

# AEROSPACE™

*engineering & manufacturing*

## Global aerospace manufacturer cuts material-approval time by 75%

The aerospace industry is known for inventing, driving, and implementing advanced technology to solve complex engineering problems. Processes are implemented throughout design and manufacturing to ensure that chemicals, parts, and systems:

- comply with design specifications
- meet military/customer criteria
- are compatible with existing or proposed materials.

Processes can be extremely sophisticated, such as CAD systems linking to product lifecycle management tools for drawing automation. There are prototype functions for keeping all components neatly specified and cataloged. Other processes use the old manila interoffice mail envelope.

A leading aerospace manufacturer was using the interoffice mail envelope for approving new chemicals/materials being brought into a plant. This was a highly structured process, albeit manual, done on a plant-location basis. An employee would fill out a lengthy written request form to reorder or procure a chemical. The request would be joined with the chemical/material material safety data sheet (MSDS).

The first step in the interoffice mail journey was Materials Engineering, where the contents of the new material were analyzed for applicability of use and to ensure it was compatible with materials currently in use. Materials Engineering would assign an ID number and fill out a form either approving or



Automating workflows around today's detailed materials data gets planes off the ground quicker, according to Actio.

rejecting the material. If the material was approved, the request and paperwork was forwarded to Safety, where the components of the material were examined to determine if the personal protective equipment needed for handling the new material was in place. Industrial Hygiene and Environmental were the other stops.

Each department had its own chemical/material reference lists to evaluate the material and could review the compendium of pages from past evaluators. If at any point the material failed to get approval, the request was sent back to the requestor.

The average time to complete a chemical request was 3 h—not turnaround time, but completion time. Vacation time, sick days, and holidays wreaked havoc on the timeline, making the whole approval process inefficient. Moreover, approval processes were location-specific, so all material evaluations

were siloed at individual plants. Frequently, other locations within the manufacturing group were evaluating the same material for the same use but didn't have access to the material approval evaluation information or to the subsequent approval/non-approval status of the material.

While the material-approval process was working, the company, a pioneer in Six Sigma, decided to examine what would constitute a "best practices" approach to material approval. Based on a number of Kaizen events, the company identified key attributes of the new solution. The solution would:

- convert from the paper-based to an online solution
- automatically link hazardous communication standard requirements (MSDS, labels, and training) to the material-approval process
- have a robust library of regulatory content for screening chemicals and provide the means to upload customer-specific requirements
- enable simultaneous approvals among different departments
- provide a real-time audit trail of historical and pending requests.

In addition, plants had different versions of their main ERP solution. So, rather than pursue a costly, business-disruptive upgrade, the solution needed to be an external application that would bolt on to the existing IT infrastructure as an online module.

After evaluating a number of vendors, the global aerospace giant chose two of Actio's material information management (MIM) modules: Gatekeeper and MSDS Vault. These two products are delivered via the Internet and are deployed with no disruption to existing business processes.

Material requestors now click on a link to initiate a material request. A new request form determines if the material is in use at the company or has been evaluated previously. If the material has not been evaluated previously, then additional fields on the form are required and an MSDS is attached to the request. Once submitted, the new request is sent to Materials Engineering, which issues an ID number and completes the first stage of the approval. If

approved, the request then goes to Safety, Industrial Hygiene, and Environmental at the same time.

Each approver during the evaluation cycle can click on a department tab to read comments added by other departments. Conditional approvals can be granted for materials that need special equipment or handling measures. Once approved, the MSDS for the material is automatically inserted into MSDS Vault for the location where the request was made, thereby complying with the OSHA Hazardous Communication Standard. And, if desirable, the MSDS can be viewed by individuals in other locations.

Another attribute of the Actio solution is that the requested material is automatically evaluated against a comprehensive regulatory content library that is managed and kept up to date by Actio and that often includes customized regulatory data requested by particular aerospace manufacturers. If the material is included on any of these lists, it is immediately flagged for the approver so the request can be immediately declined. Historically, thumbing through lists and looking up reference information on CDs was the most time-consuming part of the evaluation process.

The entire material information management solution was configured and operational within 90 days. Metrics for the project indicate a 75% reduction in approval time. If a material approval process takes 3 h per request to complete, and requests are made at a rate of 13 per week, then approval time equates to one full-time employee per year.

Implementing a material information management solution has enabled this aerospace company to complete up to 53 chemical approvals per week without an increase in overhead. These impressive efficiencies do not include additional savings in turnaround time, reduction of risk, and compliance with the Hazardous Communication Standard.

Russell McCann, Co-founder and CEO of Actio Corp., wrote this article for AEM.

