

# Increased Gas Injection Efficiency Through Sonic Jetting Regime



In pyrometallurgy, the reaction of liquids with gas plays a very important role. One method to bring those gases into the liquid bath is using submerged gas injection through a tuyere, often on the side wall of the furnace. The behavior of the gas at the tip of the tuyere can be engineered by adjusting gas flow rate and pressure. The gas speed can be fixed to a sonic regime. This regime results in a shift from bubbling gas injection to jetting: a more homogeneous gas flow, with reduced tuyere corrosion and prevention of tuyere blockages caused by accretion buildup.

## Overview

This primary objection of this project was to study the behavior of particles during co-injection of solids in jetting regime to improve gas injection efficiency with new gas injection settings in order to prevent tuyere blockages.

- Ferro and non-ferro industry, for liquid metal and/or slag applications, considering both reactive and non-reactive gas injection
- Temperature range will depend on the application approximately 1000-1300°C
- Study behavior of particles during co-injection of solids in jetting regime
- Focus on implementation issues

Researchers

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