb pressure. If the straight edge is applied prematurely, it will cause the plaster to de-bond from the wall and slump cracks.

Note:- This brochure is subject to change without notice. Use any plaster grip primer for better adhesion on smooth surfaces.

3. As with any mortar screed or plaster, proper curing under damp conditions and out of direct sunlight is vital for success.
4. The application will determine the exact water ratio. For example for casting and plastering applications, the user may decide to use the high water content (refer to the Typical Properties table) whereas for screeds a drier consistency and stronger product may be preferred, hence the low water content may be chosen.
5. Once applied, the surface must be kept moist for the first 14 days while curing. If the finished product is to be exposed to direct sunlight or fast cured, contact our office for advice on specialised additives.

3.6 Typical Properties

See below table.

1. Recommended water content as indicated, for plastering and casting application use higher water content.
2. The data in the table is expected values at standard mixing times, proper curing practice and correct water ratio.
3. Important Note: The water ratio is very important. Numbers shown are per bag of Sattva Fireplast.

Product Grid	FRP 1030+ / 1030		FRP 1045		HRP 1060		HRP 1100	
	Low Water	High Water	Low Water	High Water	Low Water	High Water	Low Water	High Water
Water Ratio of Sattva Fireplast (in litre)	9	11	8	10	7	9	7	9
Slump (mm)	55	250	45	240	50	230	30+	90+
Flow (mm)	370	635	380	580	365	365	355	570
Measured Air Content (%)	12	16	15	18	21	21	22	21
Drying Shrinkage (%)	0.17	0.16	0.18	0.19	0.16	0.16	0.12	0.12
Watering Expansion (%)	0.14	0.14	0.17	0.17	0.15	0.14	0.1	0.1
7 day ISO flexural strength (Mpa)	3.7	1.9	3.4	2.0	1.5	1.1	-	-
28 day ISO flexural strength (Mpa)	4.9	2.7	4.2	2.5	1.8	1.3	-	-
7 day ISO compressive strength (Mpa)	14.2	5	12.6	5.2	3.9	3.9	-	-
28 day ISO compressive strength (Mpa)	19.8	7.5	16.9	6.3	4.4	2.9	-	-
7 day 100mm cube strength (Mpa)	16.9	7.3	15.6	6.9	4.7	3.1	1.2	0.8
28 day 100mm cube strength (Mpa)	23	10	19	8.7	6	4.3	1.7	1.4
Wet Density (Kg/m ³)	1400	1150	1250	1000	900	800	750	700
Dry Density (Kg/m ³)	1100	900	800	650	550	450	360	350

Note : Lower the amount of water better the result.

4.0 HOW A SATTVA FIREPLAST PLASTER MORTAR APPLICATION SPECIFICATION (EXAMPLE) TO BE PRESCRIBED.

4.1 Wall and Ceiling Plastering

Provide and apply 12mm thick single coat internal, external and ceiling plaster with Sattva Fireplast with minimum water content for all plain / curved surfaces of brick / block / RCC walls and finishing the same in correct line, level and plumb, making of edges, corners, sill, grooves etc as per drawings and relevant specifications after surface preparation in line with Sattva Fireplast plastering methods.

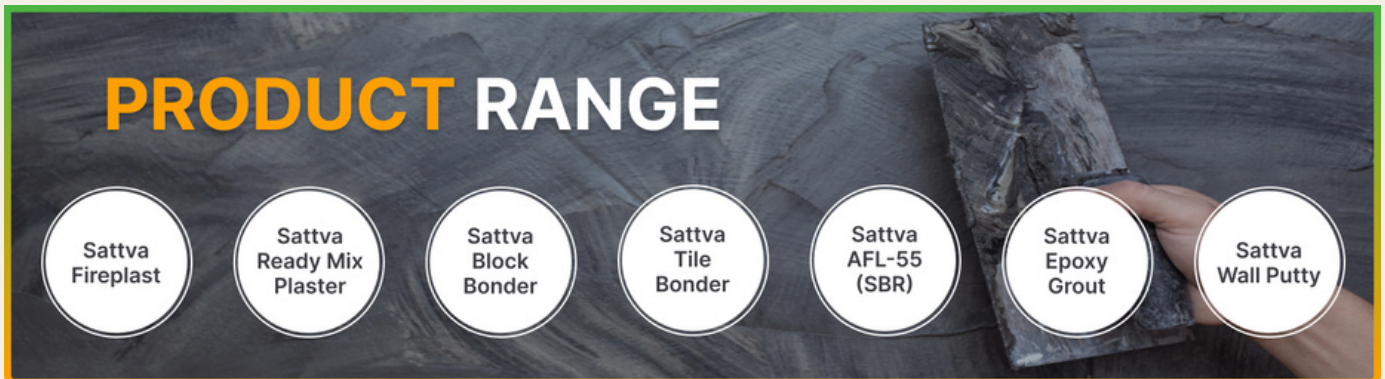
The wall / ceiling needs to be cleaned with water and use wire brush to remove fungus/dusts and hack the surface to receive plaster if surface is smooth. The surface needs wetting with water then with cement grout before Sattva Fireplast plaster application. The applied surface needs 14 days proper curing to achieve the desired quality. A base

coat and top coat shall be applied after curing period as per specification as required.

4.2 Roof Plastering (Screeding)

Provide and apply minimum 24mm thick single coat roof plaster (screed) with Sattva Fireplast mortar with minimum water content for all plain/slope surfaces of RCC roof and finishing the same in correct gradient to ensure water is not accumulated anywhere on the roof surface and the corners, joints/junctions of roof and retain wall (parapets) is chamfered, coved and properly terminated to avoid water seepage as per drawings and relevant specifications.

The roof needs to be cleaned with water and use wire brush to remove fungus/dusts and hack the surface before screeding for better screed grip. The surface needs wetting with water then with cement grout before application. The applied surface needs 14 days curing to achieve the quality. A base coat of white cement shall be applied after curing period as per specification.



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