



MICA SOLUTIONS
for industrial applications



SINCE 1910

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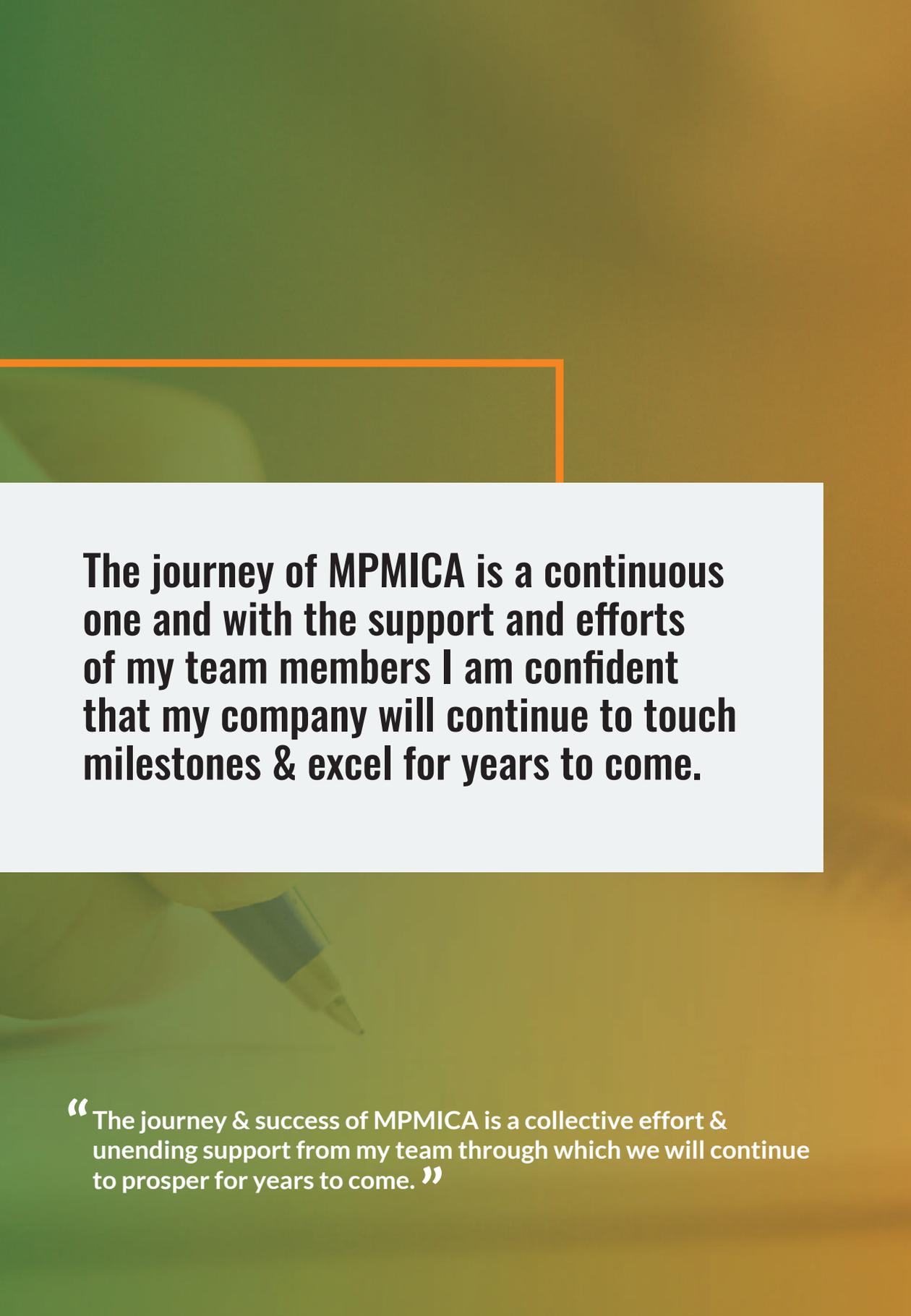
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CHAIRMAN'S MESSAGE

As with any entrepreneur with a practical vision, I have always looked forward to achieving growth and development with a vision of a bright future for us and our clientele. We strive hard to achieve the same through great team effort, innovation and hard work. With this belief, I started MPMICA in 1988, a company dedicated to Mica products. Within a short span of time MPMICA made its name in the business segment but like every entrepreneur who wants to excel in their field of expertise, I wanted to push my company to achieve more prominent milestones.

More than being a global player, I always envisioned my company as a unit that could make a difference with its quality and competitively priced products. Treading on the path less traveled by, I expanded MPMICA into a highly diligent business model that requires a high level of technical comprehension, expertise and specialised knowledge thus giving it the name it earned itself in the worldwide Mica market.



The journey of MPMICA is a continuous one and with the support and efforts of my team members I am confident that my company will continue to touch milestones & excel for years to come.

“The journey & success of MPMICA is a collective effort & unending support from my team through which we will continue to prosper for years to come.”

ABOUT MPMICA

M. P. MICA ENTERPRISES PVT. LTD, has been incorporated in the year 1988 with a vision to feed India's growing market and consumption of mica and mica products and to process high quality Mica Scrap, Mica Blocks, Mica flakes, Mica Powder and Mica parts for the global market.

The company is well equipped with facilities to produce various forms of Mica as per global standards. This encompasses mining to processing of all forms of mica.

MPMICA emphasizes on quality while executing orders of any quantum, hence we are highly accepted by our customers all over the world.

In order to maintain high quality standard and timely delivery of supplies, we have leased two mica mines in the state of Rajasthan.

ABOUT MICA

The mica group of sheet silicate minerals includes several closely related materials having nearly perfect basal cleavage. All are monoclinic, with a tendency towards pseudo-hexagonal crystals, and are similar in chemical composition.

Mica is a collection of silicate minerals having amounts of aluminium, iron, magnesium, potassium and water.

Properties of Mica

Mica possess some of the most exceptional and outstanding blend of properties rarely found in any other mineral thus commanding a unique position.

PHYSICAL Properties

Mica is flexible, transparent, optically flat, reflective, refractive, colourless in thin sheets, easily splittable into thin films along its cleavage, resilient and incompressible.

CHEMICAL Properties

Mica is tolerant and completely inert to the action of water, acids (except hydro-hydrofluoric acid and concentrated sulphuric acid), alkalies, bases, mineral oils, conventional solvents and chemical influence. Virtually unaffected by atmospheric action and weathering.



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We constantly aim at being one of the most reliable and best producers, manufacturers and distributors of Mica. Our vision is to continue offering high range products to our new & existing clientele.

”

ELECTRICAL Properties

Mica has distinctive combination of great dielectric strength, uniform dielectric constant and capacitance stability, low power loss (high Q factor), high electrical resistivity, low temperature coefficient and superior insulating properties. It is noted for its resistance to arc and corona discharge with no permanent injury.

THERMAL Properties

Mica is fire proof, infusible, incombustible and non-flammable. It has low heat conductivity, remarkable thermal endurance and can be exposed to high temperatures without any noticeable effect.

MECHANICAL Properties

Mica is relatively soft and it can be hand-cut, machined or die-punched. It is flexible, elastic and tough, having high tensile strength. It can easily sustain mechanical stresses and pressures.

CHEMICAL COMPOSITION of Muscovite Mica

Silica (SiO ₂)	45.70%
Alumina (Al ₂ O ₃)	33.10%
Potassium Oxide (K ₂ O)	09.87%
Potassium Oxide (K ₂ O)	02.48%
Sodium Oxide (Na ₂ O)	00.62%
Titanium Oxide (TiO ₂)	45.70%
Calcium Oxide (CaO)	00.21%
Magnesia (MgO)	00.38%
Moisture @ 100°C	00.25%
Phosphorous (P)	00.03%
Sulphur(S)	00.01%
Graphitic Carbon (C)	00.44%
Loss on ignition (H ₂ O)	02.74%

PHYSICAL PROPERTIES of Muscovite Mica

Properties

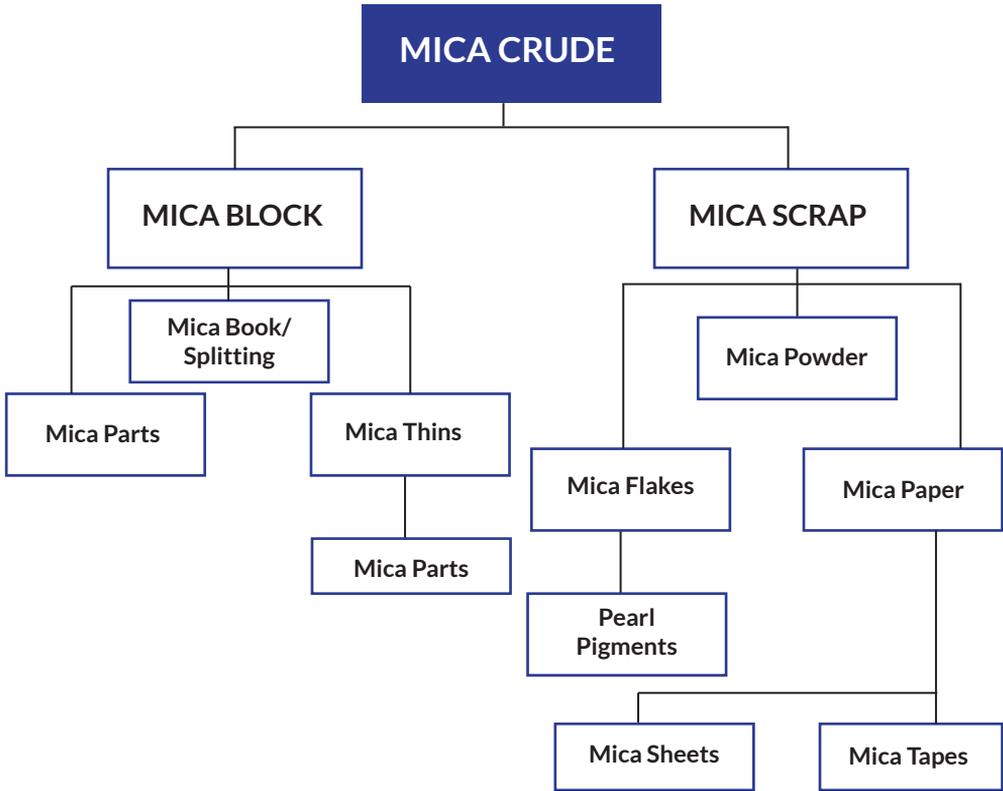
Units

BS 3483	100g Mica
Effect by common acids	Slight
Hardness (moh's scale)	2.5
Index of refraction	1.58
Softening point	2800°F
Oil absorbtion	60-90 g/oil
Specific gravity	2.82
Water soluble	Not more
BS 1765)	Than 0.5%
pH value (BS 3483)	7.7
Phericity factor	0.01
pH for distilled water	5.2
Character	White, often sheds tiny flakes
Lustre	Pearly to vitreous
Appearance	Transparent to translucent

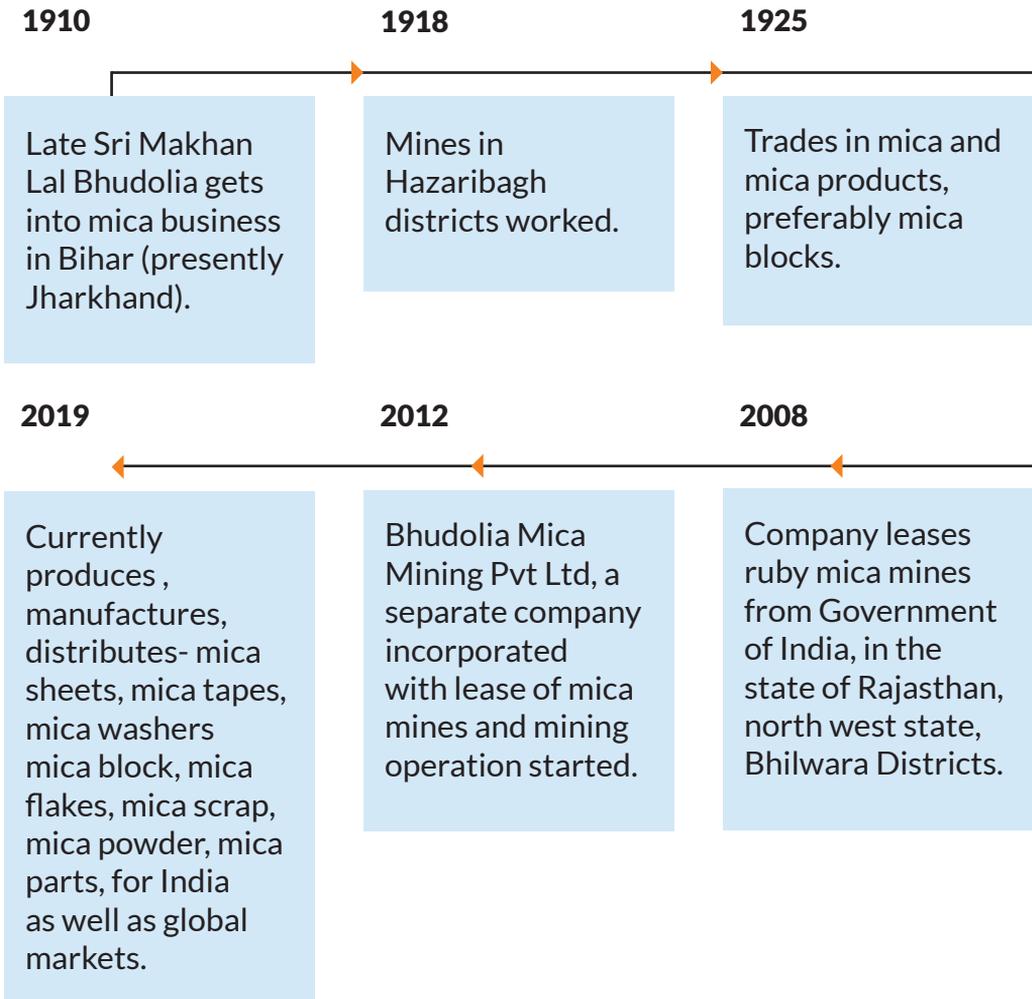
TECHNICAL PROPERTIES of Muscovite Mica

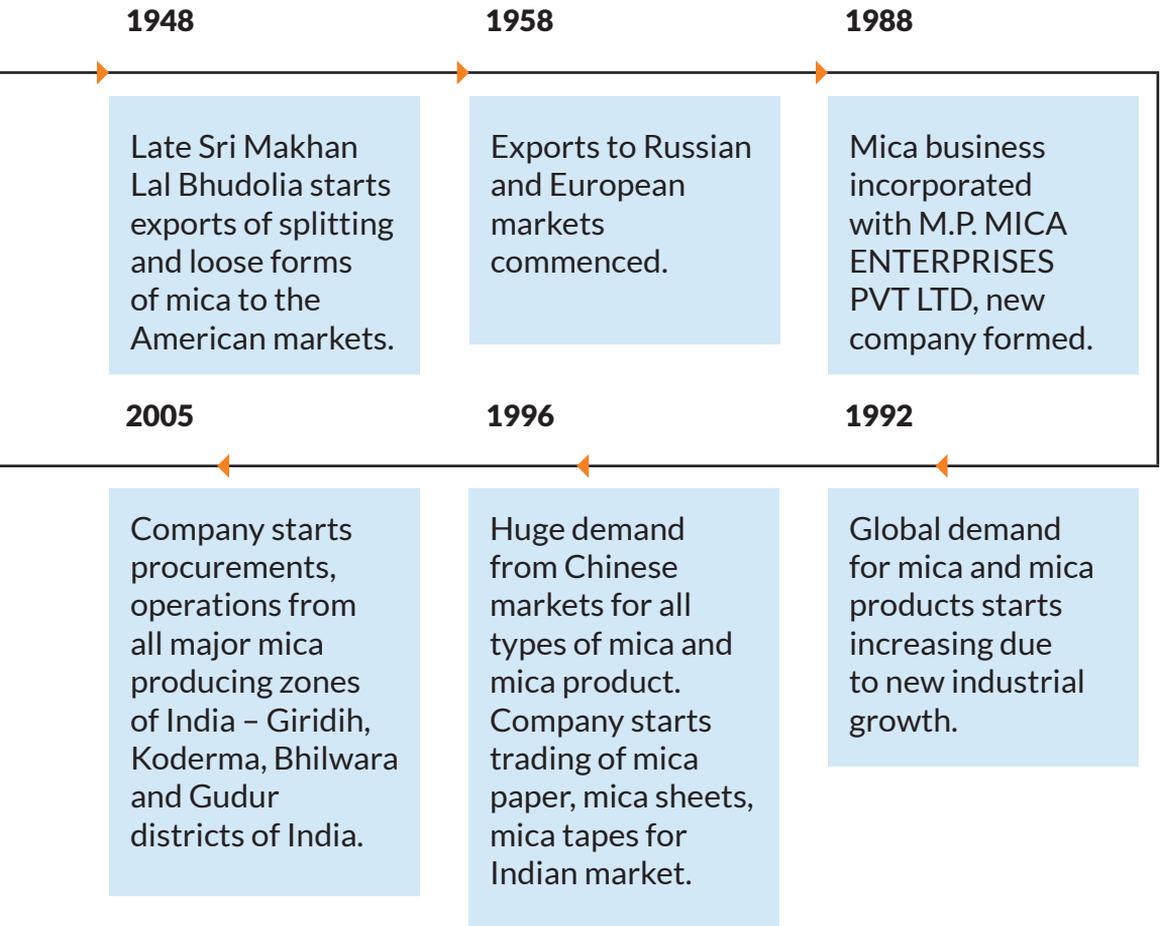
Properties	Units	Muscovite
Thermal conductivity perpendicular to cleavage plane	Gm.cal/sec/cm ² /°C/cm BTU/hr/ft ² /0f/ft	about 0.0013 about 0.31
Thermal conductivity parallel to cleavage plane	Gm.cal/sec/cm ² /°C/cm BTU/hr/ft ² /0f/ft	---
Water of Constitution %	---	4.5
Moisture Absorption	---	Very low
Volume Resistivity	25°C (77°F) ohm cm	40 x 10 ¹³ - 2 x 10 ¹⁷
Acid Reaction	---	affected by hydrofluoric acid
Insulation Resistance	x10 ¹³ ohm/cm	4-20000
Calcining temp	°C	700-800
Max. operating temp	°C	500-600
Tensile strength	MN/m ²	175
Shear strength	MN/m ²	175
Compression Strength	MN/m ²	220-270
Modulus of Elasticity	Kgfc/m ² x 10 ⁻³ lbf/in ² x 10 ⁻³	1400 - 2100 20-30
Loss tangent	x10 ⁻⁴	1-4
Permittivity at 15°C(60°F)	---	6-7

PROCESS of MICA FLOW CHART



OUR HISTORY





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1988 - Mica business incorporated with M. P. MICA ENTERPRISES PVT LTD, new company formed.

”



“

Mica is one of the most complex minerals to be mined, requiring rare and specific expertise.

The process of pulverisation transforms Natural Mica to coarse, medium and fine varieties of Mica Flakes and Powder, thus making mica useful for a wide variety of applications in this form. ”

Mines

Mica - a mineral mined in very few parts of the world, is one of the most complex minerals to be mined. Micas are generally found in Metamorphic rocks called Schist and Igneous rocks called Pegmatite, dominated by Feldspar and Quartz. The mica mineral does not have any stable rule for deposit as it can be found in various forms of deposit like pockets, scattered, veins, pipes or bulk deposit. The quantum of its deposit depends on its natural formation.

Mica is mined through two methods-

1. Open-cast/pit method
2. Underground deep shaft method

1. Open-cast/pit method is similar to the process of mining of other minerals. However, mica has to be extracted with great care and expertise as it is very vulnerable and gets damaged in the process.
2. Underground deep shaft method includes driving a main shaft underground through the pegmatites at an angle that allows access to the mica crystals using drills, heists and explosives.

Mining in India is a responsible business with all the necessary safety, social health and environment standards and protocols being followed.

The government of India along with the state government has strict mining policies to guide and control all mining businesses under Mines and Minerals (Development and Regulation) Act 1957.

The company operates its mining operations under a separate entity called **Bhudolia Mica Mining Pvt. Ltd.**

BHUDOLIA®



■ Open-cast/ pit method



■ Underground deep shaft method



A photograph of the Space Shuttle Columbia on the launch pad, with other shuttles visible in the background. The image is overlaid with a green-to-orange gradient. The text is contained within a white box in the lower-left quadrant.

Applications of Mica Scrap:

Mica paper

- Mica sheets
- Mica tapes
- Mica paper moulded mica parts for electric vehicles

MICA SCRAP

Obtained from Mica Mines, Mica scrap is a form that cannot be used as sheet Mica due to its size and quality or both.

Screened over 1/2 square inch openings, these have an average size of 12-50mm with their thickness ranging anywhere from 0.15-5mm

Mica Scrap should ideally be clean, dry, hard, free from mineral & non mineral impurities such as quartz, feldspar, garnet, tourmaline, stones, mud stained or biotite mica, clay, sand and other inclusions such as wood leaves, straw, iron contents etc.

Types of Mica Scrap

- Ruby Mica Scrap (High test)
- Ruby Mica Scrap
- Green Mica Scrap
- Super White Mica Scrap
- Spotted Mica scrap (Green/Ruby)





Ruby spotless



Spotted mica scrap



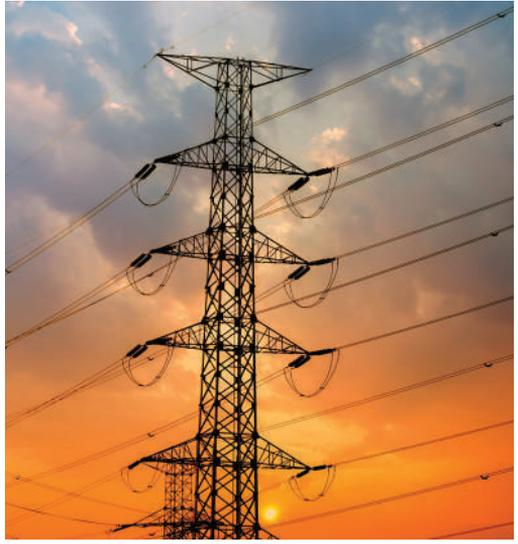
Ruby high test mica scrap



Super white mica scrap



Green spotless scrap



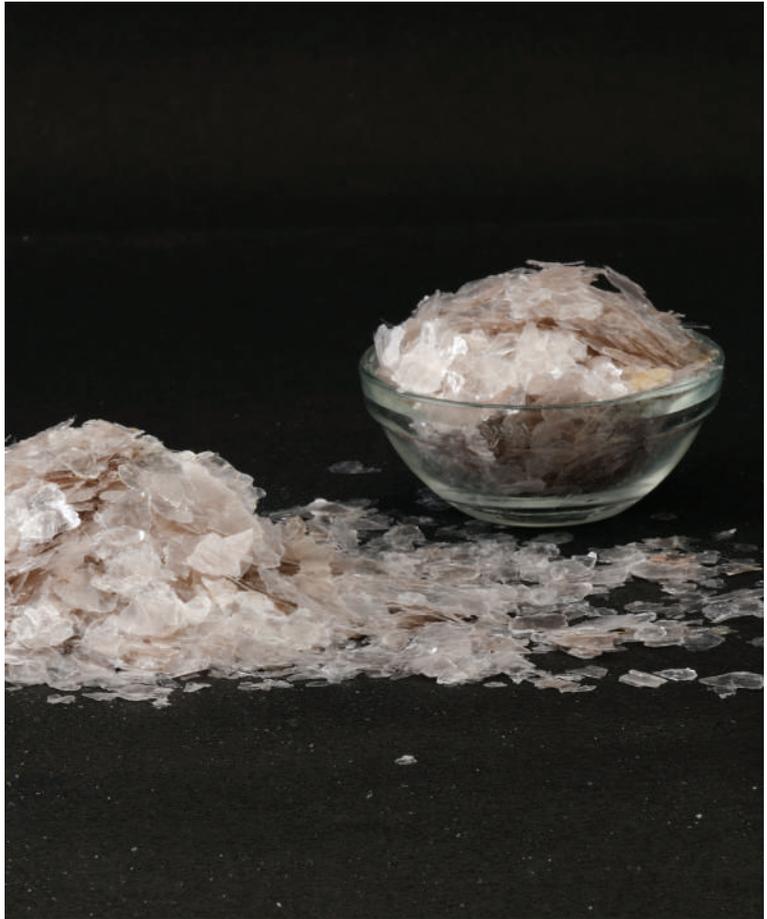


Applications of Mica Flakes:

Oil well drilling
Gypsum boards and roofing tiles
Pearlescent pigments
Lustrous material such as ornaments,
cosmetics & more

MICA FLAKES

Mica scrap and all mica waste are pulverized into a widerange of flakes of desired mesh sizes to produce mica flakes. The quality and grade of mica flakes are dependent on the quality of mica scrap used. The quality of mica flakes depends upon temperature, hardness and its colour. The sizes of mica flakes are made as per its requirement and uses.



SIZE	APPLICATION	PURPOSES
COARSE FLAKES 2 MESH	Oil well drilling	Overcome lost circulation, as a mud additive, helps to seal porous formations
	Pearlescent pigments	Adds brightness to paints/cosmetics/plastics
	Artificial snow	As snow substitute
MEDIUM COARSE FLAKES 10 MESH	Christmas ornaments & display materials	As flocking material and to provide glittering effects
FINE COARSE FLAKES 16 MESH	Concrete block fillers, refractory bricks, gypsum boards, slabs, tiles	Reinforcing structures, thermal insulation, fire resistance, sound absorption and corrosion protection
	Asphalt roll roofing & asphalt shingles	As surface coating for anti adhesion and weather proofing



Coarse, Medium, Fine mica flakes





Features of Mica Powder:

- Easy to use as fillers.
- Insulated features with balanced formulation.
- Long shelf life.

Applications of Mica Powder:

Automotive parts and tyres
Adhesive and sealants
Paints and plastics
Construction
Paper & more

MICA POWDER

Mica powder is a result of a fine-grinding process. Mica scrap is ground and crushed well to obtain the resultant mica powder. There are two dominant processes of getting mica powder, one being wet grinding and the other being dry grinding.

We, here at MPMICA, follow the dry grinding process to gain the finest grains and have the capacity to supply it upto 325 mesh. We use rotary and vibrator sieves to produce particle sizes as per customer's choice.



Used: Construction grade

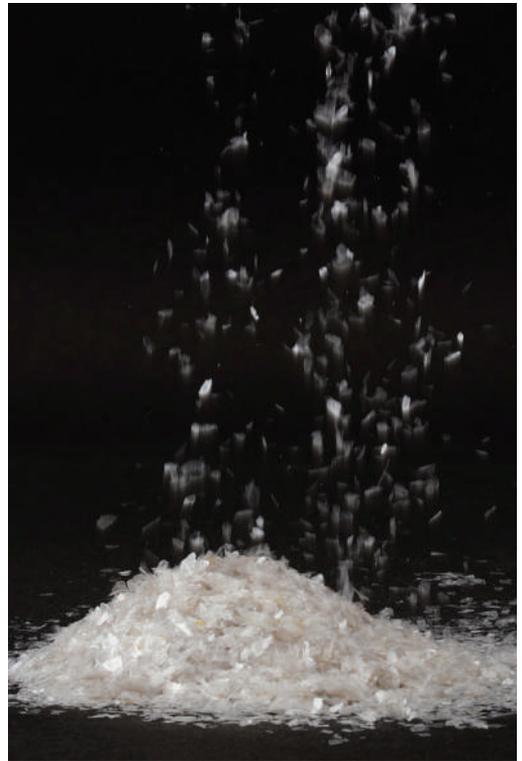


Used: Paints / Chemicals



Used: Oil well drilling

SIZE	APPLICATION	PURPOSES
COARSE POWDER 30 MESH	Metal explosives & disinfectant	Annealing as an absorbent
	Automotive components	
MEDIUM POWDER 60 MESH	Welding electrodes, cables and wires	As lagging compound in coating, improves dielectric properties, electrical and mechanical strength
	Foundry works, pipeline, enamels, mastics, adhesive, body lubricants	Improves physical properties, anti-slag, reduce cracking
FINE POWDER 100 MESH	Cement and gypsum wall-boards	As filler and extender, improving consistency and resistance to cracking
	Acoustical plasters	
SUPERFINE POWDER 325 MESH	Paints	As pigment extender improving durability, reduces shrinking & shearing
	Plastics	As extender and filler, enabling lightweight insulation and improved mechanical properties
	Rubber products including automotive tyres	As inert filler and mould releasing compound. Anti Sticking and Anti Blocking Agent
	Paper	Provides stiffness, lower density and higher permeability



RESEARCH & DEVELOPMENT

Major research areas covered are :

1. Mining methods
2. Mine Safety
3. Mine reclamation and mine environment studies
4. Mica Parts to processing centres

Notable advances have been made through Research & Development (R & D) efforts in application of new technology in mica mining.

MPMICA is making efforts for enhancing quantum of R & D work needed to address the complexity of operations of mica industry and also for wider involvement of research agencies. We put continuous effort on cost reduction, quality betterment and workers' safety.



ENVIRONMENTAL CONSERVATION

Direct and indirect mining practices can leave a impactful effect on our environment and that can take place on local, regional and global scales. It can lead to loss of species, soil erosion, formation of holes, and addition of impurities to soil groundwater and surface water.

Environmental and social assessments used to be highly resented in the mining industry. Today, mining process is environmentally responsible, precise and thoughtful.

It utilizes modern technology and scientific knowledge to better predict, plan for and prevent or control adverse environmental impacts.

The last few years have brought about remarkable changes in the industry. Our company is committed to responsible mining and mineral development and strives to build partnerships and capacity to confront sustainability challenges within the regions it operates.



CHILD LABOUR

Mica businesses and Mica products have been in the news for quite sometime, mainly for exploitation of child labour and illegal Mica mining.

We as a company, organisation and responsible citizens of the society, completely follow the rules and regulation and strictly abide by the child labour policies of the government. No child workers are allowed in any of our premises.





OUR PRESENCE

MPMICA is a company based out of India with its presence spread across various countries. Established in 1910 as a mica trading company from Giridih, Jharkhand, India, has over the years evolved into a reputed mining, processing and exporting company with a global presence in the field of mica, quartz and feldspar

servicing the industrial minerals, specialty chemicals and cosmetic industry.

With a strong emphasis on quality systems and innovation, we strive to be reliable and long term partners to our existing and prospective customers.

“ Dominating the worldwide mica market, our organization is growing exponentially everyday. ”





“ Children are the future of the world.
Let them Learn, Play and Grow ! ”

BHUDOLIA[®]



CONTACT US

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