

# **Ensuring Quality While Scaling Up Production**

# "I Want to Put Off Putting On Another Coat For As Long As Possible!"

Ever paint your living room or house and notice that the color is off a tad in some areas over time? I hope not. I remember my cousin the paint contractor telling me to buy paint cans with the same lot number so that my rooms or house will look the same and evenly wear over time. As consumers, I think we all assume that the paints, sealants, adhesives and other coating products we buy from our preferred suppliers, no matter what the lot numbers, will all have the same physical properties.



How do paints and coating manufacturers consistently maintain their high-quality standards and fulfill their customer promises, especially when faced with a growing demand for their products?

Many paints and coating manufacturers today employ industry specific manufacturing software applications that support their QC and QA initiatives by

- leveraging predefined libraries of chemical related quality templates
- performing checklists and inspection plans, in addition to QC tests
- executing quality tasks on the spot, via mobile devices
- documenting all steps that lead to the continuous improvement of their operations
- providing visibility to actionable quality information.

In the following sections, I described the "essential" quality related functions that should be supported by industry specific manufacturing software.

# Leverage Predefined Quality Templates and Workflows

One of the "essential" formulation functions found in chemical manufacturing applications is the calculation of organic weights, volatile volumes and other common physical property characteristics of chemical products. Similarly, QC test templates for VOC, viscosity, Ph and other chemical properties are predefined in the application's quality libraries. During software implementation, the target value, out of tolerance values, sample, retest and other control limit parameters for each existing QC test for a specified item or item group is defined. Predefined libraries allow manufacturers to standardize on the QC tests selected and embedded within intermediate and finished good formula specifications.

Intermediate and finished good QC tests, as well as customer specific SOP's, are added to one's formula specifications so that these instructions can be approved by management before the formulas are used in batch production jobs. Departments use the application's multi-level workflows to control and expedite the specification approval process amongst the finance, quality and production managers.

## **Employ Checklists and Inspection Plans from Receiving through Shipping**

To avoid rework and scrap in production, selected ingredients and raw materials should be up to standard and all equipment at their optimal settings before initiating the batch production process. At the time of delivery, receiving staff check the cleanliness of a trailer, verify that all vendor delivery documents and product labels are in order and most importantly, move sample item quantities to QA

for vendor item inspections. Certain items, whether they be ingredients, intermediates or finished goods, can lose their potency or breakdown over time in storage, so it's important to schedule stability inspections against this inventory before they are consumed in production or shipped to customers. In addition to inspecting on-hand inventory, facility managers schedule inspection tasks of the physical facility, including storage areas or specific locations to ensure their cleanliness or record their environmental conditions (e.g. temperature, humidity). Along the production line, production managers schedule equipment maintenance tasks and setting checks, such as capturing temperatures, RPMs and pressures. And in terms of order fulfillment, inspection plans for specific customer sales orders can be executed before customers' finished goods are loaded and shipped.

## **Speed Operations with Mobile Devices**

Hard copies of QC tests, checklists, inspection plans and SOP's are automatically triggered by calendar events or production stages. These task sheets are marked up and then scanned verified at workstations. I am sure we have all read that mobile devices and barcoded data can increase user productivity, reduce errors and accelerate one's business processes. So presenting and capturing quality related information on the spot with smart phones and tablets makes good sense.

Barcoded information works in conjunction with mobile devices to accelerate one's business processes. Take advantage of chemical manufacturing applications that can incorporate barcodes into their generated labels and documents, including the quality task sheets.

#### Auto Generate Industry Required Documents and Labels

Certificate of Analysis documents is a required software feature and having customizable templates that select key data fields and format the document, allows companies to deliver COAs that meet their customer requirements.

GHS document generation (i.e. SDS reports and labels) is now being offered by a growing number of specialized third party online providers. While the chemical manufacturing application maintains the item safety information in its product master database, the application passes all required item information to the third party SDS provider, who in turn returns the items' SDS files. Having all items' SDS information accessible within the chemical manufacturing application's database allows the system to auto generate SDS documentation upon triggered events or in response to user requests.

#### **Follow System Directed Best Practices**

Ensuring that delivered materials meet one's standards can significantly minimize issues encountered in production. Based upon a vendor inspection plan, a sample of the delivered inventory is moved into QA for testing, with the balance putaway into storage. All inventory for this received lot, both the sample quantity and the on-hand inventory quantity, are automatically put on a "Hold" status, which will prevent batch production jobs from allocating it, until which time the lot is released.

To move from one batch production stage to the next, many manufacturers mandate that the captured QC data be reviewed by one individual and then signed off by another. Signatures and date timestamps are captured for the individuals who captured the data, who reviewed and approved the data, and who signed off on the QC test. Until this quality process is complete, the production staff typically cannot close a batch job. A make to stock operation is one situation where a batch production job is closed and its finished good inventory is put on hold until all QC tests are completed and passed.

Reworking a batch job formula by increasing the amount of certain ingredients or adding new ingredients may be performed to get a formula passed. It's important to point out that the formula's physical property target values must still be met when making these types of adjustments.

#### **Steps to Continuous Improvement**

All deviations in a batch production job are captured and reported in the batch production job reports, as well as analyzed by QA to determine if any procedural changes are required. Leading chemical manufacturing applications offer advanced QA transactions, such as adverse event, nonconformance and CAPA, to support one's continuous improvement initiatives in production and quality.

With the chemical manufacturing application's centralized quality database, users can identify issues with specific items, vendors and production line equipment. Prebuilt interactive quality dashboards and reports allow users to drill down into current and historical quality data and share this information with suppliers and customers. Not only can this information improve batch production yields, it can help manufacturers avoid unnecessary customer chargebacks, penalties and fines.



#### Recommendations

So, when the pressure is on to ensure your products are maintaining your high-quality standards, ensure your chemical manufacturing software has all the inbuilt quality features, from receiving thru production to shipping, to avoid the downside of delivering substandard products to your customers. Use your comprehensive quality program as sales tool to profit from increased sales revenues from your existing customer base and gain new customers.

As for me and my painting projects, I honestly do not want to go thru all the effort again repainting the same areas in a few months or years, so to all of you paint manufacturers – maintain your high-quality standards! And for all of you other coating manufacturers, I am sure your customers feel the same way I do.

#### About BatchMaster Software

BatchMaster Software is a leading provider of ERP solutions that help formula-based process manufacturers streamline their operations and scale production, while reducing costs and complying with changing customer demands and ever more stringent regulatory mandates. BatchMaster applications are seamlessly integrated with SAP Business One, Microsoft Dynamics GP, QuickBooks, and Sage 100 & 300 ERP, and are available on premise and in the cloud. BatchMaster Software has been serving the process manufacturing industry for over 30 years and supports thousands of customers worldwide. www.batchmaster.com

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