

NOMATEN SEMINAR

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VTT ProperScan – Material performance optimization for industry

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Abstract:

The lifetime expectancy of critical systems and components is vital when operating and maintaining large-scale processes e.g. power plants and other load-bearing structures. It is good practice to base the lifetime management and inspections on the assessed condition and related risk evolution, rather than on predetermined intervals. VTT ProperScan service provides the industry with an in-depth lifetime analysis to help with wise decision-making.

VTT ProperScan is a combination of numerical and semi-analytical tools, multi-technological research and material testing. The tools can comprise finite element simulations, the use of applicable standards and fitness-for-service procedures while the material testing includes microstructural investigations, standardized and customized mechanical testing (tensile, fatigue, creep, fracture mechanical) and non-destructive testing. VTT ProperScan is based on a detailed understanding of the customer's process, historical and planned use conditions, as well as an in-depth analysis of real material samples from the components.

Bio:

Dr Mikko Vepsäläinen is a Research Team Leader of the Advanced Materials for Nuclear Energy team at VTT Technical Research Centre of Finland. He received his MSc in Applied Chemistry in December 2005 from the University of Jyväskylä and DSc in Environmental Technology in December 2012 from Lappeenranta University of Technology. He has worked in the industry as Development Engineer, Project Manager and Research Manager in a governmental research organizations, VTT (Finland) and CSIRO (Australia), first as a Research Scientist, and then later as a Senior Research Scientist, Project Manager and Research Team Leader. His research work is related to material performance issues, electrochemical sensor technologies and electrochemical synthesis of nanomaterials.