

CASE STUDY



**Dow Chemical Eliminates Raw Material Management Errors
with aspenONE[®] MES Suite**



Dow Chemical Company turns to aspenONE MES to implement procedural control, efficiently moving raw materials and avoiding process upsets.

AVOIDING PROCESS UPSETS FROM MISIDENTIFIED MATERIALS

Dow Chemical manufactures more than 3,300 products at 156 manufacturing sites in 37 countries and delivers a range of plastics, chemicals and agricultural products to customers in 160 countries. Many production facilities work with packaged, small-capacity containers that look alike from the outside but contain raw materials

that are chemically different. If a container is misidentified and the wrong material is added, a process upset occurs, adversely impacting product quality, material and asset utilization, or causing a health, safety and environment incident. Dow’s objective is to greatly reduce the risk of a process upset and move their operation from two to six sigma performance.

Dow faced a number of challenges. Raw materials enter and exit the process at different times and from different locations. The control system is unable to differentiate between the various containers and materials, and human detection is unreliable.

A key benefit of aspenONE MES is its capability to provide procedural control in manufacturing work processes, therefore aspenONE MES was implemented at Dow facilities to authenticate all materials and generate orders to retrieve and load materials into a process. The result has been the total elimination of materials management errors over the last two years.

CUSTOMER PROFILE - Dow Chemical Company - Specialty Chemicals

CHALLENGE

Eliminate misidentification of materials being moved into and out of production.

SOLUTION

Two key products from the aspenONE MES suite: Aspen InfoPlus.21® and Aspen Production Execution Manager

BENEFITS

- Issue and validate a set of actions automatically
- Completely eliminate errors due to misidentification of raw materials
- Assure six sigma performance of the raw material management work process

ASPENONE MES CHOSEN TO IMPLEMENT PROCEDURAL CONTROL

Dow developed a high-integrity material flow (HIMF) system, which is a method of ensuring that the movement of materials into and potentially out of a process position is authenticated. The HIMF system was built using two key products in the aspenONE MES suite: Aspen Production Execution Manager and Aspen InfoPlus.21 as an MES solution for procedural control.

Connectivity between the MES solution and the warehouse data management system is essential for proper authentication of materials. As material is moved from the warehouse into production, the MES and warehouse systems share reference data. The MES system automatically generates a work request using Aspen Production Execution Manager, guiding the operator in material identification and retrieval.

Material moved into production is compared with control system information through the use of a mobile human machine interface (HMI), which is a bar code scanner that's integrated with a wireless mobile computer. Aspen InfoPlus.21 interfaces with the plant control system to confirm that the material the operator has scanned on the HMI at the production position is indeed the correct material for the recipe being executed. The automated workflow and product validation enabled by Aspen Production Execution Manager allows Dow to authenticate materials before they are used in the process.

MATERIAL MANAGEMENT ERRORS ARE ELIMINATED

Errors due to positioning incorrect raw materials into production have been completely eliminated, moving this work process from a two sigma to near the targeted six sigma operation. Aspen Production Execution Manager provides the rigor of a programmed work procedure with automatic notification of a set of actions to an operator's hand-held device. Dow plans to implement this solution in sites across the company.

AspenTech is a leading supplier of software that optimizes process manufacturing — for energy, chemicals, engineering and construction, and other industries that manufacture and produce products from a chemical process. With integrated aspenONE® solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs, and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit www.aspentech.com.

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