
Seminar Report

Copenhagen, March 23, 2011

CASE STUDY: NOVO NORDISK

Materials Information Technology in Industry

On Wednesday, March 23, Granta Design hosted a seminar on Materials Information Technology in Industry at the Danish Society of Engineers (IDA) Conference Center on the Copenhagen waterfront. Attendees came from a wide range of industrial sectors (including medical, wind energy, and aerospace) to: hear case studies outlining practical applications; see the latest materials information technology in action; network with peers in leading engineering organizations; and to have their questions answered by Granta experts. Over the course of the day, the seminar addressed issues such as the need for tools and data for composites, steels, medical device design, eco design, restricted substances, and lightweight design.



Image from <http://ida.dk/sites/moedecenter/english>

Novo Nordisk Case Study

Our guest speaker, **Dr Rya Eskimergen Nielsen from Novo Nordisk**, gave a fascinating presentation providing an insight into how rational materials selection is supporting medical device research and development.

Novo Nordisk develop medical devices including injectable products used in the treatment of conditions such as diabetes and haemophilia. As part of a large organization, the device R&D team are involved in a large number and variety of projects, some of which have very long timelines. They must not only choose the right materials for individual products, but also interact well with the rest of the organization including the QA and QC teams, as well as with materials suppliers and subcontractors. This means they must both optimize material choices and also be able to explain and justify these decisions, ensuring traceability in design audits.

Materials selection has traditionally been based on internal 'expert knowledge' combined with supplier recommendations. However, systematic material selection has enhanced this process while retaining the input from experience within the organization. A rational selection methodology is often employed using Granta's [CES Selector](#) to yield a narrow range of material types well suited to the project: this process involves listing the requirements of the material, screening out materials which fail to meet these criteria, and then using material property charts ([Ashby Charts](#)) to assess the trade-off between different properties. Such property charts clearly show the relative benefits of different materials, and allow the R&D team to explain their selection of the most suitable materials for further testing.

CES Selector makes use of Granta's [MaterialUniverse](#), providing complete property data for virtually every class of purchasable engineering material. As property values are either populated with known, referenced data or with values estimated using Granta technology, Novo Nordisk know that they have

considered the complete 'universe' of potential candidate materials without excluding those which would otherwise have had incomplete datasets. The selected material types are then translated into specific grades in light of in-house knowledge and databases such as IDES and CAMPUS.

In the medical device industry, it is particularly important that several materials are taken forward at this stage. It can take up to 8 years to get a product to market, so it is preferable to have at least two candidate materials that fulfill all the requirements. Specific grades of these materials are then used in further testing, such as comparative leachables.

Having used this combination of rational selection and in-house expertise, Novo Nordisk can be confident that they have selected the optimal materials for each project. The ongoing challenge, as in many organizations, is ensuring that this information is deployed across the entire organization in an efficient and traceable manner.

Granta would like to thank Dr Rya Eskimergeren Nielsen from Novo Nordisk for her presentation, and are grateful to all the participants for making this an instructive and informative day. If you would like to know more about how Granta can support your organization, please visit our website (www.grantadesign.com) and get in touch.

Further links

Full report: www.grantadesign.com/news/news/reports/copenhagen_report.shtml

CES Selector: www.grantadesign.com/products/ces/

Ashby Charts: www.grantadesign.com/products/ces/ashby.htm

MaterialUniverse: www.grantadesign.com/products/data/materialuniverse.htm

IDES: www.grantadesign.com/products/data/ides.htm

CAMPUS: www.grantadesign.com/products/data/campus.htm