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## STEEL SHOT & GRIT ABRASIVE TESTING

A well accepted method for monitoring the cost effectiveness of steel shot (*grit*) is to track the pounds of abrasive consumed in your blast machine. A generally accepted abrasive consumption

**RULE OF THUMB – 1/2 pound of shot/horse power/wheel hour** of blast machine run time

- a. Equals 25 pounds/wheel hour for a 50 H.P. motor.
- b. Almost all blast machines have wheel hour meters located on the control panel.

When comparing one shot manufacturer to another, it is understood that the plant already has base consumption data (**pounds used per wheel hour**) against which to compare the "new" shot to be tested.

1. Define the total pounds of abrasive held in the blast machine (*in abrasive hopper, blast cabinet, screw conveyor, bucket elevator and separator*). **Example:** Total of 3,000 pounds.
  - a. This information is readily available from your machine manufacturer.
2. Order 10,000 pounds (*5 tons*) of MARCO steel abrasive.
3. Add MARCO abrasive daily or every 4 wheel hours. These regular shot additions will be 25 pounds to 35 pounds per 1 wheel hour depending on the current consumption.
  - a. The reason for the regular daily additions of shot is to assure that we maintain a consistent operating mix (*size*) while slowly moving the "old" shot out of your machine.
  - b. When you have slowly added in approximately 3,000 pounds of MARCO abrasive, you are ready to start the shot comparison test.
    - b1. This abrasive addition process may take 2 to 4 weeks depending on the amount of wheel hours run.

Now, we are ready to begin the actual abrasive comparison test. Your machine is "purged" of the "old" shot and we know we have a good operating mix of "new" MARCO abrasive because we added it regularly.

4. Log the wheel hour reading from your hour meter. (*3,100.0 hours*).
5. Take an exact inventory (*in pounds*) of your MARCO abrasive
  - a. Estimate 7,000 pounds.
6. Continue adding MARCO abrasive daily on a regular basis until you have consumed approximately 6,000 additional pounds of MARCO abrasive.
  - a. The above 6,000 pounds is in addition to the original 3,000 "purge" pounds of abrasive.
  - b. This period may take up to 200 additional wheel hours of machine "run" time (*estimated at 30 pounds consumed per wheel hour*).
  - c. Calculate the pounds of MARCO abrasive used by subtracting today's pounds in inventory from the starting inventory (*see step # 5*).
7. Take today's wheel hour reading (*3,300.0*) - subtracting the start wheel hour reading from today's wheel hour reading (*3,300.0 - 3,100.0 = 200 wheel hours*).
8. Take today's shot inventory (*1,000 pounds*) - and subtract the start inventory from today's inventory (*7,000 pounds - 1,000 pounds = 6,000 pounds consumed over the run period*).
9. Calculate the pounds of MARCO abrasive consumed per wheel hour by dividing the pounds used by the wheel hours run.
  - a. 6,000 pounds/200 wheel hours = 30 pounds of MARCO abrasive consumed per wheel hour.
10. Conclusion - compare the "old" shot versus the "new" MARCO test shot in terms of pounds consumed per wheel hour.

Comparing actual usage to **RULE OF THUMB** usage is suggested as an ongoing measurement to assure a well maintained blast machine operation. Periodically, adjustments will be made to the blast machine to assure your cost effective blasting operation and costs. "If you measure it, you can improve it."

