Material Cost Reduction Ideas for Today’s Foundry

Tell City Melt Department
Waupaca Foundry
Materials Costs

• Over the past 4 years or more we have watched melt material prices, particularly for ductile operations skyrocket.
• The costs are difficult to recoup from some customers in a timely fashion.
• To off-set these increases we began to look internally for cost savings programs.
Flashings

• We found something that most foundries, particularly cupolas, are not able to use and may sell for low costs.

• This waste stream was the fine re-melt particulate from our “grizzlies” that we call flashings.
Cost Savings Calculations

- P5 Sand system presently separates 9 ton of flashings per day.
- These flashings are presently landfilled as we have no market for them.
- We began investigating the option of “canning” these fines.
Cost Savings Calculations

Time study to analyze labor costs

• Time needed to fill and close 1 can  0.1  Hour
• Process cans per hour    12  each
• Weight of turnings per can average  140  lbs.
• Cans required per ton of turnings  16.0  each
• Tons processed per hour  0.75  tons
• Tons processed per shift  6.00  tons

• Note all wt is Net Tons
Cost Savings Calculations

• Then the potential cost savings was analyzed as a comparison value to purchased cast.
• Limited to present collection of 9 Tons per day (estimate)
• Labor rate of $17.31 per hour (example)
• Purchased cast @$415.00 GT (example)
Cost Savings Calculations

- Potential tons processed daily: 9 tons
- Tons processed hourly: 0.75 tons
- Total cost canned grizzlies: $74 per ton (material, labor, cans etc)
- Final cost savings vs. cast: $340 per ton
- Potential daily savings: $3,068.64
- Monthly potential for canning savings: $61,373
Equipment required

- Purchased small hopper and feeder system with holes drilled for sand separation, overhead hoist and jib crane.
- Procured source for new cans @$3.81 per can (factored in cost per ton)
- Total cost for all equipment to date $24,000
- Dust collection still to be tied in.
Equipment required
Equipment required

- A turntable was added to expedite lid closing and handling process.
- Pneumatic “hog ring” stapler to insure lids stay closed
- Now investigating pneumatic lid closer (additional $2400)
Equipment required
Equipment required
Final Product

- Finished product is apx. 140 lbs per can charged on our pig iron shaker (rarely used now) in grey charge mixes.
- 95% metallics content (still considering adding magnetic separation)
Final Product
Results to date

- This project kicked off in mid-August 2010.
- During the initial month we found many more “waste streams” where formerly useless material was being land-filled. Multiple presses, grinders and separators were identified.
- For August 2010 we “canned” and charged 167.57 tons of material for a cost savings of $50,946.46.
Results to date, con’t

• We have run above 1% of our charge as “canned” with no detrimental effect in the cupola operations.

• We are still capturing more of the waste streams and learning how to handle them. We expect to see around 20 ton per day from these alone.

• Future plans include canned borings, short shovelings, and possibly DRI fines (trial upcoming) for additional savings.
Results to date, con’t

• 2011 savings were $1.14M
• Additional alternatives and waste streams were added to the program in 2012 and have netted $1.3 M so far this fiscal year.

• In summary, the use of alternatives and waste stream materials can do for any foundry what it has done for us...you just have to find them.