



ENERGY

TEAP

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TH29 PHASE CHANGE MATERIAL (PCM) DATA SHEET

1. GENERAL

TH29 Phase Change Material (PCM) is a hydrated salt which has a large quantity of energy (in the form of latent heat) which is absorbed or released when a material changes from the solid to the liquid state (melting) or from the liquid to the solid state (freezing). With TEAP additives these phase changes take place at constant temperature and the process can be repeated over thousands of cycles with no change to their physical or chemical properties.

TH29 salt with a melting temperature of 29°C - a temperature that makes it ideal for many low temperature heating applications. TH29 PCM offers the best aspects with respect to a number of selection criteria:

- A high energy density (heat of fusion, specific heat) over the operating temperature range of 26°C to 32°C i.e. 1 L of TH29 salt release an energy amount equivalent to 12 L of water.
- Chemical and thermal stability by using TEAP additives.
- Non-toxic and non-flammable.
- Suitable for other physical and thermodynamic properties.

2. TH29 PRODUCT APPLICATIONS

Domestic/ Commercial

- Underfloor heating system using solar, off-peak electricity, heat pump or other source of waste heat.

Telecommunications

- Battery jacket in enclosure heating/ cooling.
- Passive cooling as heat sink in small to large electronic enclosures.

Agriculture

- Commercial greenhouses.
- Horticultural systems.

3. MANUFACTURE OF TH29 PCM

TH29 is manufactured in accordance with TEAP Quality Control (QC)/ Quality Assurance (QA) to give it the highest quality PCM product.

TEAP additives are the most important ingredients to make the PCM work well with many cycles life and thermal stability.

4. PCM ENCAPSULATIONS

4.1 TH29 encapsulation in capsule

The PCM is encapsulated by injecting it into conically shaped capsules, thermo-formed from high density polyethylene PVC, which are then hermetically sealed with an aluminum faced polyethylene PVC/polyester cover strip.

For more information please contact our website www.teappcm.com

4.2 TH29 encapsulation in ball

Ball material	Polyolefine material that is chemically neutral towards TEAP PCM salts & heat transfer fluid
Ball shape	Spherical
External diameter	75mm depending on application
Volume of PCM per ball	~ 180mL for 75mm diameter
Number of balls per 1m³	2549 for 75mm diameter

Other forms of PCM encapsulations can be designed & incorporated depending on individual customer's needs & requirements.

5. TH29 DATA

5.1 Technical Data

Type of PCM	Hydrated salt
Appearance	White deliquescent crystals
Melting temperature	29°C
Latent heat	79 Wh/L
Solid sensible heat	0.67 Wh/L °C
Liquid sensible heat	0.99 Wh/L °C
Flammability	Non-flammable
Vapour pressure	Not applicable
Flash point	Not applicable
Useful temperature range	26°C to 32°C
Recommended maximum operating temperature	45°C

5.2 Chemical Resistance

The following materials are suitable for use with TH29.

TEAP PCM	Plastic	Metal
TH29	- Polyolefines	- Aluminum lined with plastic - Stainless steel