



SUVINO EXPORTS PRIVATE LIMITED

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SUVINO® GARNET The worlds toughest & the best!!

What is GARNET SAND ?

Garnet is not a single mineral. Rather, it is a group of minerals that share a common crystalline structure and a similar chemical composition. The most common varieties of commercially available garnet are Almandite (or Almandine) and Andradite. Although Almandite is the heaviest and hardest and Andradite is the lightest and softest of the garnet family, both are relatively hard and relatively heavy.

A more important attribute not necessarily associated with the chemistry is how the garnet was formed. Because of their hard rock deposit formation, all of the deposits of Andradite and some of the Almandite garnets are structurally weaker than full crystal alluvial Almandite garnets. In hard rock garnet deposits, many crystals can make up a particular grain size. A high number of crystals in each grain means the grains are more friable or break down more easily. This tendency to break down results in a greater level of finer particles of dust, slightly lower performance in a one-time use, and a reduced ability to be recycled. Usually, the lower performance is partially offset by the lower price of the Andradite compared to the Almandite.

A very simple friability test will go a long way in understanding how a particular garnet will break down and generate dust.

- Place about 10 grains of each type of garnet you are considering on a flat, hard surface.
- By using a quarter and the pressure of your thumb, try to break each grain of garnet individually, if possible.
- The easier it is to break the grain, the higher the dust levels will be and the fewer times you can recycle the garnet. For recycling projects, choose the sample that is hardest to break.

It is imperative that the end user (contractor) acquire samples of each garnet product under consideration. At most, a quarter of a pound of each is needed. The friability test should be performed before ordering a particular type of garnet. When the selected product is delivered to the job site, the test should be done on the product at the site to see if it is comparable to the sample. Because everyone exerts different pressure, the test gives only a relative indication of friability.

All garnets do not yield the same profile, cutting speed, and recycling ability.

The harder, full crystal garnets (Al-mandite) will generally yield faster cutting speeds and lower dust levels than the more friable, fractured garnets (Andradite).

We offer you **ALMANDITE garnet from India.**



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Specifications of Garnet Sand

Typical Mineralogical Analysis (in %)

SN	Mineral	%
1.	Ilmenite	1.0 – 2.0
2.	Garnet	97.0 – 99.0
3.	Quartz	0.1 – 0.5
4.	Non-magnetic other than quartz	0.4 – 0.7

Typical Chemical Analysis (in %)

SN	Chemical Composition	%
1.	SiO ₂ *	31.0 – 38.5
2.	Al ₂ O ₃	20.4 – 21.6
3.	Fe ₂ O ₃	30.5 – 37.0
4.	TiO ₂	0.5 - 1.0
5.	MnO	0.5 – 0.6
6.	CaO	1.5 – 2.0
7.	MgO	7.4 – 8.0
8.	Moisture	< 0.5

* refers to the SiO₂ bound within the lattice of the homogenous garnet crystal.

Note: Garnet being a natural product, its chemical analysis is expected to vary.

Other properties

SN	Items	Value
1.	Specific Gravity	4.1 gm/cc
2.	Average Bulk Density	2350 kg/m ³
3.	Hardness (Moh's)	7.5 to 8.0
4.	Chloride	< 20 ppm
5.	Free Metals	< 0.01%
6.	pH	> 7
7.	Conductivity	10-15m ² /m
8.	Grain Shape	Sub-angular
9.	Radioactivity	Not detectable above background



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Standard Sieved Grades

SN	Size Range (mesh)	Size Range (mm)	Ref. Name
1.	12/20	1.710 – 0.850	
2.	20/40	0.425 – 0.850	
3.	30/60	0.250 – 0.600	
4.	40/100	0.150 – 0.425	#70
5.	50/100	0.150 – 0.300	#80
5.	50/200	0.075 – 0.300	#120

Special sieved grades can be made available on request.

Standard Packing Options

Option 1– 25 or 50 kgs nett in new PP/HDPE woven bags.

Option 2 – In 1 or 2 MT jumbo bags with liner, top and bottom spout.

Upto 20.000 MT can be loaded per truck depending on buyers option and weight restrictions.

Consumption and Production

The tightly screened sizing of Garnet ensures a maximum number of grains unit weight. Blasting speed (and hence, total job time) is a result of number of impacts on the surface. The greater numbers of grains impact the surface, the more area can be covered in less time. Garnet 30/60 Mesh contains approximately 11.00 Million impacting grains per kg of abrasive compared to the coarser slag or sand of 20 Mesh with only 1.00 Million grains per kg. Depending on the application, this result in up to twice the cleaning rate with Garnet, using 1/3 the abrasives compared to other conventional abrasives.





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A host of application, economical, safety, and environmental advantages make SUVINO Garnet the preferred choice across a wide range of industries.



Advantages in Application

1. Non-contaminating

No chemicals are used during processing of **SUVINO Garnet**. Additionally, the inert character of this natural mineral assures that even non-ferrous material surfaces are not contaminated. It is safer than ferrous abrasives especially as Garnet does not damage electromagnetic components.

2. Virtually NO DUST

Due to its highly durable crystalline structure, **SUVINO Garnet** exhibits very low particle breakdown on impact. Also the sand particles rapidly settle down due to its high specific gravity. This results in better visibility during blasting as well as ensuring minimum disruption and danger to adjoining operations.

3. Excellent and Superior surface quality

SUVINO Garnet grains clean deep into cavities and pitted areas down to the bare metal, thoroughly removing all rust, soluble salts and other contaminations. The blasted surface is free of embedments and free of rogue peaks and troughs (uniform high-profile roughness) for strong bonding. The blasting leaves no residue and hence no further cleaning is required before painting. White Metal (SA3) is effortlessly achieved. A surface profile of 50-75 microns (2-3 mils) is easily created. Blast cleaning using garnet is ideal for cleaning uneven surfaces.

4. Water Softening

As a natural heavy mineral, **SUVINO Garnet** is an effective water softener. There is no known economical alternative for garnet as a water filtration bed as it resets the filter bed faster after the bed is back flushed. It also has the advantage of being chemically inert. It is also effective for the removal of Heavy minerals.

5. High Quality stonewashing

In textile industry, while stonewashing of fabrics, blasting using **SUVINO Garnet** does not damage the fabric but safely removes the dye without damaging the fabric or stitching.



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Economical Advantages

1. HIGH Productivity

SUVINO Garnet cleans quickly due to the large number, speed, and shape of the grains impacting the surface. The acceleration and speed of the grain in the air stream is a function of the inertia and hence, the size and mass of the grain. Smaller grains are more easily accelerated and thus impart higher impact energy to the surface and assure a higher cleaning rate - often twice the number of square meters or square feet compared with cleaning done with traditional materials. This statement is verified by our various customers after using our **SUVINO Garnet**.

2. Low Consumption

SUVINO Garnet's unique grain size ensures that there are many more active grains impacting on the surface, resulting in greatly reduced abrasive consumption; usually one third to one half that of traditional sands and slags. Thus considerably lowering the total consumption of abrasive media (garnet) per job.

3. Cheaper

Economics of **SUVINO Garnet** usage compares favorably with synthetic abrasives of similar hardness, which are almost eight times costlier.

4. Long Life Span and recyclability

SUVINO Garnet is suitable for multiple usage. It can be recycled 6-8 times or more without losing its superior cutting ability, as there is low particle breakdown on impact. Special **SUVINO Garnet** recycling systems are available on request.

5. Less Wear and Tear on Nozzles

The natural beach-washing of the minerals gives tumbled edges to **SUVINO Garnet** and as a result cause less wear and tear on the jet nozzle. In addition, the uniform grain structure minimizes machine downtime and nozzle clogging.

6. Faster Waste Removal

The high specific gravity of **SUVINO Garnet** results in rapid settling of the breakaway particles. Hence, the residual slag is easily disposable.



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Safety to Human Health

- ☺ **SUVINO Garnet** is inert, non-toxic and contains less than 0.1% "free silica". There is no silicosis hazard, leachable heavy metals like free iron, copper, etc. or radioactive contaminants. Lower consumption and recyclability result in greatly reduced disposal volumes of non-toxic product
- ☺ It is due to the above reasons that **SUVINO Garnet** does not fall under the jurisdiction of the Occupational Safety and Health Administration's (OSHAS) Hazard Communication Standard.



Advantages to the Environment

- ⊗ **SUVINO Garnet** is an eco-friendly natural abrasive.
- ⊗ It does not contain any water-soluble constituents that could pollute water resources. When used offshore, garnet does not contaminate or foul the sea-bed or disturb marine life.
- ⊗ It is water free and does not absorb water.
- ⊗ It is non-polluting due to its inert character and low dust emission.
- ⊗ Its high recyclability and non-toxicity results in better waste management and zero-environmental fallout; from Earth to Earth.
- ⊗ From Earth to Earth.
Garnet is a natural mineral and by using garnet - you return the mineral taken from earth back to earth
- ☠ Whereas Mineral Slags are waste-products of the metals refining industry and frequently contain unacceptable levels of toxic heavy metals such as lead, copper, zinc, arsenic, cadmium, etc. Silica sand has been banned or restricted as a blasting abrasive in many countries around the world since its fine dust can cause silicosis, a deadly lung disease, and it has been linked to lung cancer.



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Applications of Garnet Sand 1

▪ **Blast Cleaning**

Garnet is quickly becoming the abrasive of choice for many blast room applications. Numerous blasting and painting facilities around the world are discovering that Garnet offers high performance and recyclability in a non-ferrous 100% natural mineral. It's no surprise that more and more people come to the conclusion that Garnet is the best abrasive for their blast room applications.

Grade	Advantage	Application
1.710 – 0.850 mm (12/20 mesh)	⇒ Ideal for Tar removing ⇒ Used to remove thickest and most adherent coatings ⇒ High surface profile application (4+mil) ⇒ Multiple recycling possible	⇒ Ship repair ⇒ Petrochemical ⇒ Industrial Painting ⇒ Bridges
0.850 – 0.425 mm (20/40 mesh)	⇒ High surface profile blasting (3-4mil) ⇒ Used to remove thick coatings ⇒ Remove rust in maintenance applications ⇒ Multiple recycling possible	⇒ Ship repair ⇒ Petrochemical ⇒ Industrial Painting
0.600 – 0.250 mm (30/60 mesh)	⇒ General purpose cleaning ⇒ Surface preparation	⇒ Steel, aluminium surface painting ⇒ Ship cleaning ⇒ Denim blasting ⇒ Heavy equipment repair
0.425 – 0.150 mm (40/100 mesh)	⇒ On sensitive materials ⇒ Surface preparation for aluminium	⇒ New steel painting ⇒ Aluminium surface painting ⇒ Road Painting
0.300 – 0.075 mm (50/200 mesh)	⇒ Low surface profile finish	⇒ Aircraft Parts ⇒ Hydroblast Cleaning ⇒ Ship Propellers ⇒ Turbine Blades

Profile created during abrasive blasting

Particle Size	Profile (Microns)
Coarse (12/40 mesh)	65 – 95
Medium (30/60 mesh)	50 – 70
Fine (50/200)	35 – 55



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Applications of Garnet Sand 2

▪ **Waterjet cutting**

Precision screening and the uniformity of the garnet grains assures minimum machine downtime and nozzle plugging. Waterjet users throughout the world have adopted garnet for their requirements.

Grade	Advantage	Application
0.600 – 0.250 mm (30/60 mesh)	⇒ Tough, Aggressive precision waterjet abrasive	⇒ Thickest and most difficult machine materials
0.425 – 0.150 mm (40/100 mesh)	⇒ High Performance ⇒ Versatile ⇒ Cost Effective	⇒ Graded Steel ⇒ Structural Steel
0.300 – 0.150 mm (50/100 mesh)	⇒ Speed & Finish ⇒ Precision Cutting	⇒ Steel ⇒ Aluminium ⇒ Glass ⇒ Granite ⇒ Marble
0.300 – 0.075 mm (50/200 mesh)	⇒ Elimination of secondary finishing work	⇒ Glass Cutting ⇒ Precision Metal finishing

HOW TO SEEK OUR QUOTATION

To enable us to quote for your requirement, kindly give us the following info –

1. Grade required
2. Packing required – Our standard is 50kgs PP bags.
3. Quantity required with delivery schedule
4. Destination
5. Proposed Payment terms

You may fax to us on (022) 4322 8401 or e-mail on garnet@suvino.com.
Contact person – Mr. Avishek Modi, Mobile 93240 87327.