savENRG™

PCM 23N*

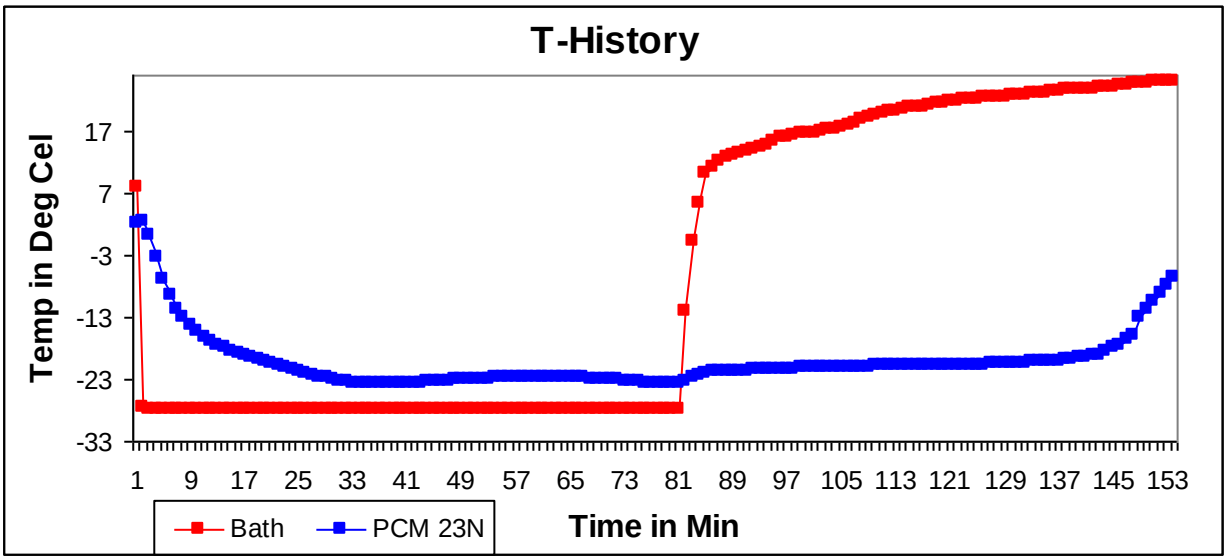
Phase Change Materials (PCM) are hydrated salts that have large amount of heat energy stored in the form of Latent Heat which is absorbed or released when the materials change state from solid to liquid or liquid to solid. The PCM retains its latent heat without any change in physical or chemical properties over thousands of cycles.

Various specific temperature PCM's are commercially available in the market (varying between -35^{0}C to 90^{0}C) depending upon the applications.

Technical Specification:

Description : Mixture of Inorganic salts

Appearance : Light White/Grey colored liquid



A 27g sample is taken in a test tube in molten condition and placed in a temperature controlled bath. A temperature sensor is placed in the test tube and bath to record the temperatures using a datalogger. The bath is maintained at -28 ^{0}C during the freezing cycle and at around 23 ^{0}C (maximum) during the melting cycle.

Property	Value	Test Method	Test Conditions (if any)
Melting Temp. (^{0}C)	-22	T - History	@ 23^{0}C (maximum) Bath
Freezing Temp. (^{0}C)	-23	T - History	@ -28 ^{0}C Bath
Liquid Density (kg/m^3)	1180	ASTM D891-95	@ -13 ^{0}C
Solid Density (kg/m^3)	1120	Internal	@ -33 ^{0}C
Latent Heat (kJ/kg)	200	Calorimeter	PCM solidified at -35^{0}C
Specific Heat-Liquid (kcal/kg.K)	0.83	Calorimeter	@ -13 ^{0}C
Base Material	Inorganic chemical		
Congruent Melting	Yes		
Sub Cooling	Low	T-History	
Flammability	No		
Thermal Stability (cycles)	~ 2000*	Internal	
Max.Operating Temp. (^{0}C)	~50		

* - Cycles testing is being continued for more than 2000 cycles

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