

# Introduction to Blasting

Blasting is the acceleration of particles by air or mechanical means to a surface or work piece to achieve a variety of physical effects. Surface effects are determined by media type, size, speed, and direction of impact. The visual appearance of a blasted surface tends to be a dull to bright satin-matte finish.

A number of mechanical applications are listed below:

- \*Pre-Paint Adhesion
- \*Pre-Plate Finishing
- \*Surface Cleaning
- \*Peening For Strength
- \*Blending Machine Marks
- \*Deflashing Plastic & Rubber
- \*Glass Etching
- \*Heat Treat Scale Removal
- \*Mill Scale Removal
- \*Rust Removal
- \*Coating Removal
- \*Deburring
- \*Weld Discoloration Removal
- \*Mold Cleaning

All Recoverable Blast Systems, Cabinets or Rooms consists of:

1. Delivery System
2. Containment System
3. Media Reclaiming - Cleaning System



## Blasting Tech Tips: Blasting Types

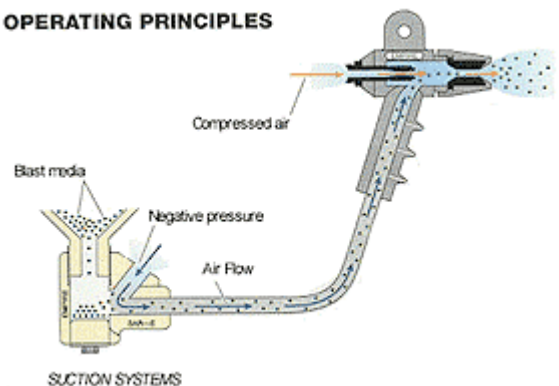
### PNEUMATIC BLASTING

Pneumatic blasting uses an air compressor to accelerate an air stream combined with media onto a work piece. There are two types used to accelerate the air; 1) Suction and 2) Pressure.

### SUCTION

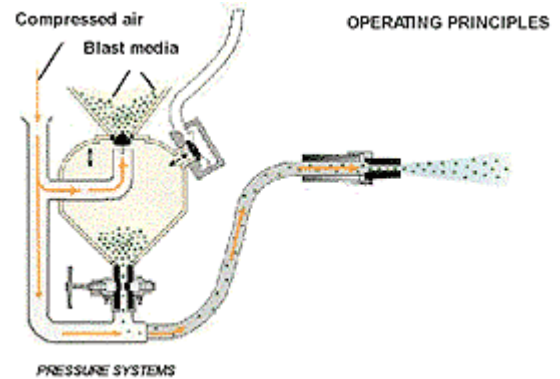
The Suction Blast System uses the venturi principle, incorporating an air jet one half the inside diameter of the nozzle. This creates a negative pressure that sucks the media into the gun body from the hopper. The total acceleration of the media in the air stream is 8 to 16". A Suction Blast System can operate continuously without shutdowns to refill media and can be easily automated with multiple gun bodies.

### OPERATING PRINCIPLES



## PRESSURE

Pressure Systems utilize a pressure pot that when pressurized with media in the pot, accelerates the media from the pot through the blast hose to the nozzle. The total media acceleration distance of 6' and greater generates a velocity of 250 fps. By applying basic physics, (impact energy = 1/2 mass X velocity squared) it becomes apparent that pressure systems are highly efficient. When the mass of the media is doubled, the kinetic energy is doubled. When the velocity of the media is doubled, the kinetic energy is quadrupled.



Blast production rates are higher with pressure systems than with suction. Some variables that will affect production rates are blast media type, size, quantity, blast pressure, distance, and the angle of the blast stream in relation to the work piece and operator experience.

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## AIRLESS (MECHANICAL WHEEL) BLASTING

This type of blast system delivers media by means of a mechanical wheel which propels the media at the work piece. Airless blasting lends itself to automation with single or multiple wheels positioned to cover various sizes and types of parts.

A very common media used in this system is steel shot or grit. Blast pattern, operation mix and abrasive flow are very important to these systems. Below are recommendations that may help in understanding airless blasting.

### I. BLAST-PATTERN

1. Inspect wheel parts daily for wear.
  - \* Impeller-change when segments are worn 1/8".
  - \* Control Cage-change when beveled edge is worn 1/4".
  - \* Blades/Vanes-change when worn 1/2 their thickness.
2. Check blast-pattern (hot spot) regularly.
  - \* Blast the test plate at normal work height for 20 to 30 seconds.
  - \* Adjust hot spot approximately 8" in advance of wheel centerline.
3. 2% sand and fines in the abrasive operating mix will increase wear on wheel parts 50%.
4. Maintain records of parts replacement by wheel hours so that a preventative maintenance program can be established.

### II. OPERATING MIX

1. Add new abrasive each work shift. Keep storage hopper 1/2 to 2/3 full.
2. Screen abrasive operating mix weekly.
3. Add back to machine each work shift abrasive that has leaked out.
4. Inspect air wash separator each work shift.
  - \* Scalping Screen-holes, flights, and blockage.
  - \* Shed Plate-full abrasive curtain, holes.
  - \* Dribble Pipe-dribble valves in working order.
  - \* Usable abrasive in dribble pipe waste.
  - \* Dust collector pipes-inspect for dust, abrasive build-up and holes.
5. Inspect separator and dust collector baffles for proper settings and wear.

### III. ABRASIVE FLOW - Low Wheel Amps

1. Clean our scalp screens each work shift.
2. Inspect wheel parts daily for wear.
3. Inspect abrasive fed control valve for proper abrasive flow. Excessive abrasive will flood wheel and lower wheel amps
4. Inspect for loose and missing drive belts.
5. Show proper full load amps above each ammeter. Record ammeter reading each work shift.

Check ammeter calibration monthly.



## Blasting Tech Tips: Media Selection Guide

### OVERVIEW

The relationship of using the correct blast media and achieving the desired results, while maintaining cost control is very important.

Factors to consider include the effects the media will have on a surface and the actual cost, not just the initial cost. If a media costs three times as much as another, but the attrition rate is twenty times less, it becomes more economical to use. As a general rule, round media tends impact a wide area, angular media will cut into a work surface. The heavier the media, the deeper the impact, whereas lightweight particles have less impact. Hard media will concentrate their work, and soft medias will spread the effect. The table below will give a guideline on commonly used recoverable media and the applications.

### Media Guide

	Glass Bead	Ceramic Shot	Stainless Cut Wire	Steel Shot	Steel Grit	Aluminum Oxide	Silicon Carbide	Garnet	Crushed Glass	Plastic Media	Agri Shell
Finishing	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
Cleaning/Removal	<b>YES</b>	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO
Peening	YES	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO
Surface Profiling (Etch)	NO	NO	YES	NO	YES	YES	YES	YES	YES	NO	NO
Working Speed	MED	MED	MED	MED	MED-HIGH	HIGH	VERY-HIGH	HIGH	HIGH	MED-HIGH	LOW-HIGH
Recyclability	HIGH-LOW	HIGH	HIGH	VERY-HIGH	VERY-HIGH	MED-HIGH	MED-LOW	MED	MED-LOW	MED	LOW
Probability of Metal removal	VERY-LOW	VERY-LOW	MED-HIGH	VERY-LOW	MED	MED-HIGH	MED-HIGH	LOW-MED	VERY-LOW	VERY-LOW	VERY-LOW
Hardness, MOH Scale (Rockwell Rc)	5.5	7 (57-63)	6-7.5 (35-55)	6-7.5 (20-66)	8-9 (40-66)	8-9	9	8	5.5	3-4	1-4.5
Bulk Density (lb/cu ft)	100	150	280	280	230	125	95	130	100	45-50	40-80
Mesh Sizes	30-440	8-46	20-62	8-200	10-325	12-325	36-220	16-325	30-400	12-80	MANY
Typical Blast Pressure (psi)	20-55	20-90	20-90	20-90	20-90	20-90	20-90	30-80	20-50	20-60	10-40
Shape: A=Angular; S=Spherical	S	S	A	S	A	A	A	A	A	A or S	A

**BLAST MEDIA COMPARISON / AIR BLAST**

<b>Media Description</b>	<b>Approx Price Per Lbs</b>	<b>Life Cycle Through Blast</b>
Non-Free Silica Blast Media	0.10Lb	1-2 Cycles
Starblast	0.18Lbs	3 Cycles
Garnet	0.22Lbs	10-11 Cycles
Glass Bead	0.33Lbs	10-11 Cycles
Aluminum Oxide	0.50Lbs	12-14 Cycles
Cast Steel Grit & Shot 48-55 Rc	0.50Lbs	100 Cycles
Cast Stainless Steel Shot	3.25Lbs	300 Cycles
Ceramic Media	2.95Lbs	80-100 Cycles
Plastic Media	1.16Lbs	8-9 Cycles



Disposal fees not included. Prices and breakdown rates are approximate. Operating Costs are based on one 3/8" nozzle @ 80PSI/approximate 960 lbs./hr divided by the number of cycles. Example: 960/300=3.2 Lbs. Consumption per hour.



	<b>CONSUMPTION LBS. PER HOUR</b>	<b>COST PER LBS.</b>	<b>COST PER HOUR TO BLAST</b>
Non-Free Silica 3/8" Nozzle @ 80 PSI 960 lbs. per hour	640 x	\$0.10	\$48.00* plus disposal fee
Starblast 3/8" Nozzle @ 80 PSI 960 lbs. per hour	320 x	\$0.18	\$57.00* plus disposal fee
Garnet 3/8" Nozzle @ 80 PSI 960 lbs. per hour	240 x	\$0.22	\$52.80* plus disposal fee
Glass Bead 3/8" Nozzle @ 80 PSI 960 lbs. per hour	91 x	\$0.33	\$30.03* plus disposal fee
Aluminum Oxide 3/8" Nozzle @ 80 PSI 960 lbs. per hour	74 x	\$0.50	\$37.00* plus disposal fee
Shot Grit 44-55 Rc 3/8" Nozzle @ 80 PSI 2800 lbs. per hour	28 x	\$0.50	\$14.00* plus disposal fee
Stainless Steel 3/8" Nozzle @ 80 PSI 2800 lbs. per hour	9 x	\$3.25	\$29.25* plus disposal fee
Ceramic Media 3/8" Nozzle @ 50 PSI 754 lbs. per hour	8 x	\$2.95	\$23.60* plus disposal fee
Plastic Media 3/8" Nozzle @ 50 PSI 367 lbs. per hour	43 x	\$1.16	\$49.88* plus disposal fee



## Blasting Tech Tips: Grit Consumption and Air Requirements

### PRESSURE NOZZLE INFORMATION

Blast nozzle size and air pressure (psi) effects on air compressor size and media pounds per hour delivered.

GRIT CONSUMPTION / AIR REQUIREMENTS (AIR MIXED WITH GRIT)

Nozzle Inside Orifice		Pressure at Nozzle (psi)						
		60	70	80	90	100	120	140
3/16"	Air (CFM)	30	33	38	41	45	--	--
	Horsepower	7.0	7.5	8.0	9.5	10.0	--	--
	Lbs Sand Hour	171	196	216	238	264	--	--
1/4"	Air (CFM)	54	61	68	74	81	97	111
	Horsepower	12.0	13.5	15.0	16.5	18.0	21.5	24.6
	Lbs Sand Hour	312	354	406	448	494	582	666
5/16"	Air (CFM)	89	101	113	126	137	152	173
	Horsepower	20.0	22.5	25.5	28.0	30.5	34.0	38.7
	Lbs Sand Hour	531	604	672	740	812	912	1038
3/8"	Air (CFM)	126	143	161	173	196	220	249
	Horsepower	28.0	32.0	36.0	38.5	44.0	49.0	55.5
	Lbs Sand Hour	754	864	960	1052	1152	1320	1494
7/16"	Air (CFM)	170	194	217	240	254	300	340
	Horsepower	38.0	43.5	48.5	53.5	56.5	67.0	76.0
	Lbs Sand Hour	1032	1176	1312	1448	1584	1800	2040
1/2"	Air (CFM)	224	252	280	309	338	392	443
	Horsepower	50.0	56.0	62.5	69.0	75.0	87.5	98.9
	Lbs Sand Hour	1336	1512	1680	1856	2024	2352	2658
5/8"	Air (CFM)	356	404	452	504	548	611	692
	Horsepower	79.5	90.0	100.5	112.0	122.0	136.0	154.0
	Lbs Sand Hour	2136	2424	2712	3024	3288	3666	4152



## Blasting Tech Tips: Pressure Pot Blast Cleaning Guide

PRESSURE POT BLAST CLEANING GUIDE									
NOZZLE SIZE	CFM - 90 PSI	AIR HOSE SIZE	BLAST HOSE SIZE	LBS MEDIA PER HOUR @ 90 PSI	APPROX. SQ FT CLEANING PER HOUR @ 90 PSI	WHITE METAL	NR WHITE METAL	COMMERCIAL	BRUSH OFF
#4 - 1/4"	74 CFM	1-1/4"	1"	448 LBS/HR	LOOSE MILL SCALE	50 SQ FT	55 SQ FT	130 SQ FT	260 SQ FT
					TIGHT MILL SCALE	40 SQ FT	45 SQ FT	85 SQ FT	255 SQ FT
					PITTED PAINT	26 SQ FT	28 SQ FT	63 SQ FT	250 SQ FT
					LAYERED PAINT	20 SQ FT	21 SQ FT	40 SQ FT	245 SQ FT
#5 - 5/16"	126 CFM	1-1/4"	1-1/4"	740 LBS/HR	LOOSE MILL SCALE	85 SQ FT	90 SQ FT	240 SQ FT	430 SQ FT
					TIGHT MILL SCALE	70 SQ FT	75 SQ FT	140 SQ FT	425 SQ FT
					PITTED PAINT	40 SQ FT	45 SQ FT	110 SQ FT	420 SQ FT
					LAYERED PAINT	35 SQ FT	40 SQ FT	70 SQ FT	415 SQ FT
#6 - 3/8"	173 CFM	1-1/2"	1-1/4"	1052 LBS/HR	LOOSE MILL SCALE	120 SQ FT	125 SQ FT	300 SQ FT	610 SQ FT
					TIGHT MILL SCALE	FT	FT	200 SQ FT	605 SQ FT
					PITTED PAINT	100 SQ FT	105 SQ FT	150 SQ FT	600 SQ FT
					LAYERED PAINT	FT	FT	100 SQ FT	595 SQ FT
#7 - 7/16"	240 CFM	1-1/2"	1-1/2"	1448 LBS/HR	LOOSE MILL SCALE	170 SQ FT	180 SQ FT	420 SQ FT	840 SQ FT
					TIGHT MILL SCALE	FT	FT	270 SQ FT	835 SQ FT
					PITTED PAINT	140 SQ FT	146 SQ FT	200 SQ FT	830 SQ FT
					LAYERED PAINT	FT	FT	140 SQ FT	825 SQ FT
#8 - 1/2"	309 CFM	2"	1-1/2"	1856 LBS/HR	LOOSE MILL SCALE	210 SQ FT	225 SQ FT	540 SQ FT	1070 SQ FT
					TIGHT MILL SCALE	FT	FT	355 SQ FT	1065 SQ FT
					PITTED PAINT	180 SQ FT	185 SQ FT	270 SQ FT	1060 SQ FT
					LAYERED PAINT	FT	FT	180 SQ FT	1055 SQ FT
						105 SQ FT	110 SQ FT		
						85 SQ FT	90 SQ FT		



## Blasting Tech Tips: About Aluminum Oxide

Aluminum Oxide is widely used as a tough recoverable media for quick removal of paint, rust, and scale removal. It has also been specified for pre-paint adhesion. Other applications include:




- Cleaning of investment castings
- Scale removal in steam turbines
- Surface preparation for thermal spray coatings
- Rust removal
- Hard oxide removal (titanium, zirconium, etc.)
- Mill scale removal
- Heat treat scale removal
- Glass etching or frosting
- Monument lettering
- Aircraft engine overhaul

When propelled by air, aluminum oxide acts as a powerful multi-edged abrasive tool that will penetrate the work piece, while leaving an exceptional clean, etched surfaces.

It is used on metal, glass, ceramic, marble, granite and other stone surfaces. Aluminum oxide is manufactured in block shapes with multiple sharp cutting edges.

Grit Size	Inches (Average)	Microns (Average)
16	0.043	1092
20	0.037	940
24	0.027	686
30	0.022	559
36	0.019	483
46	0.014	356
54	0.012	305
60	0.010	254
70	0.008	203
80	0.0065	165
90	0.0057	145
100	0.0048	122
120	0.0040	102
150	0.0035	89
180	0.0030	76

Characteristic	Resulting Performance Benefits
Exceptional Hardness	Shorter work cycles Increased production Lower labor costs Optimal equipment utilization
Durability (up to 20 passes)	Less downtime to change system Less media used Lower disposal costs Less storage space required Less material handling Less Dust Reduced equipment/component wear
Light Weight (1/3 the weight of comparable steel media)	More abrasive particles per pound More effective use of air stream
No free crystalline silica (unlike sand and many naturally occurring minerals)	No silicosis hazard to workers



The conversions listed are for various grits sized according to Bureau of Standards specifications, under Simplified Practice Recommendation 118-50.





## Blasting Tech Tips: About Ceramic Beads

Ceramic media (beads) can be blasted with air, wet or dry, and airless systems. It is a very quick accelerating media, usually blasted at a maximum of 55 p.s.i. When used on stainless steel, it produces a very pleasant, bright matte finish. It is also very popular for peening titanium.

### Treatment Characteristics:

- Very good impact resistant
- Low dust
- Consistent surface finishing
- Low embedment
- No surface contamination (Fe O :0.1% max.)
- High depth of compressed layer



### Typical physical properties:

Theoretical density	3.85 g/cm
Relative density	3.76
Bulk weight	5.3 kg/l
Microhardness Vickers	7 to 9 GPa at 500g
Equivalent Rockwell	50 to 65 HRC

**ZIRSHOT**

ZIRSHOT is especially adapted for shotpeening and peening and applications that require improved sphericity and narrow size distribution.

Description	Nominal Diameter		
	MESH	mm	inches
Z850	16/20	0.850-1.180	.033-.046
Z600	20/30	0.600-0.850	.023-.033
Z425	30/40	0.425-0.600	.017-.023
Z300	40/50	0.300-0.425	.012-.017
Z210	50/70	0.210-0.300	.008-.012

**ZIRSHOT Available Sizes:**

ZIRBLAST is used in surface treatments such as cleaning, deburring, finishing.

Description	Nominal Diameter		
	MESH	mm	inches
B20	20/30	0.600-0.850	.023-0.33
B30	30/40	0.425-0.600	.017-.023
B40	40/60	0.250-0.425	.010-.017
B60	60/120	0.125-0.250	.005-.010
B120	120/200	0.070-0.125	.003-.005
B125	-120	0-0.125	.000-.005

# Blasting Tech Tips: About Glass Beads

<http://www.metalfinishingsystems.com/tt-blasting.html> Glass bead generally gives a brighter matte finish. It maintains tighter work piece tolerances and is normally blasted between 40-80 p.s.i.

## Glass Bead Impact Media:

- are consumed at a slow rate and can survive multiple impacts, allowing for continuous recycling of the media;
- are chemically inert and will not leave ferrous or other undesirable residues on the surface of the work piece;
- impart a controlled, clean finish on a variety of metals;
- clean quickly without significant metal removal.

## Typical Applications for Glass Bead Blasting:

### Cleaning:

- cleans and preps the surface of metal parts without changing tolerances, or imparting ferrous pollutants
- combines cleaning, finishing and peening in one operation

### Finishing:

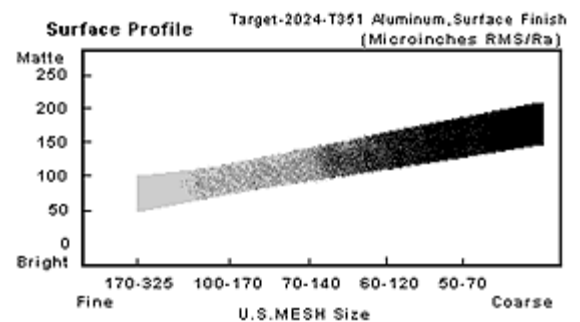
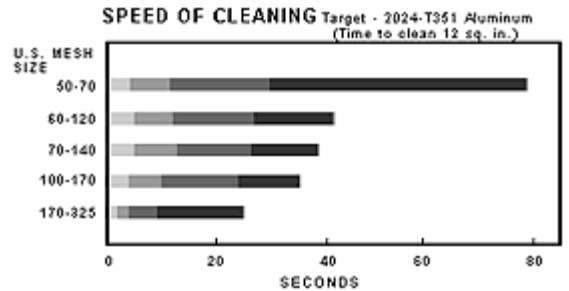
- creates a wide range of unique surface finishes that are easy to reproduce
- blends machine marks, seals pores and the results offer the advantages of glass bead peening

### Peening:

- reduces the tensile stress in metal parts, increasing the fatigue limit
- reduces the stress corrosion cracking

### Deburring:

- removes burrs without damaging the parts and offers a peened surface in one operation.



Pottery Designation	U.S. Sieve	Nominal Diameter				Min % Round
		INCHES		Microns		
		MAX	MIN	MAX	MIN	
A	20-30	.0331	.0234	850	600	65
AAA	26.45	.0278	.0138	710	355	65
B	30-40	.0234	.0165	600	425	65
C	40-50	.0165	.0098	425	250	75
AA	40-70	.0165	.0083	425	212	70
D	50-70	.0117	.0083	300	212	75
AB	50-80	.0117	.0070	300	180	70
AC	60-120	.0098	.0059	250	150	80
AD	70-140	.0083	.0041	212	106	80
AE	100-170	.0059	.0035	150	90	85
AG	120-270	.0041	.0021	106	53	85
AH	170-325	.0035	.0017	90	45	85

Designation	U.S. Sieve	Nominal Diameter				Min % Round
		INCHES		Microns		
		MAX	MIN	MAX	MIN	
3	20-30	.0331	.0234	850	600	65
4	30-40	.0234	.0165	600	425	70
5	40-50	.0165	.0117	425	300	70
6	50-70	.0117	.0083	300	212	80
7	60-80	.0098	.0070	250	180	80
8	70-100	.0083	.0059	212	150	80
9	80-120	.0070	.0049	180	125	80
10	100-170	.0059	.0035	150	90	90
11	120-200	.0049	.0029	125	75	90
12	140-230	.0041	.0025	106	63	90
13	170-325	.0035	.0017	90	45	85

Physical Properties  
 Shape...Spherical Color...Clear Hardness...515 kg/mm 2(Knoop)  
 Comprehensive Strength...36,000 psi(avg) Density...2.5g/cc  
 Specific Gravity...2.45-2.50 Free Silica Content...0%

## Glass Bead Facts

### *Coarse Beads:*

- Remove larger, tougher soils
- Peen to more intense levels
- Peen to deeper zones in surface
- Produce higher surface RA
- Produce brighter surface
- Consume faster at same pressure as fine beads
- In practice, may consume slower than fine beads.

### *Fine Beads:*

- Removes smaller; lighter soil
- More impacts per pound
- Clean faster
- Peen to less intense levels
- Peen outer zones of surfaces
- Reach into keyways, fillettes and small areas
- Produce lower surface RA
- Produce matte finish
- Consume slower at same pressure as coarse beads
- In practice, may consume faster than coarse beads.

### *All Beads:*

- Contain no free silica (environmentally friendly)
- Recycle many times
- Clean efficiently at 45-60 degree nozzle angle.

### *Factors affecting final surface appearance and media consumption parameters:*

- Bead size
- shape of work piece
- angle of nozzle
- distance of nozzle to surface area
- air pressure
- type of delivery system (suction versus direct pressure blast)



## Blasting Tech Tips: About Plastic Media

<http://www.metalfinishingsystems.com/tt-blasting.html> This lightweight angular plastic media was originally developed to strip paint from aircraft without damaging the thin grade of the original aircraft skin. Plastic media is typically blasted with light air pressure (20-40 p.s.i.) There are four or five major types of plastic media that are used to meet a variety of applications including:



**Aircraft Paint Removal.** Removes most types of paint from typical aircraft substrates, while leaving anodized and alclad surfaces intact. Is employed on a wide variety of off-aircraft components - resulting in significant savings over chemicals.

**Boats.** Bottom paint stripping from aluminum, fiberglass and dense hardwood hulls. Rapid removal of dried barnacles. Cleans brass of oxides and other coatings. Detects and exposes blisters on fiberglass hulls.

**Burr Removal.** Removes light burrs from components while maintaining integrity of finished part.

**Clear Epoxy Optical Sensors.** Only media capable of removing resin bleed without opaquing surface. Eliminates individual time-consuming masking requirements.

**Composite Structures.** Can strip paint and surface coatings from fiberglass, carbon-graphite, epoxy, and other resin rich components without bloom or fiber damage.

**Die Casting.** Removes light flash from cast components without affecting critical surface dimensions.

**Electronics Deflashing.** Used both in dry and wet blast to remove flash from electronic components and for surface preparation on PCB's.

**Encapsulated Electronic Parts.** Will not damage delicate parts or mar surfaces. Leaves product surface smear free, ready for identification printing or soldering.

**Engine Components.** Carbon deposits and paint can be easily dry stripped with no wear to critical mechanical dimensions, including aluminum parts.

**Ground Vehicle Paint Removal.** Paint is readily removed from auto, truck, railcar, and bus bodies.

**Lead Frames.** Prepares lead for easier and more uniform tinning and coating procedures. Removes resin bleed without impinging surface.

**Mold Cleaning.** Readily cleans molds used in rubber, plastic, glass and die cast molding without affecting surface dimensions. Edges are not radiused, mold life is prolonged, cracks in molds are not smeared over, and flash on parts is reduced.

**Paint Rejects.** Can be substituted for chemical stripping. In many applications, major time savings can be realized. Effective on most paint systems including powder coating.

**Plastic Molded Parts.** Effectively removes flash from parting lines on thermoset plastic parts. Removes surface anomalies without damage to the part.

**Surface Preparation.** Etching circuit boards before printing. Pre-laminate roughening. Prepaint surface prep on plastics.

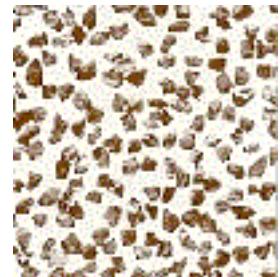
**Surface Sealants.** Tenacious sealants and adhesives can be safely removed without damage to the substrate.

**PHYSICAL CHARACTERISTICS**

	<b>POLYEXTRA</b> Type I	<b>POLY V</b> Type V	<b>POLYPLUS</b> Type II	<b>POLYHARD</b> Type III
<b>Hardness</b>				
Barcol	34-42	46-54	54-62	64-72
MOHS	3.0	3.5	3.5	4.0
<b>Specific Gravity</b>				
gms/cc	1.15-1.25	1.15-1.20	1.47-1.52	1.47-1.52
<b>Bulk Density</b>				
lbs./cu. ft.	45-48	45-48	58-60	58-60
<b>Maximum Operating Temperature deg. F.</b>	250	200	300	350
<b>Chemical Nature</b>	inert	inert	inert	inert

**WALNUT SHELLS**

Shells are used in a number of delicate blasting operations, eliminating scratching or pitting of surfaces. One of the largest uses today is deflashing of molded plastic parts. Some other applications include:



- Blast Cleaning
- Jet Engines
- Baking Pans
- Industrial Fans
- Iron Core Boxes
- Turbine Generators
- Plastic and Rubber Molds
- Tanks, Ducts and Other Inaccessible Areas
- Metal, Glass and Wood Surfaces for Refinishing

Deburring	Metal Stampings
Deflashing	Metal Castings
Polishing	Gems and Jewelry
Texturizing	Plywood (Blasting to Raise Grain]
Tumbling	Plastic, Hard Rubber and Metal Parts

Shelblast can be used in an air, mechanical (wheel-type), vapor or liquid blasting systems. It is recommended that Shelblast be used in an automatic closed system for both good housekeeping and good economics. It is available in seven sizes from very coarse, for cleaning large parts rapidly, to super fine for cleaning delicate electronic parts with fine openings and grooves.

AD-1B	(- 6 + 10 mesh)	AD-4B	(- 14 + 30 mesh)
AD-2.5B	(- 8 + 12 mesh)	AD-6B	(- 18 + 40 mesh)
AD-3B	(- 12 + 20 mesh]	AD-7B	(- 35 + 60 mesh)

AD-9B (- 40 + 100 mesh)  
Mesh designations are U.S. Standard Screen Sizes

Shelblast is relatively dust free with particle size concentrations in the upper end of the mesh range which means more cycles before it is removed as fines. There is typically less than 1% loss in weight per cycle.

PROPERTIES:

Shelblast products have the following characteristics:

Dry Packing Density (Lbs. per Cu. Ft.).....	42-47
Flash Point (Closed Cup).....	380 F
pH Value at 25 C (In Water).....	4-6
Free Moisture (80 C for 15 Hrs.).....	3-10%
Specific Gravity.....	1.35
Hardness - Vickers No.....	25-30
MOHS Scale.....	3-4



## Blasting Tech Tips: About Silicon Carbide

This media is sharper and harder than Aluminum Oxide. It has very quick cleaning or blasting properties because of the slivery shape, which fractures and stays sharp.

The hardness of approximately 9.5 MOHS, which makes it an excellent choice for blasting hard surfaces such as glass, marble, and granite.

Silicon Carbide is considered to be one of the most aggressive forms of media in the blasting industry today.

### Silicon Carbide (SiC)

Hardness	9mohs 10x softer
Comparison	SiC: sharp, pointed
Crystal Shape	Hot
Heat Generation	Greases, water or none
Lubricants	6-2400
Grits Available	Low
Heat Conductivity	





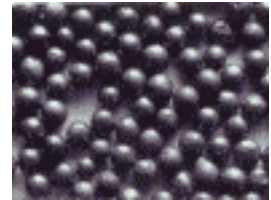
# Blasting Tech Tips: About Steel

These forms of media are very dense and durable. They are used in Airless and Pneumatic Blast Systems.



The round shot gives a better finish than that of the grit, however grit cleans faster due to the angular shape. Both shot and grit are a popular choice of blasting media because of the high reclaim ability. (Losing approximately 1 Lb. per 100 Lb. blasted at 90 p.s.i.) The majority of all Automated Airless Blast Systems are using steel shot, grit, or a mixture of the two. Stainless is used on non-ferrous applications.

Typical hardness for rapid cleaning and long wear life is 44 to 46 RC. Softer RC does not clean as well and harder RC tends to break down faster, while the size of the abrasive being an important factor. Removing heavy sand on scale may require a particular size. To keep cost low, always use the smallest size possible.



Typical Applications:

- \*Heat Treat Removal
- \*Sand Removal From Castings
- \*Mill Scale Removal
- \*Pre-Paint Adhesion
- \*Paint Removal
- \*Peening

### SAE Shot & Grit Size Specifications

Screen Opening Sizes and Screen Numbers with Max. and Min. Cumulative Percentage Allowed on Corresponding Screens.

Shot Number	HIGH LIMIT SCREEN			NOMINAL SCREEN			LOW-LIMIT SCREEN	
	Max% retained	Screen no. & aperture	Max% retained	Screen no. & aperture	Min% retained	Screen no. & aperture	Min% retained	Screen no. & aperture
S-780	1%	7(0.111)	---	---	85	10(0.0787)	97	12(0.0661)
S-660	1%	8(0.0937)	---	---	85	12(0.0661)	97	14(0.0555)
S-550	1%	10(0.0787)	---	---	85	14(0.0555)	97	16(0.0469)
S-460	1%	10(0.0787)	5	12(0.0661)	85	16(0.0469)	96	18(0.0394)
S-390	1%	12(0.0661)	5	14(0.0555)	85	18(0.0394)	96	20(0.0331)
S-330	1%	14(0.0555)	5	16(0.0469)	85	20(0.0331)	96	25(0.0280)
S-280	1%	16(0.0469)	5	18(0.0394)	85	25(0.0280)	96	30(0.0232)
S-230	1%	18(0.0394)	10	20(0.0331)	85	30(0.0232)	97	35(0.0197)
S-170	1%	20(0.0331)	10	25(0.0280)	85	40(0.0165)	97	45(0.0138)
S-110	All Pass	30(0.0232)	10	35(0.0197)	80	50(0.0117)	90	80(0.0070)
S-70	All Pass	40(0.0165)	10	45(0.0138)	80	80(0.0070)	90	120(0.0049)

Grit Number	Max% retained	Screen no. & aperture	Max% retained	Screen no. & aperture	Min% retained	Screen no. & aperture	Min% retained	Screen no. & aperture
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G-10	1%	7(0.111)			80	10(0.0787)	90	12(0.0661)
G-12	1%	8(0.0937)			80	12(0.0661)	90	14(0.0555)
G-14	1%	10(0.0787)			80	14(0.0555)	90	16(0.0469)
G-16	1%	12(0.0661)			75	16(0.0469)	85	18(0.0394)
G-18	1%	14(0.0555)			75	18(0.0394)	85	25(0.0280)
G-25	1%	16(0.0469)			70	25(0.0280)	80	40(0.0165)
G-40	1%	18(0.0394)			70	40(0.0165)	80	50(0.0117)
G-50	1%	25(0.0280)			65	50(0.0117)	75	80(0.0070)
G-80	All Pass	40(0.0165)			65	80(0.0070)	75	120(0.0049)
G-120	All Pass	50(0.0117)			60	120(0.0049)	70	200(0.0029)
G-200	All Pass	80(0.0070)			55	200(0.0029)	65	325(0.0017)

#### ROTOBLAST STEEL SHOT

Pellets per  
pound

S-780	9,353
S-660	16,200
S-550	23,625
S-460	38,118
S-390	74,238
S-330	114,835
S-280	206,420
S-230	376,585
S-170	852,632
S-110	2,520,000
S-70	9,651,064