
Sulzer's Materials Data Management Project

A CUSTOMER CASE STUDY

Materials challenges for performance-critical applications

Sulzer has a global reputation in providing reliable equipment for performance-critical applications in sectors from Oil & Gas to Power Generation. To successfully engineer their products, they need reliable and comprehensive materials information. With this in mind, they recently started a project to find the best ways of **accessing authoritative reference data on materials properties across their global enterprise**. They quickly realized that managing **internal proprietary data** was “*at least as important as reference data*”. This case study follows their progress, examining how a materials data management project can improve reliability, save time, and extract more value from existing corporate knowledge.



Photo: Sulzer Pumps

Sulzer's Materials Data Management Project

Sulzer are specialists in industrial machinery and equipment, surface technology, and rotating equipment maintenance. With over 17,000 employees and annual sales of ~3.6 Billion CHF¹ (~US\$3.9bn) they serve clients worldwide through a network of over 170 locations.

The *Materials Data Management Project* was started by product development and engineering managers within Sulzer Pumps, the largest of Sulzer's four divisions (which also include Sulzer Metco, Sulzer Chemtech, and Sulzer Turbo Services). This division has been

¹ Figures from 2011

designing and building pumps since 1834. It now has over 8,200 employees and sales of ~1.75 Billion CHF¹ (~US\$1.9bn) specializing in a number of chosen key markets: Oil & Gas, Hydrocarbon Process Industry (HPI), Pulp & Paper, Power, Water & Wastewater, Foods, Metals & Fertilizers. Today, Sulzer Pumps is recognized worldwide for the quality and reliability of its products.

With a global network of five product development centers (in Switzerland, Germany, America, Finland, and Brazil) and 20 strategically located facilities, Sulzer Pumps is proud to be both a global company and a local partner. However, being a global company raises particular challenges for optimizing the enterprise-wide use of crucial materials data.

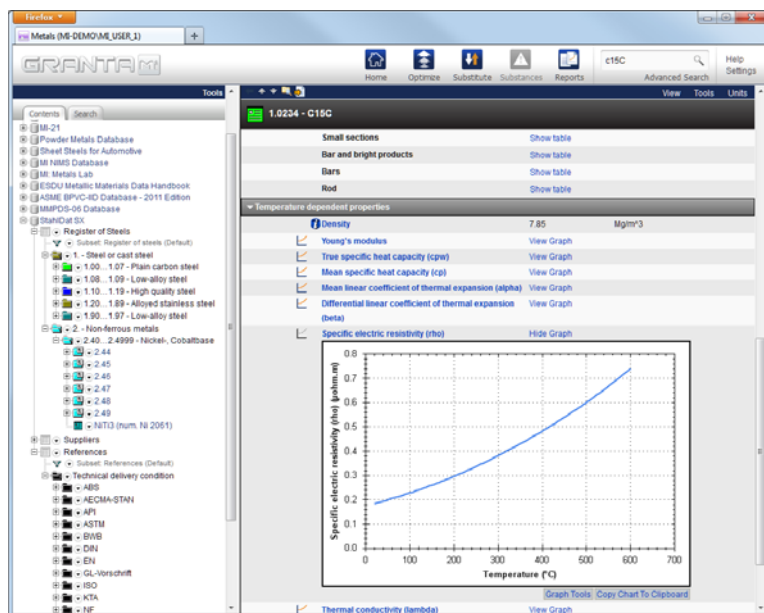
The need for reliable, traceable, and searchable materials data

Initially the project aimed to provide access to external material property reference databases, highlighting the need for: “reliability, traceability, and searchability of data”. This materials information is crucial to support those involved in design, FEM analysis, creation of Bills of Materials (BOMs), material selection, and for materials specialists. Sulzer Pumps identified over 400 users who would see immediate benefits from such access, including those in product development, advanced engineering, and other related engineering tasks that require accurate data on material properties.

Early in the project, it was realized that “the management of internal (proprietary) data is at least as important as reference data.” Having already invested in building an impressive ‘Material Code Numbers’ (MCN) database with ~5,000 datasets of proprietary materials information, the scope of the project was extended to include the provision of reliable, secure, and convenient access to that information alongside the best available external reference data. Indeed, by capturing all material and product-part related data in a single system, Sulzer saw that the MCN information could be used to link data about materials properties, whether from external databases or proprietary sources, to data on product parts that use a particular material.

Sulzer’s solution: GRANTA MI™

Sulzer was seeking “a ‘one-stop’ materials information source”, where all materials data and related information can be stored, linked to a variety of information sources (such as the Sulzer Pumps’ Intranet), and securely deployed to meet the different needs within their organization. Investigations by the Materials Data Management Project suggested GRANTA MI™, the leading materials information management system for engineering organizations. Designed specifically to meet the challenges of managing and



Browsing metals data in GRANTA MI

deploying complex materials information, it combines a flexible database system with powerful software tools to maximize the enterprise-wide use of materials information. For example, Sulzer appreciated tools to support materials selection and substitution decisions, as well those which help assess the impact of restricted substance legislations (e.g., on coatings) on both individual projects and corporate strategy.

A major driver for the Sulzer project was to get this valuable, reliable materials information into the hands of engineers and designers. For example, to provide mechanical data for use in NX, and mechanical and physical materials properties for ANSYS CAE models. Thus integration with their Computer-Aided Design (CAD) and Computer-Aided Engineering (CAE) packages was important. GRANTA MI provides the MI:Materials Gateway technology, which allows materials information held within the corporate materials database to be accessed and applied directly within familiar desktop CAD and CAE environments. Sulzer have also been able to maintain traceability between their *materials information* management system and their *business* management system by exporting order-related information to SAP.

Phase one: a report

The Engineering Council (who are steering the project) started rolling out the system to the first 400 global users in 2012. It provides a wide range of external materials reference data (licensed from Granta) linked to Sulzer's proprietary data. They expect to see an increase in data reliability and a reduction in the time spent searching for materials information, benefiting both materials specialists and data-users.

A particular example of how the new approach will improve workflows is in generating a Bill of Materials selected from a product part list of a specific pump: this requires both materials properties at room temperature and at an arbitrary design temperature. GRANTA MI not only links different sets of properties transparently, but allows full interaction with data, such as extrapolating values for temperature dependent data.

Initial work with the in-house data is being undertaken by the global materials group (located in Winterthur, Switzerland), together with key players from other product development centers and manufacturing sites. Their first challenge has been to extract material property information from the MCN database (currently stored as concatenated text) and import this as the individual 'property attributes' which give GRANTA MI its flexibility. They expect to see an immediate improvement in the searchability of MCNs as a result. The process will also help to consolidate information on base materials and their coatings within GRANTA MI.

Conclusions

Sulzer was looking to maximize the use of many-years' worth of valuable materials information, and to combine this with high quality external reference data, to support their performance-critical applications. By importing proprietary data into GRANTA MI, and licensing additional external data, they have met their initial goals of making materials data more reliable, traceable, and searchable. More than that, the powerful software tools available with GRANTA MI allow them to put that information quickly into the hands of those who need it, and to make optimal materials decisions.

View this report online: <http://www.grantadesign.com/news/news/reports/Sulzer.shtml>