

PELLETS

These small metal cylinders are Pellets, the new wrought steel shot for blast cleaning and peening that is causing all the talk among shot users. See the back page for "Pellets in Use."

THE NEW WROUGHT STEEL SHOT (CUT WIRE)

The remarkable records for economy being established by this new blasting material, Pellets, are revolutionizing shot blast cleaning and peening. Many of the country's largest shot users have switched their operations to Pellets and daily the list of new users is growing. Pellets are the most talked about improvement in shot blasting in many years. The front of this folder shows a blown-up picture of Pellets as they come to you. The back of the folder shows Pellets as they work in a blasting operation — they become round, work hardened, steel balls which will keep hammering away in a blasting operation for weeks on end.

WHAT PELLETS ARE

Pellets are shot made by cutting steel wire into lengths the same as the wire diameter. Pellets are made from SAE 1065 steel wire and the chemistry is 100% uniform throughout.

Pellets have a hardness of 45 to 50 Rockwell/C and through the cold work-hardening of a blasting operation become much harder.

Pellets are uniform in size because they are made that way — so they are uniform in weight too. Every Pellet will deliver the full intensity of impact so essential to good cleaning or peening.

Pellets are available in any size — stock sizes include diameters of .028 in., .032 in., .035 in. and .041 in.

Pellets are 100% solids. There are no hollow or partly hollow pieces to break up quickly at the first impact.

Stock from which Pellets are made is heat treated or patented before final working to eliminate stresses which might cause early failure on impact.

WHAT PELLETS DO

Pellets in actual cleaning and peening operations will last 15 to 20 times as long as cast iron shot, and 3 to 10 times as long as cast steel shots.

Pellets do not break up into jagged edged pieces but gradually wear down as smooth ball bearing-like spheres.

Wheel Blade life in Pellet operations has increased 20 to 50 times when changed from cast iron shot or grit.

All other parts that come into contact with the shot will last much longer with Pellets — maintenance costs are reduced in some cases up to 90%.

A Pellet cleaned or peened surface is bright and smooth which appears under the microscope as thousands of tiny uniform craters — no sharp chiseled gashes which in some instances actually become the starting points of fatigue cracks.

Pellet peened parts have shown a fatigue life as much as 60% greater than the same parts peened with cast iron.

Because Pellets are 100% uniform physically and do not break up into small pieces, the intensity of impact of Pellets is several times that of cast shot — thus making for a much quicker and better blasting job.

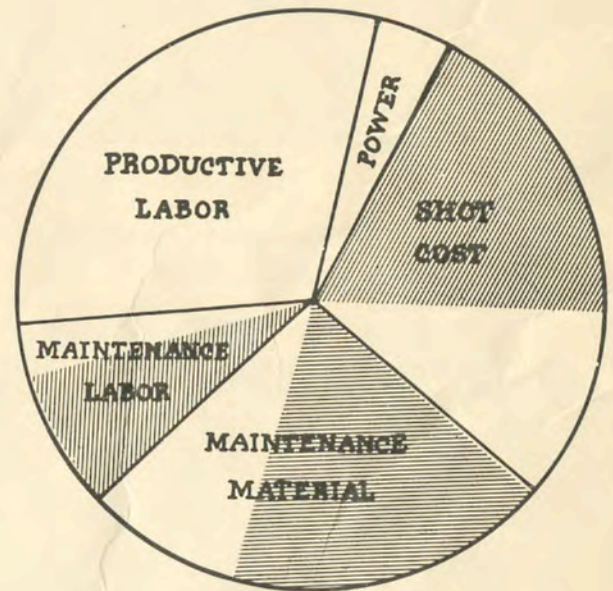
When using Pellets there is a reduction in tonnage handled as much as 90% to 95% which creates a corresponding reduction in freight, handling and storage costs.

CUT YOURSELF A PIECE OF PIE !!

This Pie Chart represents the split of costs in the average shot blasting operation. The shaded portions show the proportion of the costs that are wasted — that could be saved if Pellets were used instead of cast iron shot.

Wrought Steel Pellets will save you this big piece of Pie and in many cases much more. If your operation is an average one, you are losing — throwing out the window, 46c of every dollar you are spending on blasting with cast iron shot.

	Shot Blasting Costs		Pellets Savings
	Cast Iron	Pellets	
Productive Labor	\$.30	\$.30	
Shot Cost .....	.30	.12	\$.18
Maintenance Material .....	.21	.05	.16
Maintenance Labor .....	.15	.04	.11
Power, Deprec., Receiv. Handling, Storage .....	.04	.03	.01
Average Blasting cost with cast iron			
	1.00		
Comparative cost with Pellets .....		.54	
Your Pellet Profit .....			.46



IMPACT INTENSITY

The force with which a traveling object meets a stationary object depends on two things — first, the weight of the moving object, and second, its speed. For example, a ping-pong ball thrown against a window will merely rebound, but a steel ball thrown at the same speed will shatter the glass. So weight is a factor. Again, a golf ball tossed easily will not hurt your head, but a golf ball from a drive has force enough to fracture a skull. So speed and weight combine to produce a force or intensity of impact.

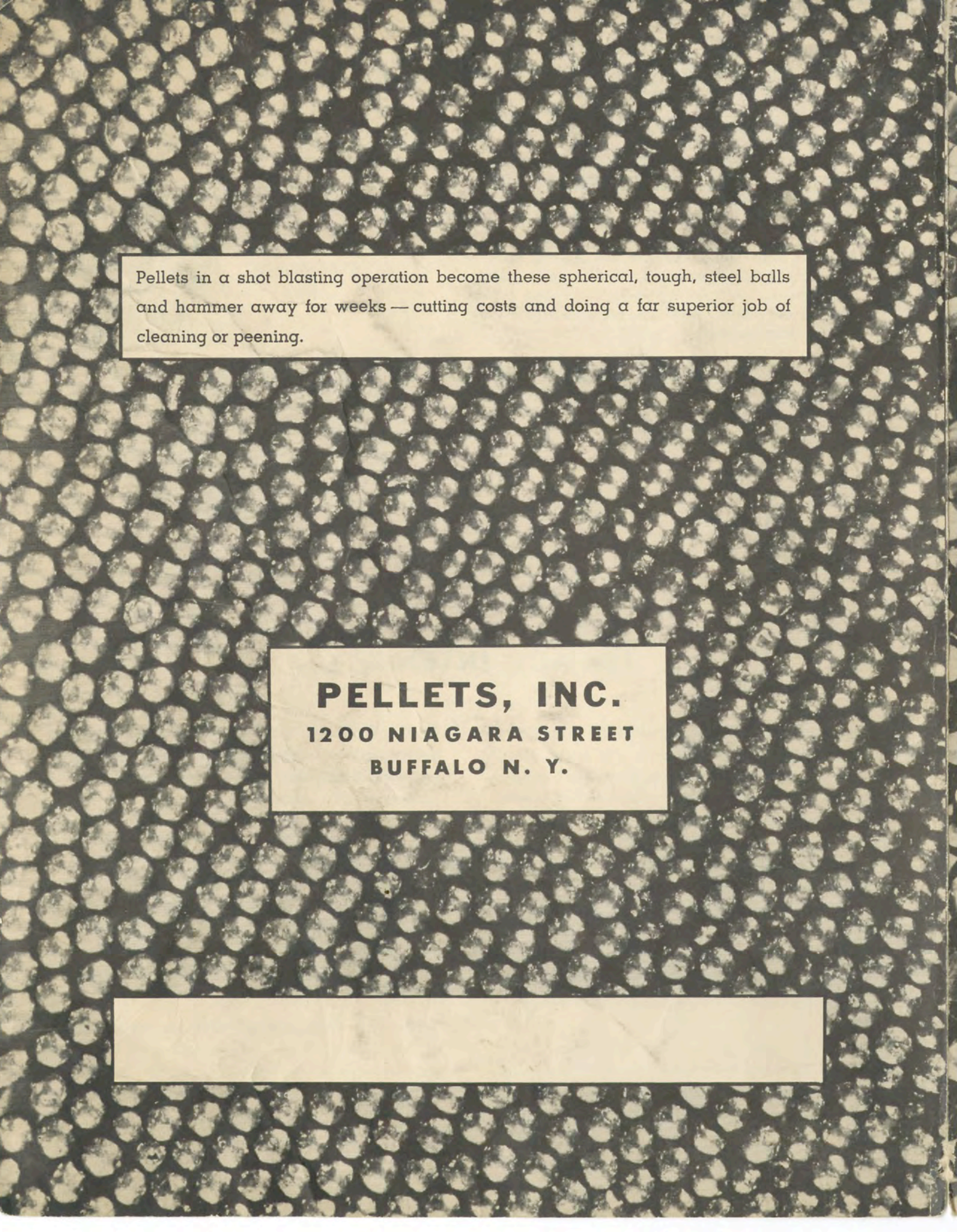
A shot throwing wheel will throw all shot at the same speed regardless of size or weight. So the impact intensity of a blast of shot depends on the weight of the shot particles.

Cast iron shot breaks into halves and quarters after a very few passes through the machine. Most of the shot in any cast iron operation consists of "fines" which are not capable of doing the work of heavier whole shot.

On the other hand, Pellets do not break up. They round out into ball bearing-like shot and maintain their weight and consequently their working ability for thousands of passes through a machine.

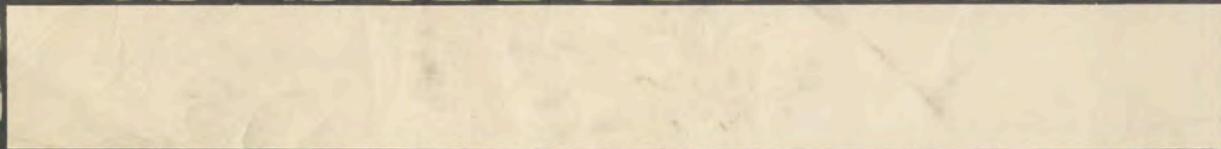
The result of this constant weight and high impact intensity means that Pellets can do the same work in less time. Their heavy body enables them to hammer and knock off the most stubborn scale. And in peening operations where uniformity of impact is so important, the cold working by Pellets, the surface finish produced and the actual metallurgical improvement of the work, far surpasses the work of any other type of shot.

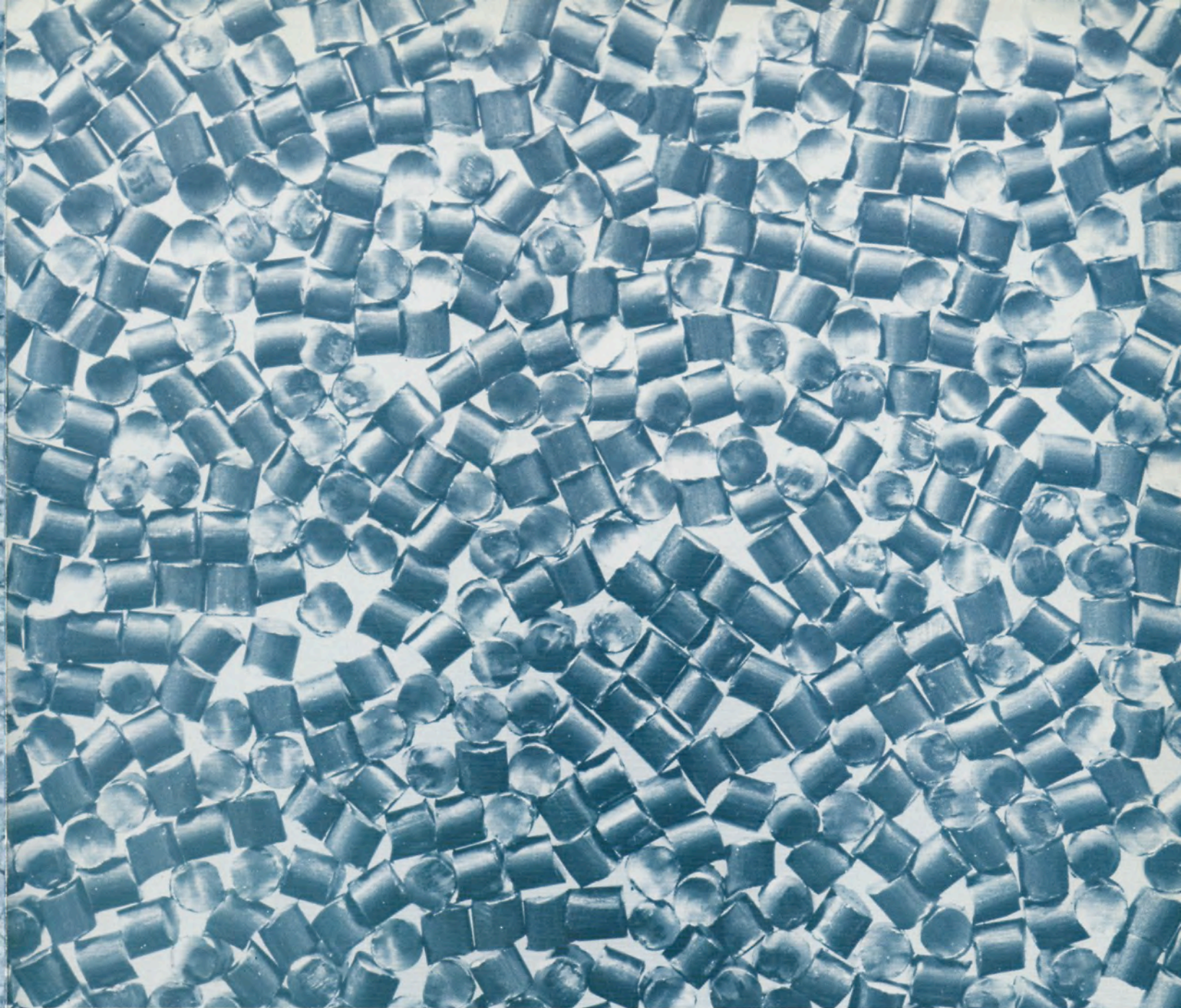
Pellets being tough wrought steel, uniform in weight, uniform in wear, all solid, will hammer at work for days and days, and besides lasting many times longer, will do a better job at peening and cleaning than any other shot.



Pellets in a shot blasting operation become these spherical, tough, steel balls and hammer away for weeks — cutting costs and doing a far superior job of cleaning or peening.

PELLETS, INC.
1200 NIAGARA STREET
BUFFALO N. Y.





PELLETS INC.




CUT WIRE SHOT FOR PEENING & CLEANING

PELLETS INC. *FIRST IN CUT WIRE*

Cut Wire Shot (we call them Pellets) is an important abrasive media since it is the only metal abrasive made to such exacting standards and in so many types of metal. Pellets, Inc., founded in 1948, pioneered the development of Cut Wire Shot. We are proud to offer here these abrasive tools for industry.

PELLETS AT WORK



PEENING — Pellets are a natural for shot peening because this process requires a round, whole bodied shot that resists rapid change to its size and weight to deliver constant impact intensity. This quality is assured in Pellets because the wire from which they have been produced has been heat treated and cold drawn to achieve hardness and homogeneity. This together with the balanced chemical properties and complete solidity of every piece insure that Pellets will not fracture in use but wear down gradually and live for days and weeks in a peening operation. Because Pellets maintain their peening intensity longer than other types of shot, they not only reduce costs, but tests have shown Pellet-peened parts to have greater fatigue life than the same part peened with cast shot — proof that uniformity is all important for peening.

CLEANING — Pellets' big husky bodies can clean fast. That is why Pellets are at work cleaning many types of metal. A Pellet-cleaned surface is exceptionally bright and smooth, and because they are whole-bodied shot with no scale or oxides present, they create no dust and leave the surface clean.

TUMBLING — Pellets can be used for tumbling and vibratory finishing. In their cylindrical form they offer superior penetration into fillets or recessed areas so important in this work. Longer lengths are available where deep penetration is required. Where magnetic separation is desired, Pellets of brass or type 316 stainless may be used. Sizes available range from wire diameters of .020" to .160" and lengths up to one half inch.

E SHOT!

TYPES OF CUT WIRE SHOT

All the different types of cut wire shot are produced by cutting wire into lengths equal to wire diameter. Their quality is assured by the control of chemical and physical properties inherent in the wire and accurate sizing to length. Every piece is 100 per cent solid.

STAINLESS CUT WIRE SHOT

is finding an increasing number of important applications where ferrous contamination in blasting stainless, titanium, or aluminum work objects could be harmful. It is also used in peening these metals in parts subject to stress corrosion cracking. Shot produced from a type 302 (18% Chromium, 8% Nickel) Condition B Spring Temper yields a shot in the 40 - 50 Rockwell/C range according to size. This has proven to be an ideal hardness for most shot peening applications. Shot is certified to meet Federal Specification QQW 423 (as amended) and MIL S 851B. It is available in conditioned form (spherical) with certification to existing aircraft specifications for sphericity, particle size and weight. Conditioned cut wire shot has a Rockwell/C hardness of 45 - 55.

Other stainless grades from which shot can be produced are types 305 and 316. This shot has a Rockwell/C hardness of 30 - 40 depending on size and type. Type 316 stainless shot is nonmagnetic and can be used in tumbling and vibratory finishing applications where magnetic separation is desired.

The straight chromium grades 410 and 430 available in cut wire shot have a hardness range of 30 - 40 Rockwell/C.

ALUMINUM CUT WIRE SHOT

is available in straight aluminum grades 1100 or 1345 as well as alloy grades such as Type 5056 and 7075. Straight grades yield middle-B range Rockwell hardness while Type 5056 and 7075 will yield high Rockwell/B hardness in the 70 - 90 range.

ZINC CUT WIRE SHOT

offers a media of very low Rockwell/B hardness suitable for use in deburring die castings or for deposition of zinc to work objects. It is available only in sizes larger than .057".

OTHER ALLOYS

For special applications, pellets are available in any alloy that is drawn into wire.

CONDITIONED CUT WIRE SHOT

Pellets are available in a conditioned (spherical) state as well as their regular (cylindrical) form. Conditioning is performed by propelling the shot by means of a wheel against a special target media that promotes rounding. The process is carefully controlled to insure that all the material receives a uniform number of impacts. The shot is airwashed and mechanically screened to eliminate any contaminants and for accurate sizing.

SHOT	SIZES	WIRE	ROCKWELL HARDNESS RANGE
Steel	.020"-.062"	High Carbon Spring Wire	40-50 C Scale
Stainless Steel	.020"-.080"	Type 302 (18-8) Spring Temper Type 305, 316 410-430 Spring Temper	40-50 C Scale 35-45 C Scale
Aluminum	.020"-.080"	Types 5056-7075 Full Hard 1100-1345 Full Hard	70-90 B Scale 40-60 B Scale
Zinc	.030"-.080"	Commercial Quality	20-30 B Scale

SAE CUT STEEL WIRE SHOT RECOMMENDED PRACTICE

DESCRIPTION

Cut steel wire shot shall be the product of carbon steel wire cut into the form of cylinders with lengths approximately equal to the wire diameter. Conditioned cut steel wire shot with cut edges pre-rounded may be specified when required for special applications.

IDENTIFICATION

All cut steel wire shot shall be classified according to the wire size from which it is obtained. It shall be identified by the prefix letters CW meaning cut wire. This designation shall be followed by a suffix number equivalent to the mean diameter of the wire from which the shot is produced.

CHEMICAL COMPOSITION

The chemical composition shall conform in general to the following specification.

Carbon	.45-.75
Manganese	.60-1.20
Phosphorous	.045 Max.
Sulphur	.050 Max.
Silicon	.10-.30

TENSILE PROPERTIES

Shot shall be made from wire conforming to the following tensile strengths.

SHOT SIZE	MEAN WIRE DIAM.	TENSILE STRENGTH
CW-62	.0625	237,000-272,000 psi.
CW-54	.054	243,000-279,000 psi.
CW-47	.047	248,000-286,000 psi.
CW-41	.041	255,000-293,000 psi.
CW-35	.035	261,000-301,000 psi.
CW-32	.032	265,000-305,000 psi.
CW-28	.028	271,000-311,000 psi.
CW-23	.023	275,000-314,000 psi.
CW-20	.020	283,000-320,000 psi.

SIZE CLASSIFICATION

Cut steel wire shot shall be made from wire of the following diameters. Shot sizes varying from those shown are available and may be obtained by arrangement between the shot manufacturers and user.

SHOT NUMBER	WIRE DIAMETER
CW-62	.0625 ± .002
CW-54	.054 ± .002
CW-47	.047 ± .002
CW-41	.041 ± .002
CW-35	.035 ± .001
CW-32	.032 ± .001
CW-28	.028 ± .001
CW-23	.023 ± .001
CW-20	.020 ± .001

SOUNDNESS: Shot particles shall be free of shear cracks and laps and shall not contain excessive seams or burrs.

PACKAGING: This material shall be packed to prevent loss.

HARDNESS

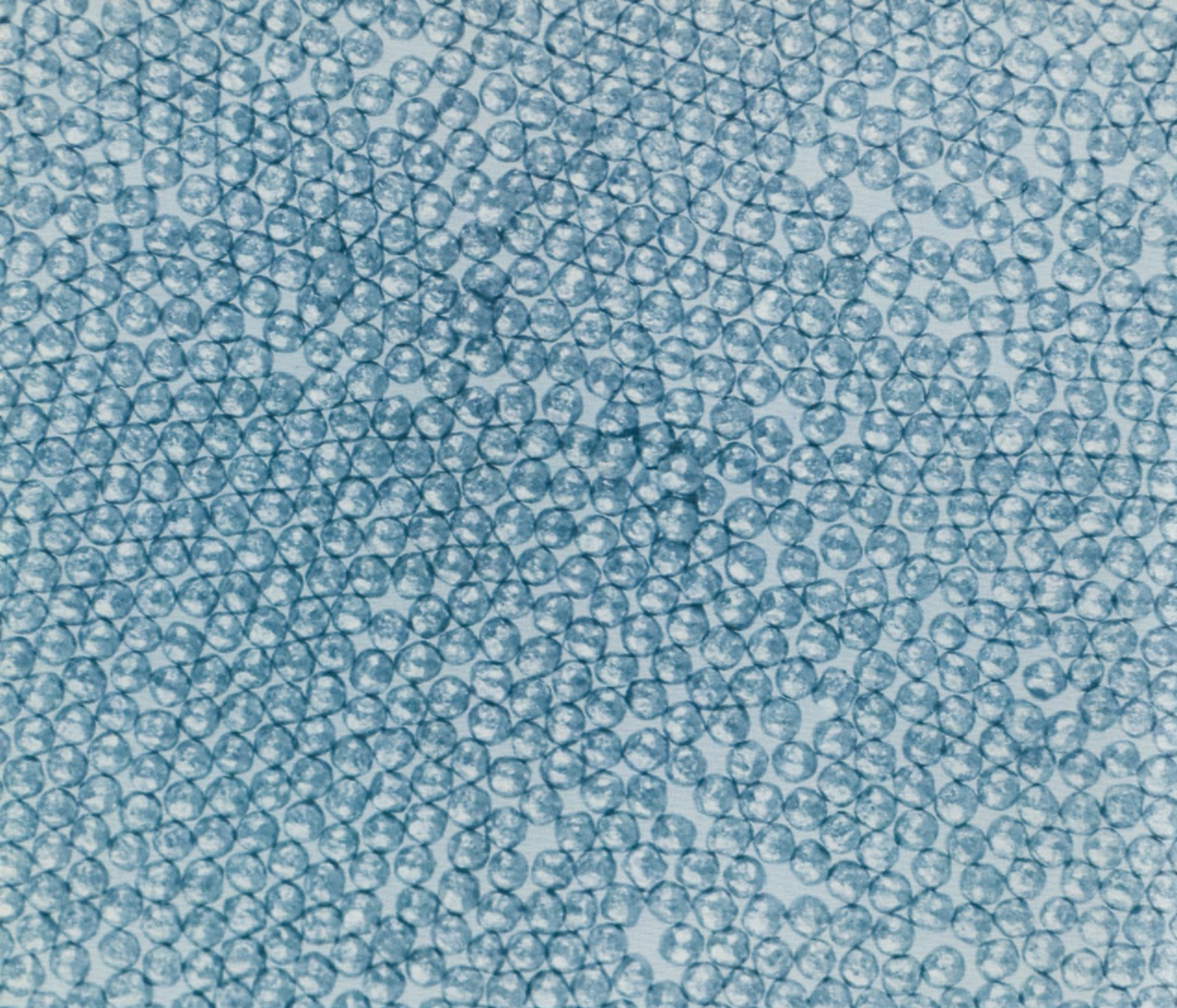
The hardness of the shot particles (as cut) shall have the following minimum values as determined by using a vickers indenter having a 5 kilogram load on a Tukon hardness test machine or equivalent. (Converted to Rockwell "C")

SHOT SIZE	MINIMUM HARDNESS
CW-62	36 RC
CW-54	39 RC
CW-47	41 RC
CW-41	42 RC
CW-35	44 RC
CW-32	45 RC
CW-28	46 RC
CW-23 and finer	48 RC

INSPECTION PROCEDURE

Shot particles to be checked for length and hardness are to be mounted and ground and polished to the centerline of the cylinder longitudinal cross section. The combined length of ten random particles shall be within the tolerances of the following table. As an alternate method, the total weight of fifty random particles shall be within the limits of the following table.

SHOT SIZE	LENGTH OF TEN PIECES	WGT. OF FIFTY PIECES IN GRAMS
CW-62	.620 ± .040	1.09 to 1.33
CW-54	.540 ± .040	.72 to .88
CW-47	.470 ± .040	.48 to .58
CW-41	.410 ± .040	.31 to .39
CW-35	.350 ± .030	.20 to .24
CW-32	.320 ± .030	.14 to .18
CW-28	.280 ± .030	.10 to .12
CW-23	.230 ± .020	.05 to .07
CW-20	.020 ± .020	.04 to .05



PELLETS INC.




CUT WIRE SHOT FOR PEENING & CLEANING

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PELLETS

for
cleaning
and
peening

are better
and faster...
here's how
and why! 

PELLETS, Inc.
Buffalo, N. Y.

PELLETS uniformly sheared from high-carbon steel spring wire, markedly improve abrasive cleaning and peening in two important ways. Their use, for comparable work in place of cast type shots can cut shot cost as much as 50%, reduce equipment maintenance and replacement by one-half. In addition Pellets do a more thorough, even job of cleaning, a more reliable job of peening.

Precision made from quality controlled wrought steel, in the 60 carbon range, Pellets are minute cylinders of wire of equal length and diameter. In use, they gradually round out to become bearing-like balls of extreme temper and toughness. They improve in effectiveness through use rather than deteriorating. Unlike cast shot which quickly disintegrates, Pellets retain final shape, size and weight over a long period, to deliver a constant, dependable impact.

Pellets eliminate doubt as to quality. Controlled analysis of chemical and physical properties of the wire guarantees a uniform shot. Hardness varies uniformly by size from approximately 42 to 50 Rockwell/C.

The wire from which Pellets are cut is fully heat-treated and cold-worked for toughness before the shot is produced. This is your guarantee that uniformity and quality are "locked in" and do not depend upon subsequent screening or heat-treatment.

Why wear out machines with costly abrasives?

In many blast cleaning operations, the type of shot or grit used creates so much wear and damage inside the machine that frequent repair and replacement is required. The abrasive effect on machine parts cancels the false economy of cheaper shots. While Pellets cost a bit more initially, the greater savings in time, renewal, handling, storage and maintenance add up to a more economical, more satisfying operation all around.

Performance and results are the true measurements of the material you use for cleaning and peening. Dependable quality is built into Pellets. What you get from their use that is superior to other abrasives means value to you in improved production, time gained, costs reduced. Pellets are proving their worth today in many alert plants all over the country. Pellets are used in many operations that have produced outstanding results heretofore impossible with conventional shot.



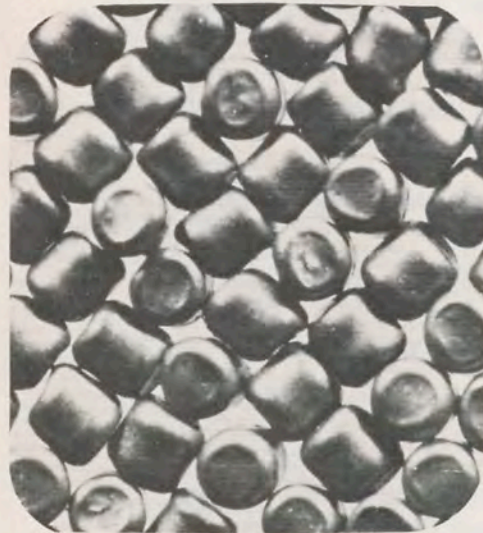
Pellets are Sheared Steel-Wire Cylinders . . .

pellets are peening

Automotive Coil Springs
Clutch Springs
Connecting Rods
Gears
Crankshafts

Valve Springs
Leaf Springs
Torsion Bars
Axle Shafts
Steering Knuckles

Pellets are a natural for peening because this process requires a round whole bodied shot that resists rapid change to its size and weight. Pellets have made peening a science easily performed on a production basis because Pellets live for days and days, even weeks and weeks, in a blasting machine. They maintain their size and weight longer than other types of shot and thus reduce peening costs. Arc height can be maintained because once an operation has become stabilized with Pellets — it can be kept that way with small additions.



They Gradually Become Sphere-like in Use . . .

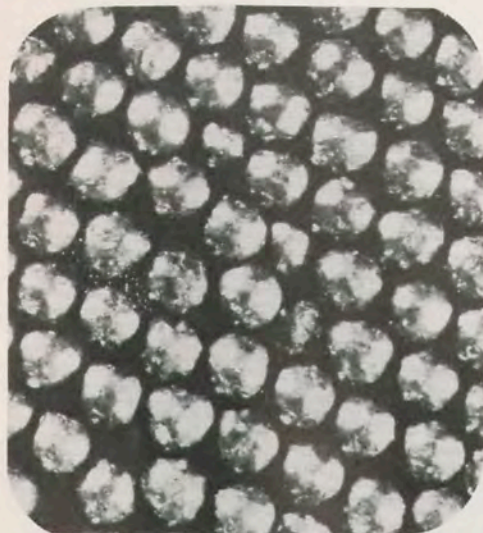
pellets are cleaning

Gray Iron Castings
Malleable Castings
Monel Castings
Forgings of all types
Carbon Steel Strip and Sheet
Heat-Treated Gears

Stainless Steel Castings
Brass Castings
Steel Tubes
Stainless Steel Strip
Bearing Races
Heat-Treated Parts

Pellets' big, husky body can clean faster. That is why Pellets are at work today cleaning nearly every type of metal in hundreds of different forms. Pellets' husky body enables them to hammer and knock off the most stubborn scale or imbedded sand and investment material. Pellets have proved that impact alone can remove scale and that the cutting action of broken and irregular pieces found in other shot is not necessarily beneficial. A Pellet cleaned surface is bright and smooth.

Because Pellets are whole-bodied shot, they create no dust and leave the surface clean. This is important when subsequent plating or painting is necessary.



Retain Their Final Shape for Long, Hard Use.

pellets for special uses

Special types of Pellets are available in nearly any analysis of wire. Some of these include stainless steel, copper, brass, aluminum and alloy wire. They have uses in the fields of research, barrel tumbling and plating as well as regular shot finishing where ferrous contamination could be harmful.

WHY NOT CONVERT TO PELLETS NOW?

Converting your present cleaning or peening operation to Pellets is easily accomplished. Most users change over by adding Pellets to their present abrasive as additions become necessary. This permits the cylindrical Pellets to gradually round into spheres with an easy transition to a Pellet finished surface.

CONVERTING YOUR OPERATION TO PELLETS

<u>COMPARABLE CAST SHOT SIZE</u>	<u>RECOMMENDED PELLET SIZE</u>	<u>USES</u>
170	.028 x .014" length 1/2 dia.	Peening small springs, gears. Heat treat parts, etc.
230	.028"	Peening coil springs, torsion bars, gears, etc. Cleaning strip.
330	.035"	Peening leaf and coil springs, small castings, forgings, etc.
390	.041"	
460	.047"	Cleaning small to medium castings and forgings.
550	.054"	
660	.062"	Cleaning large castings and forgings, also steel castings, alloy forgings with heavy scale.

All Pellet sizes shown are stocked in Buffalo, N. Y. and Detroit, Mich., shipped on sturdy pallets at no extra charge.