



## Emissions Monitoring Paper & Pulp Industries

- ~ Comprehensive Solutions
- ~ Worldwide Support
- ~ Extensive References & Experience

## Pulp and Paper

### Power Boiler

The Procal 2000 emissions analyser is ideally suited to the harsh environments associated with Paper & Pulp Plants. The in situ, multi-component Continuous Emission Monitoring (CEM) system has an integrated auto-zero and calibration facility, thereby removing the need for intervention by maintenance staff under normal conditions.

The instrument is compliant with international standards, meeting the stringent requirements of Environment Agencies. Certified under the MCERTS monitor certification scheme and therefore suitable for use in Europe, Procal 2000 is also compliant with US EPA 40 cfr part 60 and 75

### Typical Ranges:

|                  |          |
|------------------|----------|
| NO <sub>x</sub>  | 0-400ppm |
| CO               | 0-600ppm |
| SO <sub>2</sub>  | 0-200ppm |
| H <sub>2</sub> O | 0-10 %   |



### Main Stack

Procal supply integrated CEM systems enabling plant-wide monitoring and reporting of gaseous emissions. The Procal 2000 analyser, with associated Procal 1000 controller is capable of receiving inputs from other devices such as Oxygen, Dust and Flow analysers to complete the full emission measurement requirements in one system.

Outputs from the system can be analogue or serial (MODBUS) depending on the site standard. Several Procal 2000 analysers can be controlled by one Procal 1000 which also includes a data logging and reporting capability.

### Typical Ranges:

|                 |          |
|-----------------|----------|
| NO <sub>x</sub> | 0-400ppm |
| HCl             | 0-300PPM |
| SO <sub>2</sub> | 0-200ppm |



### Lime Kiln

The Procal 2000 is designed for unattended operation, diagnostic routines with appropriate alarms ensure the analyser operates within specification. The in situ probe is heated to prevent condensate with low sample temperatures. The heated probe option is especially suited to this application as it efficiently deals with variations in process temperature. It also keeps the probe hot ensuring immediate availability when the plant is restarted after an outage.

These in situ analysers are designed to provide high levels of reliability meeting Environmental Agency's requirements for monitoring availability.

### Typical Ranges:

|                  |          |
|------------------|----------|
| CO <sub>2</sub>  | 0-20%    |
| CO               | 0-200ppm |
| H <sub>2</sub> O | 0-50%    |



### Recovery Boiler

The Procal 2000 analyser is also well suited to the demanding environment of Recovery Boilers. The Procal 2000 is available in chemically resistant materials such as Hastelloy C276 to give long life under aggressive sample conditions.

The analyser, which has no extractive sample handling system, thus features low maintenance as well as low cost of ownership and installation. Additional features include remote access for both reporting and verification of the analyser's status.

### Typical Ranges:

|                    |          |
|--------------------|----------|
| H <sub>2</sub> O   | 0-5%     |
| NO                 | 0-500ppm |
| NO <sub>2</sub>    | 0-250ppm |
| SO <sub>2</sub>    | 0-200ppm |
| CH <sub>3</sub> OH | 0-200ppm |



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