



Pyrometallurgical Pilot Plant

Hydrometallurgical Lab · Pyrometallurgical Lab · Modeling ·
Hydro/Pyro Pilot Plant · Engineering Support



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Our pilot plant building at the XPS Centre is equipped with two fluid bed roasters, each linked to an extensive process control system which includes both **off-gas treatment** (alkaline scrubbing) and **off-gas analysis** (O_2 , CO , CO_2 , H_2 , SO_2).

The ability to integrate these roasters directly into our pressure or atmospheric leach circuits gives the customer the possibility to pilot complete flow sheets in one location.

XPS has historically had good customer/project relationships with other metallurgical services companies around the world and provided **expert labour to operate and/or supervise** pilot plant activities on behalf of Xstrata clients. This service can be extended to external clients. It applies to both AC and DC smelting operations (pilot scale) producing either matte or alloys. Reduction/drying kilns and fluid bed are also included in that scope of work

A key benefit of our pyrometallurgical and hydrometallurgical piloting capability and experience (in Sudbury or off-site) is the ability to generate high quality **engineering design criteria** for scoping and pre-feasibility studies on green-field and brown-field projects. Our current experience is primarily in the field of nickel and copper metallurgy.

Key Capabilities...

Fluidized bed roasters are used in a wide variety of smelting and leaching applications;

- Non-ferrous sulphide concentrate roasting (Ni, Zn, Cu)
- Non-ferrous oxide ore reduction
- Mixed Ni-Co sulphide calcination
- Arsenic (minor element) removal from Cu, Ni concentrates
- Secondary material processing (catalysts)

Our 4 inch diameter fluid bed roaster, constructed from 330SS, can operate at temperatures of up to 1050 C. The feed hopper holds dry material that is fed through the bottom of the roaster at a rate of up to ~10 kg/hr (material dependent).

Calcine can be discharged directly into a quench and leach circuit (Ti or 316SS), if required, located at the floor level.



Our brand new **skid-mounted 6 inch Fluid Bed Roaster** has the ability to take both dry feed and slurry feed. Hence, it is suitable to take base metal sulphide concentrate slurries, similar to industrial roasters. The roaster can operate at temperatures of up to 1150 C (propane injection into wind box) and can take a feed rate of up to ~50 kg/hr (depending on feed material properties).

The image on the left shows an overview of the total installation, which consists of three levels; dry feed is stored on the top-level in vibratory feed bins. Off-gas cyclones are accessible on the middle level and the discharge screw and slurry feed system is positioned at the floor level.

The picture on the right shows the mid-level section of the fluid bed roaster. Pressures and temperatures are measured throughout the roaster. A PLC processes this information which is then presented to the operator through an HMI (human machine interface) from where the operator can set process related set-points, as required.



Contact Us...

[Address] Xstrata Process Support Group, 6 Edison Road, Falconbridge, Ontario, P0M 1S0, Canada
[Phone] +1 (705) 699 3400 [Fax] +1 (705) 699 3431 [E-Mail] extractive@xstrataprocesssupport.ca

