A SARDA Venture

rhino™

ROCK SOLID INSULATION

India's
Greenest Rock
Mineral Wool

RHINO PRODUCT RANGE

Engineered for **Performance.** Built for **Future.**

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SCALE MEETS SUSTAINABILITY

As India takes bold strides towards becoming a global sustainability leader, the need for innovative, responsible solutions has never been more urgent.

At **Sarda Group**, we are proud to be at the forefront of this revolution, transforming natural resources into sustainable products that not only protect and preserve but also pave the way for a greener, more resilient world.

Our dedication is unwavering. Every process is rigorously evaluated and redesigned to maximize efficiency, while every product undergoes comprehensive quality assurance to ensure we are relentlessly advancing towards a sustainable future.

GENERAL INFORMATION

For close to a century, the **SARDA** group has stood as a pillar of progress, shaping industries and enriching lives across the globe. From the raw power of minerals to the refined elegance of real estate, Sarda's influence resonates across continents.

Trusted in over 60+ countries, we do not just craft products we meticulously weave innovation, sustainability, and unwavering excellence into every endeavor. Originating as a humble steel trading shop in 1930's, we have evolved into a thriving multi-product and multi-national enterprise. Strategically positioned with offices in Dubai, Hong-Kong, Singapore, and Indonesia.

The Sarda group is driven by a team of people with an unwavering commitment to create significant impact, with presence in diverse and vital sectors, including power, mining, steel, ferro-alloys, agri-business, food products, real estate, and construction materials. One of the lowest cost producers of steel, Sarda is also one of the largest producers and exporters of manganese alloys from India.

Across industries, we have continued to expand, innovate, and set new benchmarks for excellence – **Rhino Rock Mineral Wool** solutions being the latest.

RHINO PRODUCT VARIANTS

For the first time in India, **Rhino** – the greenest rock mineral wool will be available in three unique variants. Each variant has been meticulously engineered to meet diverse customer needs, achieving an unprecedented equilibrium between ambitious sustainability objectives and superior performance.

With these three variants, Rhino ensures that every application benefits from high-performance thermal, acoustic, and fire resistant while contributing to a greener future. All rock mineral wool products shall be available in these three variants.

rhino enduro
Future Perfect.

Rhino Enduro strikes the perfect balance between long term sustainability and robust performance. With **~45% lower carbon footprint** than Cupola produced rock mineral wool products, it is the ideal choice for customers focused on sustainability and superior thermal, fire-resistant and acoustic properties. It's resilient composition and minimized environmental impact ensures longevity and reliable performance for demanding insulation applications.

rhino elite
Peak Performer.

Engineered for those who demand the best, Rhino Elite delivers top-tier thermal, fire and acoustic insulation with a significantly smaller carbon footprint. Delivering a **~25% reduction in carbon emissions** compared to conventional cupola furnace rock mineral wool products, it empowers customers to prioritize both performance excellence and demonstrate sustainability leadership.

rhino eco-green
World Saver.

For organizations with environmental sustainability at their core, Rhino Eco-Green sets a new global benchmark. Achieving **~65% reduction in carbon footprint** compared to market alternatives. This variant is a testament to our commitment to eco-friendly production. Rhino Eco-Green is the definitive choice for industry leaders in sustainability, and is perfectly suited for commercial, institutional, and residential infrastructure targeting green ratings and certifications.

India's Greenest Rock Mineral Wool

RHINO PRODUCT RANGE

Explore our range of high-performance rock mineral wool insulation products. At present Rhino products are available in Elite Variant with ~25% reduced embedded carbon emissions as compared to cupola furnaces. Enduro as well as Eco-Green shall be available by 2026.

Rhino Elite is available in Slabs (RSL), Wired Matts (RWM), Building Rolls (RBR), RockArmor (RRA) Lamella boards/strips, Loose Wool (RLW), Pipe Cover (RPC) (under construction).

The Rhino Advantage

- **Innovation**: Pioneering electric smelting technology, first in India
- **Sustainability**: Significant reduction in carbon footprint
- **Performance**: Unmatched fire resistance, thermal efficiency, and acoustic insulation
- **Reliability**: Durable and long-lasting, ensuring peace of mind for years to come

India's Greenest Rock Mineral Wool

Rhino Slabs (RSL)

Precision-**Cut**. Powerfully **Efficient**.

Rhino Slabs (RSL) are premium-grade, resin bonded mineral wool insulation boards designed for flat and generally large curved surfaces. Manufactured using India's most advanced electric smelting technology, these slabs offer exceptional fire resistance, thermal performance, and acoustic insulation in one robust product. With non-combustibility, high dimensional stability, and water-repellent properties, Rhino Slabs are engineered to deliver decades of maintenance-free performance.

Ideal for building envelopes in residential, commercial, institutional, and industrial structures, Rhino Slabs enable energy savings, improved interior comfort, and enhanced fire safety. The product's ability to withstand extreme temperatures, resist deformation, and provide soundproofing makes it a highly versatile and future-proof insulation choice. Compliant with global standards, Rhino Slabs are easy to install, dimensionally stable, and fire-resistant beyond 1000°C.

TECHNICAL SPECIFICATIONS

Property	Specification
Density Range	40 – 160 kg/m³
Thickness Range	25 mm – 200 mm
Standard Length	1000 mm / 1200 mm
Standard Width	600 mm / 1200 mm
Thermal Conductivity	≤ 0.037 W/m K at 25°C Group 2–5 as per IS 8183:2024; Type II to IV as per ASTM C 612
Fire Rating	Euro Class A1 (non-combustible); withstands >1000°C
Water Absorption	≤ 1% by volume (water repellent)
Compressive Strength	Varies with density (up to 80 kPa at 10% deformation)
Acoustic Absorption	NRC up to 1.0 depending on configuration
Facing	Aluminum Foil, Alu–Glass, Black Tissue, White Tissue, Kraft Paper (Custom Facings available on request)
Indian Standards	IS 8183:2024
ASTM Standards	ASTM C612 (Mineral Fiber Block and Board Insulation)

Note: Intermediate and custom sizes can be produced on request.

KEY BENEFITS

- Fire-safe up to 1000°C
- Low thermal conductivity
- Superior sound absorption
- High dimensional stability
- Excellent for vertical & façade applications

APPLICATIONS

- **Roof Insulation (Flat & Pitched):** Enhances thermal resistance against solar heat gain and heat loss, particularly in urban and mixed-climate zones
- **External Wall Insulation (EWI):** Improves façade energy performance and aesthetics; compatible with finishes like panels, renders, or tiles
- **Internal Wall Partitions:** Adds fire-rated separation and acoustic privacy in homes, hotels, hospitals, and offices
- **Floor & Ceiling Insulation:** Reduces heat transmission between floors and minimizes airborne and impact noise
- **Pre-Engineered Metal Buildings (PEBs):** Provides structural fire safety and comfort under metal skins
- **Sandwich Panels & Prefab Walls:** Acts as a core insulation layer in modular, panelized, or industrial wall systems
- **Fire Barrier Assemblies:** Installed in cavity barriers, fire-stop panels, and compartmentation zones

Rhino Wired Mats (RWM)

Flexible **Strength**. Maximum **Protection**.

Rhino Wired Mats (RWM) are engineered for extreme-duty thermal insulation in high-temperature and high-vibration industrial environments. These mats are made by mechanically stitching rock mineral wool insulation to galvanized or stainless-steel wire mesh, providing both flexibility and mechanical integrity for curved or irregular surfaces.

Their structure ensures form and insulation performance under conditions involving thermal shock, vibration, and mechanical load, making them an ideal choice for insulation in refineries, power plants, process industries, and equipment enclosures. Rhino Wired Mats also offer excellent fire resistance, moisture repellency, preventing heat losses and ensuring process stability, adding safety and comfort to demanding applications.

TECHNICAL SPECIFICATIONS

Property	Specification
Density Range	80 – 160 kg/m³
Thickness Range	25 mm – 120 mm
Standard Length	1520 mm - 6000 mm (depending on thickness)
Standard Width	600 mm / 1220 mm
Wire Mesh Type	Galvanized or Stainless-Steel Hexagonal mesh in sizes as per requirement.
Thermal Conductivity	≤ 0.037 W/m K at 25°C Group 2–5 as per IS 8183:2024; Type II to IV of ASTM C 592
Fire Rating	Euro Class A1 – Non-combustible; withstands temperatures up to 1000°C
Water Absorption	≤ 1% by volume
Flexibility	High: conforms to curved and irregular surfaces
Indian Standards	IS 8183:2024
ASTM Standards	ASTM C592 (Thermal Insulation for High-Temp Industrial Applications)

Note: Intermediate and custom sizes can be produced on request.

India's Greenest Rock Mineral Wool

KEY BENEFITS

- Vibration and thermal shock resistant
- Up to 780°C thermal stability
- Flexible for irregular or large surfaces
- Easy mechanical fixing

APPLICATIONS

- **Boilers, Furnaces & ESP:** Lined internally or externally for thermal containment and protection
- **Process Vessels & Storage Tanks:** Insulates large diameter, curved, or vertical equipment
- **Refineries & Petrochemical Plants:** Applied over pipelines, heat exchangers, or distillation towers exposed to thermal cycles
- **Acoustic Machinery Enclosures:** Controls noise from engines, compressors, and vibration-heavy systems
- **Ductwork & Flanged Assemblies:** Used in HVAC systems, smoke extraction, and industrial ventilation
- **OEM Applications:** Suitable for integration into large, fabricated components with custom-fitting insulation

Rhino Building Rolls (RBR)

Seamless **Coverage**. Supreme **Comfort**.

Rhino Building Rolls (RBR) are flexible, pre-formed rock mineral wool insulation mats specially designed for large-surface coverage. Lightweight yet high-performing, they combine thermal, acoustic, and fire protection in a single layer—making them ideal for horizontal and vertical installations across ceilings, roofs, and duct systems.

Their roll format reduces installation time and material wastage, while still maintaining high structural integrity and flexibility. RBR is the preferred solution for HVAC contractors, builders, and prefabricated manufacturers looking for fast-track and energy-efficient installations.

TECHNICAL SPECIFICATIONS

Property	Specification
Density Range	40 Kg/m³ - 96 Kg/m³
Thickness Range	50 mm – 100 mm
Standard Length	5000 mm – 10000 mm (depending on thickness)
Standard Width	1000 mm / 1200 mm
Thermal Conductivity	≤ 0.037 W/m K at 25°C Group 2 & 3 as per IS 8183:2024; Type I & II of ASTM C 612
Fire Rating	Euro Class A1 – Non-combustible; withstands up to 1000°C
Acoustic Performance	NRC up to 0.90 in suspended ceilings or HVAC ducts
Facing	Aluminum Foil, Alu-Glass
Indian Standards	IS 8183:2024
ASTM Standards	ASTM 612

Note: Intermediate and custom sizes can be produced on request.

KEY BENEFITS

- Quick installation
- High coverage with minimal waste
- Excellent fire resistance
- Flexible for ceilings, roofs & ducts

APPLICATIONS

- **Pitched Roofs & Metal Roofing Systems:** Rolls can be inserted between rafters or below purlins for long-span thermal resistance
- **Ceiling Insulation (Flat & Suspended):** Enhances energy retention in false ceilings and mezzanine slabs
- **Wall Partitions & Cavities:** Provides sound dampening and fire separation in drywall, modular cabins, and partitions
- **HVAC Duct Lining:** Acts as a fire-rated, thermally stable insulation in supply and return ducts
- **Prefab Cabins & Temporary Structures:** Lightweight and rollable format ideal for mobile and prefabricated applications.

Rhino RockArmor (RRA) Lamella

Compact **Core**. Unmatched **Rigidity**.

Rhino **RockArmor** (RRA) lamella boards or strips feature vertically oriented fibers for exceptional compressive strength and dimensional stability. Designed to perform in façade, curtain wall, and cavity fire-stop systems, they maintain form and insulation performance under wind load, vibration, and long-term use.

Unlike traditional resin bonded slabs or board insulations, Rhino undergoes the crimping process designed to compress and fold the fibers in a controlled manner. This action changes the orientation of the fibers from a predominantly horizontal alignment to a more vertical one.

This vertical fiber orientation significantly improves the mechanical characteristics of the Rhino Lamella. Specifically, it increases the tensile strength in the direction of the thickness by 5 to 10 times, making them perfect for exterior insulation finishing systems (EIFS), ventilated facades, and structural fire barriers.

TECHNICAL SPECIFICATIONS

Property	Specification
Density Range	80 Kg/m³ – 160 Kg/m³
Thickness Range	50 mm – 150 mm
Standard Length	600 mm – 2200 mm
Standard Width	40 mm - 1220 mm / custom cavity-fit sizes
Thermal Conductivity	≤ 0.037 W/m K at 25°C Group 2–5 as per IS: 8183:2024; Type II to IV as per ASTM C612
Fire Rating	Euro Class A1 – Non-combustible; withstands >1000°C
Compressive Strength	Up to 150 kPa at 10% deformation
Indian Standards	IS 8183:2024
ASTM Standards	ASTM C612, ASTM E84, ASTM E136 (Fire and Smoke Testing)

Note: Intermediate and custom sizes can be produced on request

KEY BENEFITS

- Dimensionally stable
- Fire-safe and non-combustible
- Durable under pressure and impact
- Excellent for vertical & façade applications

APPLICATIONS

- **Curtain Wall Insulation:** Acts as core infill behind cladding or between mullions
- **EIFS / ETICS Systems:** Compatible with render, mesh, and exterior finishes—provides adhesion and fire integrity
- **Fire Stop & Compartmentation:** Used as cavity barrier between floors and fire zones
- **Mechanical Cladding Support:** Forms rigid backing for spandrel panels and metal sheeting
- **Cold/ Clean Room:** For stringent application requirements, used in doors, panels, and metal cladding

Rhino Loose Wool (RLW)

Flow-**Anywhere**. Fill-**Everywhere**.

Designed for irregular spaces, Rhino Loose Wool (RLW) adapts to any cavity, ensuring tight packing and maximum insulation even in complex geometries. It is your high-performance fill material for acoustic and thermal control in places where pre-formed options cannot reach.

Rhino Loose Wool is an un-bonded, fluffy mineral wool insulation ideal for irregular or hard-to-reach voids. It offers the same fire, thermal, and acoustic benefits of rigid boards but can be manually packed or pneumatically blown into complex geometries.

Perfect for industrial cavities, retrofit insulation, and custom-shaped enclosures, Rhino Loose Wool is a non-settling, mold-resistant, and high-fill solution for both thermal and fire containment needs.

TECHNICAL SPECIFICATIONS

Property	Specification
Packaging Weight	25 kg **&** 40 Kg per bag
Thermal Conductivity	0.037 – 0.040 W/m K
Fire Rating	Euro Class A1 – Non-combustible; suitable for fire-stopping
Acoustic Performance	High absorption in confined and layered assemblies
Indian Standards	IS 3677:1985
ASTM Standards	ASTM C764 – 07 (Loose-fill Thermal Insulation)

Note: Intermediate and custom sizes can be produced on request

KEY BENEFITS

- Versatile fill material
- Easy to apply in hard-to-reach spaces
- Thermal and acoustic insulation
- Fire-safe and mold-resistant

APPLICATIONS

- **Furnace & Kiln Cavities:** Fills voids in high-heat enclosures.
- **Masonry Gap Filling:** Used in fire-rated cavity packing in construction joints.
- **Valve Boxes, Silencers, Mufflers:** Absorbs sound and regulates temperature in small cavities.
- **Cold Storage & Refrigeration Units:** Reduces thermal bridging in irregular corners.
- **Fire-stop & Expansion Relief:** Prevents smoke and flame spread through unsealed gaps.
- **Cryogenic Tanks & Oxygen Plants:** Used in tanks for cavity filling

Product Comparative Overview Page

Product	Fire Rating	Acoustic	Thermal	Flexibility	Applications
Rhino Slabs (RSL)	A1	High	High	Semi Rigid & Rigid	Walls, Floors
Wired Matts (RWM)	A1	Med-High	High	Very High	Tanks, Boilers
Building Rolls (RBR)	A1	Medium	High	Very High	Roofs, Ducts
RockArmor (RRA)	A1	High	High	Very Rigid	Façades, Fire stop
Loose Wool (RLW)	A1	High	Medium	Free Form	Cavities, Ovens

India's Greenest Rock Mineral Wool

Facings in Rhino Rock Mineral Wool Products

Facings are protective or functional surface layers applied to rock mineral wool products. They serve multiple purposes, including improved moisture resistance, better mechanical durability, aesthetic finish, vapor control, and ease of installation.

Common Facing Types

- **Aluminum Foil:** Reflects radiant heat and acts as a vapor barrier, ideal for HVAC and duct insulation.
- **Glass Cloth/Glass Tissue:** Provides high tensile strength and clean handling for industrial, commercial or residential use.
- **Black/White Tissue:** Used for visual appeal in ceilings and walls.
- **Kraft Paper:** Suitable for dry internal walls to offer a neat surface finish.
- **Wire Mesh (GI/SS):** Adds support and structure in high-temperature or vibration-prone environments.
- **Reinforced Foil:** Combines mechanical strength with vapor control and thermal reflection.
- **Custom Coatings:** Tailored finishes for special environments, like marine or cleanroom conditions.

Facings & its Specifications

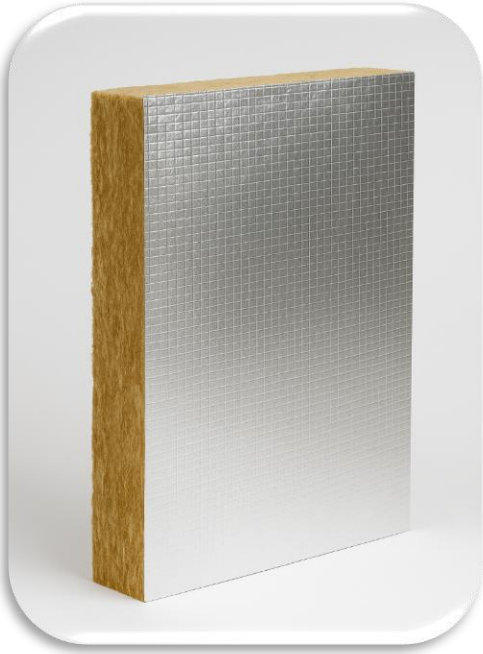
Al Foil Facing

Utility:
Highly reflective vapor barrier. Used in ducts, pipe insulation, and roof panels for thermal insulation and radiant heat reflection.

Temperature Resistance: Up to **150–200°C** (depending on adhesive and lamination).
Emissivity: ≈ **0.03 – 0.05** (very low emissivity).
Reflectivity: ≈ **95–97%** (high reflectivity).
Strength: Moderate. While foil alone is fragile, it's often laminated with scrim or kraft for reinforcement.

Applications: HVAC ducts, pipe insulation, roofing insulation

Alu-Glass Facing



Utility:
Composite of aluminium foil + glass cloth. Used in HVAC, ducting, industrial insulation for high reflectivity and mechanical strength.

Temperature Resistance: Up to **500°C**
Emissivity: ≈ ≈ **0.03 – 0.06**
Reflectivity: ≈ **93 – 97%**
Strength: High tensile and tear strength due to glass reinforcement; durable and dimensionally stable.

Applications: Industrial ducts, radiant barriers, fireproof wraps

India's Greenest Rock Mineral Wool

White Glass Tissue

Utility:
Commonly used as a surface veil in mineral wool boards, ducts, or pipes for a clean finish, improved handling, and fiber containment.

Temperature Resistance: Up to **250–300°C**.
Emissivity: ≈ **0.85 – 0.9**
Reflectivity: Moderate, **≈30–40%**, diffused reflection.
Strength: Moderate. Offers dimensional stability but less tear resistance compared to woven fabrics.

Applications: Duct insulation, pipe lagging, high-temp equipment

Black Glass Tissue

Utility:
Used for aesthetic applications, acoustic insulation facings, and UV resistance in exposed areas.

Temperature Resistance: Up to **200–250°C**.
Emissivity: ≈ **0.95** (very high, absorbs radiant heat).
Reflectivity: Low **(<10%)**, absorbs rather than reflects light/heat.
Strength: Moderate. Non-woven structure offers flexibility and some tensile strength.

Applications: Acoustic panels, exposed insulation, HVAC