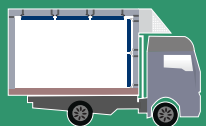
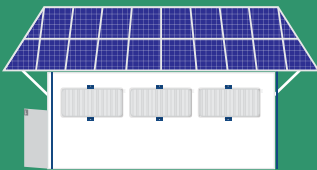


ThermoTab™ *active*

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


murugappa



PLUSS[®]

**TECHNOLOGY FOR
A BETTER WORLD**

Founded in 1994, Pluss Advanced Technologies started with R&D and manufacturing of specialized polymers. In 2007 Pluss commenced development in the field of Phase Change Materials (PCMs) technology. In 2012, the company raised equity funds from Tata Capital Innovations Funds and expanded R&D, developed and commercialized first of its kind temperature control solutions using proprietary materials, addressed unmet need of temperature control across refrigeration, cold storage, cold-chain logistics, HVAC, and healthcare sectors. The company today has a global presence with its own subsidiary in Netherlands. Pluss has received several awards and recognitions, including the CII Innovation award twice, in 2014 and 2017. It has also received the Massachusetts Institute of Technology's Innovators under 35 awards, in 2016 and 2017. Since 2021, Pluss is a subsidiary of Carborundum Universal Limited (CUMI), which is a Murugappa Group company.



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.

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

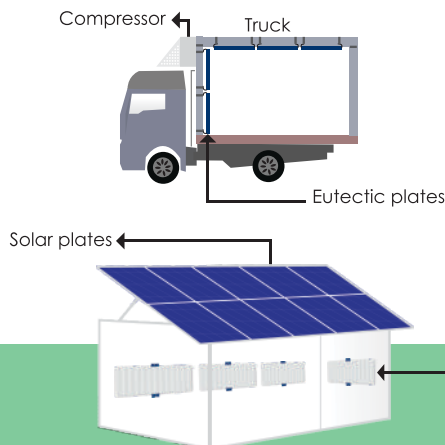
PCM BASED TRUCKS

- 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.

TRUCK & COLD ROOM



SALIENT FEATURES



COST SAVING WHEN COMPARED TO CONVENTIONAL DIESEL GENERATED TRUCKS



LOW MAINTENANCE COST



QUICK TO CHARGE

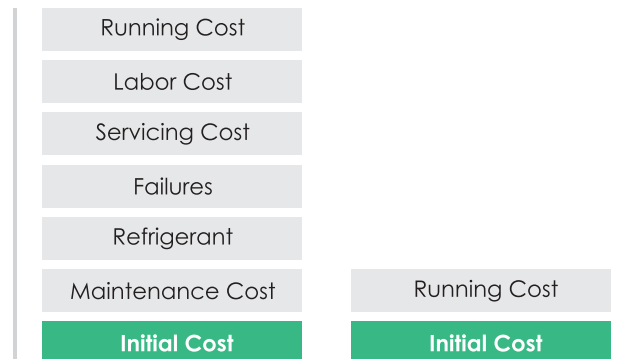


MAINTAINS CONSTANT TEMPERATURE



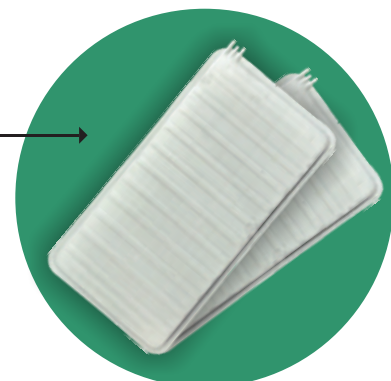
24X7 OFF-GRID COOLING AND PRESERVATION

COST SAVINGS OF A PCM BASED REEFER TRUCK SOLUTION



Conventional diesel generated truck

PCM based reefer truck



APPLICATION OF thermoTab™ active PLATES

TRUCK



COLD ROOM



USED FOR FROZEN & CHILLED PRODUCTS



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.

PRODUCT RANGE & SPECIFICATIONS

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

AWARDS



GITA- Global Innovation & Technology Alliance - 2022



FICCI- DST Lockheed Martin Award - 2015



WWF- Climate & Energy - 2021



TCL- Supply Chain Innovation Award for Pharmaceuticals - 2018



DST, GI- Department of Science & Technology, Government of India - 2020 & 2017



BIRAC- Sparsh Grant - 2022



UNIDO- FLCTD Innovation Challenge - 2018 & 2022



MIT- Innovators under 35 India Award - 2016 & 2017



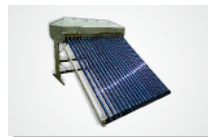
INNOVATIONS



MiraCradle™
Neonate Cooler



celSURE™

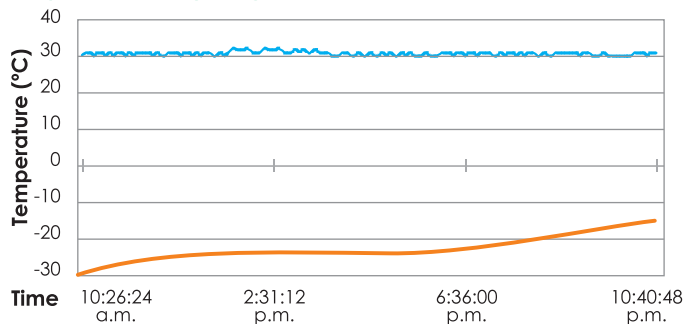


AAGUN™

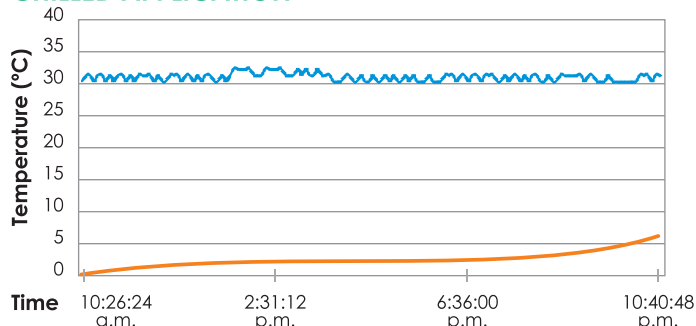


PRONGO™

FROZEN APPLICATION



CHILLED APPLICATION



● Ambient Temperature ● Internal Temperature

“ 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



Scan the QR code
to visit our website

