

ALUMINUM MELTING FUNDAMENTALS

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Learning made Simple, Visual, and Interactive

This course is designed to provide learners with an understanding of the equipment, processes, and terminology associated with aluminum melting.

Credit Hours **2**

Learning Objectives

- 💡 Recognize some of the basic equipment used in aluminum foundries.
- 💡 Recall basic melting terminology and phrases.
- 💡 Distinguish between the common furnaces used for melting aluminum.
- 💡 Identify some of the prominent tests applied to molten aluminum.
- 💡 Differentiate between metallic and non-metallic additions for aluminum.
- 💡 Understand the primary steps involved in molten aluminum processing.

Table of Contents

I. Foundry Terminology

- **Equipment**
 - o Ladles
 - o Crucibles
 - o Skimmers
 - o Refractory Materials
 - o Resistance Elements
 - o Molds
- **Protective Gear**
- **Charge vs. Melt**
- **Charge Materials**
- **Mechanical Properties**
- **Melting and Solidification**
- **Mold Example**

- **Casting Processes**
- **Filling vs. Feeding**
- **Cast Alloy Designations**

II. Furnaces and Molten Metal Testing

- **Furnaces**
 - o Crucible Furnaces
 - o Reverberatory Furnaces
- **Molten Metal Testing**
 - o Temperature Checking
 - o Spectrometer Analysis
 - o Reduced Pressure Testing (RPT)
 - o Density Evaluation

III. Additions and Molten Metal Processing

- **Additions**
 - o Metallic Additions
 - o Non-Metallic Additions
- **Molten Metal Processing**
 - o Degassing
 - o Fluxing
 - o Dross Removal
 - o Grain Refinement
 - o Silicon Modification

