



# Steel Founders' Society of America Spring Management Meeting

*March 23, 2011*

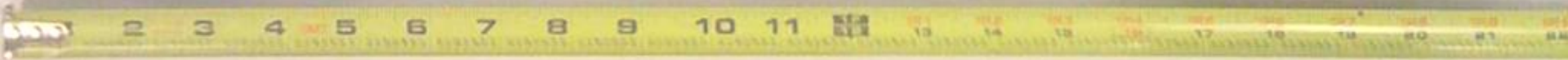
*Greg Benz, Miller and Company*

# Pig Iron: Presentation Outline

- Definitions
- Logistics
- Benefits
- Current Market

# Pig Iron: Definitions

- A product of the smelting of iron ore
- An alloy consisting of mainly Fe, C, & Si in controlled percentages
- Cast into pigs/ingots



# Pig Iron Production

- Iron ore:
  - 1.6mt /mt pig iron
- Charcoal (Brazil):
  - 3.5m<sup>3</sup>/mt pig iron
- Coke/Anthracite
- Limestone, silica, and manganese ores

# Types of Pig Iron

	Basic (Steel-making)	Bessemer (Foundry)	Nodular (Ductile/Low P)
Carbon	3.5% - 4.5%	3.5% - 4.5%	3.75% - 4.50%
Silicon	1.50% max	1.50% - 3.00%	<.20%
Sulfur	0.05% max	0.05% max	0.02% max
Manganese	1.20% max	1.20% max	0.030% max
Phosphorus	0.10% Max	0.10% max	0.035% max

# Pig Iron Logistics

- Ocean going vessels: Panamax / Super-Handymax
- Leadtimes: Brazil: 2.5 / 3 weeks  
Russia: 4 weeks  
South Africa: 3.5 weeks





Photo courtesy of: Cooper Consolidated Stevedoring Operation , Darrow, AL



# Pig Iron Logistics

- Ocean going vessels: Panamax / Super-Handymax
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South Africa: 3.5 weeks
- Barge transportation



# U.S. Market

- Import-dependent
- Brazil:
  - 15M mt capacity
  - 160 BF
  - 2010: 75%+ to N.A.
  - Apprx. 1.5M mt to U.S.
- Russia:
  - 7M mt capacity
  - 7 BF + Intg. Steel
  - 2010: 30% + to N.A.
  - Apprx. 495k mt to U.S.

Year	2008	2009	2010
Import Mkt	13,400	11,700	11,800*
USA	30%	20%	35%
Italy	13%	8%	9%
China	2%	31%	9%
Japan	6%	3%	4%
Other	43%	35%	27%

# Pig Iron Benefits

- Lot analysis
- Bulk Density
- Melt rate: 2,075F v. steel @ 2,800F
- Good recovery of carbon and silicon
- Reduction of tramp elements

# Pig Iron: Current Market

- Price History
- Relation to scrap

# Basic Pig Iron Q4 2001 – 2011

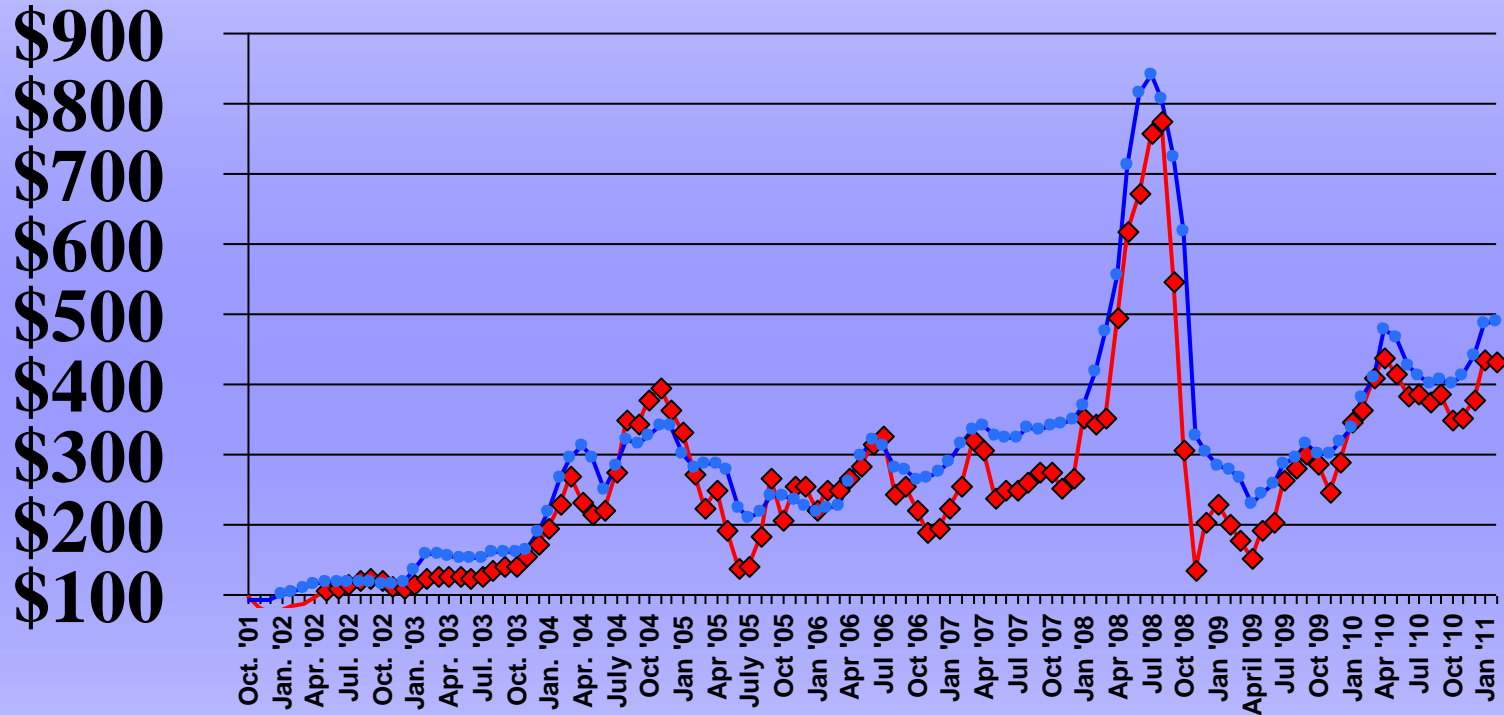


— Basic Pig Iron \$/nt fob NOLA



# #1 Bundle/Busheling v. Basic Pig Iron

## Q4 2001 – 2011 YTD



◆ Scrap \$/nt fob dlvd Midwest — Pig iron \$/nt fob NOLA

\*Effective June 2008, AMM #1 Bundle Scrap price changed from #1 Factory Bundle to #1 Busheling Composite – month average.

# Pig Iron: Current Market

- Price History
- Relation to scrap
- How to respond to today's market

Thank You !