

Solutions and Technology for Today's Biomass Industry

In today's world it is inevitable that governments are going to push industries to reduce greenhouse gases. There is no questions that large businesses will be required to install scrubber or precipitators on all installations. These same clients will be required to report and document on a continuous bases the levels in which they emit into the atmosphere. Renewable energy and self reliance is inevitable. The solutions and technology is available. In the case of Hydroflo Controls and Procal Analytics we have the most recent technology that allows the clients to monitor and report all forms of emissions. These systems are in place to protect your investment, both from a process point of view or costly fines for emission accidents.

Get the best CEM's Equipment that is Proven for the Canadian Climate.



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BIOMASS RENEWABLE ENERGY

A push towards energy efficiency and cost savings has positioned biomass at the forefront of the pulp and paper industry. With rising energy and production costs, the use of renewable resources to generate energy is critical to ensuring cost effectiveness.

Many Pulp and Paper Industries are planning on producing electricity and sell it back to the grid to offset some of the high energy costs of production. In order to accomplish this many companies are planning on utilizing Bio Fuels as fuel to drive turbines. Bio Fuels are a by product of the pulp and paper industries.

In Canada these Biomass projects are considered renewable energy or Green energy. However, Boilers need to be operated which means emissions are generated. Because Canada was to be environmentally friendly it is important that air emission levels are monitored and controlled.

Procal Analytics has been designing CEM's monitoring equipment for

close to 20 years. The product is a unique design which incorporated In-situ technology. By utilizing In-situ design it dramatically reduces the handing of samples which is prevalent in extractive style analyzers. This translates to no sample conditioning and no valving, pumps or filters that typically create high maintenance issues.

In the case of Biomass and hog fired boilers Procal and Hydroflo Controls Ltd have successfully installed many sites with high quality analyzers that require less maintenance to others in the industry. All of these analyzer meet EPA, and mCerts approvals.

The measurement for Hog and Biomass boilers is somewhat unique. Our design and installation practices make the installation simple and less expensive because of installation costs. Many of our clients have been the Abitibi Bowater's, Weyerhaeuser, Domtar and Tembec sites.

Principles for Project Management Success

In Canada, on every system the governing ministry issues a CofA to operate. The CofA typically indicates and outlines the type of emissions measurements and reports required. In addition, it outlines the maximum levels of emissions that cannot be exceeded. Because of the awareness of green house gases, Federal and Provincial ministries are imposing new limits for NOx, CO and dust limits.

Canadian industries must be proactive and ready as these changes are implemented. With the proper measurements in place producers can adjust their process to ensure that they stay under the allowable limits set by their CofA. This makes CEM equipment not only a monitoring tool but also a valuable process tool, especially on Biomass types of applications.

In the case of Biomass or Hog type boilers, the fuel source is always changing. Therefore the operators must rely on the CEM measurements to insure the boiler is being optimized. They vary the fuel feed rate, blend the different fuel supply and air flow rates to minimize accidental excursions in their emissions.

CEM's for Biomass boilers has become a mandatory tool for the 21st Century.

NORTHERN ONTARIO MILL SELECTS PROCAL ANALYTICS AS THEIR CEM'S SUPPLIER



When selecting analyzers one must consider the environmental and service conditions in which the analyzer must operate. Because the climate in Canada is extremely cold in the winter months and very hot in the summer, the analyzer must be capable of operating and maintaining acceptable temperature controls. The Procal analytics products have environmental covers that include built-in heaters and coolers. All the controls are operated automatically by the main PC. With any Analyzer, it is always easier to control temperatures than it is to compensate for them. Because Procal's devices are In-situ our units can be install either outside or inside. Therefore there is no need for an expensive

Analyzer room. This reduces installation costs.

Because Procal is designed to be In-situ, there are no samples to be taken, no heated lines, no pumps, valves and no condensers. This translates into lower and less frequent maintenance. The simple design of the probe and the use of In-situ probe heaters eliminates water vapour precipitation, which increases operational time and reduces maintenance with no sinter panel plugging. Additionally, Procal is capable of outputting H₂O as a measured channel. With many years of experience in the pulp and paper industry, our product has become extremely well suited for the Biomass applications. In Hog type boilers the analyzers typically see

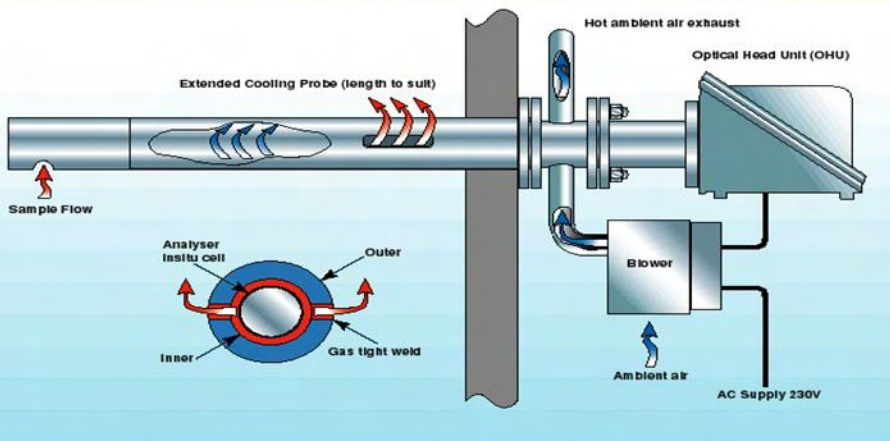
high ash levels, as well as moisture levels of 15-25%. The design of the in-situ heater, along with proper controls easily handles these conditions.

In addition, the analyzer can be configured to measure in both dry/wet readings. Because the Procal is an EPA approved CEM system the software was configured to accept

other manufacturer's data. External devices, such as Oxygen, Velocity, Opacity and Stack temperatures can be added to this system. These inputs are stored in the Procal ACWn software and are trended in our system. All data can be retransmitted via Modbus or Analog 4-20 mA signals.

With these inputs other features such as CO normalized to O₂ can be obtained. Or a total mass output in kg/m³ can be measured using the velocity and stack temperature. Additionally, reporting is part of the software system. Sales and service is available in Canada by authorized representatives.

With all the features briefly outlined it is clear that this system is well designed and well suited for Biomass applications. Especially for the Canadian climate.



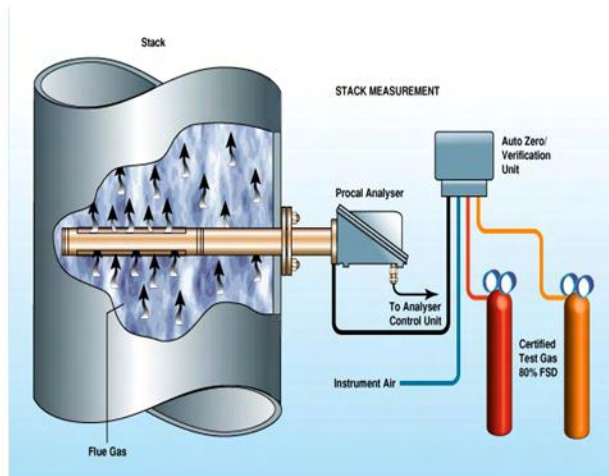
CEM's In-situ Technology

The Procal P-200 infra red emissions analyzer installation with either a heater or cooler assembly.

This drawing is typical of the cooler installation. However, most installations require the heater version. The heater needs 120 VAC for operation. In the case Procal P-200 installation with AZU. AZU is controlled from the P-200 head and uses 24 VAC to automatically turn the sample valves on and off. All the control and configuration is done by the ACWn software.

Because the ACWn is network software it is possible to set up lap tops that can dial directly into the main PC by a remote connection. Therefore your supervisors, system specialists can have remote access. In addition it allows you to get tech support from your local distributor or Procal.

In addition, the P-200 head is connected directly to the PC and ACWn software via a RS 485 serial connection. Procal supplies ACWn Software that will use Windows XP as the operating software. This PC and software resides in the Rack Room.



Future R&D Developments

WIRELESS Technology

Many sites have multiple measurements at the same stack making it unfeasible to have a multitude of communication cables running from stack to stack. Currently, in conjunction with their distributors, wireless devices



will soon be available. Just think of the ease of installation and the reduction in installation cost.

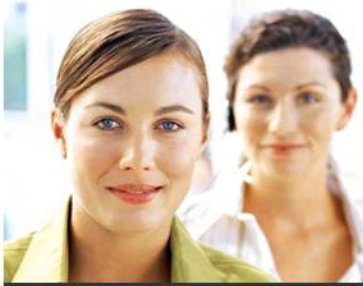
WIRELESS TECHNOLOGY IS JUST AROUND THE CORNER.

EYE ON IT Current Industry Trends

With increasing environmental requirements and pressures to produce energy from renewable resources, pulp and paper industries must find ways to be more self sufficient. Along with these projects, one requires a responsibility to the environment. Therefore the trend is to utilize better precipitator technology and ensure proper reporting to meet today's compliance.

SOFTWARE Procal's latest operator interface

For many years analyzer manufacturers have had black box technology as the interface to their systems. Recently Procal has developed a new software package called ACWn. This software resides in a standard PC. Microsoft Windows 2000, Xp and, in the future, newer versions of Windows will remain the standard operating platform. The software can operate up to 8 separate Procal units with only one software license. The system communicates via RS485 to the analyzer heads which are then daisy-chained together. Data is stored and current readings, with trends, are displayed. Customs reports for calibration are available.



Professional Services

In Canada Hydroflo Controls Ltd has been supply and servicing Procal Analytic equipment for close to 20 years. Our office in Central Canada can supply technical and engineering services as well as both replacement parts and field services.

WHY PURCHASE PROCAL CEM FOR YOUR BIOMASS PROJECT

- Installation cost of In-situ design for Biomass installation is the most cost effective in the industry.
- Multiple gases in one measurement that is continuous.
- Low Maintenance compared to extractive type analyzers
- Meets all federal and provincial requirements for Emission monitoring.



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