InTenZ: E-Clean Pro-NGX Metallurgical Melting & Smelting Infrastructure

Energy Intensity Linear Regression Audit — 4-Inch Multi-Burner Aluminum Furnace



1. Metallurgical Infrastructure Framework

Details the statistical energy intensity evaluation of the *E-Clean Pro* gas architecture integrated onto a brand-new high-capacity metallurgical melting line.

- **Burner Array Specs:** Configured with 4-inch main burner networks (DN100 equivalents) and 1-inch auxiliary pilot flame sustainers (DN25 equivalents).



2. Statistical Energy Intensity & Linear Regression Matrix

Linear mathematical modeling equations reveal a steep efficiency curve shift from baseline (y = -0.92x) to optimized performance (y = -1.00x).

Operational Metric	Pre-Treatment Linear Baseline Curve	InTenZ™ Performance Curve	Net Technical Outcome / Savings
Systemic Energy Intensity	y = -0.92x + 138.48	y = -1.00x + 136.48	**10.0% Mean Systemic Savings.** Verified stable 10.0% energy intensity compression across smelting runs.

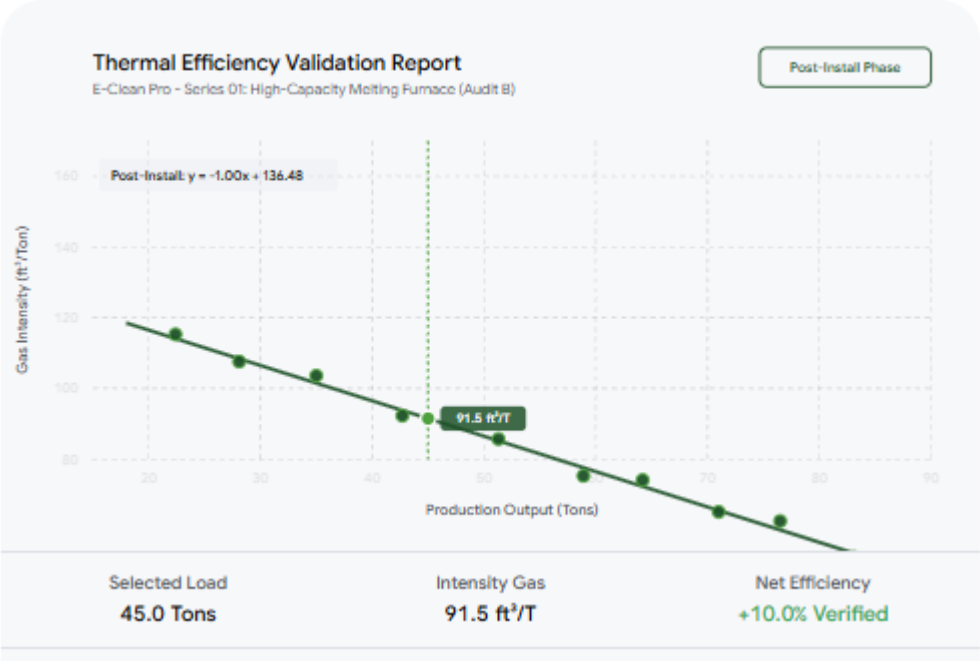
E-Clean Pro Validation Curve (Pre-Intervention Baseline)



Operational Status: Standard untreated factory parameters prior to the implementation of the E-Clean Pro system (established June 3, 2025).

Engineering Performance Evaluation: The logged baseline data reveals a high-sloped efficiency curve, verifying severe energy intensity and unnecessary fuel waste across standard plant operations. The sharp increase in gas volume needed to maintain thermal equilibrium during lower throughput phases highlights major combustion inefficiency caused by unoptimized hydrocarbon molecular chains.

E-Clean Pro Validation Curve (Post-Installation Phase)



Operational Status: Stabilized operational parameters following the deployment of the E-Clean Pro molecular optimization system.

Engineering Performance Evaluation: Post-installation data confirms a distinct downward shift and flattening of the operational efficiency curve. By breaking down tangled molecular clusters in the fuel line, the system maximizes oxygen access to achieve a cleaner, more complete burn. This structural shift proves that the achieved 10.0% net reduction in gas intensity remains continuous and stable across all production volumes and factory throughput spikes.

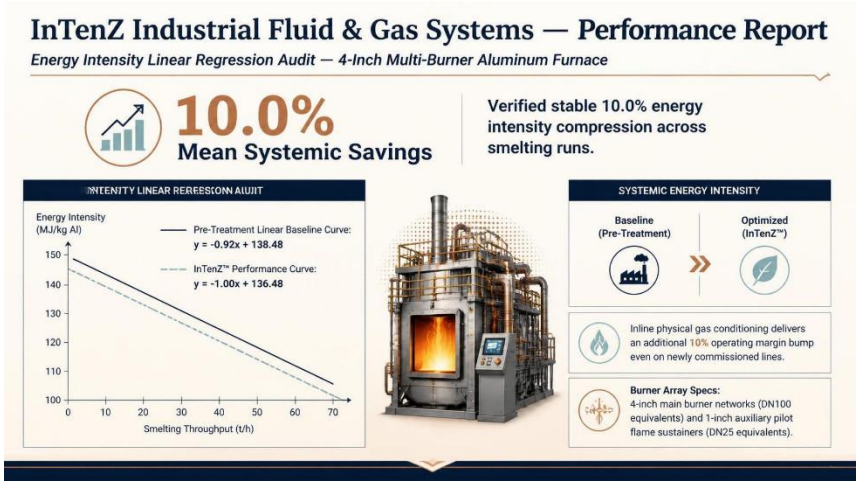
---

3. US Smelting Regulatory Alignment

- **Clean Air Act Title V Limits:** Shrinking aggregate thermal intensity preserves air operating permits by reducing criteria pollutant volumes.

4. B2B Commercial Value Proposition

- **State-of-the-Art Optimization:** Proves that inline physical gas conditioning delivers an additional 10% operating margin bump even on newly commissioned lines.



Technical Notes & Asset Protection: This document summarizes real-world operational performance data compiled and verified by independent technical field engineers. All underlying asset identifiers have been anonymized to protect proprietary operating metrics under standard compliance guidelines.