Older buildings, churches, castles etc. all have an adequate thermal storage mass for retaining heat energy. This ensures that interiors remain nice and cool despite the summer heat outside. In lightweight constructions, where this thermal storage capacity is lacking, room temperatures quickly rise to a level that is equal to or even higher than the temperature outside. Conventionally, this problem is solved by installing air-conditioning systems which, however, are encumbered with economic and ecological drawbacks: They are expensive to buy and operate, and their energy consumption is huge. In addition, the room user’s comfort is decreased by drafts, noise, and the dryness of the air.

The Thermavar™ PCM climate ceiling allows efficient air-conditioning of living spaces with minimum use of cooling machines. The use of Phase Change Materials in ceilings significantly improves the indoor climate. In addition, an energy saving of 25 to 50% can be achieved. The heating and ventilation system can simply be maintained with minor modifications. Only the ceiling tiles are replaced. More than 90% of office buildings have a system ceiling. It is precisely for this reason that phase change materials are so suitable for making existing installations more sustainable. The Thermavar™ PCM climate ceiling ensures a healthy and comfortable climate!
HOW DOES IT WORK?

To make buildings more sustainable, we use the physical phenomenon that during phase transition of a substance a lot of energy is released or absorbed. This feature is used to control or dampen the temperature variation in a building or area. Applying phase change materials is actually nothing more than the creation of virtual building mass. The Phase Change Materials essentially work as a thermal battery. The Phase Change Materials in the ceiling absorb heat from the environment, which cools the environment. We usually use PCM22 for this, but PCM18 is also possible. PCM22 absorbs heat from the enclosure when the temperature rises above 22°C. The room is ventilated by supplying any necessary cooled fresh air and discharging warm air outside. This is done by means of air extraction grilles that are installed in the suspended ceiling. When the ambient temperature drops, the PCM solidifies. This in turn ensures heat emission to the environment. This is an advantage in winter, as the rooms cannot cool down too much.

It is necessary to ventilate the room by supplying outside air and by extracting warm air from the room. Air extraction grilles need to be installed in the suspended ceiling. At night during the summer period, cool night air is blown from outside over the warm ceilings to regenerate the phase change materials. The night power for the fans is the only energy supply required for this. In the morning, the phase change materials are completely solidified again and ready to provide a pleasant working climate.

TECHNICAL SPECIFICATIONS

|基本成分 | PCM18或PCM22（基材氯化钙，盐水合物）非有毒 
|冷却容量每袋 | PCM18: 71 Wh 
| | PCM22: 66 Wh 
|过程温度 | 固化温度：PCM18: 17°C, PCM22: 21°C 
| | 熔化温度：PCM18: 19°C, PCM22: 23°C 
| | 最大环境温度：50°C 
|尺寸和重量 | 尺寸袋：270 x 570 x 5 mm 
| | 每袋重量：1.65 kg 
| | PCM填充每袋：1.5 kg 
| | 表面重量每平方米：9.9 kg 
|袋材料 | 3层铝箔+薄膜（高稳定性，优化表面充电和放电PCM存储材料，耐腐蚀稳定，UV稳定）
|天棚孔径 | 2.3 mm Ø, HOH 5 mm, circa 60%, other perforations upon request 
|颜色天棚板 | RAL 9010, other colours upon request