REM3D®

Starting with REM3D® - Foaming application

Try the REM3D® experience and make your own rheology simulations to better manage your injection processes!

This course will help you start using REM3D for polyurethane foam injection processes. Using examples based on industrial applications, you will learn about different aspects related to the injection and expansion of foams. We will cover all the necessary steps for a successful simulation: setup, launching a computation and analysis of results. On the second day, you can review essential chemical concepts related to foaming and discover how to use key features, such as sensors and isovolumes. You will also take a more in-depth look at simulations of industrial processes, which will demonstrate how varying process conditions can have an impact on the optimization of mold and cycle times.

LEVEL

Beginner

PREREQUISITES

There is no prior requirement for this course.

GOALS

- **Data setup for a foam injection simulation**
- **Launching a computation on one or more cores**
- **Analyzing simulation results**
- **Identifying and interpreting injection-expansion defects (underfilling, etc.)**
- **Monitoring physical quantities (temperature, pressure, etc.) at any point on the part**
- **Testing the influence of process parameters (mass injected, flow rate, temperature, etc.)**
- **Characterizing polyurethane foams**

TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	2 days	2600€ per training	1 to 3 people

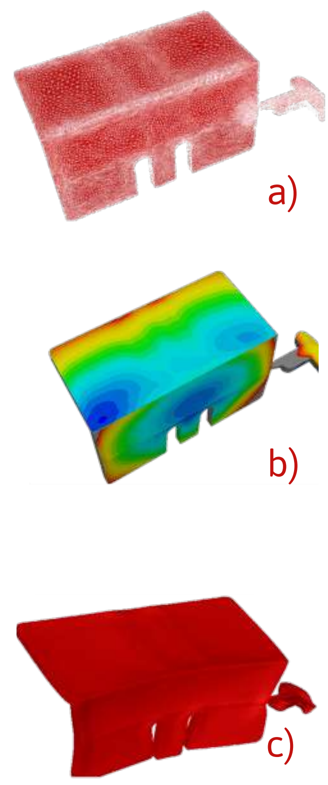
Contact us to set the course date and location.

DAY 1 > 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

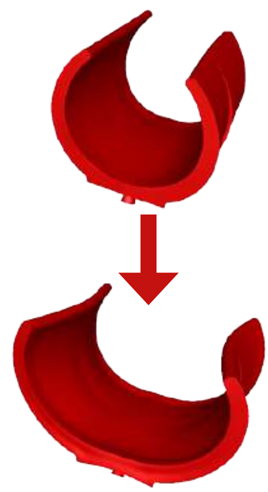
Introduction	· Presentation of Transvalor · Review of finite element method · Goals of the simulation
Data setup	· Presentation of the working environment · Concepts: stores, processes, cases, stages · Importing geometries · Surface and density meshes · Definition of process parameters: flow rate, injection point, flow rate and temperature) · Defining the material: temperature, rheology · Defining the mold: temperature, properties · Defining planes of symmetry · Defining of eulerian or langrangian sensors: tracking points and saving results · Managing simulation parameters: - Time step, storage time - Stop criteria: max time, max temperature, etc.
Modeling of polyurethane foam	· Chemical principles behind the reaction · Modeling of injection and expansion phases · Experimental characterization methods
Tutorial	· Data setup for a mini fridge tutorial · Computation quick launch · First steps in analysis
Results Analysis	· Displaying results: temperature, material front, solidified thickness, etc. · Graphs, animations, VTFx exports
Industrial application	· Data setup and launching computation

DAY 2 > 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

Result analysis of industrial application	· Interpreting results: density, temperature, etc. · Graphical analysis: mass injected, flow rate, vent airflow, etc.
Influence of process parameters	· Foam distribution · Regulation of cooling · Vent placement · Mold balancing and tilting
Advances concepts	· Automatic Anistotropic Adaptative (AAA) remeshing
Conclusions	· Questions and course assessment



Observation after computing part deformation:
a) Adaptive automatic remeshing
b) Projected deformation
c) Deformation amplified x10



Amplified deformation x10