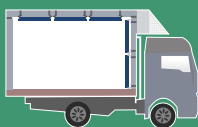
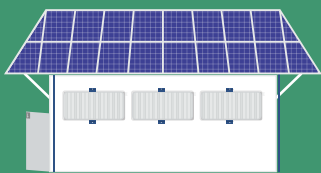


ThermoTab™ *active*

ACTIVE PCM PLATES

THE COST-EFFICIENT COLD CHAIN SOLUTION



One of the top
26 innovative
organizations in
India – **CII Industrial
Innovation
awards 2017**

PLUSS[®]

TECHNOLOGY FOR
A BETTER WORLD

Established in 1994, Pluss Advanced Technologies Pvt. Ltd. (formerly Pluss Polymers Pvt. Ltd.) is a materials research and manufacturing company

involved in the field of Speciality Polymeric Additives and Phase Change Materials. Research and innovation has been the focus of the company since inception. The company pioneers in creating cost effective & innovative products and applications that provide impactful solutions for thermal energy storage.

Experience, interdisciplinary thinking and practical skills form the growth guidelines for PLUSS[®]. The company has an equity infusion from Tata Capital Innovations Fund.

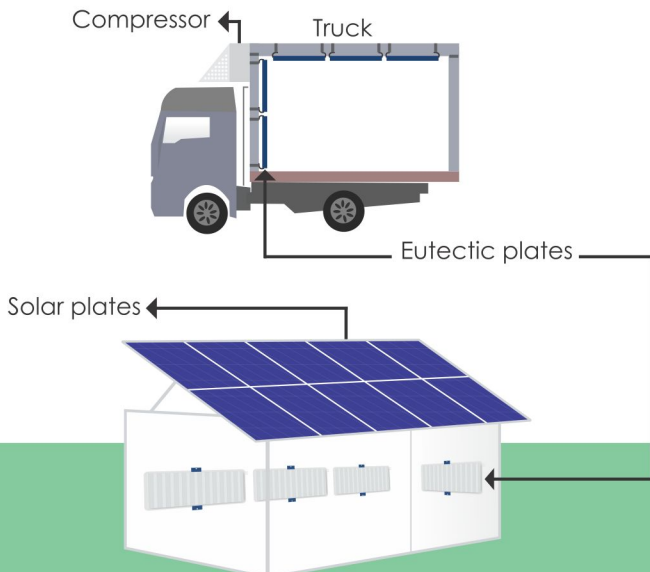
PLUSS[®] in collaboration with FIC, Italy offers an innovative solution for temperature controlled logistics enabling fuel-free refrigeration. thermoTab[™] active maintains a constant and precise temperature control throughout the transport for up to 8 -16 hours of duration. This system also provides the flexibility of choosing two different types of temperature ranges – chilled & frozen.



FIC has been manufacturing PCM plates for more than 50 years with the highest quality standards and is the world leader in this field.

PLUSS[®] and FIC offer thermoTab[™] active leveraging each other's strengths in material science and heat exchanger design respectively. The thermoTab[™] active can be used in both, cold storage and transportation applications.

TRUCK & COLD ROOM



WHAT ARE thermoTab[™] active PLATES?

The thermoTab[™] active plate is a set of cold formed and welded sheet of steel. The interior section of the plates have evaporator coils running through with Phase Change Material being filled in the remaining space. The evaporator coils housed inside the plates are in direct contact with the PCMs enabling efficient freezing performance. The freezing starts from the surface of the coil forming layers until the entire volume of PCM around the coil is frozen. During discharge cycle, the PCM closer to the surface of the plates melts first, thereby providing cooling inside the insulated space of the truck or cold storage.

ADVANTAGES OVER CONVENTIONAL VENTILATED SYSTEMS

PCM BASED TRUCKS

- Lower maintenance due to no moving parts.
- More dependable temperature maintenance, even when the truck engine is off.
- Lower running cost and higher annual savings.
- Green technology with no noise or air pollution.

PCM BASED COLD ROOM

- Offers 15 to 20 days of storage post-harvest.
- Uninterrupted operation using solar energy and PCM technology.
- 100% free from grid and diesel based power systems.
- No requirement of a heavy duty battery - reduces maintenance cost.
- Increases farmer's income and encourages entrepreneurship.

SALIENT FEATURES



COST SAVING WHEN COMPARED TO CONVENTIONAL DIESEL GENERATED TRUCKS



LOW MAINTENANCE COST



QUICK TO CHARGE

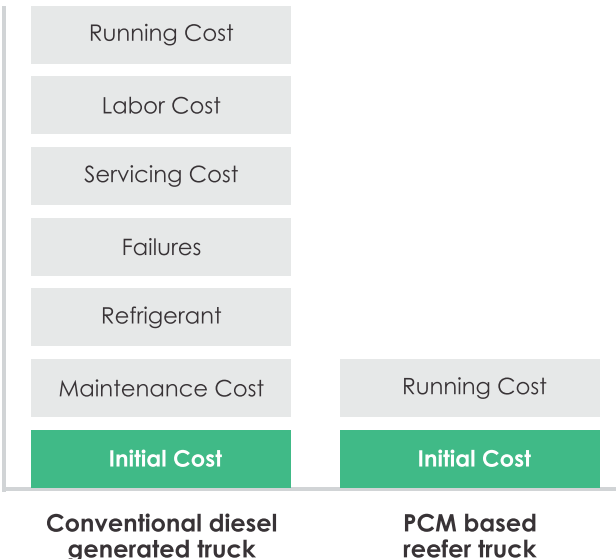


MAINTAINS CONSTANT TEMPERATURE



24X7 OFF-GRID COOLING AND PRESERVATION

COST SAVINGS OF A PCM BASED REEFER TRUCK SOLUTION



APPLICATION OF thermoTab™ active PLATES

TRUCK



COLD ROOM



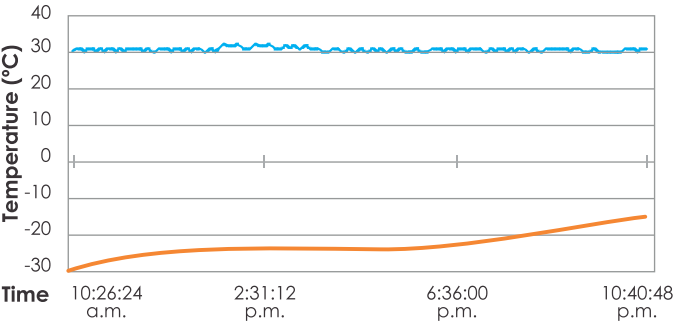
USED FOR FROZEN & CHILLED PRODUCTS



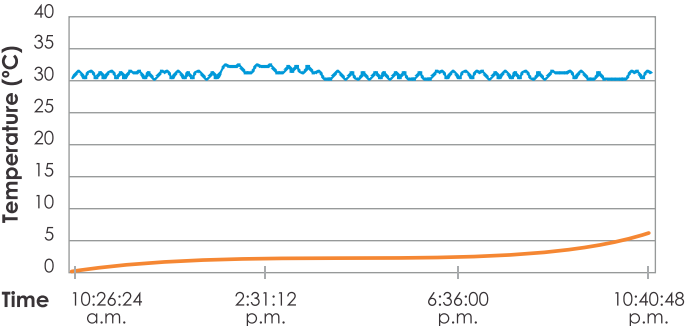
PRODUCT RANGE & SPECIFICATIONS

Model: thermoTab™ active	1370C	2 to 8	1290 x 690 x 49	61.0	2.50	Chilled
Temperature Range (°C)	1250C	2 to 8	1190 x 485 x 54	40.2	1.68	Chilled
External Dimension (mm)	1370F	-15 to -25	1290 x 690 x 49	64.0	2.54	Frozen
Total Weight (kg)	1250F	-15 to -25	1190 x 485 x 54	46.4	2.05	Frozen
Wattage (kWh)						
Application						

FROZEN APPLICATION



CHILLED APPLICATION



● Ambient Temperature ● Internal Temperature

MEMBERS



National Centre of Cold Chain Development. NCCD is an autonomous body established by the Government of India with an agenda to positively impact and promote the development of the cold-chain sector in the country.



India Energy Storage Alliance. IESA was launched in 2012 to help technology and system integration companies involved in energy storage and microgrids to understand and capture the opportunities in the growing markets.



Clean Energy Access Network is an all India representative organization launched in 2014 with a clear mandate to support, unify and grow the decentralized clean energy sector in India.



Reichs-Ausschuss für Lieferbedingungen (RAL). Several active PCM enterprises formed the Quality Association PCM in 2004 to develop proper quality assurance procedures.

AWARDS



Supply Chain Innovation Award for Celsure® - shipping solution for pharmaceuticals



Cold Chain innovation of the year - 2016 for Celsure® - shipping solution for pharmaceuticals



Confederation of Indian Industry
CII Industrial Innovation Award - 2014 & 2017



Innovative Technology Award - 2015
Healthcare category



FICCI- DST Lockheed Martin Award - 2015



MIT Innovators under 35 India Award - 2016 & 2017

INNOVATIONS



The information given here is meant as a guide to determining suitability of our products for the stated applications. It is based on trials carried out by our laboratories and data selected from literature and shall in no event be held to constitute or imply any warranty. The products are intended for use in industrial applications. The users should test the materials before use and satisfy themselves with regard to contents and suitability in the desired application. Our formal specifications define the limits of our commitment. Recommendation herein may not be construed as freedom to infringe/operate under any third party patents. In the event of a proven claim, our liability is limited only to replacement of our material and in no case shall we be liable for special, incidental or consequential damages arising out of usage of our material. The given data is subject to change without notice.

“ Cold-chain development must shift from the past focus on cold storage alone, towards a supply chain based approach. The cold-chain needs to function as a conduit that communicates farm produce, *at the right temperature*, to multiple terminal markets. This approach will be crucial for doubling of farmers income, to bring farm productivity to gainful use and to have a future ready food supply system. ”

Pawanexh Kohli, NCCD

PLUSS[®]
TECHNOLOGY FOR
A BETTER WORLD

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