Sight Machine Furnace Agent

Real-time agentic insights that improve quality and reduce energy costs for industrial furnace processes

Manufacturing processes such as casting & forming, metal processing and glass manufacturing involve operation of furnaces, which typically lead to high energy consumption. Operations teams in these environments are trying to understand when quality failures occur, how they tie to energy use at the furnaces and how to optimize process setpoints for casting and furnace equipment to improve quality while also reducing energy usage.
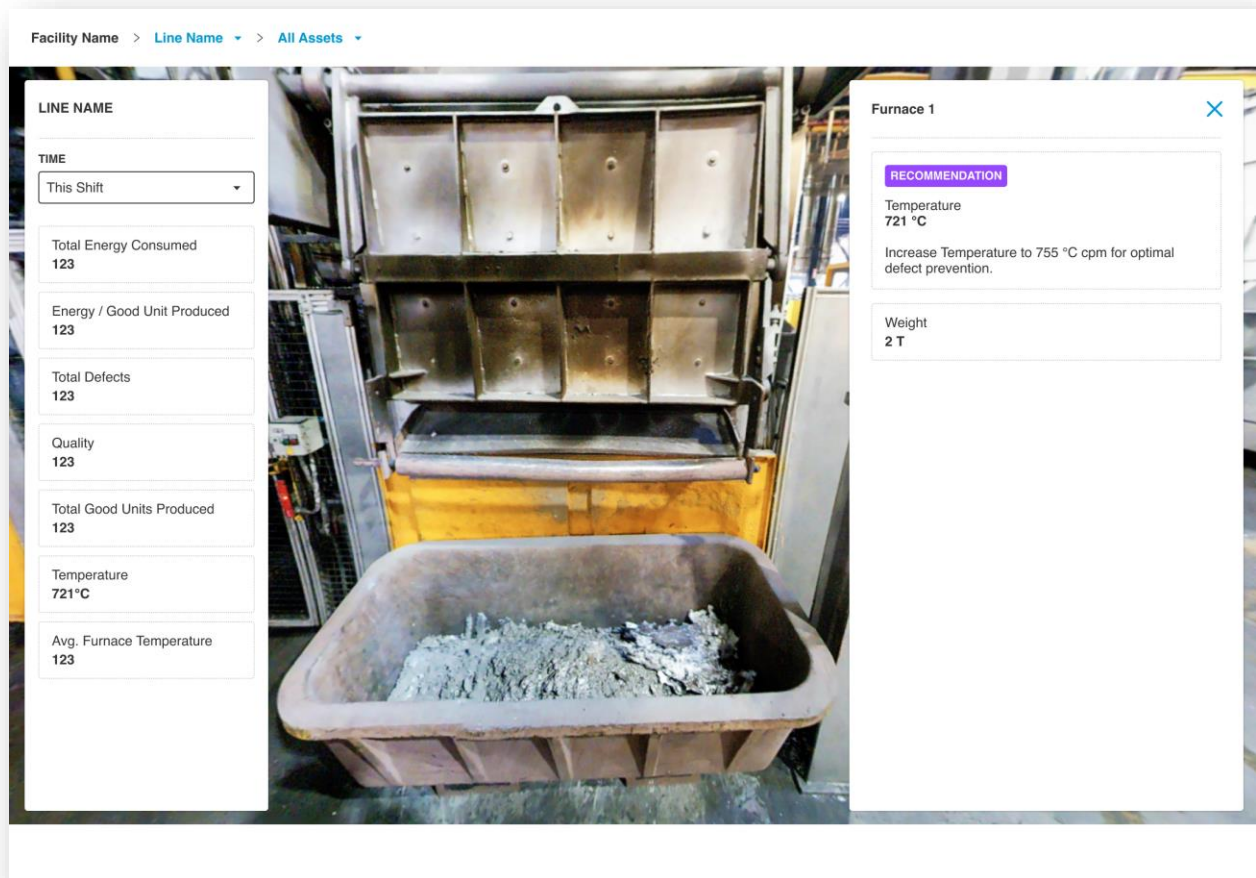
How the Furnace Agent Works

The Furnace Agent uses a multi-agent architecture, consisting of:

- **Orchestrator Agent** – Manages coordination between specialized agents based on real-time process context
- **Energy Optimization Agent** – Identifies opportunities to reduce furnace energy consumption without compromising process stability
- **Quality Optimization Agent** – Maintains product quality by recommending optimal process conditions

Each agent uses pre-validated machine learning (ML) tools to ensure that the results are highly accurate.

The Furnace Agent continuously generates recommended setpoints for Casting and Furnace process parameters. These recommendations are tailored to current operating conditions and updated in real-time. Operations teams can leverage these agent-driven insights to reduce manual tuning and maintain high product quality while minimizing energy consumption.

Accessing the Furnace Agent

The Furnace Agent operates continuously in the background, analyzing real-time manufacturing data streams to optimize the production process for minimum energy and high quality, and delivers recommended corrective actions and actionable alerts directly to shop floor teams.

In all cases, the agent is responsible for planning and executing the analytics strategy and communicating the results to the operator or engineer.

All recommendations are surfaced directly in the Sight Machine interface and integrated into a 3D digital twin, built with OpenUSD and NVIDIA Omniverse technologies and rendered in real time with NVIDIA GPUs on Azure.