

# CALCIUM CARBIDE EAF INJECTION



## IMPROVE SLAG FOAMING. STABILIZE THE ARC. PROTECT THE FURNACE.

Calcium Carbide EAF Injection is a carbide-based solution designed to enhance foamy slag formation during the most critical stages of the heat. Unlike traditional carbon injection, calcium carbide reacts directly with FeO in the slag to generate CO at the slag-metal interface, providing a reliable, independent foaming mechanism even when carbon efficiency is limited.

By increasing slag foam height and stability, calcium carbide improves arc shielding when operating conditions are most challenging, supporting more consistent furnace performance. A typical addition of 1 lb/ton can deliver measurable improvements in EAF operation, including improved arc stability, faster energy transfer and reduced power-on time. The result is increased productivity and lower consumption of power, carbon, oxygen, refractories and electrodes.

At tap, carbide-based injection supports improved metallic yield through controlled FeO reduction and reduced vortex-driven slag carryover. This contributes to higher alloy recovery, lower alloy costs and more consistent tap chemistry.

## ADVANTAGES

- Reduce power-on time through faster and more stable heat development.
- Improve metallic yield and alloy recovery.
- Lower electrode and refractory consumption.
- Minimize slag carryover and associated yield losses.
- Maintain tighter and more consistent tap chemistry.
- Reduce maintenance downtime and process variability.

The result is a more controlled and efficient foamy slag practice: improved power efficiency, better heat-to-heat consistency and reduced consumable usage.

With improved slag control, optimized lime utilization and less rework downstream, operations become safer, more standardized and more productive, supporting more heats per day and stronger overall cost performance.



Partner with our technical team and leverage our deep industry expertise, cutting-edge technology and advanced technical services. We can tailor a solution to meet your specific process and quality requirements.

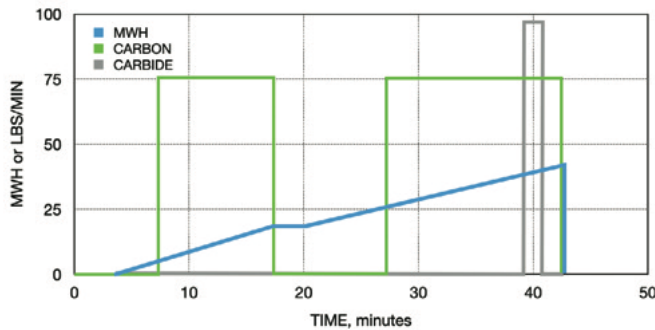
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Optimal performance from tap to cast.

## WHEN TO INJECT CALCIUM CARBIDE

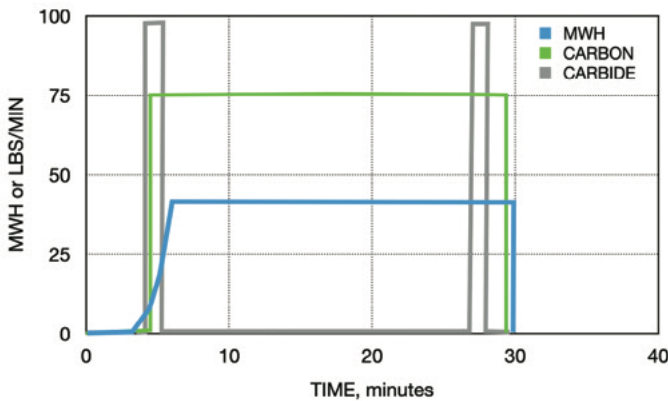
### Classic Mode: End of Heat Optimization



Purpose: Maximize power efficiency and tap consistency.

- Inject 5-7 minutes before the end of the heat.
- After breast-push and slag off.
- Stabilizes slag conditions during final refining.
- Supports consistent tap temperature and reduced consumables.

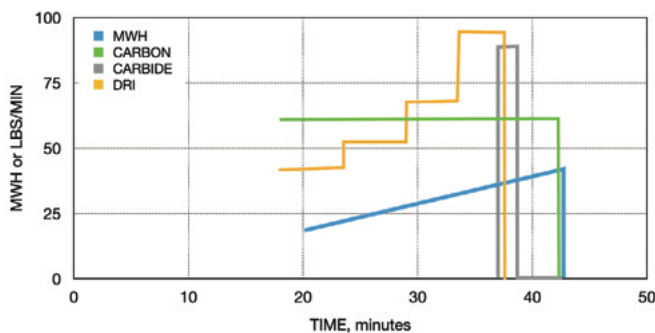
### Micromill Mode: Rapid Power Ramp-Up



Purpose: Achieve high power input earlier in the heat.

- Inject at power-on after scrap charging.
- Supplement as needed near end of heat (similar to Classic Mode).
- Accelerates formation of stable foamy slag early in the heat.
- Enables faster transition to high-efficiency melting conditions.

### DRI/HBI Mode: High FeO Slag Control



Purpose: Restore slag foaming under high FeO conditions.

- Inject 1-2 minutes before DRI/HBI shutoff.
- Most effective when FeO is elevated and carbon efficiency is reduced.
- Generates CO directly via chemical reduction, improving slag foaming when traditional methods are less effective.
- Supports clean steel requirements while maintaining productivity.

Across all operating modes, calcium carbide provides a flexible and responsive tool to maintain slag foaming, stabilize the arc and improve overall furnace efficiency.