

PoP Centre News

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Providing the bases for robust material solutions and new applications

The results from a recently conducted survey among Höganäs' customers showed a very high level of satisfaction with regards to material analysis and testing services. Representatives from Höganäs' global technical service organisation explain what separates Höganäs from its competitors.

Material characterization and mechanical testing have traditionally been two of the strongest competences provided by Höganäs and a major reason to the consistent high quality standards of its powder-based solutions. Customer service investigations (CSIs) are widely used for both industrial and research practices as they provide reliable information valuable for both design and troubleshooting purposes. Each year, Höganäs performs about 1000 CSIs globally.

Predicting material and component performance

Metallographic analysis involves preparing the specimen by different methods. "We then examine the specimen by using different techniques such as light optical microscopy, scanning electron microscopes and X-rays, of which several are connected to image analysis software. Our processes enable us to see the history of the specimen, for instance present phases and the alloying and lubricant elements as well as how they have been mixed. It gives us an indication of how a component is composed and how it has been processed. In other words, we are able to reveal the real truth about a material and to identify causes to failure", says Pernilla Johansson, manager of



Pernilla Johansson in the Metallographic laboratory

Metallography.

As material performance is dependent on the microstructure, combining material analysis with testing and verification of mechanical properties, enables Höganäs to support the customers by providing guidance to their processes. "The combination of our long experience from service investigations and profound knowledge within this field, allows us to predict the behaviour of materials and components", adds Pernilla.

Höganäs' state of the art testing equipment allows a complete range of mechanical properties to be tested and verified, for instance hardness, tensile strength, impact energy, fatigue, plane bending, and wear.

"I believe that many customers are unaware of how good our capabilities for testing really are. Moreover, as most of our testing is based on specimens with untreated surface conditions, our test results are comparable to real-life components. Thereby we avoid the risk of giving misleading test results. When providing mechanical testing we always make sure that the customers know which methods we apply and why", says Ulf Engström, manager of Technical Sales.

Providing rapid troubleshooting services

Whenever a customer is experiencing quality issues related to components or its processes, material analysis and testing offers an excellent opportunity to find a proper solution. “We are regularly contacted by customers that are experiencing problems and want to know the cause to failure. We also help our customers to solve problems related to compaction and sintering. Our analyses provide detailed insight into the causes of application failure and enable us to indicate corrections to processes and materials that will ensure robust manufacturing”, says Pernilla.

”Höganäs helps customers that have no SEM capability to neither measure green parts nor to investigate problems related to fatigue”, adds Roland Warzel, manager of application development at North American Höganäs.

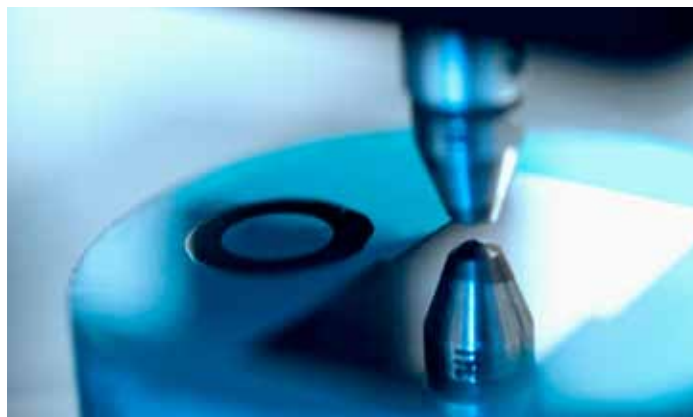
One major factor separating Höganäs from the competitors is the time to turn service investigations around. “Customers are very dependent on good service quality and, especially for failure analysis, time is a critical factor. I believe that no other company can provide as rapid service as we do. Last year, about 80% of the CSIs in North America were solved within 5 days and the average case was solved within 3 days”, continues Roland.



Tying it all together in the PoP Centre

The ability to design and control microstructures, and thereby tailoring performance, enables the full potential of metal powders to be realised. This is a major benefit for the PM industry compared to conventional manufacturing processes.

One purpose with the PoP Centre is to push the limits for metal powder technology by continuously developing solutions for new applications. In this strive, material analysis and testing



services play a central part as they provide valuable data for the design of new applications, and to help customers select materials and processes that meet the requirements of a specific application.

“Mix conversions including material matching as well as application development, make up a large extent of our service investigations respectively. Our CSIs provide data that is very valuable when proving the potential of PM. The capability to tie all our functions together in the PoP Centre is unique and pivotal for the development of new applications that meet end-users’ performance requirements”, says Roland.

Sharing the knowledge

Höganäs regularly publishes guidelines on how to interpret the microstructures of metal powders and how they are influenced by processing. Furthermore, Höganäs’ PM and Metallography schools for customers and end-users, provide an excellent opportunity to get a better understanding of material behaviour and the potential of metal powders.

“Last year we arranged five schools for the Asian region, totally attracting more than 150 participants. No other company in the PM industry provides both rapid technical service and such extensive training”, concludes Louise Chen, technical service manager at Höganäs (China) Co., Ltd.

