TEAP ENERGY

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TH58 PHASE CHANGE MATERIAL (PCM) DATA SHEET

1. GENERAL

TH58 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.

TH58 salt with a melting temperature of 58^{o}C - a temperature that makes it ideal for many heating & thermal management applications. TH58 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 55^{o}C to 61^{o}C i.e. 1 L of TH58 salt release an energy amount equivalent to 13 L of water.
- Chemical and thermal stability by using TEAP additives.
- Non-toxic and non-flammable.
- Suitable for other physical and thermodynamic properties.

2. TH58 PRODUCT APPLICATIONS

Domestic/ Commercial

- Hot water system using solar, off-peak electricity, heat pump or other source of waste heat.
- Space and central heating using solar, off-peak electricity, heat pump or other source of waste heat.
- Small to large industrial boilers.
- Passive cooling of telecommunications and electronic systems.

Agriculture

- Commercial greenhouses.
- Horticultural systems.

3. MANUFACTURE OF TH58 PCM

TH58 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 life cycles and thermal stability.

4. PCM ENCAPSULATIONS

Ball material	Polyolefine material that is chemically neutral towards TEAP PCM salts & heat transfer fluid
Ball shape	Spherical
External diameter	75mm
Volume of PCM per ball	~ 180mL for 75mm diameter
Number of balls per 1m^3	2549 for 75mm diameter

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

5. TH58 DATA

5.1 Technical Data

Type of PCM	Hydrated salt
Appearance	White crystals
Melting temperature	58^{o}C
Latent heat	80.7 Wh/L
Solid sensible heat	1.12 Wh/L ^{o}C
Liquid sensible heat	1.63 Wh/L ^{o}C
Flammability	Non-flammable
Vapour pressure	Not applicable
Flash point	Not applicable
Useful temperature range	55^{o}C to 61^{o}C
Recommended maximum operating temperature	75^{o}C

5.2 Chemical Resistance

The following materials are suitable for use with TH58.

TEAP PCM	Plastic	Metal
TH58	- Polyolefines	- Aluminum - Copper - Mild steel, stainless steel