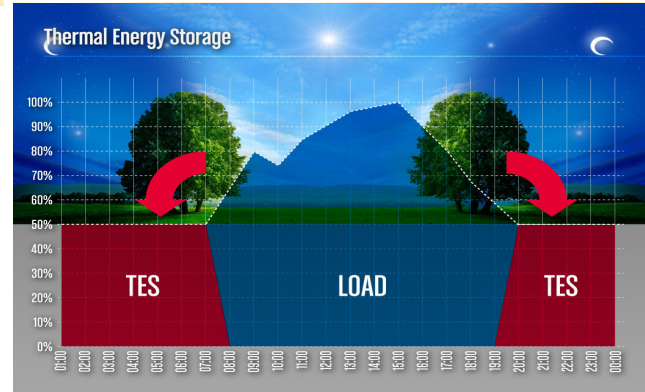


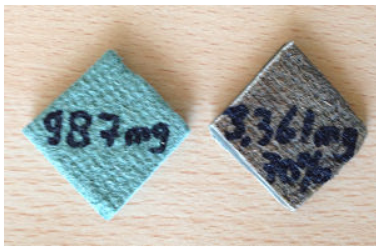
Thermal Energy Storage (TES) is the temporary storage of high or low temperature energy for later use. It bridges the gap between energy requirement and energy use. A thermal storage application may involve a 24 hour or alternatively a weekly or seasonal storage cycle depending on the system design requirements. Whilst the output is always thermal, the input energy may be either thermal or electrical.



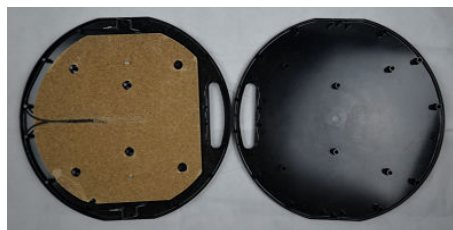
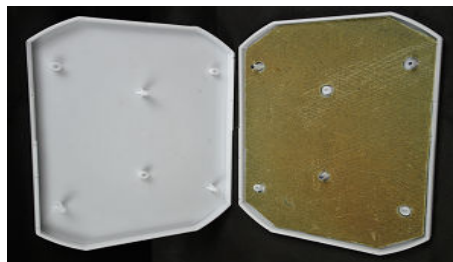
Phase Change Materials (PCMs) are products that store and release thermal energy during the process of melting & freezing (changing from one phase to another). When such a material freezes, it releases large amounts of energy in the form of latent heat of fusion, or energy of crystallisation. Conversely, when the material is melted, an equal amount of energy is absorbed from the immediate environment as it changes from solid to liquid.

BoardICE

In a majority of the applications, PCM solutions have to be encapsulated in sealed containers. PCM Products Ltd. have developed many different standard as well as custom-made containers over two decades for special applications. The latest addition to this range is our revolutionary BoardICE product. This new technology utilises a natural fibre board as the encapsulation material, which is then infused with our A range organic PCM solutions. Once the infusion process has taken place the natural fibre board is then compressed into a solid board, whereby the final product can be loaded with as much as 70% PCM solution. The compression ensures optimum PCM coverage within the board, thus improving the thermal storage capacity.



Once the PCM has been completely absorbed within the BoardICE sheets they can be cut and shaped to suit any applications. As the boards are loaded with non-water based organic solutions they tend to be waterproof. In principal, the boards can be manufactured as large as 1.22m (4') x 2.44m (8') dimensions and the standard thickness would be 12mm (1/2") and the relevant capacity, weight and cost details are attached in BoardICE table on the next page.





BoardICE Table

2017-1

PCM Type	Loading		Weight		Cost	
	kWh/m ²	MBtu/ft ²	kg/m ²	lbs/ft ²	£/m ²	US\$/ft ²
A95	0.628	2.142	27	60.5	161.05	24.69
A82	0.448	1.530	26	57.8	110.83	16.99
A70	0.524	1.788	27	60.0	107.00	16.40
A62	0.449	1.532	28	61.1	109.26	16.75
A60H	0.577	1.969	25	55.1	130.18	19.96
A60	0.449	1.532	28	61.1	109.26	16.75
A58H	0.678	2.313	25	56.2	133.27	20.43
A58	0.409	1.395	28	61.1	109.26	16.75
A55	0.416	1.418	28	60.8	108.69	16.66
A53H	0.458	1.561	25	55.7	131.72	20.19
A53	0.403	1.373	28	61.1	109.26	16.75
A52	0.612	2.088	25	55.7	131.72	20.19
A50	0.601	2.050	25	55.7	131.72	20.19
A48	0.645	2.201	25	55.7	131.72	20.19
A46	0.480	1.638	28	61.1	109.26	16.75
A44	0.663	2.262	25	55.4	130.95	20.07
A43	0.438	1.494	25	54.0	127.09	19.48
A42	0.323	1.103	28	60.8	161.91	24.82
A40	0.634	2.163	25	55.7	111.88	17.15
A39	0.322	1.097	27	60.5	161.05	24.69
A37	0.648	2.210	25	55.7	86.08	13.20
A36	0.583	1.990	25	54.6	128.64	19.72
A32	0.374	1.275	26	57.6	151.62	23.24
A29	0.623	2.125	25	55.7	115.85	17.76
A28	0.416	1.420	25	54.5	128.48	19.69
A26	0.403	1.376	25	54.6	128.64	19.72
A25H	0.623	2.125	25	55.7	131.72	20.19
A25	0.401	1.367	25	54.3	141.33	21.66
A24	0.390	1.330	25	54.6	161.54	24.76
A23	0.387	1.322	25	54.3	160.56	24.61
A22H	0.603	2.056	25	56.2	87.06	13.35
A22	0.387	1.322	25	54.3	160.56	24.61
A17	0.401	1.367	25	54.3	160.56	24.61
A16	0.551	1.879	24	53.0	124.01	19.01
A15	0.349	1.192	25	54.6	161.54	24.76
A9	0.369	1.260	24	53.8	126.32	19.36
A8	0.395	1.346	24	53.7	126.01	19.32
A6	0.393	1.341	24	53.5	125.55	19.25
A4	0.521	1.779	24	53.3	124.93	19.15
A3	0.521	1.776	24	53.2	124.78	19.13
A2	0.521	1.776	24	53.2	124.78	19.13

PCM Products has a policy of continues product and product data improvement and reserves the right to change design and specifications without notice