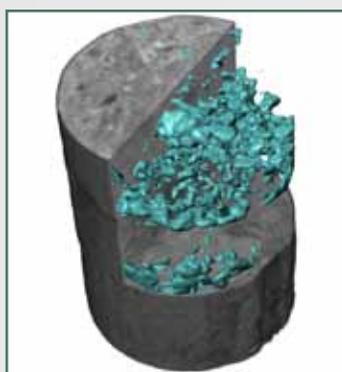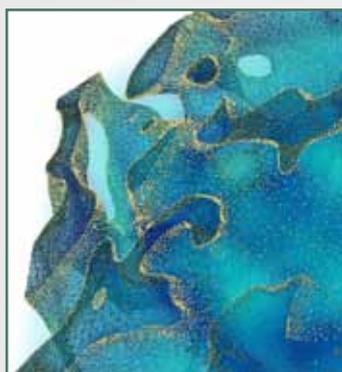*simpleware*

SIMPLEWARE FOR DIGITAL ROCK PHYSICS AND CORE SAMPLE ANALYSIS

Simpleware provides software solutions and services for digital rock analysis and rock typing. Use Simpleware software's comprehensive image processing interface to easily visualise, segment and quantify scan data (CT, micro-CT, FIB-SEM...). Identify pore networks, obtain statistics, export multi-part meshes for Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD), and calculate effective material properties using homogenisation techniques. With Simpleware, you can enjoy an intuitive interface, best-in-class material segmentation, superior surface reconstruction and volume meshing, comprehensive scripting options and dedicated support from an expert team.
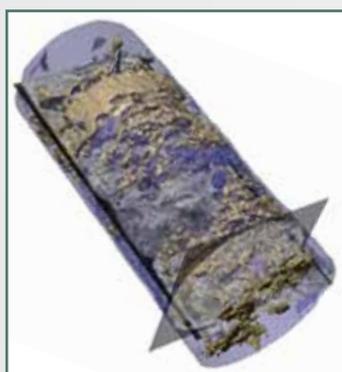

From Image to Model in Minutes

Simpleware software offers an intuitive interface for processing 3D image datasets from a comprehensive range of scan modalities. Find tools quickly and easily using the ribbon interface, and make use of a comprehensive set of easy-to-follow tutorials when learning the software. Full technical assistance on image processing and model generation is also available from our team of support engineers.

Automate Your Workflow

It is possible to customise Simpleware software to meet your specific workflow needs. A scripting API allows access to all options within the software and provides support for a range of languages, including Python, C# and Java. This functionality enables you to automate repeatable operations, build wizards and integrate your own plugins. Script creation is also possible through macro recording.

User Benefits

» **Intuitive user interface:**
  easy-to-learn and easy-to-use

» **Customisable and extensible:**
  automate projects using custom scripts

» **Established solver compatibility:**
  direct export for all leading FE/CFD solvers

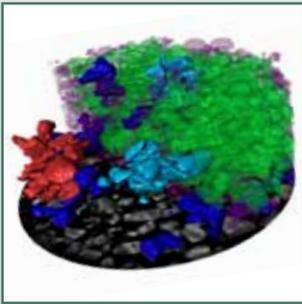» **Fully supported:**
  receive expert advice on your workflow

Software Highlights

» **Extensive import compatibility:**
  CT, micro-CT, ultrasound, FIB-SEM...

» **Advanced 3D image processing tools:**
  visualisation, segmentation, measurement

» **Calculate effective material properties:**
  range of homogenisation modules available

» **Exceptional multi-part meshing:**
  generate high-quality FE/CFD models

3D VISUALISATION AND IMAGE PROCESSING

Simpleware software can be used to create high-quality 3D renderings of image data directly after import. Explore data with opacity and colour adjustment tools, and export animations to share with colleagues. Segment regions of interest (ROIs) and use a wide range of filters and tools to manipulate your data.
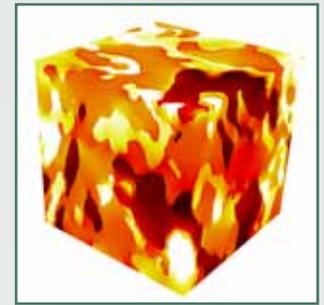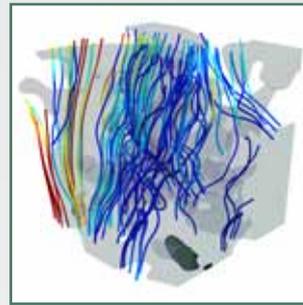
» Inspect internal features of scan data
» Improve image quality using powerful filters
» Easily segment and analyse different particles with watershed-based tools
» Skeletonise pore networks

CALCULATE EFFECTIVE MATERIAL PROPERTIES

Simpleware provides fully integrated homogenisation modules (+SOLID, +FLOW and +LAPLACE) for calculating the effective material properties of scanned samples. Use +SOLID to calculate elastostatic properties, +FLOW to calculate absolute permeability, and +LAPLACE to calculate effective electrical conductivity/permittivity, thermal conductivity and molecular diffusivity.
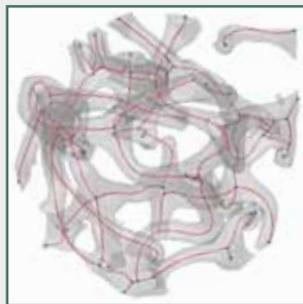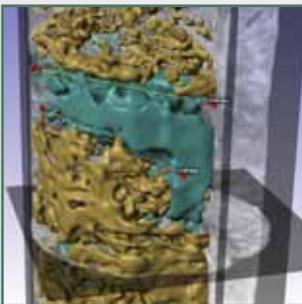
» Choose from full FE-based homogenisation or quick calculation of analytical bounds (+SOLID and +LAPLACE only)
» Select from a range of predefined boundary conditions to reduce boundary effects
» Visualise fields obtained from FE simulations
» Assess the symmetry level of analysed samples

MEASUREMENTS AND STATISTICS FRAMEWORK

Characterise samples using Simpleware software's powerful collection of measurement and statistics tools. Measure volumes, surface areas, orientations and distributions, and quantify phases, grains, fractures, delamination and other features. Use built-in or user-defined statistics templates when analysing data.
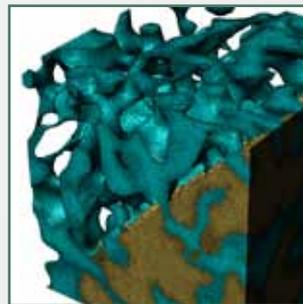
» Intuitive 'quick' measurements and statistics templates
» Compute statistics within user-defined regions of interest
» Generate centrelines
» Interface with MATLAB®

EXPORT FE and CFD MODELS

The software offers proprietary algorithms for converting segmented image data into multi-part, simulation-ready FE and CFD meshes. Generated models can be imported directly to all leading CAE packages for a wide range of simulation applications.

» Meshes feature conforming interfaces with shared nodes
» Define FE contacts, node sets and shells
» Define CFD boundary conditions
» Optimise mesh quality for specific metrics

Visit our website for a fully functional 30-day free trial. Trial versions are fully supported by our technical team.

Simpleware develops industry-leading image processing software solutions and services for 3D image data visualisation, analysis and model generation.

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