

TECHNICAL DATASHEET

PCM ENCAPSULATION

PCM Encapsulations

PLUS@ has developed various encapsulation techniques, which cater to different applications depending upon the industry requirements. These encapsulations can be filled with different temperature ranges of the Phase Changing Materials (PCM's).



HDPE Panels and Containers

In India, PLUS@ is credited for introducing these uniquely designed HDPE panels. The unique combination of lightweight, durability, high impact strength, and abrasive resistance of HDPE makes them extremely usable in various industrial applications.

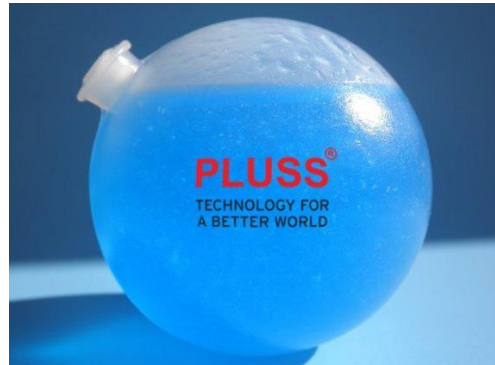
Such structures have cavities (a result of blow molding) to fill in the PCM at different temperatures, which can be installed vertically and horizontally depending upon the application requirement. They adequately find their usage in designing and developing thermal management systems, temperature-controlled logistics, and cold chain applications.



HDPE Blow Moulded Containers

HDPE Balls (Spheres)

HDPE Spherical balls find their exclusive use in the HVAC industry. Our calculations for total heat transfer across thin membranes show that HDPE / PP is as good as aluminum, stainless steel, etc. Plus@ encapsulations are thin enough to give a good overall heat transfer coefficient as good as many metals with better mechanical strength.



HDPE Spherical Ball

Multilayer Pouches

This is the most flexible method of encapsulating PCMs. The material used in multilayer films (Nylon/ PE or PET/PE/Nylon laminates) provides strength and durability. Multilayer Pouches are most useful in transporting pharmaceutical goods (at desired temperatures), temperature backup refrigerators, deep freezers, and iceboxes.



Multilayer Nylon Pouches

Stainless Steel Balls (Spheres)

Stainless Steel Spherical balls are exclusively used in HVAC industry for high-temperature applications (more than 40°C). HDPE spherical balls, being a plastic material, are unable to withstand the repeated cycles of freezing and melting at such high temperatures. PLUSSTM encapsulations are designed to offer maximum heat transfer coefficient, maximum incorporable PCM density, and tolerance to high hydronic pressure (up to 10 bar).



Stainless Steel Spherical Ball

Encapsulation Details

Encapsulation	Dimensions (mm)	Approx. PCM Capacity (Liters)**
Balls#		
HDPE 75	75(O.D*)	0.15
SS304 63	63 (O.D*)	0.10
SS304 80	80 (O.D*)	0.20
SS304 100	100 (O.D*)	0.45
Pouches		
Nylon/PE laminate	Custom Length x 157	Varies
PET/PE Laminate	Custom Length x 157	Varies
PET/PE Laminate	Custom Length x 370	Varies
Blow Molded Containers#		
thermoTab 4500 (Gastronom tab)	530 x 325 x 36	4.30
thermoTab 3600	367 x 367 x 40	3.45
thermoTab 3300	495 x 247 x 35	3.20
thermoTab 2200	290 x 290 x 40	2.15
thermoTab 1500	570 x 285 x 17	1.30
thermoTab 1200	295 x 235 x 31	1.35
thermoTab 1100	210 x 160 x 41	1.10
thermoTab 850	227 x 227 x 23	0.70
thermoTab 630	265 x 130 x 26	0.60
thermoTab 600	191 x 122 x 35	0.50
thermoTab 400	165 x 95 x 35	0.35

The above PCM capacities are considering 10% free volume for expansion.

* Outer Diameter,

** For MOQ please consult PLUS.

The maximum operating temperature for HDPE is 40°C



HDPE 75



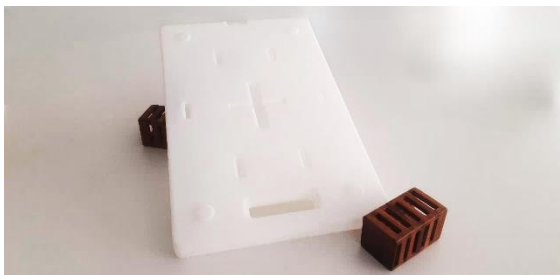
SS304 100



SS304 80



SS304 63



thermoTab 4500



thermoTab 3600



thermoTab 3300



thermoTab 2200



thermoTab 1500



thermoTab 1200



thermoTab 1100



thermoTab 850



thermoTab 630



thermoTab 600



thermoTab 400

Note: The above images are taken against pen stand of height 100 mm as a reference to give an indication on product sizes.

Disclaimer:

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