

ORACLE MANUFACTURING EXECUTION SYSTEM FOR PROCESS MANUFACTURING

KEY FEATURES

ORACLE MES FOR PROCESS INCLUDES:

- Instruction-driven, operator-friendly user interface
- Dispensing
- Touch Screen based interfaces
- Dispense Supervisor Dashboard
- Electronic Batch Records for 21 CFR Part 11 Compliance
- Nonconformance Management
- Labeling
- Device Integration

Oracle® Manufacturing Execution System (MES) for Process Manufacturing is an add-on application to Oracle Process Manufacturing that provides intensive, multifaceted shop floor execution capabilities. The application allows process manufacturers to deploy Oracle Process Manufacturing directly on their shop floors as the manufacturing execution system (MES) as well as use Touch Screen based devices. For most process manufacturers, this removes the requirement to invest in a third party or a homegrown MES system, and helps reduce costs while eliminating integration and support. MES for Process manufacturing eliminates many unnecessary and non-value-added activities by providing a structured and standards-based shop floor execution toolset.

MES for Process Manufacturing is designed for use in process industry plants that are looking to move to electronic batch recordkeeping or for those that previously may have opted to purchase a third-party MES. It offers the advantage of providing true enterprise-wide information from the shop floor to the boardroom.

Major Features

Process-Driven Operator Workbench

The *process* in process manufacturing is as important as the material inputs and outputs. The work orders or batch records are detailed, step-by-step guides, which lead production operators through the process of making a product. The process may vary from approvals, signatures, sequential processing of steps, specific data entry for material, resources and Quality.

Oracle MES for Process Manufacturing puts all of the information that production schedulers, supervisors and operators need at their fingertips. You can create individual or unit instructions, which can be ordered into reusable procedures with an option of attaching Standard operating procedures, documents or images.

Processing instructions may also have predefined actionable tasks that require electronic signoff for completion. Supervisors and schedulers have access to real-time production batch status, down to the level of instruction completion status so they know precisely what has been done and what remains to be done for any production batches for which they have responsibility.

Dispensing

The management of the ingredient dispensing (also known as preweigh) process to control the measurement, containerization and labeling of precise quantities of specific materials to the right batch steps prior to, or during the manufacturing process is a key requirement in many process industries, including pharmaceutical, biotechnology, food and beverage and chemical manufacturing. This is especially critical when working with the active pharmaceutical ingredients (APIs) in a drug product formulation (*per FDA Code of Federal Regulations Title 21 Part 211.101*).

The production batch process requires the right materials to be dispensed to production batch steps with specific quality parameters and in right quantities running into decimals. This calls for accuracy and hence standard weigh-scale integration has been provided to minimize the risk of data entry error.

Oracle MES for Process Manufacturing Dispensing provides dispensing operators with on-line access to up-to-date SOPs, detailed, acknowledgeable work instructions and electronic signatures, which provides a configurable level of control and auditability of the completion of the dispensing process in accordance with current good manufacturing practices as well as label printing.

The Dispensing activity is carried out in Dispensing booths with controlled environments. Also material to and from the Dispensing booth are stored in identified areas. Oracle MES for Process Manufacturing provides support for identifying Dispensing Areas as well as booths within areas. You can also define storage locations and maintain environmental specifications for the Dispensing booth / area.

Touch Screen interfaces

To have a visibility of Production information, the data needs to be captured at the point of execution. In some cases it may not be possible to have a keyboard or pointing devices on the shopfloor. A touch screen monitor would be of tremendous help to the operator to enter data right at the point of activity. Also it would be easy for an operator with secondary protective gear to enter data using a touch screen.

To help such situations, Oracle MES for Process Manufacturing has introduced Touch screen based user interfaces. Hence companies can now deploy touch screen devices on the shopfloor without the hassle of having pointing devices, mouse etc. All Production Operator related activities like Material Transactions, Resource Transactions, Process Parameters, Dispensing and Reverse Dispensing have been incorporated into the touch screen interfaces thereby enabling the operator to perform the transactions.

Dispense Planning

The Dispensing Supervisor needs to plan and schedule the dispensing activities based on a set of parameters and priorities. The parameters for the planning would be the dispensing booth where the dispensing is to be performed, the resource, the capacity of the resource as well as the booth and priority of the activity.

A graphical dashboard helps the Dispensing supervisor to view the load vs capacity and help him plan his activity. The Supervisor can use the Dispense Planning to either do a mass update of several dispensing activities or an individual update.

Nonconformance Management

Even in controlled production environments, unexpected events can happen that impact the manufacturing process and the quality of final product. Nonconformances that arise need to be tracked and recorded for recording in the batch record and to be used for analysis by the Quality Department for CAPA (Corrective Action, Preventive Action) analysis. This may also require recording the information onto the control batch record, along with appropriate details of the event, the phase of the batch, level of criticality as well as follow-up and signatures by the operator(s) and/or supervisors.

Oracle MES for Process Manufacturing tracks all manufacturing nonconformances caused by such things as batch material quantity changes, item substitutions, resource substitutions, as well as any ad-hoc operator observations, such as a power interruption. Notification of nonconformance's are automatically routed electronically to those who need to review and approve, including electronic signature information.

Electronic Master and Control Batch Record

Most manufacturing industries keep detailed paper records of their manufacturing records and some industries such as pharmaceutical and food and beverage manufacturers are mandated to do so by federal regulations (*per FDA Code of Federal Regulations Title 21 Part 211.186 / 211.188*). Oracle MES for Process Manufacturing provides comprehensive electronic Master Batch Record (MBR) and Control Batch Record (CBR) documents, which contain all of the critical batch information from the product recipe (compiled in the MBR) and each product batch (compiled in the CBR). You can even have the batch records automatically translated into other languages.

Labeling and Device Integration

Labeling - Labels are used to mark contents of containers in process industries. They are created and read, often via barcode readers for events including dispensing, in-process sampling and when intermediate and finished products are output from production batches.

The application can be configured to print labels automatically based on a trigger from a business event, or label printing can be manually initiated. The reprint event and print count indicate the number of times each label was printed. Label content is also configurable. You may configure electronic signatures to control who has authority to print labels.

Device Integration - Integrate shop floor equipment such as manufacturing equipment and weigh scales in the preweigh and dispensing process with the manufacturing execution system. This improves the speed and efficiency with which actual data is captured during the manufacturing process, increases the amount of data that you can capture, and removes the risk of operator data entry errors.

Oracle MES for Process Manufacturing provides the capability to capture data directly from shop floor devices in the dispensing business flow and during batch processing for in-process equipment data capture.

Operator Certification

It is important that qualified and certified personnel only perform certain operations in the production floor especially if it is a critical operation. Added to this is the regulatory angle of FDA 21 CFR Part 211.25 which prescribes that only certified operators need to perform the specified operations.

The Oracle MES for Process Manufacturing enables the corporation to identify the required skills and training needs, as well as certification approvals, for an Operator to perform production activities. You can define which operations or transaction needs what level of certification and/or competency. Once set, all transactions would validate if the operator does meet the set certification and competency levels. Operator certification is seamlessly integrated with Oracle HRMS for all needs related to skills definition, training needs and certification.

Oracle MES for Process Manufacturing Key Benefits

- *Board Room to Shop Floor Visibility* – Why use disparate MES systems and integrate each one to your ERP backbone? With Oracle, you have one source of truth, data model, technology and system to validate.
- *Process Repeatability* – This is key in validated systems. Consider the potential for error involved in assembling a paper batch record for every production order or batch. A fully electronic system that is validated assembles the correct components 100 percent of the time.
- *Enforce Best Practice SOPs* – Build controls into the system. For example, make sure you have collected samples and test results were acceptable, before completing a production batch. Oracle enforces these controls systematically, rather than having to rely on procedural controls.
- *Reduce Labor* – Consider dispensing: in a paper system, you need double signoff. The weighing operator signs for their manual weight entries, and another person signs that they checked the entries. With a validated electronic system, the manual entry signature is just not needed. It's a new paradigm in the electronic world.
- *Eliminate Massive Amounts of Paper* – Benefits are obvious when you consider that a batch record may be 200 or more pages, and has to be saved for seven years after product obsolescence in most pharmaceutical industries.
- *Advanced Search* - Information on paper is static and standalone. Analysis to find trends across a multitude of paper records is tedious, time consuming and complex. Enterprise systems that run on advanced relational database management systems excel at searching data records for the purpose of finding trends and patterns across large numbers of records.
- *Eliminate Errors* – Eliminate duplicate entry of production data. Put the data entry in the hands of the product operators with easy to use interfaces. Achieve a single point of data entry.
- *Lower Training Costs* – The application drives the behavior of the operator, eliminating the need to rely on manual procedures.

KEY BENEFITS

- Board room to shop floor visibility
- Process repeatability
- Enforce best practice SOPs
- Reduce labor - remove a level of approvals
- Eliminate massive amounts of paper
- Advanced search capability
- Eliminate errors
- Lower training costs
- Lower cost of compliance
- Better usability

RELATED PRODUCTS

Oracle Manufacturing Execution System for Process Manufacturing is designed to work together with the following products:

- Oracle Process Manufacturing Extensions for Endeca
- Oracle Advanced Planning and Scheduling
- Oracle E-Records
- Oracle Inventory
- Oracle Process Manufacturing Process Execution
- Oracle Process Manufacturing Product Development
- Oracle Process Manufacturing Quality
- Oracle MSCA

RELATED SERVICES

The following services are available from Oracle Support Services:

- Oracle E-Business Suite Accelerators
- Oracle Application Solution Centers
- Oracle University
- Oracle Consulting

Oracle E-Business Suite—The Complete Solution

Oracle E-Business Suite enables companies to efficiently manage customer processes, manufacture products, ship orders, collect payments, and more—all from applications that are built on unified information architecture. This information architecture provides a single definition of your customers, suppliers, employees, and products—all important aspects of your business. Whether you implement one module or the entire Suite, Oracle E-Business Suite enables you to share unified information across the enterprise so you can make smarter decisions with better information.

Contact Us

For more information about Oracle Manufacturing Execution System for Process Manufacturing, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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