

Aerospace supplier ASCO Industries presents on best practice materials information management

ASCO Industries, headquartered in Zaventem, Belgium, is a privately-owned aerospace supplier—a leader in high-precision, safety-critical products, including high lift wing components, landing gear parts and sub-assemblies, and engine mounts. At a Granta Seminar in Paris, Mr Stein Janssens of ASCO presented a case study of the company's implementation of the GRANTA MI™ materials information management software. He explained the rationale behind why the system was chosen to manage ASCO's data on metals, polymers, and composites, and to store data on standard parts for aerospace components.

ASCO began work with Granta in 2007, after a process to assess different software tools and select a system that could support a single corporate database for materials property information. What motivated this work? ASCO was similar to many engineering organizations in having excellent tools for engineering design (e.g., CATIA) and finite element modeling (e.g., Nastran, Patran) but no single, integrated system to manage the materials data that supports design and generates 'allowable' property values for FEM. As with many companies, this material data was stored in a variety of spreadsheets and PDF documents—it was time-consuming to make comparisons between materials and it was hard to control access to the data. ASCO's goal was to enable full traceability for all data, revision control, easy searching, and quick comparisons.

Major factors in the choice of Granta, in addition to the capabilities of the GRANTA MI software, included Granta's link with ASM International, the world's leading society for materials engineers, and the longstanding relationship with the Material Data Management Consortium—a group including many leading aerospace organizations. The GRANTA MI system also offered the best path to integration with existing design and FEA software. In ASCO's own words, "a stand-alone application does not offer maximum efficiency for a materials data system." A final key factor was the flexibility of the GRANTA MI system—ASCO were able to define their own data structure as they implemented the system.

There are two databases within the ASCO implementation. The first is a materials database, providing user-friendly access to property data on metals, polymers, and composites. The

system stores in-house data, and provides access to external references provided by Granta, such as the MMPDS data on metallic materials for aerospace. Users can quickly search for the data they need or navigate to it via a straightforward "tree structure" organized by materials class. Data can be exported to ASCO's in-house stress tools or to Nastran/Patran. All data is traceable to its source, and access is controlled so that users only see appropriate data.

For the second database, ASCO used the flexibility of the GRANTA MI data structure to enable storage of data on standard parts for their aerospace components. Using GRANTA MI in this way allows ASCO to get further return on investment from the system.

This database enables them to keep track of technical alternatives for standard parts, for which worldwide supply problems are a known issue to aerospace companies. The result of these quick and simple searches is, on the one hand, to document and archive these alternative studies, while on the other hand, to reduce standard part selection time and, thus, total design times.

Looking to the future, ASCO is working with Granta to respond to a number of trends:

- Aircraft development times are reducing—so it is increasingly important to get direct, fast access to the right data
- Materials choice is becoming more diverse (for example, with carbon/epoxy composites next to metallics)—so there is a need to handle growing amounts of data efficiently
- Qualification/verification tests will increase as ASCO grows, and must be managed in order to provide cross-company traceability and transparency
- In best practice design, digital models will increasingly support complete product definition—i.e., materials data should be readily accessible by design/FEM software, to enable definition of material attributes alongside geometry and manufacturing details.

The ASCO case study shows how, over a short period, a moderately-sized aerospace supplier can adopt and benefit from best practice materials information management. ASCO are now looking to build further on their system.