

Honeywell: Managing and Using Materials Information in the Aerospace Industry

Honeywell's presentation, by Doug Hall, Staff Engineer in the Life Methods group, drew on his experience of managing materials information and participating in collaborative projects, including the Material Data Management Consortium (MDMC), the MMPDS industrial steering group, and CMH-17.

Honeywell's businesses include transport, business and general aviation, and defense and space. They innovate and integrate thousands of products and services, aiming to advance and easily deliver safe, efficient, productive, and comfortable experiences worldwide. For them, 'maximizing materials intelligence' has meant focusing on five areas:

- Consistency—e.g., ensuring that two engineers on the same project get the same property for the same material and design conditions
- Flexibility—the ability to handle different datatypes. e.g., design properties based on data, mathematical models, and curves reflecting product line history
- Diversity—incorporating a range of materials, statistical models, and diverse end-uses
- Security—ensuring proper administrative control; covering export control issues, and meeting proprietary concerns
- Traceability—giving information about the origins of data and models, as well as a record of which model was active at a specific time

Having adopted GRANTA MI™ as their materials information management system, it now provides a centralized hub to many product lines across the US and around the world for approved data and material models, including legacy data, commercial databases (e.g., MMPDS), customer information, and new materials information passing through the material data management workflow of material characterization, test lab, model data, modeling tools, and design models.

Many Honeywell product lines were keen to adopt a commercial off-the-shelf (COTS) system which could manage the full diversity of commercially available material property and product line specific information, as well as internally-developed raw data, model data, aerospace and automotive design models, fatigue, databases, information about non-metallics (including solvents, adhesives, degreasers, and potting), flammability and smoke toxicity data, and complex information on composites and advanced materials.

Hall gave examples of working with the system to access and interact with S/N curves from the MMPDS database within GRANTA MI:Viewer, and to apply them for design.

The presentation concluded with Hall summing up some of the challenges and lessons learned. Adopting the system has been part of a culture change which is now helping deliver accurate, traceable, and approved materials information throughout the organization. He highlighted the need for continuous expansion and improvement, and the benefits of having an IT expert inside the organization working on the deployment. There were a number of notable successes, including developing database schema (structures for curating and linking material property information and associated metadata) with input from end-users, ensuring the system is able to meet their specific needs. Hall also encouraged others to get involved in collaborative projects such as the MDMC, which continues to define best practice in this area.