PASHA BLASTING

STRENGTH ON EVERY SURFACE

GARNET

Reliable performance from mining.

SURFACE PREPARATION

COATING REMOVAL

www.pashablasting.com

PASHA BLASTING

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Pasha Blasting – Since 2012

Pasha Blasting is a multinational company specializing exclusively in abrasive blasting materials. Established in 2012, the company has built a strong reputation as reliable supplier of high-quality abrasives to industrial markets.

ABOUT PASHA BLASTING

Pasha Blasting is directly involved in the mining, extraction, and processing of almandine garnet through its own garnet mine, enabling full control over raw material quality, grading, and supply continuity.

The company focuses on the sales, stocking, and distribution of abrasive products for surface preparation applications.

OUR STRENGTHS

Garnet Mine Ownership

Full control over garnet quality from our ow mine

Offical Airblast Distributor

Distributor of the **Europeean Airblast** brand, expandng product

Consistent Performance

Strong stock capacity, fast service, and competitive pricing

In addition to its own garnet production capabilities, **Pasha Blasting** is also the official distributor of the European brand **Airblast**, further strengthening its product portfolio and technical competence. With an experienced team and a robust quality control system, Pasha Blasting ensures consistent product performance and reliable availability. Strong stock capacity, fast service, and competitive pricing—without compromising quality—form the core of the company's operational strengths.

Pasha Blasting is committed to building long-term **partnerships** by delivering dependable abrasive solutions tailored to the demanding requirements of industrial surface treatment

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Our History

Pasha Blasting was **founded in 2012** in Türkiye with the objective of supplying **reliable and high-quality abrasive materials** to the surface treatment industry.

From its early years, the company focused on strong sourcing channels, establishing production capabilities, and building an efficient supply chain. Over time, Pasha Blasting **expanded its operations, increased its stock capacity, and strengthened its market presence in international regions.**

The opening of the **Dubai branch** marked an important milestone in supporting customers across the Middle East and neighboring markets. Parallel to this growth, Pasha Blasting became the **official distributor of Airblast,** a well-known European brand, enhancing its technical offering and global reach.

Today, Pasha Blasting continues to grow as a trusted **multinational supplier of abrasive blasting materials,** serving a wide range of industries such as shipyards, steel **construction,** oil & gas, foundries, and heavy industry.

Over 10 Years Experience

Worldwide Partner Network

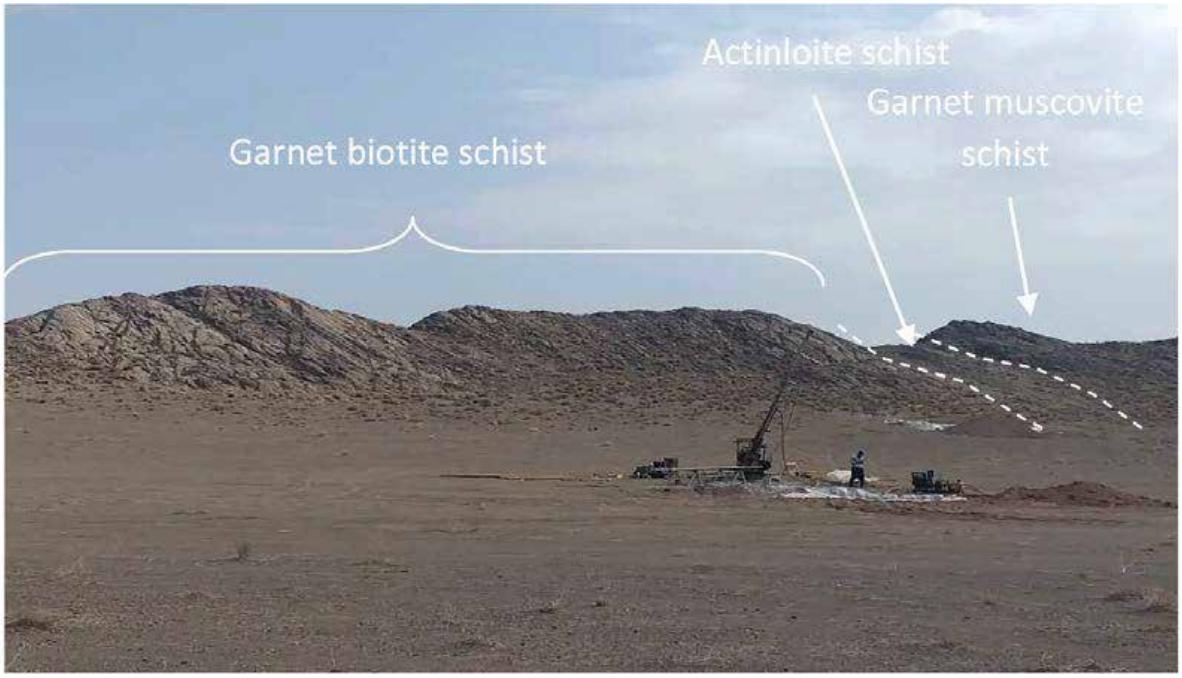
Our Mission

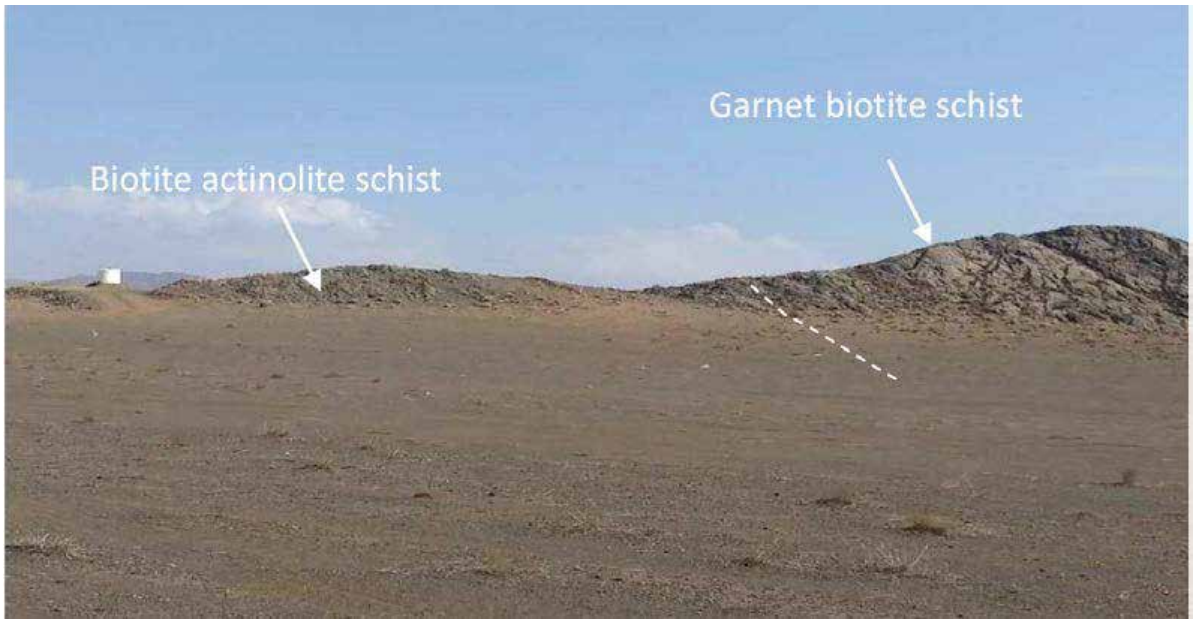
Pasha Blasting is dedicated to maintain a profitable organization on a **long term** basis through **ethically and morally sound business practices.** By investing in the long term future of our organization, and those with whom we conduct business, Pasha Blasting believes that we can share **sustained mutual success.**


GARNET
Reliable Performance From Mining
mine

GEOLOGICAL STUDIES

Pashablasting's garnet deposit contains rocky outcrops situated on swamp-like ground. The deposit includes schist rock types composed of sedimentary and volcanic protoliths that have undergone metamorphism ranging from the greenschist facies to the early amphibolite facies. According to the 1:500 scale geological map, the garnet content varies between 5% and 40% across different areas.





ABRASIVES
GARNET

PASHA BLASTING
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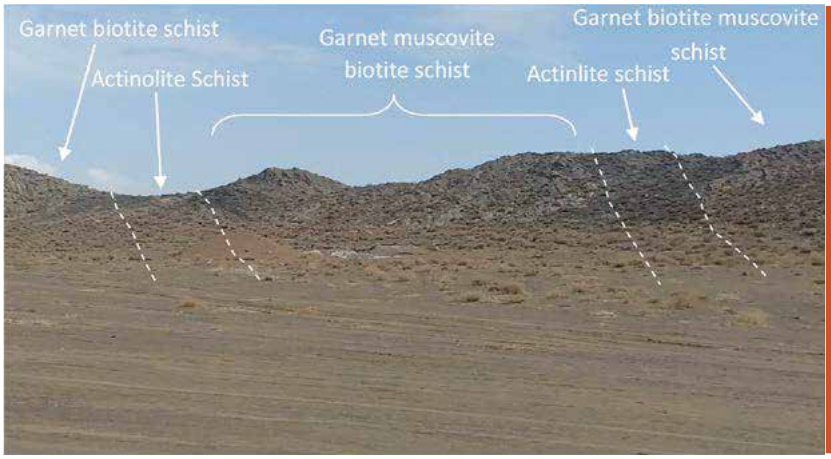

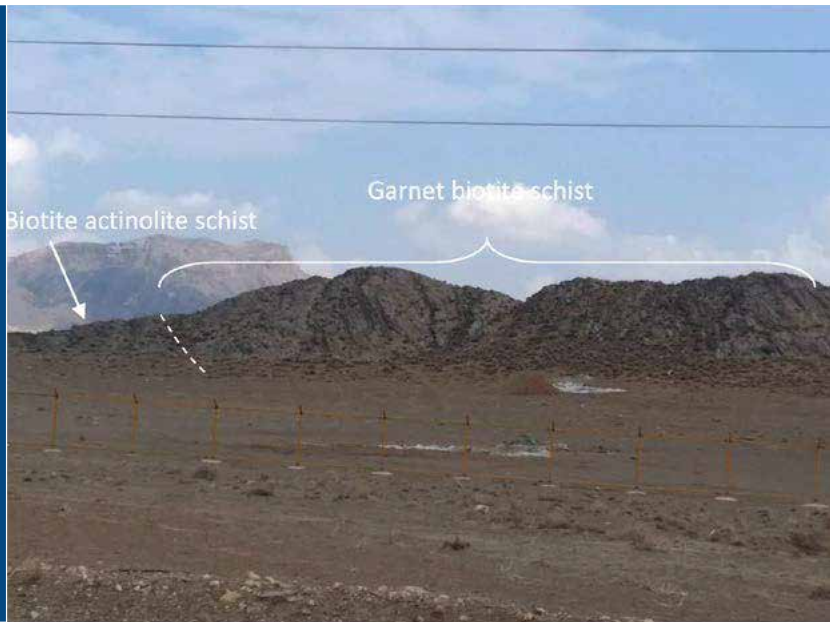

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ABRASIVES
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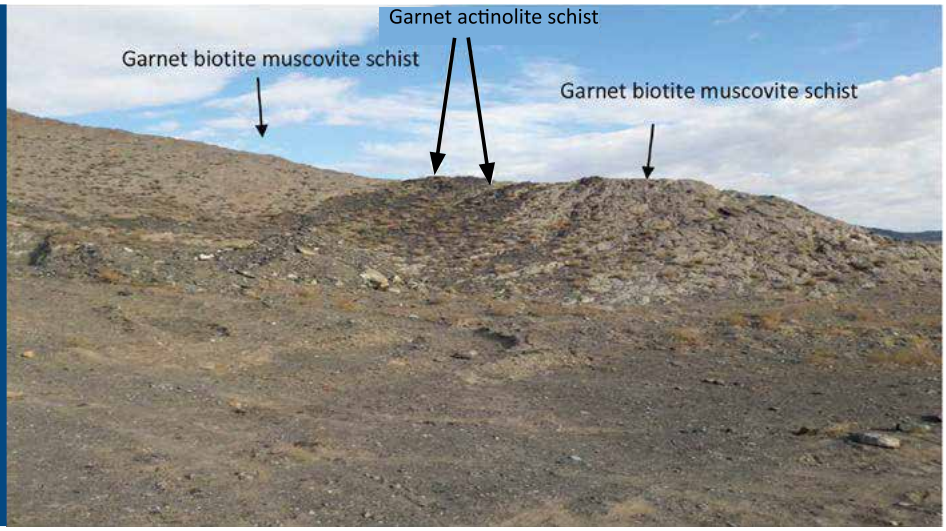

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ABRASIVES
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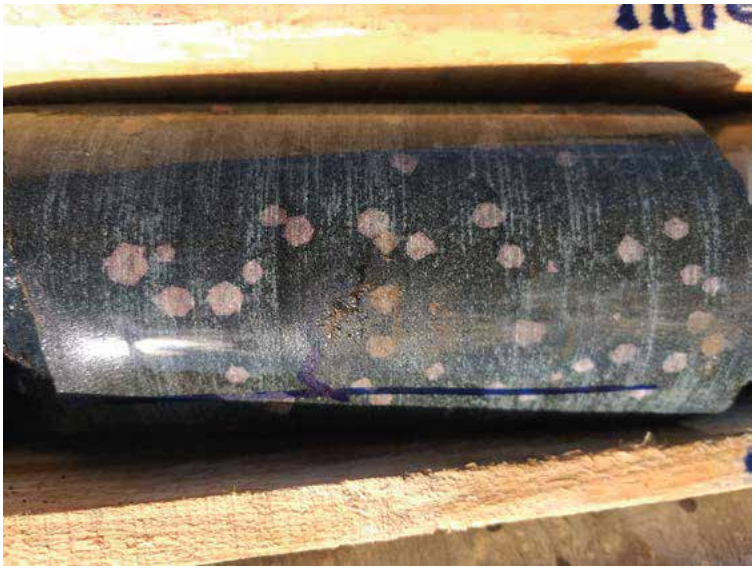

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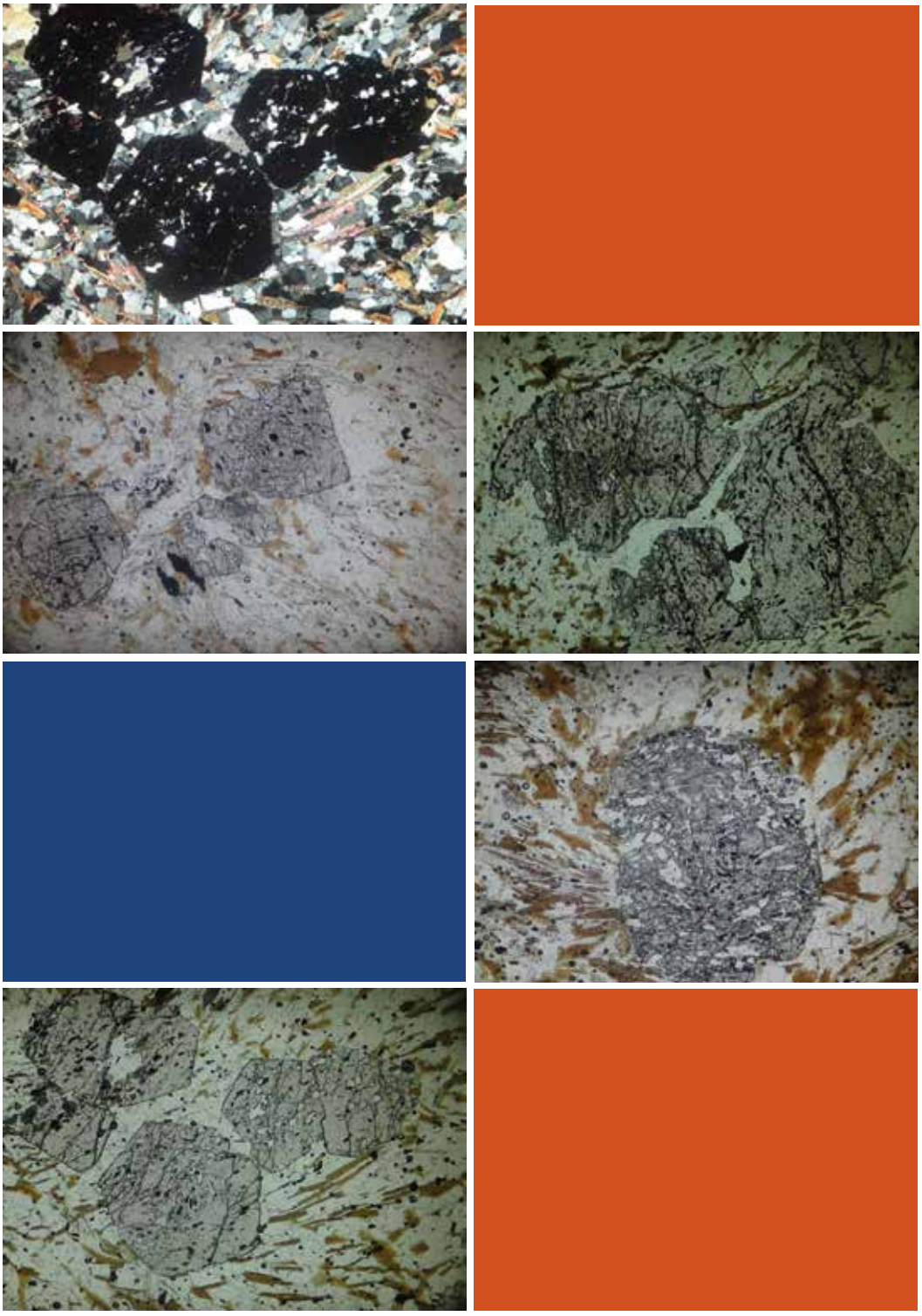
MINERALOGICAL STUDIES

Based on microscopic studies and the results of XRD studies, the main mineralogy of the mine includes garnet of almandine type and mica of muscovite type with a small amount of biotite, which are accompanied by amphibole, chlorite and epidote minerals along with feldspar and quartz.



GARNET

Chemical compesitions of Garnet

ORE ESTIMATION

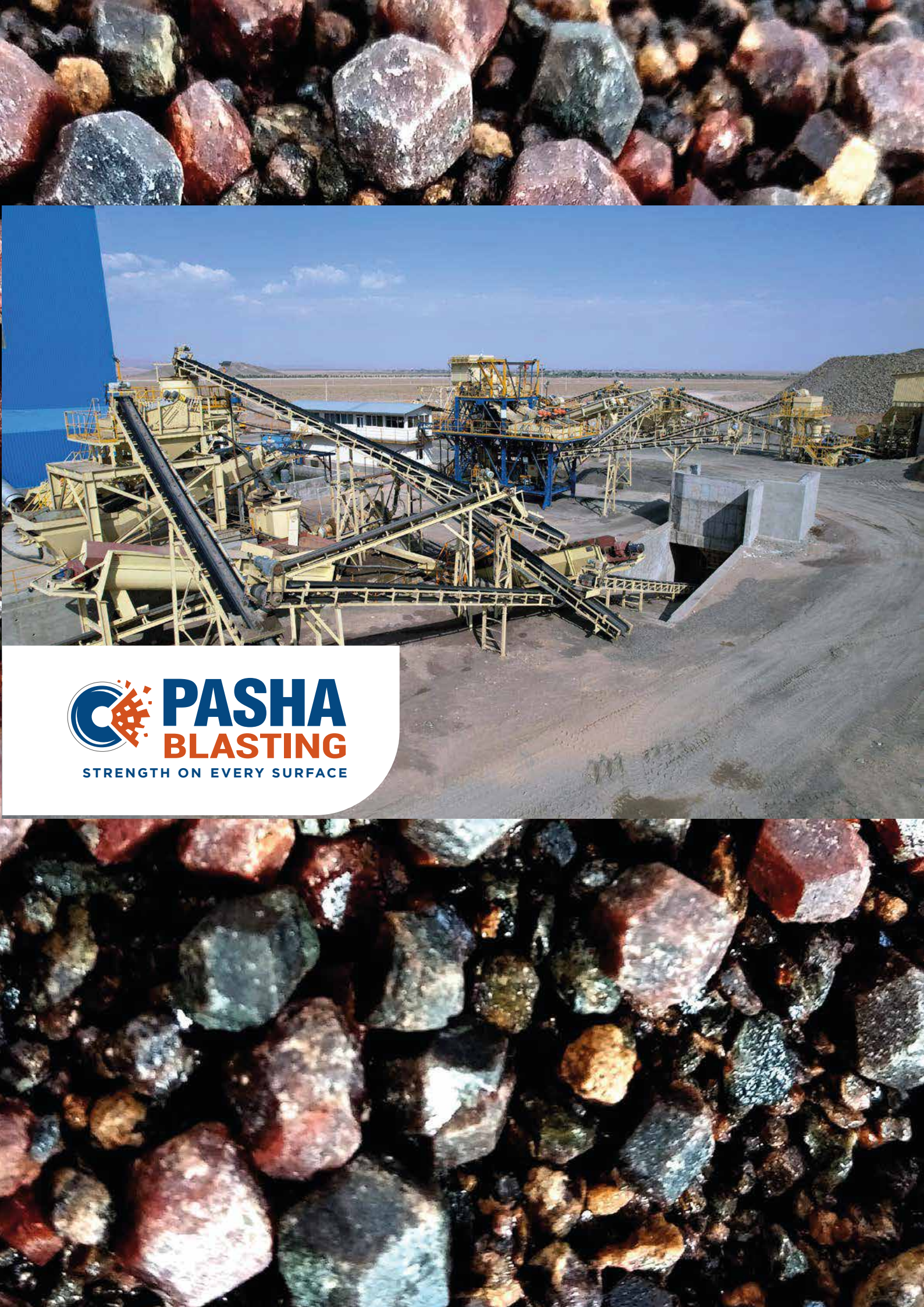
The amount of depnite reserve calculated for this mine is 34.5 million tons of depnite reserve of garnet schist ore with an average weight percentage of 14.45% of garnet and mica with an average weight percentage of 27.6.

GENERAL & MINERALOGICAL SPECIFICATIONS OF GARNET

Garnet belongs to a group of silicate minerals that crystallize in the cubic system and include a series of twelve-sided (two-decahedral) to forty-eight-sided (hexa-octahedron) crystal forms. The general formula of Garnet is A,B2(SiO4)3. The range of high density changes (3.6 to 4.3), high hardness (7.5-6.5), variable fracture coefpcient (1.71 in Pyrope to 1.89 in Andradite) and variable color (white color in Grossular to black in Melanite) are considered among the properties of Garnet.

Chemical compositions of Garnet

Minerals	SiO_2	Al_2O_3	CaO	FeO	Fe_2O_3	Cr_2O_3	MgO	MnO
(Pyrope)	44/8	25/4	-	-	-	-	29/8	-
(Almandine)	36/2	20/5	-	43/3	-	-	-	-
(Spesstarine)	36/4	20/6	-	-	-	-	-	43/0
(Grossularite)	40/0	22/7	37/3	-	-	-	-	-
(Andradite)	36/50	-	33/0	-	31/5	-	-	-
(Uvarovite)	35/9	-	33/5	-	-	30/5	-	-



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APPLICATIONS AND CONSUMING OF GARNET

The common applications and consumptions of Garnet in the industries are brieby described as following:

Sand-blasting

COMMON USES OF GARNET FOR SANDBLASTING:

- Surface preparation of ships, maintenance of ships
- Surface preparation & maintenance of steel structures (oil rigs, power plants, storage warehouses, bridges, boilers, rails, wagons, etc.)
- Surface Preparation
- Surface Preparation & maintenance of steel pipelines - cleaning boxes
- Engraving and making scratch on glass.

WATERJET

In waterjet technique, the abrasives are ejected from the nozzle head in an aqueous solution with a pressure of about 55000 Psi (38.7 m.kg/m2). The size of the nozzle head depends on the materials used for cutting and the cutting conditions, but usually the opening diameter is from 0.23 mm to 2.8 mm.

Its Prst feature is that it does not generate sparks and provides safety in environments where there is a potential for explosion. The second feature is that it works almost without dust. The Bexibility and accuracy of the advanced automatic waterjet system makes it possible to use it in a large number of industrial factories and cut various types of materials, including steel, aluminum, plastic, wood, composite materials, glass, stone, cement, ceramic and cardboard. The global market of this industry, needs 220,000 tons of Garnet per year.

COATED ABRASIVES

Coated abrasives are composed of graded abrasive grains that are glued on sheets of paper or fabric and are used to polish and smooth the surface of various artifacts. The main abrasives for this application are: aluminum, silicon carbide, silica, garnet. The type and size of abrasives are determined by their Pnal use. These days, the use of garnet as a coated abrasive is limited to the woodworking industry, which has a market consumption of about 5000 tons per year in the United States of America.

Papers and fabrics with garnet coating are mainly used for wood wear and also for polishing leather, hard rubber, plastic, glass and softer metals.

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FINISHING AND POLISHING

Precious abrasive powders have made great progress compared to coated abrasives and are used for precise and uniform polishing of electronic parts, special glasses and other precision products. Abrasive materials that compete with this material include diamond pieces, silicon carbide, aluminum slag and silica powder. Also, cleaning by Garnet reduced the polishing time. Garnet creates a suitable surface and is cheaper than many other abrasive materials. The weak points of using garnet are the slow work speed and the relatively high consumption of materials. If the grains are too small, it will cause scratches on the surface and if they are too soft, it will waste the garnet.

ALMANDINE :

The type of garnet mined by Pasha Blasting company is almandine type, which is a non-metallic and non-toxic abrasive, environment & Eco friendly, suitable for sandblasting all kinds of metals such as: steel, aluminum, carbon steel and etc. The main consumptions and applications of garnet are in the manufacturing of abrasive materials, polishing, sandblasting, sand-paper, surface preparation in the wharfs, marine platforms, rusted tanks and reservoirs, metal structures, bridges, oil and gas pipes, petrochemical facilities and oil platforms.

Some of the advantages of Garnet in comparing other abrasives are:

- Use of the garnet, half of other abrasives
- Sandblast speed, 2 times
- Recycling times 3 to 6 times
- No major effect and damage on the sandblast surface
- High resistance of garnet seeds
- Sandblast without pollution

Garnet is free from toxic substances such as heavy metals, especially free silica, and has the necessary standards for human health and the environment.

With low consumption, high speed, non-pollution and frequent recycling, garnet is the best alternative to silica sand and copper slag in the sandblasting industry and is widely used all over the world.

The garnet is produced by this company, is of the Almandine type, which is produced in different sizes for sandblasting and waterjet operations.

ADVANTAGES OF ALMANDINE-TYPE GARNET IN SANDBLASTING

- No risk of silicosis
- No pollution from cut pieces and its chips
- Fast cutting in the nozzle with low pressure for rust removal with little damage in the area of cleaning and higher efPciency with less noise and less dust generation
  Using The smaller size grain can major the density and reduce the surface damage Providing a quick Pled of view for the operator

  The better recycling and recovery for reuse in sandblastin

  No free silica

  High hardness (7-5.8 on the Mohs scale) and density (2/4-9/3) with low brittleness.

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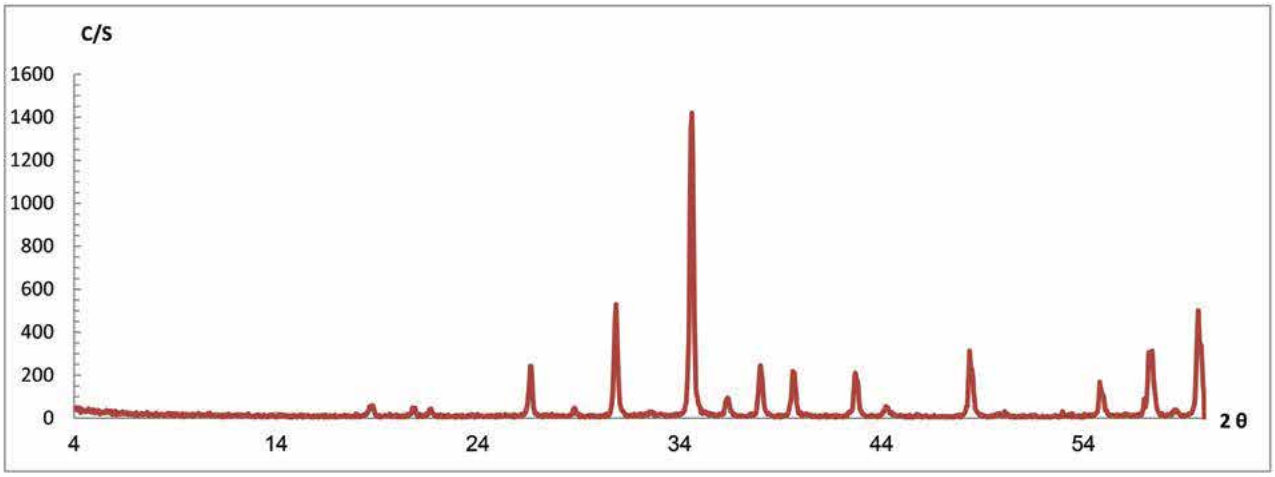
Physical characteristics (typical)	
Bulk Density	2.1 ton/m^3
Hardness(Moh)	7.50-8.0
Melting point	1250^{0}c
Shape of natural grains Sub-angular	

Garnet - Technical Data Sheet

sample	SiO2	Al2O3	Fe2O3	CaO	Na2O	K2O	MgO	
	%	%	%	%	%	%	%	
30/60	37.55	17.81	34.04	4.77	0.15	0.22	2.41	1.479

sample	MnO	P2O5	LOi	S	Cl	Ba	Sr	
	%	%	%	ppm	ppm	ppm	ppm	
30/60	1.334	0.047	0.06	187	58	104	7	118

Results of The Analysis Report: Semi-Quantitative Analysis Using XRD



Sample:	Phase(s)
GARNET	Almandine manganoan(33-0658)=91% (Fe,Mn)3Al2(SiO4)3
Az: 874-2	
Date: 04/09/2022	Quartz (33-1161)= 4% SiO_2
kV= 40	llmenite (29-0733)= 2% $FeTiO_3$
mA= 30	
Ka= Cu	

GLOBAL RESOURCES AND RESERVES OF GARNET

The main countries with garnet reserves are: America, Australia, China and India, whose reserves and base reserves in 2016 have been estimated in the form of a table.

Garnet reserves in major supplying countries in 2020

Country	Deposits	Annual production
United State	5,000,000	110,000
Australia	Much	360,000
China	Much	310,000
India	19,000,000	120,000
South Africa	Uncertain	140,000
Other Counrties	6,500,000	60,000

GARNET
Mica

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Mica

Mica is a general term that refers to a group of phyllosilicate minerals. These minerals have a sheet silicate structure and are composed of different physical and chemical compounds. Muscovite, Biotite, Phlogopite, Vermiculite, and Lepidolite are the famous mica group minerals.

Muscovite (White-Silver mica) is the famous and abundant sheeted mineral. Sheeted muscovite can be found in the pegmatites and the Baky type reported from granites, schists, and pegmatites as well. Biotite (black mica) is common in many metamorphic and igneous rocks. Phlogopite is a magnesium rich black mica that can be found as veins and massive bodies in the pyroxenites and magnesian skarns. Lepidolite is lithium bearing mica that form in the lithium rich pegmatites. Black mica (biotite) is less useful in applications where the color of the Pnal product is important due to its dark color compared to muscovite mica, but as a Þller and enhancer of mechanical and thermal properties, up to %50 by weight is added to polymers such as polyethylene and composites. White mica (phlogopite) has high chemical, electrical and thermal resistance and is resistant to Bame and has high toughness.

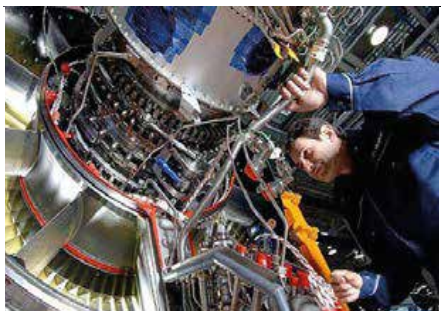
Mica mineral applications

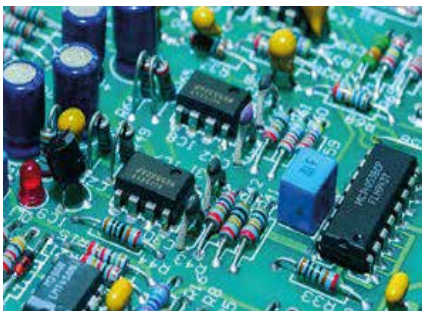
The types of mica minerals have different uses, especially in the industry, which is presented in the following table, a summary of the mica's usage in different areas and the characteristic of the relevant index.

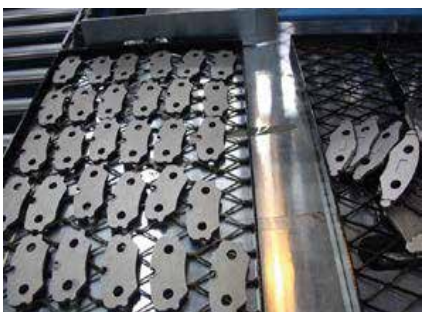
Usage area	Usage type	Indicator features
Ceramic	Manufacture of machinable ceramic glass, tiles and bricks	Glass melt viscosity, melting temperature, raw and beaten strength, shrinkage after pressing
Electricity	Construction of capacitor and electrical conductor insulation, as a flux in the coating of welding electrodes	Amount of iron and sodium elements, breakdown voltage
Oil	In drilling cement composition	Width to thickness ratio of mica grain
Building and concrete	Bonding mortar, gypsum wall covering, asphalt roof covering	Width to thickness ratio of mica grain, flexibility
Fuel cell	Fuel cell insulation, in the form of mica paper composite	Purity, thickness, width, opacity
Wastewater treatment	Lead purification	Grain size, ion exchange property
Coloring	As a filler in paint	Grain size, ratio width to thickness of mica grains, amount of iron and magnesium elements, white color
Composite	As a bulking agent and filler in the plastic components of the car, as a lightweight insulator to reduce sound and vibration	Grain size, ratio of width to thickness of mica grain, amount of iron and magnesium elements, hydrophobicity and polymer, preparation of mica grain surface, flexibility
Catalyst base	Inactivation of lipase enzyme	Special surface, grain size, lamination, thickness
Cosmetic	Blush, eyeliner and eye shadow, sunscreen cream, lipstick, body shine, hair and lips, mascara, moisturizing lotions and nail polish	Grain size, purity, whiteness luster, separation degree of mica sheets

MICA CONSUMPTION

Mica varieties include sheets, mica particles, and baked mica products derived from all types of mica. Mica particles are obtained in the form of blocks and thin sheets that are molded and used in paper making. The main applications of mica are insulation in the production of all kinds of electronic components and devices, insulation and protection in induction furnaces, insulation and protection in the petroleum, steel, aerospace, and Surface preparation industries, production of sanitary ware, creation of cellulose coatings for Surface preparation purposes, decorative applications (candle making, sculpture making, etc.), cosmetics, sanitary pad making, and forming the basis of the rubber and paint industries.







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MICA MANUFACTURING COUNTRIES

The United Kingdom, Ireland, Sweden, Russia, India, the United States, Canada, South Korea, China, and Madagascar are among the world's leading mica producers. In 1994, global mica production was approximately 240,000 tons, with 60% belonging to the United States, 17% to Russia, 13% to India, and 4% to South Korea. Global mica production reached 1,000,000 tons in 2022. This indicates that Pasha Blasting's share of total global production will be between 10% and 15% in the coming years.

Commodity	Net import reliance as a percentage of apparent consumption	Major import sources (2017–20)[2]
ARSENIC, all forms	100	China, Morocco, Belgium
ASBESTOS	100	Brazil, Russia
CESIUM	100	Germany, China
FLUORSPAR	100	Mexico, Vietnam, South Africa, Canada
GALLIUM	100	China, United Kingdom, Germany, Ukraine
GRAPHITE (NATURAL)	100	China, Mexico, Canada, India
INDIUM	100	China, Canada, Republic of Korea, France
MANGANESE	100	Gabon, South Africa, Australia, Georgia
MICA (NATURAL), sheet	100	China, Brazil, Belgium, India
NEPHELINE SYENITE	100	Canada
NIOBIUM (COLUMBIUM)	100	Brazil, Canada
RUBIDIUM	100	Germany
SCANDIUM	100	Europe, China, Japan, Russia
STRONTIUM	100	Mexico, Germany, China
TANTALUM	100	China, Germany, Australia, Indonesia
VANADIUM	100	Canada, China, Brazil, South Africa
YTTRIUM	100	China, Republic of Korea, Japan
GEMSTONES	99	India, Israel, Belgium, South Africa
TELLURIUM	>95	Canada, Germany, China, Philippines
POTASH	93	Canada, Russia, Belarus
IRON OXIDE PIGMENTS, natural and synthetic	91	China, Germany, Brazil
RARE EARTHS,[3] compounds and metals	>90	China, Estonia, Malaysia, Japan
TITANIUM, sponge	>90	Japan, Kazakhstan, Ukraine
BISMUTH	90	China, Republic of Korea, Mexico, Belgium
TITANIUM MINERAL CONCENTRATES	90	South Africa, Australia, Madagascar, Mozambique
ANTIMONY, metal and oxide	84	China, Belgium, India
STONE (DIMENSION)	84	China, Brazil, Italy, India
CHROMIUM	80	South Africa, Kazakhstan, Russia, Mexico
PEAT	80	Canada
SILVER	79	Mexico, Canada, Chile, Poland
TIN, refined	78	Indonesia, Peru, Malaysia, Bolivia
COBALT	76	Norway, Canada, Japan, Finland
DIAMOND (INDUSTRIAL), stones	76	South Africa, India, Congo (Kinshasa), Botswana
ZINC, refined	76	Canada, Mexico, Peru, Spain
ABRASIVES, crude fused aluminum oxide	>75	China, France, Bahrain, Russia
BARITE	>75	China, India, Morocco, Mexico
BAUXITE	>75	Jamaica, Brazil, Guyana, Australia
SELENIUM	>75	Philippines, China, Mexico, Germany
RHENIUM	72	Chile, Canada, Kazakhstan, Japan
PLATINUM	70	South Africa, Germany, Switzerland, Italy
ALUMINA	58	Brazil, Australia, Jamaica, Canada
GARNET (INDUSTRIAL)	56	South Africa, China, India, Australia
MAGNESIUM COMPOUNDS	55	China, Brazil, Israel, Canada
ABRASIVES, crude silicon carbide	>50	China, Netherlands, South Africa
GERMANIUM	>50	China, Belgium, Germany, Russia
IODINE	>50	Chile, Japan
TUNGSTEN	>50	China, Bolivia, Germany, Canada
CADMIUM	<50	Australia, China, Germany, Peru
MAGNESIUM METAL	<50	Canada, Israel, Mexico
NICKEL	48	Canada, Norway, Finland, Australia
COPPER, refined	45	Chile, Canada, Mexico
ALUMINUM	44	Canada, United Arab Emirates, Russia, China
DIAMOND (INDUSTRIAL), bort, grit, dust, and powder	41	China, Ireland, Republic of Korea, Russia
LEAD, refined	38	Canada, Mexico, Republic of Korea, India
PALLADIUM	37	Russia, South Africa, Germany
FELDSPAR	32	Turkey
SILICON, metal and ferrosilicon	32	Russia, Brazil, Canada, Norway
SALT	29	Chile, Canada, Mexico, Egypt
MICA (NATURAL), scrap and flake	28	Canada, China, India
LITHIUM	>25	Argentina, Chile, China, Russia
BROMINE	<25	Israel, Jordan, China
ZIRCONIUM, ores and concentrates	<25	South Africa, Senegal, Australia, Russia
PERLITE	23	Greece, China, Mexico, Turkey
VERMICULITE	20	South Africa, Brazil

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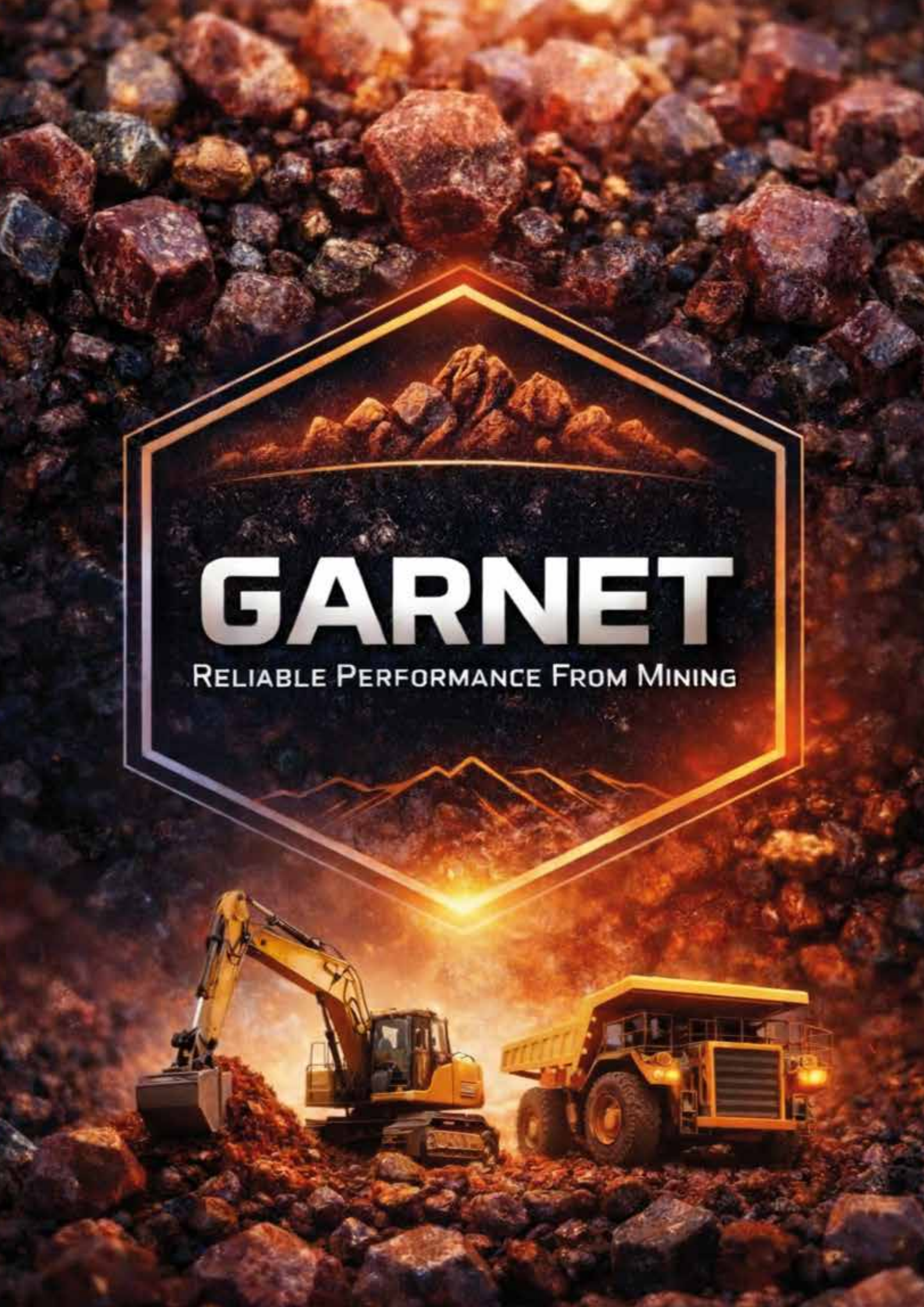
The mica mine of PASHA BLASTİNG

28 million tons of reserves with 7.5 million tons of muscovite mica content, PASHA BLASTİNG company is able to produce and export 150 thousand tons of mica per year by completing the processing line. The analysis of the produced medium mica is presented in the table below.

Considering the high reserves and potential of Turkey's garnet mine, PASHA BLASTING has planned the extraction of two minerals, garnet and mica, from this mine in two phases: medium and long term, based on ongoing studies and investments.

According to PASHA BLASTING Turkey's performance and approach to garnet mining, a factory with an annual production capacity of 80,000 tons of garnet has been constructed in the first phase. The factory is planned to be expanded to major garnet production to 140,000 tons. In the medium-term phase, a mica processing plant with an annual capacity of 120,000 tons will be established.

It is also worth noting that PASHA BLASTING Turkey's garnet mine aims not only to meet the country's domestic needs and achieve self-sufficiency in garnet imports for the sandblasting, water jet, and mica industries, but also to meet 10% to 15% of the world's garnet and mica production in the long term.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THE POWER THAT SHAPES THE WORLD: GARNET

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