
Technical Bulletin

ERVIN INDUSTRIES, INC.

3893 Research Park Drive
P.O. Box 1168
Ann Arbor, Michigan 48106
(734) 769-4600
(800) 748-0055
(734) 663-0136

COST REDUCTION . . . COST CONTROL . . . VALUE ANALYSIS

To cleaning room managers across the country, these are more than symbols, catch-phrases, or buzz words. These are top-priority challenges . . . particularly as applied to their blast cleaning operations, and in today's economic climate.

To help cleaning room managers meet these challenges, **ERVIN INDUSTRIES** has developed the **ERVIN COST CONTROL PROGRAM**. Attached are the two record-keeping cards that make up the program. The various items on the cards are reviewed in detail in the Technical Bulletin.

Before there can be a measure of potential cost reduction . . . before costs can be controlled and kept on even keel . . . before a Value Analysis project can be implemented . . . there must be a system for collecting the data pertinent to arriving at the most universally used cleaning room cost measure: costs per wheel blasting hour. The **ERVIN COST CONTROL PROGRAM** provides the means for recording the data essential to determination of true operating costs of the blast cleaning function . . . for each piece of equipment.

ABRASIVE ADDITION RECORD

The card identified as the "Abrasive Addition Record" gathers the **daily** data, by shift, and records it for a full week's operation.

At the top of the card, space is provided for identification and plant location of the specific blast cleaning unit, along with information as to size and type of abrasive in use.

Whenever new abrasive is added to the system, whenever equipment parts are replaced, and whenever screen analysis is made of abrasive work-mix and

separator discard samples, the required data should be entered on the appropriate line for day and shift. Data to be entered includes:

- a). Operator's initials
- b). Wheel-hour meter reading at the time
- c). Pounds of new abrasive added
- d). Check mark or an X-mark in the Screen Analysis columns
- e). Identification of equipment parts replaced (use back of card if more space is needed)

For users desiring two-way cost data . . . i.e., cost per unit of work cleaned (pounds, tons, loads, pieces, etc.) in addition to the conventional cost per wheel hour figures, the operator should enter the data for his shift, each day, in the "Work Cleaned" column.

At the top of the card are three boxes calling for additional data essential to developing an accurate and meaningful cost study:

Wheel Hour Meter Reading Box:

This will provide the actual elapsed wheel hours operated during the full week, and makes it possible to calculate the weekly usage per wheel hour.

Abrasive Hopper Level Box:

This is simply protection against changes in the hopper level serving to distort abrasive consumption data. In checking for gasoline mileage on a car, measurement is always made on a full tank to a full tank. However, it is recommended that the abrasive hopper level be filled to the $\frac{3}{4}$ level when adding new abrasive . . . and every effort be made to keep the level from getting as low as the $\frac{1}{2}$ level before the next addition. It is recommended that additions be made frequently . . . preferably each operated shift, but **at least** once each operating day.

By starting at the $\frac{3}{4}$ level at the beginning of the week, and restoring it to the $\frac{3}{4}$ level at the end of the week, no inadvertant distoration of weekly consumption figures will result. An important added benefit is that this practice will help keep the work-mix size consistently in balance.

Operations Check-List Box:

Three key questions are asked:

Operating at full amps? If not, the wheel is not throwing its full rated pounds of abrasive flow, and cleaning effectiveness and cleaning cycle-time is adversely affected.

Blast pattern checked? If the inevitable wear on wheel components has caused a directional change of the abrasive stream, cleaning effectiveness and cycle-time can be greatly impaired. Check at least twice a week.

Cleaning cycle-time ok? This is simply a continuing check as to whether cycle-time is what it should be. If not, a full check of all operating conditions should be instituted immediately. Time is money . . . especially cycle-time.

WORK-MIX AND SEPARATOR DISCARD SCREEN ANALYSIS

Screen analysis of these materials should be made at least twice each week as a continuing check on the degree of control of operating conditions. The objectives of this Operations Analysis are:

1. To determine whether the work-mix is in proper balance for effective cleaning, in the required cycle-time.
2. To determine whether contaminants harmful to the wheel assembly are being retained in the work-mix.
3. To determine whether usable abrasive is being wasted due to improper separator practice.

The penalties of improper operations are severe:

1. A work-mix that is extremely coarse in size . . . or too fine . . . can increase cleaning cycle-time by as much as 30%, or more.
2. As little as 2% sand contaminant in the work-mix can increase wheel parts wear by 50% or more.
3. Inadvertantly increasing the abrasive take-out size in the separator discard by a mere five-thousandths of an inch **can increase consumption by as much as 25%!**
4. Where profile control is an imperative, improper work-mix balance can produce an unacceptable profile.

PARTS REPLACED

Malfunction of the working parts of the blast cleaning equipment can cause operating costs to go completely out of sight . . . quickly, because of the inevitable process of wear and tear due to the flow each minute of literally millions of abrasive particles plus the contaminant removed. The check-listing called for by the **ERVIN COST CONTROL PROGRAM** will enable the operator to pin-point trouble spots soon after they occur.

Equally as important is the development of parts and replacement **history**. Analysis of such a history is the first and most important step in establishing a Preventative Maintenance Program in the cleaning room. Making repairs and replacements during **regularly scheduled equipment downtime** then can become a way of life. This will reduce to the minimum the costly and disruptive crisis shut-downs due to parts failure during operations.

QUARTERLY ABRASIVE CONSUMPTION RECORD

Weekly totals from the daily Abrasive Additions Record are recapped in the "Operating Data" section of the Calendar Quarter Record of Abrasive Consumption for each blast cleaning unit. The recap tracks the abrasive consumption figures for 13 weeks . . . and, when plotted on the Abrasive Control Chart, gives an instant check on the degree of control, or consistency of operation. The back of the Quarterly provides a 13 week history of replacement parts needed, as well as hours of down-time, when logged.

Most importantly, the Abrasive Control Chart serves as a RED FLAG warning. Any time the chart reflects a sudden, wild jump (up 25%, 50%, or more), an **immediate** check of the full operation should be initiated. Hopefully, the daily Abrasive Additions Record will already have alerted the operator . . . but, if not, the RED FLAG jump on the chart can provide a fail-safe alert that cannot be ignored.

The chart also will reflect any downward trend in consumption brought about by cost reduction programs that are initiated. And, when Value Analysis projects are embarked upon, the **ERVIN COST CONTROL PROGRAM** will have provided the essential "home-base" cost and operating data with which meaningful comparison can be made.

Companies who are practicing advocates of the Value Analysis approach to product evaluation describe the VA method as being "an organized search for TRUE value" . . . and say "TOTAL cost is the VA criterion." Certainly, the **ERVIN COST CONTROL PROGRAM**, when properly implemented, will serve as an invaluable tool in any Value Analysis effort.

In order for a user to go beyond the cost and operating data provided by the **ERVIN COST CONTROL PROGRAM**, he simply has to plug in abrasive price data . . . plug in payroll data generated from his time card studies covering operating and maintenance personnel . . . and plug in power cost data, metered separately. Now TOTAL cost can be measured.

OVER AND ABOVE - - - -

Over and above the record cards that make up the **ERVIN COST CONTROL PROGRAM**, **ERVIN'S** sales and service teams stand ready to assist the user in implementing the **COST CONTROL PROGRAM**.

Operations Analysis (checking the work-mix and separator discard material) is an **ERVIN** speciality . . . we have the expertise to help. Call on us . . . any time.

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