

# The Need for Thermochemical and Thermophysical Property Data in the Modelling of Casting Processes

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## *Abstract*

Meanwhile the simulation of solidification processes is a common and frequently used tools for designing and analysing casting processes. It is obvious that the base of an accurate simulation is an accurate data set of physical properties. First of all the latent heat and its distribution within the liquid-solid interval should be mentioned. Because of a lack of better solutions we normally assume a constant (that means independent of the temperature gradient) amount of heat – we all know that this is not correct. Here a combined calculation of thermochemical/thermophysical properties and solidification process could come to a better solution. But this is only one aspect. More and more the customers are requiring that the solidification simulation has to be integrated into the whole manufacturing process. Up to now the design engineers are calculating load stresses and life time with constant mechanical properties and normally without any residual stresses. Here is a wide range of tasks for both sides thermophysical property calculation and solidification calculation and many engineers engaged in manufacturing processes could take its benefits of it.