TECHNICAL DATA SHEET OF CLIMATE CEILING POUCHE

savE® Phase Change Materials (PCM) are organic or inorganic chemical compounds that have large amount of heat energy stored in the form of Latent Heat which is absorbed or released when the materials change state from solid to liquid or liquid to solid. The PCM retains its latent heat without any change in physical or chemical properties over thousands of cycles. Various specific temperature PCM's are commercially available in the market (varying between -350°C to 900°C) depending upon the applications.

Applications

PCM provides energy efficient solutions for many industries including:

- Insulation for Building and Piping Products
- Biopharmaceutical Transportation
- Telecommunications and Heat Sinks
- Hot and Cold Storage
- Food / Poultry / Milk Products Transportation
- Boiler and Hot Water Systems Industry looking to exploit Off-Peak Electricity Tariffs
- Reducing Chilling Equipment Costs by Storing Energy at Off-Peak Hours

However, there is no limit as to who can apply PCM technology to their operation, to improve thermal management, cost and energy efficiencies.

About Climate Ceiling Pouches

The Pluss PCM HS22 Ceiling Pouches can store the cold of the night by normal ventilation and release this cold during the day. This results in a stable and comfortable temperature, (mostly) without airconditioning, so reducing AC installation and operational costs.

The Technology

- Phase Change Materials (PCMs) are products/chemicals which enable energy storage in the form of latent heat.
- The ceiling pouches are placed on top of a suspended ceiling with perforated steel or aluminium tiles.
- The HS22 PCM in the climate ceiling pouches will melt at temperatures above 22°C and absorb the excess heat in a room. So it will keep the room at around 20°C with out AC until all PCM has molten.
- To recondition the PCM inside the pouches, the free-cold from the night needs to be ventilated through the Plenum. It will force out the heat that is absorbed during the day and this will freeze the PCM.
- A minimum temperature of 18°C or less is needed to freeze the PCM again and the higher the DeltaT (Δt), the faster the reconditioning.
- The reconditioning should be controlled with temperature sensors in the PCM ceiling, the room, ambient and airflow-in.
- Normal ventilation might not be sufficient during warm nights and 40dm3/s of airflow is advised instead of a standard 20dm3/s.

Technical Specification:

Pouch sizes	570mm x 270mm x 18mm (LxWxH)
Gross weight	2,5kgs
Net weight	2,0kgs
PCM sav*E*® HS22 latent heat	150 to 190 kJ/kg (between 18°C to 28°C)
Melting point	23°C
Freezing point	22°C
Film thickness	125µm
Maximum load	2,5 kgf/cm2
Flammability	Non-flammable EN-13501-1
Fire classification	B-s1, d0
Food safety	Non-toxic
GHS classification	Eye Irritent - 2A - Causes serious eye irritation
GHS precautions during installation	P280 wear protective gloves, clothing and eye protection or face mask

Packaging Information:

Number of Pouches in a box	12pcs
Box Gross weight	25,5kgs
Box dimensions	580mm x 310mm x 225mm (LxWxH)
Number of boxes per pallet	24 boxes (288pcs)
Gross weight of Pallet	660kgs
Pallet dimensions	1200mm x 1000mm x 1100mm (LxWxH)

Pluss Advanced Technologies bv
Website: www.plussat.eu
Phone: +31 (0) 85 06 04 828
email: pcm@plussat.eu
address: Helftheuvelweg 11, 5222 AV, 's-Hertogenbosch, The Netherlands