

# **Optimising PCM thermal storage systems for maximum energy storage effectiveness**

## **Abstract**

A new performance parameter for PCM thermal storage systems, the energy storage effectiveness, is defined. This parameter can be used to optimise the design of any PCM thermal storage system to maximise the use of the thermal storage media. The paper presents results of a parametric study using an experimentally validated numerical model for PCM encapsulated in plates. The results are used to calculate the energy storage effectiveness which is ultimately used to optimise the useful energy that can be stored in the PCM thermal storage system. The energy storage effectiveness is also used to compare the useable storage capacity of the PCM relative to a sensible energy storage system.