

Modeling and Simulation of Heat Transfer inside the Packaging Box for Vaccine Shipping

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This study is about the modeling and simulation of heat transfer in the box for packaging and shipping of vaccines. Comparison of the simulation results with experimental data revealed that a one-dimensional model (a spherical model of using a radius equivalent to the rectangular geometry of box) showed good agreement with experimental data during cooling process but did not successfully simulate heating process. It is considered that a rigorous boundary condition is not properly applied for outer surface of the box. However, we could successfully develop a basic algorithm for simulating heat transfer through multi-slabs combined with different materials including phase change material.