

# TECHNICAL DATA SHEET OF Aagun<sup>®</sup>

*savE*<sup>®</sup> Phase Change Materials (PCM) are organic or inorganic chemical compounds 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 -350°C to 900°C) depending upon the applications.

## Applications

**PCM provides energy efficient solutions for many industries including:**

- Insulation for Building and Piping Products
- Biopharmaceutical Transportation
- Telecommunications and Heat Sinks
- Hot and Cold Storage
- Food / Poultry / Milk Products Transportation
- Boiler and Hot Water Systems Industry looking to exploit Off-Peak Electricity Tariffs / Reducing Chilling Equipment Costs by Storing Energy at Off-Peak Hours

However, there is no limit as to who can apply PCM technology to their operation, to improve thermal management, cost and energy efficiencies.

## About Aagun<sup>®</sup>

Aagun<sup>®</sup> the PCM based 24x7 dryer enables consistent drying even after sundown. It has the potential to alter the landscape of food drying by replacing inefficient fuel-based drying for industrial food processing units and improving the value proposition of solar drying for commercial and domestic drying units.

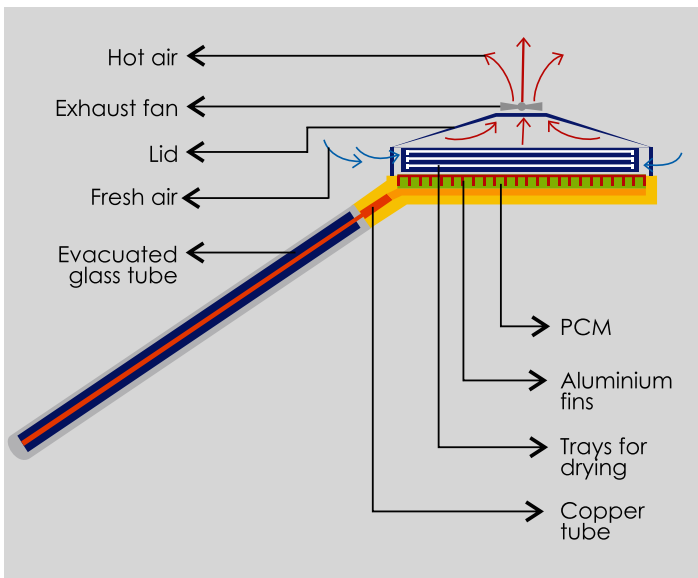
## The Technology

- Phase Change Material (PCM) integrated solar dryer offers an advantage of 24x7 consistent drying.
- PCMs are products/chemicals which enable energy storage during sunshine hours in the form of latent heat.
- Efficient system design of Aagun<sup>®</sup> allows storage of solar energy in PCM which gets harnessed during non-sunshine hours. Aagun uses low wattage fans for its efficient working.
- The thermal energy transfer occurs when the material changes phase from solid to liquid or vice versa. The latent heat of these materials is typically 100 times the specific heat. This enables large amounts of energy storage in relatively small spaces.
- Copper heat pipe sleeve is soldered to the aluminium container with PCM. The container has a low profile so heat distribution throughout it will be even.
- The container has an aluminium lid that serves as the heating surface for the fresh air entering the chamber.

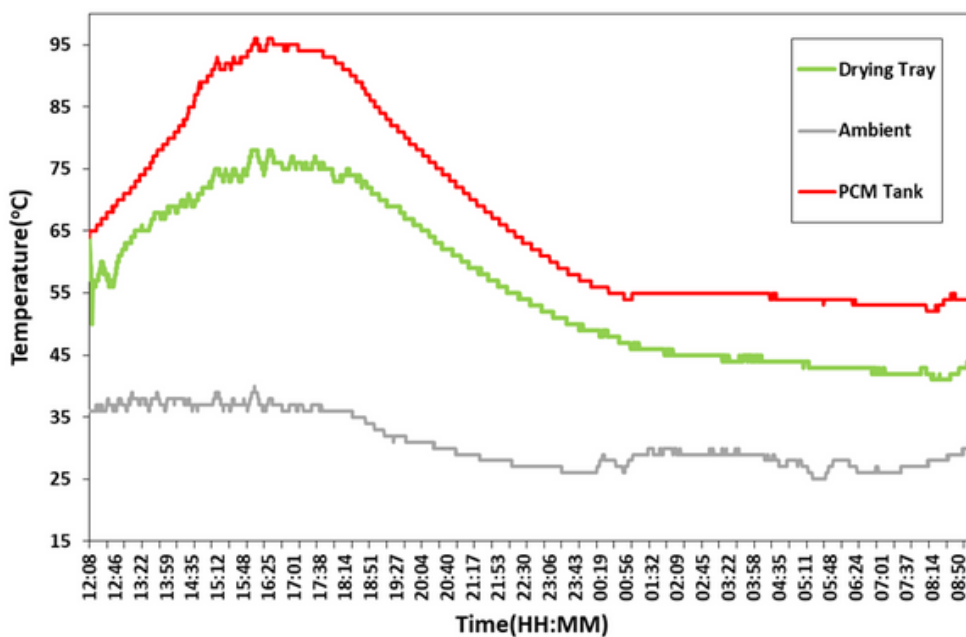
**Technical Specification:**

Floor area	3,9 sqm
Gross weight	200kgs
Maximum drying temperature	75°C
PCM savE® OM55	55°C
Drying efficiency	45times
Max loading capacity	20kgs* or max 200kg in series
Drying duration	12 to 48 hours*
Fan power rating	0,8Watts
Number of fans	4 fans
Frame	Powder coated steel
Dryer chamber and storage	Fiber reinforced plastic
Backup heater available	

*\*drying volumes and times vary see details on next page*



**Temperature distribution 24h cycle**



## Drying capacity for fruits & vegetables

Food Product	Product/sqm (kg)	Loading capacity (kg)	Water fraction	Water content (kg)	Drying duration (hours)	Achievable Loading/day
Tomato	6,25	13,5	0,95	12,8	24	1,00
Banana	8,33	18,0	0,75	13,5	30	0,80
Gooseberry	4,17	9,0	0,84	7,6	25	0,96
Onion	5,00	10,8	0,85	9,2	12	2,00
Ginger	6,67	14,4	0,86	12,4	22	1,09
Green chilli	7,08	15,3	0,90	13,8	18	1,33
Papaya	3,01	6,5	0,85	5,52	17	0,70
Pineapple	4,13	8,9	0,81	7,23	48 - 144	2-6
Apple	5,00	10,8	0,80	8,64	30	0,80
Mushroom	4,48	9,60	0,75	2,35	29	0,80
Carrot	2,70	5,8	0,80	4,64	48	0,50
Garlic	2,70	5,80	0,80	4,64	48	0,50
Fenugreek	1,67	3,60	0,86	3,10	21	1,14
Coriander	0,80	1,7	0,83	1,42	25	0,96
Rose	0,97	2,10	0,86	1,80	22	1,09
Spinach	2,08	4,4	0,89	3,98	25	0,96