Importance of process and material data for accurate predictions in heat treatment simulations

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ABSTRACT

Numerical simulation can be used for heat treatment applications applied either in the volume or on surface, using a large variety of materials such as low alloy steel, stainless steel, aluminum or titanium.

If the algorithms and their implementations are well known, the accuracy of results always widely depends on the precision of the data used, for instance the material data and the definition of boundary conditions (heat exchange coefficient).

In this presentation, we will demonstrate the benefits of the simulation software SIMHEAT® and FORGE® with various application case including quenching operations, annealing/tempering and surface treatment such as carburizing, nitriding or induction hardening.

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