



GMA Garnet

The most popular Garnet abrasive
worldwide - near you!



GMA GARNET RECYCLING SYSTEMS



GMA GARNET

Recycling Systems

"Our experience is proving that GMA Garnet can be recycled up to the fifth time. The anchor profile achieved by using GMA Garnet after recycling varies between 50-70microns (2-3mils). The GMA Garnet in combination with the MKV Recycling System is producing excellent results in terms of cost effectiveness, highest productivity and superior surface finish".

*Al Mazroui & Peininger International
LLC, Abu Dhabi*

"We chose GMA Garnet for job comprising, blasting of 60km (38miles) x 10" internal steel pipe plus fittings and achieved 600m² per shift (6600 ft²/day) production. For a total of 56,400m² (620,000 ft²) we used only 90mt GMA Garnet 30/60 Mesh in combination with a MKV Recycling System. The surface quality was consistent SP-5 with a 50-65micron (2-2.5mil) roughness. We would recommend the use of GMA Garnet in combination with the MKV Recycling System for this type of application."

*McConnell Dowell,
Dubai*

"For the Melaka Refinery Project we have erected a blasting shed and installed a GMA Garnet MKV Recycling system. We are very pleased with the results and achieved a substantial cost saving with GMA Garnet compared to copper slag and much improved working conditions and blasting efficiency".

Chiyoda Malaysia Sdn. Bhd.

*A Garnet pile ready
for recycling*



GMA Garnet is one of the world's most efficient blasting abrasives in terms of high speed blasting, very low abrasive consumption, very low dusting and no adverse environmental or health impact.

GMA Garnet's grains are amongst the hardest and toughest minerals known to man, weathered and toughened over thousands of years, they do not shatter on blasting impact. Depending on surface hardness and nozzle pressure, typically only about 10-15% of the GMA Garnet grains break on impact, forming new sharp cutting edges thus maintaining most of their superior effectiveness and cutting ability even after many uses.

In Blasting Sheds, Field Blasting Yards and all other applications where the used GMA Garnet can be recovered, GMA Garnet can be very successfully recycled many times.

GMA Garnet Recycling Systems are designed and built to reprocess used GMA Garnet for immediate re-use. The systems are of modular design and are easily set up and relocated. GMA Garnet Recycling Systems produce exceptionally high quality reusable GMA Garnet through a sequence of screening and vacuum extraction, utilising GMA Garnet's unique grain size and specific gravity characteristics.

The **GMA Garnet Recycling Systems**, provides the ability for GMA Garnet, a high efficiency natural abrasive, to be used over and over again for maximum cost saving. Abrasive consumptions as low as 1.6kg GMA Garnet per m² (0.33 lb/ft²) have been reported by very satisfied customers after recycling.

Recycling provides for greatly reduced abrasive volume to be transported to and handled on site as well as greatly reduced abrasive disposal volume and disposal cost of a non-hazardous abrasive.

GMA Garnet Recycling Systems can be adjusted to achieve the optimum particle size balance for any particular blasting requirement.

The systems are in operation in some of the world's toughest environments in Australia, New Zealand, the Middle East, South East Asia, Europe, North Asia and the USA. Operation and Maintenance is very simple even under difficult site conditions.

The recycling is done as a dry process. Wet or damp material **must** be dried prior to reprocessing.

*Equipment installations
around the world*

Germany
Hong Kong
Australia
New Zealand
Holland
Sweden
United Arab Emirates
Saudi Arabia
Qatar
Bahrain
Malaysia
Malta
Korea
Taiwan
USA
and several other
countries



*Used GMA Garnet prior
to recycling.*



*Recycled GMA Garnet
ready for use.*



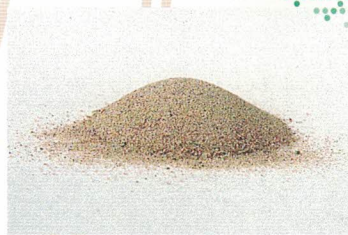
How it works...

Once the GMA Garnet is collected, either by our Vacuum Recovery Systems, shovelling or ground level sweeping into hoppers, the following 6-stage cleaning process can begin: (The used GMA Garnet must be dry prior to processing).



Step 1 Used GMA Garnet ready for recycling

All coarse contaminations like stones, welding rod ends, cigarette butts, broken glass, wood, gloves and so on are extracted by a primary grizzly Rotary Trash Screen.



Step 2 / 3 Waste Fines

A fully adjustable double Fines Removal System extracts the exact amount of ineffective fine particles less than 100 microns (4thou) that are not wanted for any particular blasting application (Typically no more than 10% of the used abrasive is extracted here).



Step 4 Waste Dust

The Dust Collector Module separates the ultra-fine dust from the used abrasive and collects it into a sealed hopper for direct discharge into bulk bags for easy and safe disposal.



Step 5 & 6 Waste Paint Flakes

The final cleaning stage is a micro-trash separator and final airwash. Here paint flakes, rust particles, very small stones etc are extracted from the used GMA Garnet which is now ready for immediate reuse.

Recycled Garnet ready for use.



Step 7 Addition of Virgin GMA Garnet

The addition of new GMA Garnet to the recycled product ensures constant quantity of GMA Garnet for use.

If 10-15% is removed each cycle, then 10-15% of new GMA Garnet is added.

The MK Combi GMA Garnet Recycling System.



Models available

Model	MKV	MK Combi
Function	Blast Sheds	Mobile sites
Assembled Overall size approx length	2600mm / 8'6"	3700mm / 12'2"
Width	3300mm / 10'10"	2200mm / 7'3"
Height	3300mm / 10'10"	4200mm / 13'9"
Electrical Power Requirements	220v/380v/450v - 3 phase	
	Other voltages available on request	
Service Amps	15A	15A
Compressed Air Required@100psi	25cfm	30cfm
Dust Collector Capacity	1000cfm	1500cfm
Total Filter Area	452 sq. ft.	680 sq. ft.
Max. Through-put of Used Garnet kg/hr.	5000-7000 (11000-15400 lb/hr)	5000-7000 (11000-15400 lb/hr)
Automatic Reverse Pulse Filter Cleaning	included	included
Ducting to Dust collector	external ducting	internal ducting
Adjustment of Fines Extraction	Fully adjustable suction capacity & fines extraction	
Rock Screen (grizzly)	included	included
Heavy duty Trash Screen	Auto Cleaning	Auto Cleaning
Airwash cleaning	Double	Double
Micro trash Final Screen	included	included
Waste Dust Collection	Bulk Bag	Combined into one bulk bag outlet
Waste Fines Collection	on site skip	
Cleaned Garnet Collection	Bulk Bag	Bulk Bag
Electrical Switchboard	Dust proof, waterproof, enclosed cabinet IP64 rated	
Shipping Weight Appox. (kg)	3000 (6600 lb)	3000 (6600 lb)



Installation of MKV System outside the Blast Shed of Steel Fabricator at Refinery Construction project in Damman, Saudi Arabia.

On-site Service and Training



Operator Training

For successful operation of your Recycling System, an Engineer will travel to your site to fully train all personnel in Operations and Maintenance.

On-site committment

Service Engineers are available to travel to site to conduct Routine Maintenance and breakdown repair.



Mobile MK Combi Recycling System



Used dirty GMA Garnet prior to cleaning.



Finished cleaned GMA Garnet ready for use.

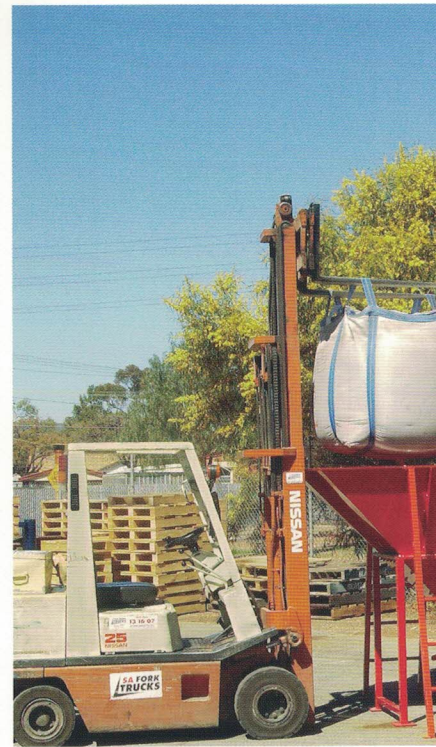
The GMA Garnet Recycling System Model MK COMBI is a specially designed compact recycling system for the efficient cleaning and reprocessing of used GMA GARNET for immediate re-use.

The MK COMBI is fully assembled into one rigid unit with central lifting point for easy transportation and setting up on site. Only an electrical connection and compressed air supply are needed for immediate operation.

The unit is designed to be transported on its side in fully assembled condition. Maximum width fully assembled is 2200mm (7'3").

The MK-COMBI is designed to clean dry used GMA Garnet. All trash such as cigarette butts, broken glass, paint flakes, welding rods, stones etc are removed from the used GMA Garnet. In addition the system will remove broken GMA Garnet grains (fines) and dust particles from the used material. The system uses a dry cleaning process and all used GMA Garnet **must** be totally dry for processing.

The MK-COMBI is a low maintenance and easy to operate system with adjustable controls for material flow and Airwash cleaning. The total throughput of the system is dependent on the degree of cleanliness of the used/dirty garnet and the degree of fines extraction required. Typical throughput capacity is up to 7 metric tonnes per hour.



The Operator Controls are clearly marked and easy to use. A detailed Instruction & Maintenance manual is provided for site use. In addition, on-site training is available to instruct operators in efficient operation of the system.

The MK-COMBI has been designed to be transported in fully assembled condition fitting on a standard flatbed truck. A central crane lifting point allows easy setting up/laying down. A strong rugged frame around the MK-COMBI protects all components against damage during transportation and on site (e.g. from tank to tank).

Easy transportation means that the MK Combi can be set up and ready for recycling in minutes.





The recycling is done in a dry process. Wet or damp material must be dried prior to processing.

Dry used GMA Garnet enters here.



Loading the 2 tonne hopper ready for recycling.

Cleaned GMA Garnet is collected at the Bulk bag outlet.



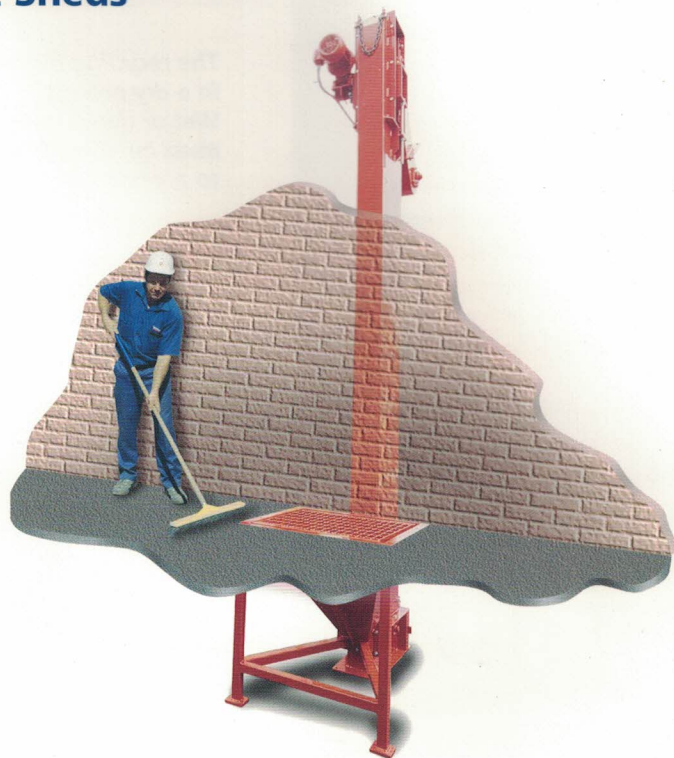
Modular Recycling System for Blast Sheds

Type MKV

The Modular GMA Garnet Recycling System Type MKV is ideal for blast shed use. This system and its five modules are easily and quickly erected at site. Flexible ducting and quick-coupling electrical connections allow easy setting up of the system on site.

The five Modules are:

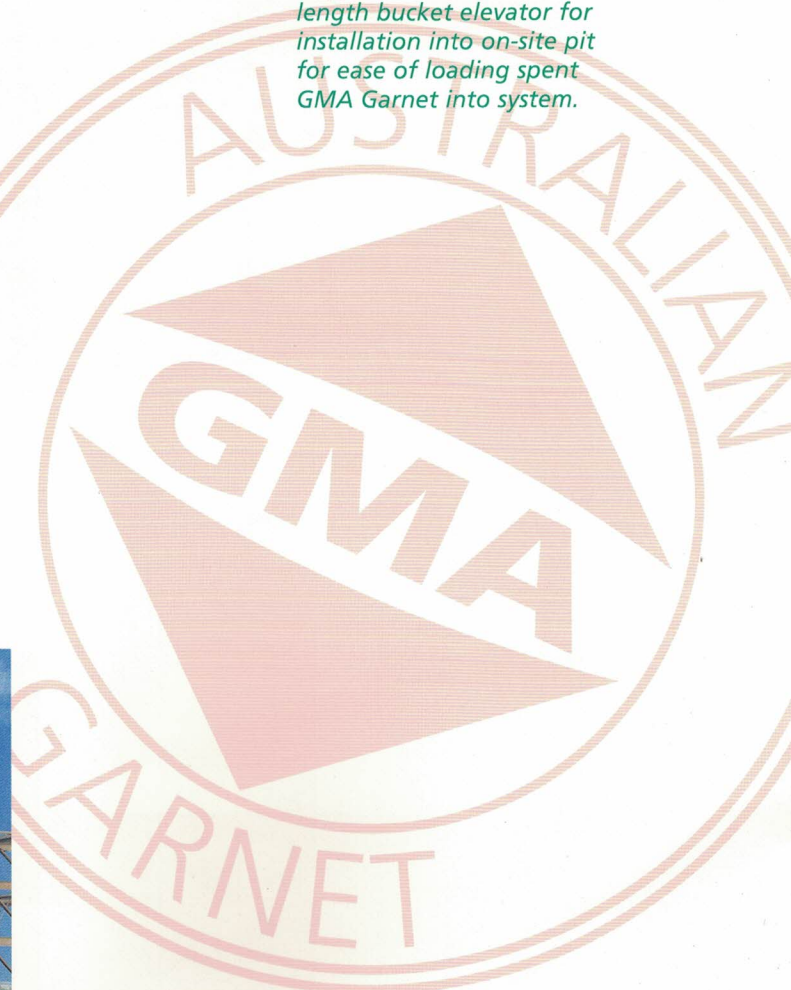
- 1 Bucket Elevator (optional 2 tonne capacity loading hopper and 'Sweep-in' Ground Level Hopper available).
- 2 High-Performance Processing Module with a capacity of up to 7 tonne per hour throughput.
- 3 Stand with cleaned GMA Garnet receival hopper and bottom discharge valve for direct discharge into bulk bags or blast hopper.
- 4 1000cfm Dust Collector with high performance Pleated Cellulose Filter cartridges, automatic reverse-pulse cleaning system and manually adjustable suction control.
- 5 Stand with Dust receival hopper and bottom discharge valve for easy and safe disposal directly into bulk bags. The easy-to-operate system controls are mounted inside the IP64 Switchboard at the operating side of the stand.



'Sweep-in' Ground Level Hopper. Order with extended length bucket elevator for installation into on-site pit for ease of loading spent GMA Garnet into system.

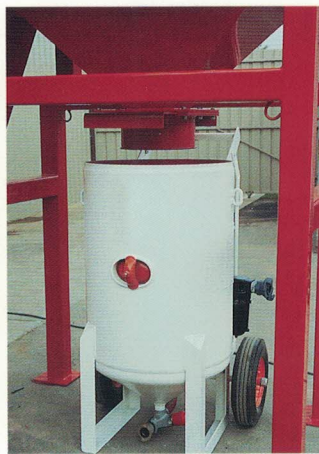


Unit installed against wall of Blasting Shed with loading hopper inside. Larger 2 tonne capacity loading hoppers also available.





*Installation of MKV System
in a temporary Blast Shed
at Malacca Power Station
Construction Site in Malaysia.*



*Blast Pot Loading Feature:
Load straight back into
Blast pot at Blast site.*



*System Controls: Easy to
operate control board.
All electrical components
'fast plug in' for minimum
set-up time.*

The MK Mini Recycling Station

3 Stage Economy Garnet Cleaning System

A single phase Budget-Priced Recycling Station, designed to be installed into smaller blast rooms which are using GMA Garnet or smaller site operations.

This unit is not recommended for heavy duty use.

The receiving hopper can be installed into the floor as a "sweep-in" hopper, or above floor level as a "shovel-in" hopper. (See examples on right.)

The cleaned Garnet is loaded directly back into a blast hopper or storage container for reuse. This "MKM System" has a cleaning capacity of up to 2 tonne per hour.

GMA Garnet is efficiently cleaned by a specially designed separator attached to the Bucket Elevator. Trash, bolts, stones etc. are removed by a static screen which is easily removed for cleaning by the operator.

This unit is shown with the Dusto 500 Dust Collector, which has been specially designed for use with the MKM Recycling System. The Dusto 500 is fitted with efficient automatic reverse pulse filter cleaning and high efficiency dust cartridge. Dust is collected, ready for disposal, in a removable container.

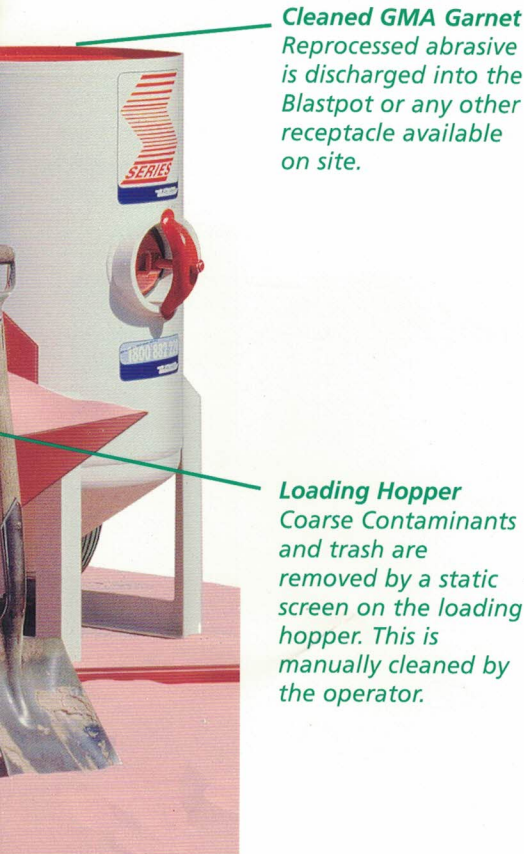
Dust Collector
Extracts the dust from the used GMA Garnet.

Fines Bin
All unwanted and ineffective fine particles are discharged through a separate waste chute to a waste bin, provided on site.



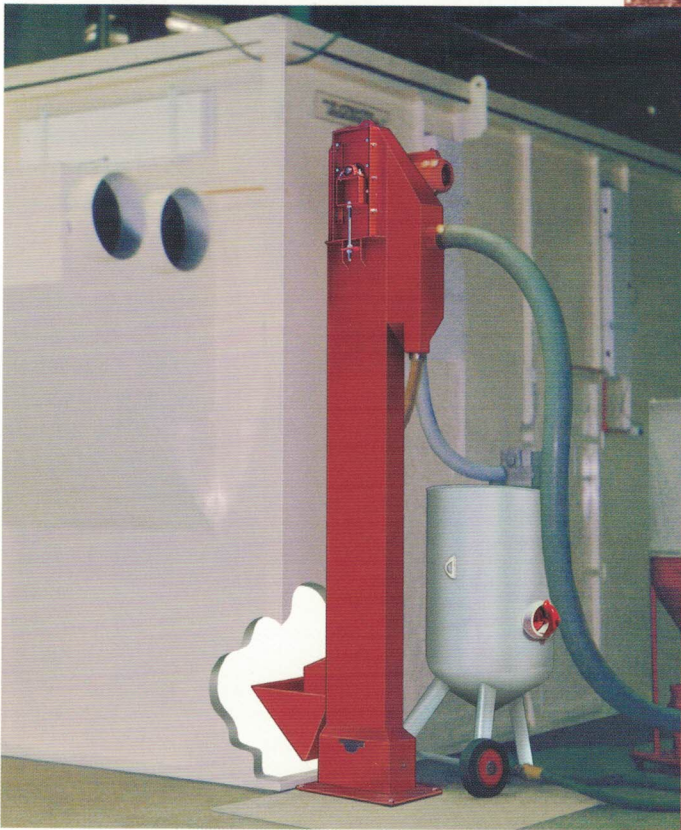
Designed to be installed into smaller blast rooms which are using GMA Garnet

Model	MK-MINI
Assembled Overall size approx length	2500mm including dust collector
Width	1800mm including dust collector
Height	3700 / extended model MK-MINI L 5400mm*
Electrical Power Requirements	220/240volt - single phase
	Other voltages available on request
Service Amps	10A
Compressed Air Required@100psi	20cfm
Dust Collector Capacity DC500	500cfm
Total Filter Area	226 sq. ft.
Max. Through-put of Used GMA Garnet kg/hr.	2000
Automatic Reverse Pulse Filter Cleaning	included
Ducting to Dust collector	external ducting
Adjustment of Fines Extraction	Fully adjustable suction capacity & fines extraction
Rock Screen (grizzly)	not included
Heavy duty Trash Screen	Manual Screen
Airwash cleaning	Single
Micro trash Final Screen	optional
Waste Dust Collection	20Lt. Bucket
Waste Fines Collection	on site drum
Cleaned Garnet Collection	site supply
Shipping Weight Appox. (kg)	1000
*Lower height if installed in pit with "sweep in" floor hopper.	



Cleaned GMA Garnet
Reprocessed abrasive is discharged into the Blastpot or any other receptacle available on site.

Loading Hopper
Coarse Contaminants and trash are removed by a static screen on the loading hopper. This is manually cleaned by the operator.



Elevator shown attached to outside of blast room. The loading hopper is located inside.



Installation through the wall of a blast shed is simply done either as "shovel-in" (as shown) or ground level "sweep-in" hoppers.

High performance Vacuum Recovery Systems

**Forget
downtime...**

**NO moving
parts to wear!**

**NO seals
to replace!**

NO water!

NO electricity!

NO motors!

**Virtually
maintenance-free!**

For the fast and economical Recovery of used abrasive from the Blasting Site. Used to recover the GMA Garnet prior to recycling.

Ease of operation

Retrieves GMA Garnet over 400 metres (1300 feet) away, even with Vertical Lifts. Recover through small openings or from inaccessible places. Recover from the bottom of Petrol-chemical or Ship tanks. Forget the time and expense of barrowing and shovelling or the costs and problems of hiring Vacuum trucks. With your Vacuload System it's always a simple, quick, inexpensive and virtually maintenance-free clean up.

Compare our efficiency

You use Compressed Air for blasting...when you've finished you can use it for vacuuming. By using Air to power the Vacuload systems, you save the costs of expensive motors or engines. Compare our efficiency!



Vacuload Series II

A new air-driven Vacuum Pump and Dust Collector module ideal for smaller projects. This unit (on left in picture) contains one vacuum Jet-Pump and dust collector.

Tools from left to right:

Optional flared vacuum
pick up tool

Bulk pick up tool



Interceptor

Collects and stores all vacuumed material ready for disposal or recycling.

Vacuload Series 4

The Vacuum Power Pack! Uses twin compressed air eductor Jet-Pumps to create vacuum power. The integral Dust collector cleans the vacuumed air to ensure only clean air is emitted to atmosphere.



Technical Specifications

VACULOAD/Model	Series 2	Series 4
Compressed Air Required @ 120psi	400 cfm	750 cfm
Electrical Power Required	not required	not required
Dust Collector Size	2 Cartridge	4 Cartridge
Filtration Area	452 sq. ft.	904 sq. ft.
Automatic Reverse Pulse Cleaning	included	included
Magnahelic Pressure Gauge	included	included
Conveying Capacity GMA Garnet*	4 tonne/hour	8 tonne/hour

*Conveying Capacity is subject to Inlet Compressed Air pressure, temp, abrasive density and size, length and size of vacuum hose. These quoted rates are indicative only based on using 50 ft. of vacuum hose.

Interceptor Options

Size	Approx. Capacity Garnet
20 cu. ft.	1200 kg / 2600 lb
55 cu. ft.	3800 kg / 8400 lb
100 cu. ft.	6500 kg / 14300 lb

Custom Interceptors holding up to 100 tonne available.

Tips for efficient recycling of Garnet

- **Keep Garnet dry.**

Damp or wet Garnet cannot be recycled. If abrasive does get wet or damp, it must be completely dry before processing.

- Do not contaminate Garnet with Grease or Salts. The dry recycling process does not remove these contaminants. Care should be taken when Blasting marine vessels as the old coating being removed may contain high levels of salts. Do not attempt to recycle any of this Garnet unless salt levels are tested and accepted first.
- As the impact of Blasting creates a loss of reusable Garnet, Virgin Garnet should be added back into the recycled Garnet to maintain an

even surface profile.

If the blasting conditions creates a breakdown of 10-15%, then add in 100-150kg of Virgin Garnet for each tonne recycled.

- Set up a capture system to reduce the input of sand, mud and stones etc. into the Garnet to be recycled.
- Use a Vacuum System to recover Garnet from Ships Tanks or other inaccessible places. The Vacuum System can dump the used Garnet directly into the Recycling System for efficient handling of abrasive.
- Set up an efficient handling system to handle the bags of cleaned, recycled Garnet produced by the Recycling System.

A 2.5 tonne forklift is ideal, and should be kept with the system at all times the system is in use.

- The recycling unit should be installed under cover. It must be kept dry. Consideration in installation and layout design should be made to enable continual recycling, even in very wet weather. This means you can process Garnet for recycling, even when you cannot blast or paint.
- Set up the recycling unit on a hard, level area, preferably concrete pavement to enable efficient forklift movement all around the equipment.



A 2.5 tonne forklift is ideal for continual loading and unloading of Garnet from the recycling unit.

Australian GMA Garnet - the toughest Garnet for Recycling

GMA Garnet is mined in Western Australia and sold all over the world as the world's PREMIUM Blast abrasive. A multi-million dollar plant processes the garnet through a 26 stage purifying, washing and grading process from mine to bag.

Australian GMA Garnet is unique. Each sand grain has gone through thousands of years of weathering by nature; from wind, sand and water (the wind has sandblasted it over and over again).

The only grains to survive this are the toughest.

And they won't breakdown on blasting impact like other garnets. This is why Blasters all over the world ask for Australian GMA Garnet.

It is the fastest, cleanest and lowest in dust.



GMA Garnet is used and approved by major oil companies, shipyards and other large and small clients around the world and approved by major paint manufacturers. GMA Garnet is available through an extensive network of dedicated and professional distributors with strategic stockpiles located around the world.



GMA Garnet is mined and processed by the world's largest producer of industrial garnet situated in Western Australia. GMA Garnet is processed to the highest standard of quality in respect of mineral purity and meets the stringent requirements of ISO 11126-10:2000E for chloride and free silica content.



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