

## Quality & Environmental Solutions

*Data management solutions designed for the cement and concrete industry*

**L**aboratories are judged on the quality, accuracy, timeliness and, now, increasingly, on the presentation and ease of review of their data. Process Solutions provides the tools that enable your laboratory to succeed without the large expenditure of both capital and time, often associated with other systems.

### Laboratory Data Management System (LDMS)

LDMS is a laboratory quality-assurance tool that facilitates process and product review, by providing easy to use data entry screens and linking together test results with available process data in a user-friendly structure. Common desktop tools such as Microsoft® Excel™ can be used to satisfy specific reporting requirements.

The strength of LDMS lies, not only in its intimate link to real world process data, but also in its link to a wide and growing range of laboratory instruments from many suppliers. Electronic capture of information frees up laboratory staff to perform other tasks and eliminates transcription errors.

Each production facility has its own unique requirements, and no two laboratories are alike; so no single reporting format can satisfy each laboratory's requirements without swamping it with unwanted information. To satisfy a plant's reporting needs, LDMS employs reporting tools such as Microsoft Excel and Symantec® Crystal Reports™.

LDMS complies with the American ASTM testing requirements and the Australasian NATA testing requirements. It can be configured to meet an individual plant's requirements and still maintain compatibility to a corporate quality system. LDMS is the most flexible tool available to a cement laboratory to ensure accurate and timely quality data collection and ease of report generation.

### Raw Mix Control System (RMCS)

Our RMCS has proven to provide a more consistent quality kiln feed, reducing variance in the finished clinker and cement products.

RMCS can be integrated quite easily with most modern process control systems to provide capture of current feeder rates, total mix tonnage rates and various alarm points, such as feeder starvation and mill run status. It also allows the setting of feeder rates, when RMCS is in automatic mode.

The Raw Mix Control System uses both direct and indirect analyses. The direct analysis is provided by an online analyzer and is used for frequent small changes to the control feeders. The indirect analysis is provided by the laboratory XRF analyzer and is used to verify the results from the online analyzer and to reset the feeder controls to a base level. By resetting the base values, we can balance other control parameters such as cost, conformity and variability of the raw materials, against the chemical properties of the raw mix. RMCS can be utilized with either the direct or indirect analysis or both to provide a more comprehensive solution.

A control algorithm provides two levels of control to balance both quality and cost of the raw feed. The benefits of using two loop controls is that the inner loop provides frequent adjustments, ensuring a more consistent raw mix, while the outer loop ensures that any "ramping up" of expensive additives by the inner loop is corrected to achieve secondary objectives such as cost.

### Concrete Design & Testing System (CDTS)

As concrete producers strive to improve the quality of their services and products, it has become necessary to implement and maintain a data management system that does more than store test results. Such systems must be easy to use for accurate and timely data entry, and provide effective data organization for fast and efficient retrieval.

CDTS is such a tool. Concrete mix designs are grouped together into projects, which can then be grouped into a higher-level project group. The organization of mixes into projects links common objectives together, making data retrieval easier.

The strength of CDTS lies in the building of a data repository of concrete comparative data, whether it is for competitive testing or mix design testing of concrete additives.

CDTS also maintains a data repository for all materials used in a concrete mix. Historical analyses of mix raw materials are stored as a reference item in a project, providing the ability to investigate the consistency of raw materials.

### **Instrument Calibration & Maintenance System (ICMS)**

Process Solutions' Instrument Calibration & Maintenance System (ICMS), is a complete data management system dedicated to recording calibration and service history. It can be used with LDMS, to supply instrument calibration factors back into LDMS or as a stand-alone package that helps laboratory staff manage their instruments and analytical solutions.

Calibration data can be entered when undertaken, and all data can be maintained within ICMS without the data becoming active or valid until the calibration is authorized. All historical information is maintained for reference.

### **Customer Assurance and Support**

Process Solutions' background is the Cement Industry. This is important as it means that we understand the needs, issues and working environment of the industry.

We work with you to design and/or customize your solution, and to install, implement and maintain the necessary hardware and software.

This process typically includes on-site time to survey the site and confirm requirements before detailed planning and implementation start.

We offer a full 12-month warranty on all of our solutions, and provide customized ongoing maintenance and support agreements. Our Customer Care group carries out on-site installations, and provides full-time Help Desk support.

Most importantly, we aim to establish client partnerships for the long term. We develop on-going working relationships that will enable you to get the most from your existing solution(s), and at the same time help us to further develop our portfolio by understanding and satisfying your needs.

Process Solutions is continually updating and improving its core technologies. We rely on user feedback to make our software better suited to the cement industry, and all of our software can be tailored to your individual requirements.

### **Summary**

Process Solutions is dedicated to supplying data management systems to the cement and concrete related industries. All of our laboratory solutions are tailored to your industry. Process Solutions' laboratory software maximizes the investment a company already has in its lab and helps it become a major contributor to overall profitability.

If you would like to discuss our cement or concrete quality data management please contact our Quality & Environmental Solutions Manager:

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