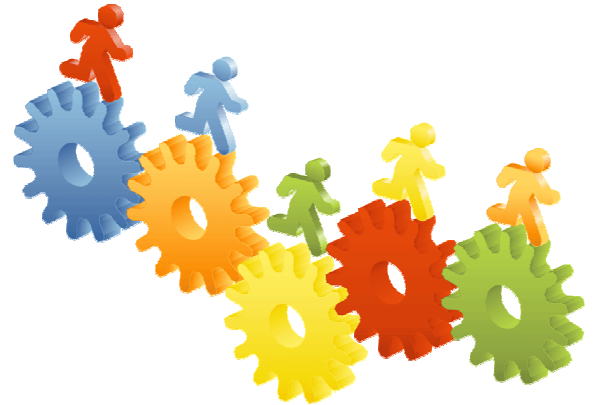


YOU CAN'T MANAGE WHAT YOU DON'T MEASURE!

Any improvement process, whether Plan-Do-Check-Act, Six Sigma or other techniques, requires extensive data collection and analysis. This data and analysis are fundamental to help answer the following improvement questions:

- Where are we now?
- Which way are we going?
- When will we get there?



mfg Advisor is a Manufacturing Information System which collects instantaneous and historical data and automates the analysis of the data. The plant Key Performance Indicators (KPI) can be calculated in real time or on a historical basis of varying durations with single mouse clicks or via scheduled reports. Use of mfg Advisor offers the following benefits:

- Centralized interface to allow analysis from different data sources
- Provide continuous feedback on process performance and plant health
- Web based interface, easy access to data promotes increase usage
- Easy configuration for reports and queries, tool is able to adapt to plant's changing needs
- Standardized reporting at your finger tips
- Minimize effort to collect and maintain accurate and timely data
- Advising on troubleshooting and promotes maintenance awareness.
- Increase process and employee performance

With mfg Advisor, the improvement team can focus their maximum effort on raising process performance through design of experiments, test execution, modifying Standard Operating Procedures, etc. vs. manipulation of the raw data. Only implement modules that add value to your facility.

Key Modules in mfg Advisor are as follows:

EQUIPMENT PERFORMANCE MODULE

PROCESS PERFORMANCE MODULE

CMMS - COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM MODULE

SCHEDULER MODULE

Increase Process And Employee Performance

During an improvement process, effort is spent collecting, organizing and analyzing data. Automating these activities will empower your team by allowing them to concentrate efforts on making improvements vs. manipulating the data.

Web Based Interface

The interface is designed to be intuitive and simple to use. Staff and managers can easily access and analyze the data with minimal effort. No client software is required for ease of installation and global connectivity

Full Set of Queries and Reports

The data can be passed through standard and custom queries and reports to allow quick, thorough analysis. Instantaneous or aggregate data can be analyzed to fully understand existing process performance. Find the improvement areas to focus on that will deliver the largest potential benefits using mfg Advisor's reports.

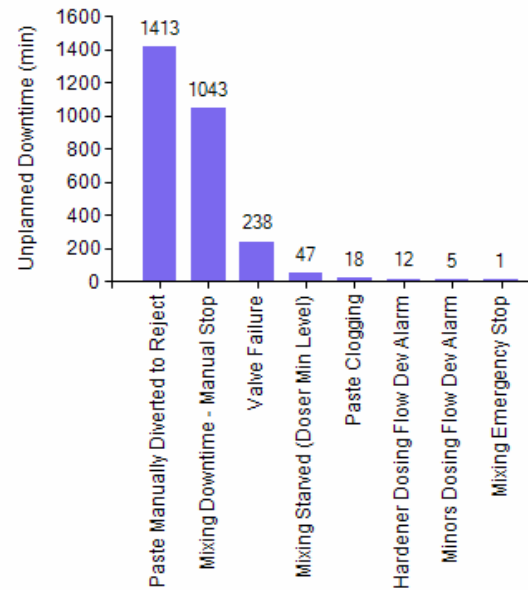
EQUIPMENT PERFORMANCE MODULE

The Equipment Performance module automatically captures every machine downtime event directly from the control system. Each downtime record includes the Stop/Restart time and the actual cause from the controller. An expanded cause can be entered if the cause from the controller does not indicate the true reason for the downtime event.

Preconfigured queries and reports provide a window to equipment performance for management and technical review. A summary report reveals overall equipment performance KPI at any point in time including

- Availability
- Utilization
- Overall Equipment Effectiveness
- Mean Time Between Failures
- Mean Time To Repair

A detailed analysis allows drilling down into the data to identify the root causes of poor performance, guiding the improvement team to the focus areas for enhancement.

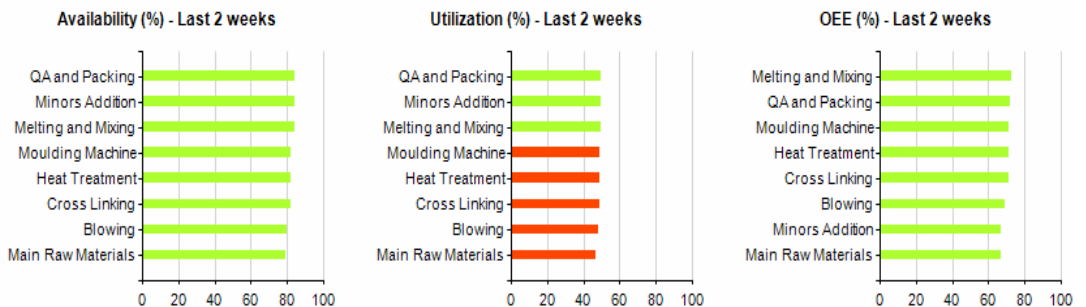


Data from 01/02/2009 03:00PM to 15/02/2009 06:00AM

	Cause	Expanded Cause	Stop Time	Restart Time	Duration (min)
✕ ✕	Hardener Dosing Flow Dev Alarm		1/02/2009 3:11:31 PM	1/02/2009 3:24:12 PM	12.7
✕ ✕	Paste Manually Diverted to Reject	Paste Clogging	1/02/2009 3:25:17 PM	1/02/2009 3:25:38 PM	0.4
✕ ✕	Mixing Downtime - Manual Stop		1/02/2009 3:40:10 PM	1/02/2009 4:39:17 PM	59.1

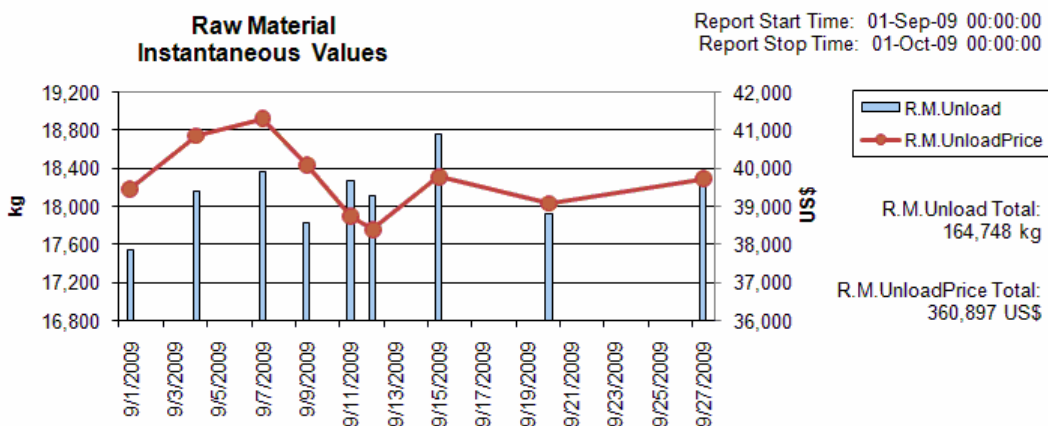
Performance Dashboard - Line 1

Check time: 24/02/2009 12:00 PM ... [Reload](#) Reported Period: Last 2 weeks

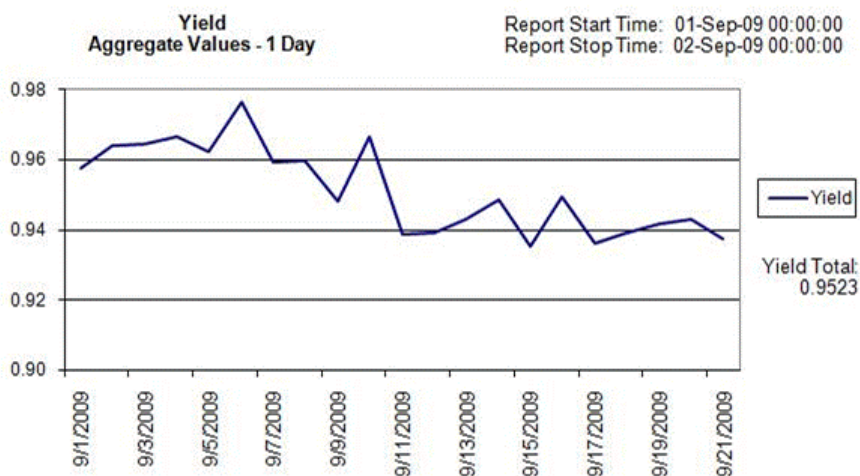


PROCESS PERFORMANCE MODULE

The Process Performance module provides the ability to monitor and track a complete range of material, energy and accounting balances for your process. Data is stored as one of several tag classes including accumulators (totalizers and counters), bulk transfers (truck loading, etc.), inventory levels and operating / engineering constants. Custom calculator tags can be configured to analyze any specific KPI for individual processes.



The process data can be analyzed in tables and graphs from the raw values at a specific time or analyzed over a range of time. Inventory reports, trend displays and current process data can easily be obtained. The data can also be analyzed by aggregating the raw values over configurable time spans to allow detailed performance investigations from 15 minute to monthly time intervals.



Automatic Data Acquisition

Data is collected automatically from process controllers such as a PLC / DCS or existing Data Historians.

Data can also be entered manually for those measurements which can not be automated.

Secure Data Storage

Data is stored in MS SQL Server or other relational databases to ensure a high level of data security and system scalability.

Data is in a single location to simplify data management including back-ups and other activities.

Standardized Connections

Communication across several business and industrial systems is fully supported. Standard interfaces such as OPC, ODBC are utilized to enable integration with industrial controllers and external data sources.

CMMS MODULE

The Computerized Maintenance Management System module enables the plant maintenance team to optimize their departmental work flow and maintenance activities.

The module enhances maintenance planning and scheduling including preventative maintenance activities, work order generation and tracking and spare parts inventory management. The facility will benefit from improved maintenance and employee productivity, better scheduling, greater spare parts availability and inventory control.



SCHEDULER MODULE

The Scheduler module automates generation of tasks such as queries, reports and alerts at any predetermined time, frequency or event. Performance reports can be scheduled to be delivered as a pdf file over e-mail on a regular basis for review. This enables pertinent performance information to be delivered to key management and technical personnel when the data is needed.

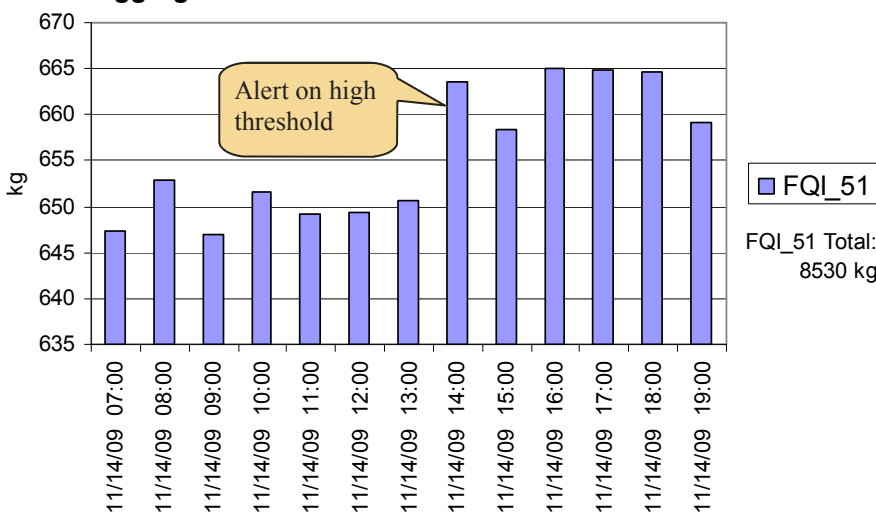
Alerts can be sent via e-mail whenever a Key Performance Indicator trends beyond a threshold value, allowing immediate correction. The status of the alerts can be tracked to determine the present state, the time it took

to correct, and the personnel responsible. Automating this process facilitates the inquiry and analysis of the data and ensures a proactive rather than a reactive response in the improvement process.

For example, the material tracking report shows Raw Material A usage for the first shift. An alert report will be sent via e-mail automatically when the usage exceeds the allowable threshold limit, i.e. 660 kg in a 1 hour time span.

**FQI_51 - Raw Material A
Aggregate Values - 1 Hour**

Report Start Time: 14-Nov-09 08:00
Report Stop Time: 14-Nov-09 20:00



SYSTEM REQUIREMENTS

Client

Web browser, Microsoft® IE8

Server Software

Microsoft® Windows Server, 2003
Microsoft® IIS 6.0 or higher
SQL Server 2005 or
other relational database

Server Hardware

Processor: Pentium IV or higher
Minimum of 4 GB RAM
40 GB disk space

OSPREY
engineering sdn.bhd.

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information & demo**

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