PRESS RELEASE

Enabling users to investigate the influence of porosity on the mechanical properties of fiber compounds

e-Xstream engineering and Volume Graphics cooperation *on Mechanical Simulation of Fiber Compound Materials and Components*

(LUXEMBOURG, 7 March, 2019) - e-Xstream engineering, an MSC Software Company, part of Hexagon, and Volume Graphics, two leading suppliers of software for multi-scale material modeling and industrial computed tomography, respectively, cooperate in the area of mechanical simulation of fiber compound materials and components. The combined use and the interfaces between the software solutions of e-Xstream and Volume Graphics allows companies active in developing and producing fiber compound components to efficiently optimize manufacturing parameters and ensure the quality of their products.

Using the Volume Graphics software suite VGSTUDIO MAX, fiber orientations and fiber volume fractions can be determined from CT scans of fiber compound material probes or components and mapped onto existing volume meshes (in PATRAN ® or NASTRAN ® format). This information can be used for validation of fiber distributions from injection molding simulations. It can also be directly fed into mechanical simulations of fiber compound materials or components. For this purpose, a dedicated format for export from VGSTUDIO MAX into Digimat® is available.

The interface between VGSTUDIO MAX and Digimat has now been extended to support the export of porosity information from CT scans into Digimat. The export of the porosity information is a function of VGSTUDIO MAX since version 3.2.4, whereas the import is a function of Digimat since version 2019.0. The extended interface allows to map micro-porosity in a statistical way onto a volume mesh by calculating the average porosity level for each cell of the mesh in VGSTUDIO MAX and then exporting it to Digimat. Furthermore, macro-porosity can be mapped individually, i.e. pore by pore, onto the receiving volume mesh in Digimat. In both cases, the influence of the porosity on the mechanical material properties can be modeled in Digimat and then used in macroscopic structural simulations at the component level.

"The extended interface between VGSTUDIO MAX and Digimat allows to investigate the influence of porosity on the mechanical properties of fiber compounds, no matter whether the porosity is unintended or introduced on purpose, such as in foam injection molding processes." – says Philippe Hebert, Product Manager, e-Xstream engineering

To learn more about the interface, please visit the Hexagon (Hall 6/R86) or the Volume Graphics (Hall 5/A57) booth at JEC World 2019 and see the solution in action.

About e-Xstream engineering

Founded in 2003, e-Xstream engineering is a software and engineering services company 100% focused on the multi-scale modeling of composite materials and structures. The company helps customers, material suppliers, and material users across many industries reduce the cost and time needed to engineer innovative materials and products using Digimat, the nonlinear multi-scale material and structure-modeling platform. Since September 2012, e-Xstream engineering is a wholly owned subsidiary of MSC Software. The e-Xstream engineering corporate logo and Digimat logo are trademarks or registered trademarks of e-Xstream engineering SA. For additional information about MSC Software's products and services, please visit: http://e-xstream.com/

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About Volume Graphics

By choosing Volume Graphics software, customers can rely on more than 20 years of experience in the development of software for non-destructive testing based on industrial computed tomography (CT). Today, a broad range of global customers, e.g., from the automotive, aerospace, and electronics industries, use Volume Graphics software for quality assurance in product development and production. For an ever-growing community of users around the world, Volume Graphics is the software of choice. For all information about our software solutions, please visit: www.volumegraphics.com

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