

# Logan Aluminum Inc.

## Meltable Performance Program Description

By far the two most important sheet ingot variables controlled by Logan Remelt are chemistry and metal cleanliness. The chemistry and cleanliness of inputs, which we commonly call melttables, have a direct affect on these variables. By working with suppliers and producing plants we hope to improve the quality of melttables used at Logan. Often we have found that suppliers and producing plants do not know our expectations. This has made it difficult for them to meet those expectations. The Melttable Program Manual helps to communicate those expectations and provide feedback for improvement.

Logan has developed the (MPRS) Melttable Performance Rating System for the manufacturers and suppliers of some melttables. The purpose of the MPRS is to provide Logan, Logan's Owners, Manufacturers and Suppliers with data on the performance of manufacturers, suppliers and their products. When issues with manufacturers and/or suppliers occur, Logan will assist in solving the issue.

### Components:

- MPRS
- Rating Criteria (the appendix to the MPRS which describes what is being rated and how points are allocated)
- Melttable Specification Manual
- Shipping requirements and delivery appointment information
- Summary of and link to purchase ASTM E716-94 (1998) Standard Practices for Sampling Aluminum and Aluminum Alloys for Spectrochemical Analysis
- Check Analysis Program for some producers
- Logan data audits to ensure data integrity
- Limited Technical Assistance
- Reciprocal plant visits (time and schedule permitting)
- Best Suppliers and Producers Award
- Communication channels to have questions answered
- Feed back when issues arise including photos if necessary and possible

### Recommended Texts

- Modern Spectrochemical Analysis of Metals, An Introduction for Users of Arc/Spark Instrumentation. The author is Volker B. E. Thomsen. This ASM publication is great for helping to understand the equipment we use for aluminum analysis.
- Understanding Statistical Process Control. The authors are Donald J. Wheeler and David S. Chambers. This book is a cookbook for control charts and capability histograms. Control charts are necessary for monitoring spectrometer calibration stability and trends.
- Statistics for Analytical Chemistry. The authors are J. C. Miller and J. N. Miller. This text is the most complicated of the three mentioned here.

### Useful Publications

- Guidelines for Aluminum Sow Casting and Charging. The Aluminum Association.
- Guidelines for Handling Molten Aluminum. The Aluminum Association.
- Guidelines for Aluminum Scrap Receiving and Inspection Based on Safety and Health Considerations. The Aluminum Association [www.aluminum.org](http://www.aluminum.org)

## Frequently Asked Questions

How are points calculated?

- Every receipt is evaluated for some factors of the rating. Chemical sample review is set up on a specific frequency depending on producing plant issues and other factors. The Rating Criteria, which is the appendix to the Meltable Specification Manual, outlines point allocations. These allocations are subject to change.

What will Arco and Logan will do with the Rating score?

- Logan will use the scores in determining where to allocate resources to assist suppliers and producing plants to improve.
- Arco will use the rating system to target future meltable purchases toward the better performing suppliers and producing plants.

How does the check analysis program help?

- This program uses an independent laboratory to evaluate the analytical accuracy and stability of a spectrometer (quantometer). Equipment malfunction, chemistry bias and trends along with operator error can also be detected.

What if I perform poorly on the check analysis program? Will this affect my point standing?

- Producing plants are only rated on consistent and timely participation in the program including reconciliation of disagreements. Producing plants are expected to follow a path of continual improvement.

Supplier(s) and Producer(s) of the Year Awards, how do we win?

- ARCO / Logan will recognize the top vendor and producer as "Supplier of the Year" in each of the following categories based on average point scores:
  - 1) Calendar year supply in excess of 30 million pounds.
  - 2) Calendar year supply in excess of 6 million pounds.

Does Logan inspect every sow entering the plant?

- No, We sample what comes in. Some issues will be missed but we feel that major and persistent issues will be identified, recorded, addressed and communicated to the suppliers and producing plants. Producing plants and suppliers are expected to follow a path of continual improvement.

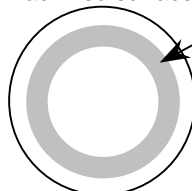
Does Logan analyze every chemical sample?

- Yes, We analyze every chemical sample coming to Logan. Remember that "The quality of an analysis is never better than the quality of the sample".

In the ASTM E-716 standard there is reference to a type A and B mold. Which is better?

- The type B mold is better because it can be sparked all around the analytical surface. The MPRS will award points to users of the Type B mold described in the ASTM E-716 standard.

Sample from Type B mold showing machined surface



Samples cast in the type B mold can be sparked anywhere in the gray region shown on the diagram. This would be unacceptable with the type A mold.

How often will reports be generated?

- MPRS reports are typically issued quarterly.

What is the data audit frequency?

- On a random basis the quantometer lab will audit a receipt from every producing plant to assess sample quality data integrity. The Materials department will audit a receipt from every producing plant on a random basis to assess receiver documentation and product physical characteristic data integrity. The frequency varies from supplier to supplier.

What kind of technical assistance is available?

- We can give non-proprietary suggestions, comments such as “At Logan we perform the job this way and it has worked well for us so far” or “We have tried something similar in the past with the following results”.
- Names of equipment suppliers that we are satisfied with.
- Informal process audits at producing plants if time and scheduling permits.
- Some statistical advice.
- It is the responsibility of the producing plant to make the its own process and equipment decisions.

If I have questions who do I call?

- See the contact page on this web site

### **Manual Updates**

Periodically this program and website will be updated without notice. This is a living document so expect changes. Please ensure that any information you have printed and use as reference is up to date. The latest revisions of this information will be posted on this site. If you have questions about any information in the Manual please contact the appropriate person on the contact page.