

Case History

ERVIN INDUSTRIES REPORT

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USING THE RIGHT STEEL SHOT- - - - -

- - - - - THE RIGHT WAY - - - - -

- - - - - CAN MAKE A BIG, BIG DIFFERENCE!

And, a big, big drop in shot consumption is just part of the story this Case History tells, after the gray-iron foundry customer involved switched from the use of USED (RECLAIM) SHOT to Ervin Industries' AMASTEEL SHOT. Feed-back from the customer shows shot consumption with AMASTEEL now averaging 22 tons per month, compared to 66 tons per month for all of 1986 with USED (RECLAIM) Shot.

As overwhelmingly significant as a 22 to 66 shot usage ratio is, it should be recognized that the abrasive cost alone in a properly run operation, should represent only about 20% of the total cost blastcleaning. Total costs also include power, direct labor, maintenance parts and labor, and overhead costs. Thus, in addition to the reduction in shot consumption, it is important to evaluate other benefits that ensued from the switch to Amasteel Shot.

Two extremely important added benefits reported by the customer were:

- An improvement in the surface finish of the castings.
- Necessity for re-blasting castings has been reduced virtually to nil.

It is readily apparent that all three of Management's "hot-buttons" were addressed, to the customer's benefit: Improvement in QUALITY; increase in PRODUCTIVITY; and COST REDUCTION.

AND, THE BEST IS YET TO BE - - - - -

The Ervin Sales Representative, being aware that abrasive costs, per se, are the small-end of the total blastcleaning cost-stick, made an in-depth survey of the customer's equipment and operating practices, and then used his expertise to develop a list of specific recommendations for improving over-all operations. Only a portion of these recommendations had been implemented during the switch-over/break-in period when Amasteel Shot was introduced, and for the subsequent three months that reflected the drop from 66 tons per month shot usage to 22 tons.

Full implementation of the list of recommendations promises to yield additional important benefits. It is expected, for example, that some of these changes will permit a substantial reduction in blast-cycle-time. This, in turn, will result in further reduced shot usage, reduced equipment wear and tear, lower power, labor, and overhead cost, etc. ----- all expressed in terms of cost per unit of work cleaned. And, if as expected, the same tonnage of castings is cleaned better, and in less time than before, the benefits via increased productivity are obvious.

The following quotation from the salesman's very comprehensive report to the customer, emphasizes the importance of cooperation between customer and vendor, and the need for management support and commitment:

"Our analysis reinforces the need for us to pool our resources of knowledge and expertise to better control your blastcleaning operation. Through this team effort, we can develop process controls which will ensure the most efficient and economical blastcleaning operation possible."

THE ABRASIVE CONSUMPTION DIFFERENCE

When the Amasteel Shot was introduced, a reduction in usage resulted ----- from 66 tons per month to 22 tons. Most of this difference had to be attributable to the inherent difference in shot quality, because the program for implementing remedial measures had not yet been very far advanced. With a difference in use-life of this magnitude, an analysis of the factors accounting for the difference is merited. The following excerpts from Ervin Industries' June, 1987 issue of IMPACT (an in-house product review) will serve to explain why USED (Reclaim) Shot has such an extremely rapid failure rate.

Shown below are two photomicrographs (at 10-X) of SAE Steel Shot at both the early and advanced stages of failure. Figure No. 1 shows the shot appearance, after only 100 cycles in Ervin's SAE-Approved Shot-Tester. Figure No. 2 shows how that same shot looks after 1000 cycles.

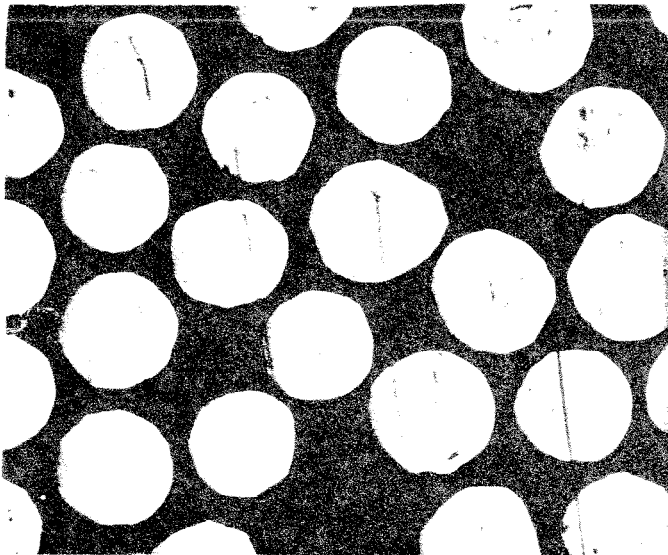


Figure No. 1

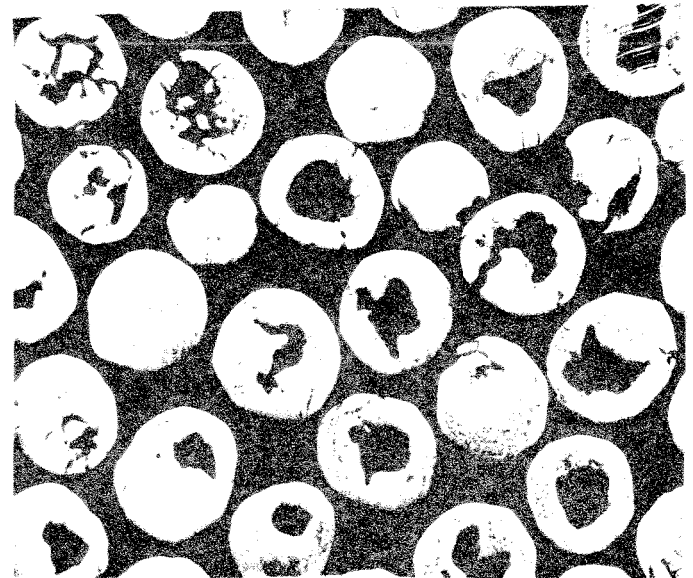


Figure No. 2

Figure No. 2 shows most dramatically the effect of repeated impact-abuse ----- internal ruptures that are not evident until observed under the microscope. This is what the buyer of USED (Reclaim) abrasives gets ----- pellets with varying degrees of advanced abuse/internal stress, as well as a "Duke's Mixture" of sizes, hardness levels, and iron or steel, etc.

A simple destruction test run in the Shot Tester reveals the tremendous difference in resistance to impact-failure in use between new Amasteel Shot and the same size of Used (Reclaim) Shot. It clearly shows that most of the life of the USED Shot had been used up before it was resold. Screen analyses of the respective materials after only 400 impacts shows the following:

<u>After 400 Cycles</u>	<u>AMASTEEL</u>	<u>USED</u>
Still original size	86%	45%
Fragmentation Failure	14	55
	<u>100%</u>	<u>100%</u>

Of the 55% fragmented particles of USED Shot, and 14% of AMASTEEL, how much will be lost or used depends entirely on the take-out point in the customer's separator system. The Operations Analysis Kits prepared by the salesman showed that the work-mix was virtually 90% original size; accordingly, almost all of the fragmented particles were being lost to the system. With the rate at which the USED Shot suffered fracture-failure, it is easy to understand the drop in usage from 66 tons to 22 tons.

OPERATIONS ANALYSIS

Using Ervin Industries' BLASTCLEANING OPERATIONS ANALYSIS FORM as a guideline for his operations review, the salesman prepared Ervin's Operation Analysis KITS as visual aids, showing size-distribution of both Work-Mix and Separator Discard samples. It was found that Work-Mixes in the blast units were far coarser than they should be ----- almost 90% equivalent to original size shot compared to the 25% - 45% min/max Guideline, as spelled out in Ervin's Technical Bulletin (8/3/84).

Work-mixes that are too coarse can result in spotty contaminant removal ----- in a finish that is too rough to be world-class ----- and in extended blast-cycle time, with all its attendant problems.

Cause of the extreme coarseness of the work-mixes was shown by the KITS to be related primarily to improper airwash separator practice, where most small and medium-size particles had been pulled out of the system. The pellet-population for each pound of the as-found work-mixes was about one-tenth of what it should be. As the corrective measures recommended are implemented, the pellet-population in the work-mix will approach the ideal ----- and, faster, better cleaning will result, i.e. ----- the best is yet to be!

THE "WE LOSE MORE THAN WE USE" SYNDROME

Most often, the reason given for a firm's buying Used (Reclaim) abrasives is this very syndrome ----- the suspicion that they lose more shot than they use. That view often leads to "buy cheap, because it's only going to be wasted."

This Case History says, loud and clear, that there is a far better answer. Instead of running away from the "lose more" problem, this customer met it head-on, by tying in a switch to a top-quality Shot with a back-to-basics program based on recommendations evolving from the Ervin salesman's comprehensive operation review. The good results already attained ----- with more yet to come ----- could not happen, however, without the full dedication and commitment of the Customer's Management Team.

Yes, this Case History says:

"Using the right steel shot ----- the right way ----- can make a big, big difference."

Ervin Industrial, Inc.

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