



Out of the oven

The challenges of track and trace labeling in the hot metal industry



Tracking hot metals as they leave the oven is increasingly critical for today's hot metal processors. The data collected from track and trace labels assure customers that they're receiving genuine, high-quality alloys that meet their requirements, and they help manufacturers ensure product quality, inventory accuracy and operational efficiency.

Unfortunately, the ultra-high temperatures typically found in hot metal processing plants create a tough environment for hot metal labels. Sheets, blocks, slabs, rolls or coils of hot metal can be extremely hot when they come out of ovens and rolling mills. Traditional printed label materials will melt under these conditions because coatings and adhesives burn at high temperatures. Labels may also fail when they are exposed to oils and chemicals during hot metal processing or scraping and scuffing during transport.

The track and trace dilemma

Ultimately, track and trace labels work best when hot metal manufacturers apply them before production begins. In-process labels can uniquely identify each metal type and link manufacturers to helpful data about the source of the raw material and its performance properties, including which conditions and temperatures the label can withstand. The unique identifiers also trace metals throughout the manufacturing process.

However, hot metal labels are only as effective as their adhesion and readability performance in harsh manufacturing environments, especially as customer specifications and regulations tighten. Current solutions for track and trace labeling in the hot metal industry include:

- Riveting or welding metal plates onto the material, which adds an expensive, time-consuming step



- Chalking identification numbers onto rolls of hot metal. Because writing with chalk (and then trying to read it) are manual tasks, this strategy is prone to human error.
- Waiting for hot metal materials to cool off before applying polyester labels, which are not engineered to endure high temperatures. However, this builds waiting time into the production process, expanding the window of time when unidentified materials can be lost or misidentified.

To meet these challenging conditions, Avery Dennison developed a new set of track and trace solutions tailored to meet the demands of hot metal processing.

A durable solution for hot metals

Avery Dennison designed its aluminum barcode label materials to withstand the extreme temperatures, chemicals and hot oils common in hot metal processing. Building on the company's trusted portfolio of durable label solutions, the hot metal labels utilize temperature-resistant metal films and a proprietary topcoat that remains legible at elevated temperatures. The films are printed with thermal transfer ribbons and applied to hot metals using pressure-sensitive adhesives.

The pressure-sensitive application is safer and more reliable than other track and trace options for hot metals, such as manually chalking hot metal. It also ensures the track and trace labels maintain their strong bonds and clear legibility as they travel from the oven to the customer. Both advantages can enable hot metal processors to:

- Speed up operations by eliminating extra steps in production
- Improve productivity by automating manual trace and track processes
- Reduce the cost of reworking material
- Improve inventory accuracy by minimizing production delays

With Avery Dennison's aluminum barcode labels, hot metal processors have a reliable labeling option to link products to crucial data while helping them fully automate their production processes — all with the quick scan of a barcode. >

Contact Avery Dennison to learn more about our durable label portfolio and how we can meet your cost and performance requirements.

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