

Temperature Field during Roasting and Cooling of Coffee Beans

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SUMMARY

Aim of this work is to describe the heat and mass transfer phenomena and to record and calculate the changing parameters as the transient temperature distribution inside coffee beans during roasting and cooling. Therefore a number of changing material properties that influence the temperature profile inside a coffee bean have been determined by on-line monitoring these processes, analysing differently roasted and quenched coffee beans and coffee batches, as well as analysing coffee beans and coffee grounds by thermal analyses. Thus a basis for a mathematical model is provided with which, apart from temperature, various changing material properties during variably performed roasting and cooling processes can be estimated, aiding an optimisation of these processes with regard to evenly roasted coffee beans.