

Dae Cain

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SUMMARY

Melting and casting process engineer with eight years of hands on steelmaking experience across EAF and LMF operations in high volume melt shops. Metallurgical engineering training supports **process control**, **furnace chemistry**, power input, oxygen practice, **burner profiles**, clean steel methods, refractory performance, troubleshooting, and production **data analysis**. Converts heat level data and floor observations into practical operating improvements that support process consistency, energy efficiency, steel cleanliness, productivity, and product quality. Provides urgent floor support and works closely with operators, maintenance, quality, and engineering teams on production challenges. Leads disciplined trials, follows results through implementation, reinforces safe work practices, and maintains housekeeping standards across demanding melt shop environments.

EXPERIENCE

Senior Melt Shop Process Engineer

June 2023 - Present

Summit Forge Steel

Birmingham, AL

Owns technical support for EAF and LMF operations, translating heat data, floor observations, refractory findings, and quality results into operating improvements. Leads cross functional troubleshooting, production response, process trials, and daily coordination with operations, maintenance, quality, and engineering teams.

- Stabilized EAF and LMF practices through heat data review and direct floor **troubleshooting** support.
- Refined **power input**, burner profiles, **oxygen practices**, and furnace chemistry using heat history comparisons.
- Strengthened clean steel practice through alloy sequencing, recovery review, **slag control**, and **argon stirring**.
- Traced **steel cleanliness** excursions across melt and ladle stages with quality and operations partners.
- Prioritized trials using process trends, refractory observations, and energy data to balance production outcomes.
- Provided urgent floor support while reinforcing safety procedures and disciplined housekeeping standards.

Melt Shop Process Engineer

August 2020 - May 2023

Blue Ridge Metals

Chattanooga, TN

Supported EAF and LMF steelmaking across multiple grades, combining process control records with operator observations and laboratory results. Led structured troubleshooting and documented operating changes that improved repeatability, **clean steel** performance, and shift level adoption.

- Maintained stable **EAF** and **LMF** practices across multiple grades through process control review.
- Built heat level analyses linking electrical input, oxygen use, burner operation, chemistry, and tap conditions.
- Improved **alloy recovery** consistency by reviewing addition timing, bath conditions, and chemistry results.
- Supported cleaner steel through slag behavior review, **desulfurization** analysis, argon stirring, and **inclusion control**.
- Resolved equipment related metallurgical issues through structured troubleshooting with maintenance and engineering.
- Sustained successful operating changes across shifts through documented trials and clear acceptance criteria.

Metallurgical Process Engineer

July 2018 - July 2020

Cumberland Specialty Steel

Nashville, TN

Provided floor based metallurgical support for EAF production and LMF treatment, connecting furnace conditions, chemistry, quality results, and refractory observations. Prepared controlled improvement work and responded to urgent technical issues while supporting safe daily **melt shop** operations.

- Monitored **furnace chemistry**, timing, energy inputs, and operating conditions during daily **EAF** support.
- Isolated process variation through heat record and **quality** result analysis before controlled improvement trials.
- Supported oxygen and burner adjustments by comparing furnace performance, chemistry, and production consistency.
- Connected refractory wear patterns with process conditions through inspections and maintenance review.
- Strengthened LMF control through ladle treatment, **alloy recovery**, and chemistry conformance review.
- Reinforced safe work practices and **housekeeping** during daily floor support and urgent issue response.

Associate Metallurgical Engineer

June 2016 - June 2018

Great Lakes Mini Mill

Fort Wayne, IN

Supported EAF production through supervised heat data collection, operating history review, trial documentation, and floor observation. Built early expertise in **furnace chemistry**, energy use, refractory behavior, troubleshooting, and cross functional melt shop communication.

- Collected and interpreted EAF heat data alongside experienced operators and metallurgists.
- Tracked chemistry, electrical energy, oxygen use, tap conditions, and cycle observations for stable patterns.
- Prepared **troubleshooting** summaries linking operating conditions with laboratory chemistry and production records.
- Supported controlled **EAF** trials through baseline data, parameter documentation, and post trial comparisons.
- Developed refractory knowledge through inspections and operating history review with maintenance personnel.

- Built floor credibility through technical follow up and disciplined adherence to **safety** expectations.

PROJECTS

Clean Steel Practice Improvement 📅 2024

Reviewed alloy recovery, slag control, desulfurization, argon stirring, and inclusion results to support cleaner steel and more consistent downstream quality.

EAF Energy and Refractory Review 📅 2022

Converted furnace power, oxygen, burner, refractory, and heat history data into practical operating recommendations for process stability and energy efficiency.

LEADERSHIP & AWARDS

- Recognized by melt shop leadership for dependable technical support during urgent EAF and LMF production issues.
- Selected to lead cross functional process trials involving operations, maintenance, quality, and engineering teams.
- Earned sustained operator trust through clear troubleshooting guidance and consistent floor presence.

EDUCATION

Bachelor of Science in Metallurgical Engineering

2016

Missouri University of Science and Technology GPA: 0

Rolla, MO

Coursework: Steelmaking, Physical Metallurgy, Thermodynamics, Process Control

CERTIFICATIONS

- OSHA 30 Hour General Industry 📅 2024
- AIST Steelmaking Safety Training 📅 2024

TECHNICAL SKILLS

- **Steelmaking Furnaces:** EAF, LMF, electric arc furnace
- **EAF Operating Practice:** Power input, burner profiles, oxygen practices
- **LMF Treatment:** Alloy additions, alloy recovery, ladle treatment
- **Clean Steel Methods:** Slag control, desulfurization, inclusion control
- **Process Control:** Heat records, operating data, chemistry tracking
- **Metallurgical Analysis:** Furnace chemistry, steel cleanliness, quality results
- **Gas and Energy Systems:** Argon stirring, oxygen use, electrical energy
- **Refractory Engineering:** Refractory performance, wear inspections, furnace history
- **Quality and Testing:** Laboratory chemistry, product quality, chemistry conformance
- **Improvement Methods:** Controlled trials, acceptance criteria, continuous improvement
- **Production Support:** Floor support, urgent response, melt shop operations
- **Safety Systems:** OSHA 30 Hour General Industry, safe work practices, housekeeping

SKILLS

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|-------------------|----------------------|-------------------------|---------------------|
| • EAF Steelmaking | • Data Analysis | • Oxygen Practices | • Desulfurization |
| • LMF Operations | • Furnace Chemistry | • Clean Steel Practices | • Argon Stirring |
| • Process Control | • Power Optimization | • Alloy Recovery | • Inclusion Control |
| • Troubleshooting | • Burner Profiles | • Slag Control | |

PROFESSIONAL AFFILIATIONS

- Member, Association for Iron and Steel Technology.
- Professional participant, metallurgical engineering and steelmaking technical forums.

LANGUAGES

- English (Native)
- Spanish (Beginner)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST