

ADVANCED MATERIALS FOR 21ST CENTURY STEELMAKING

When: January 23, 2008

Where: Presentations
Holiday Inn Westlake, OH
Plant Tour
Republic Engineered Products
Lorain, OH

What:

New aluminum bronze alloy for water cooled equipment used in steelmaking furnaces.

Improves Energy Efficiency, Productivity and Environmental Performance (See Reverse)

6500 heats, 3 maintenance repairs !!!

**Demonstrated by Energy Industries of Ohio
via a Department of Energy Grant**

**Winner of 2006 Governor's Award
for Energy Efficiency**

Demonstrated Benefits at Republic:

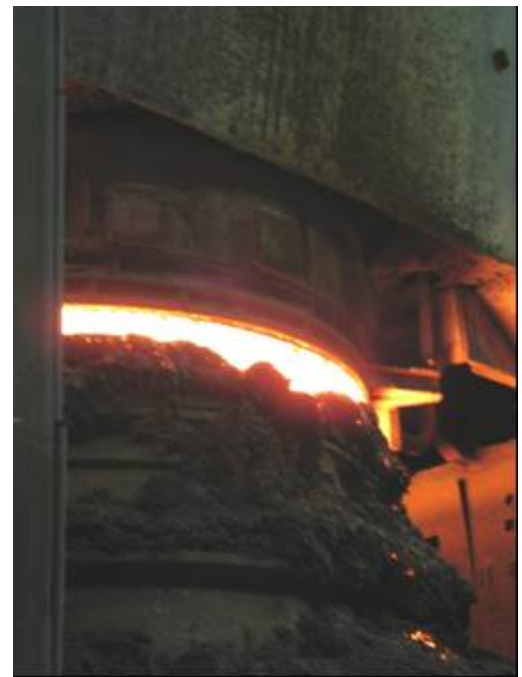
5 times the life of traditional equipment
Energy Savings: ~15 billion BTU/yr per furnace
Productivity improvement ~ \$12 million/year.
Environmental benefits– Reduced CO;
particulate emissions.

Program

Morning: Presentations on Technology and Applications

Lunch (Luncheon Speaker)

Afternoon: Tour of installation at Republic Engineered Products, Lorain Works
(Transportation Provided)



Invited Audience:

Association of Iron and Steel
Technologists Committees
Oxygen Steelmaking
Maintenance and Reliability
Electric Steelmaking
Ohio Steel Council
Ohio and National Steel Makers
Federal, State, Local Elected
Officials
US Department of Energy
Ohio Department of Development
Ohio Energy Office
Television and Print Media

AmeriBronze® Alloy Improves Steel Furnace Component Life

Aluminum bronze alloy slashes maintenance downtime and costs while increasing productivity and revenues

A high-performance aluminum bronze alloy, AmeriBronze®, offers unprecedented improvements in the operating life of basic oxygen furnace (BOF) and electric arc furnace (EAF) components, such as hoods, roofs, and side vents. The alloy resists corrosive steelmaking environments, extreme temperatures, and physical erosion that are present in operating steelmaking furnaces. By increasing equipment lifetime, this alloy reduces failure and maintenance downtime while increasing productivity and operational safety.

As of September 2007, an aluminum bronze skirt installation at Republic Engineered Products has withstood approximately 6,500 batches of steel over 3 years with only three maintenance shutdowns that were not process related. Traditional carbon steel skirts are typically replaced after 20 months of operation after experiencing over 40 maintenance shutdowns for repairs of process-related corrosion and wear.

Subsequent installation in flux chute applications confirmed the applicability of this material in other areas of the process.

Benefits:

- Cuts maintenance costs by > 95%.
- Minimizes equipment shutdowns and subsequent furnace reheating
- Increases component lifetime ~ 5 times
- \$11 million revenues from increased productivity
- Saves ~ 15 billion Btu per furnace annually
- Reduces CO₂ emissions by ~ 550 MMTCE per year
- Resists slag build-up and eliminates associated cleaning costs

Available through:

AmeriFab, Inc.
Indianapolis, IN
(317) 231-0100
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Skirt



Flux Chute