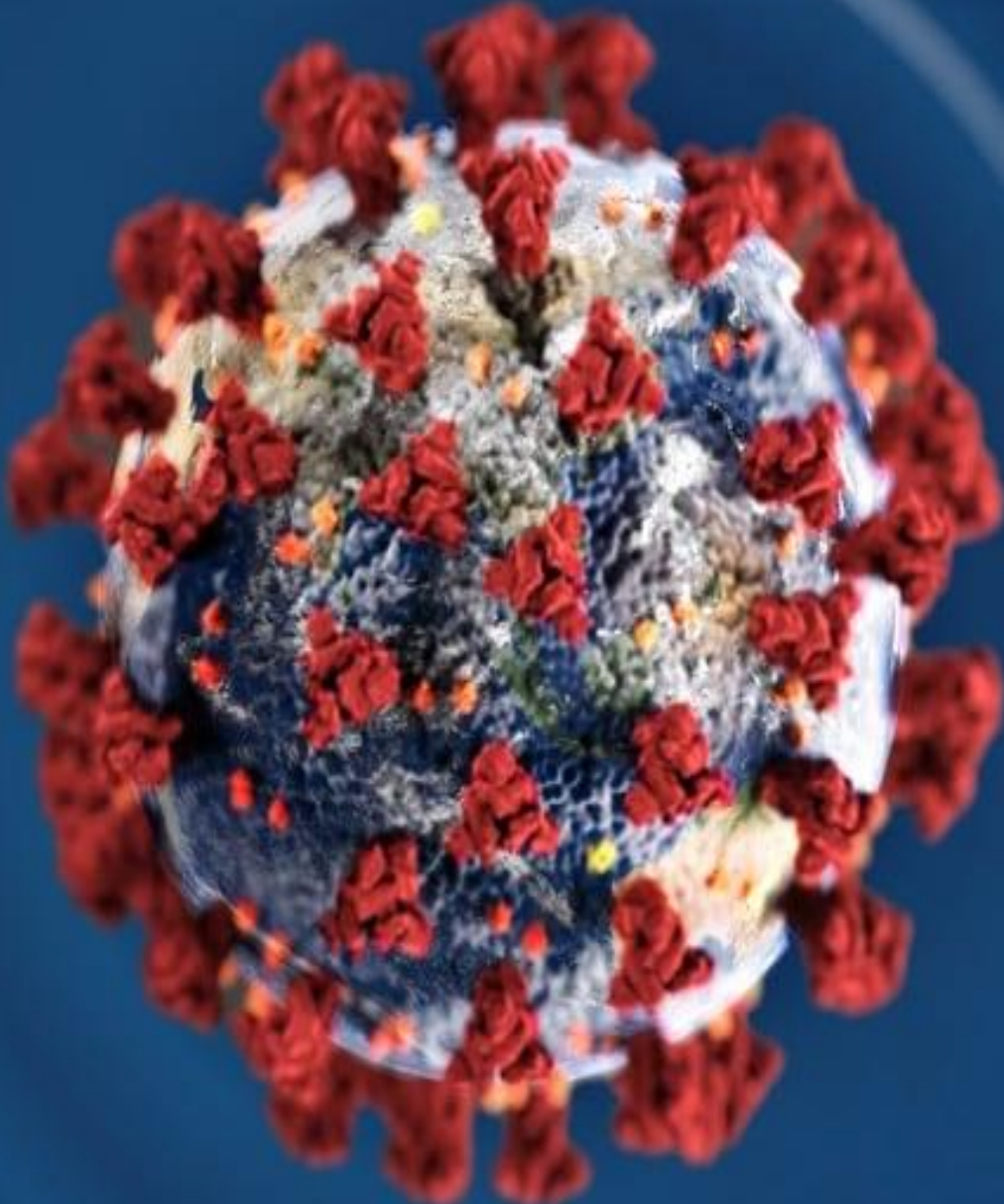


Strengthening cold chain for COVID-19 sample collection and test kits

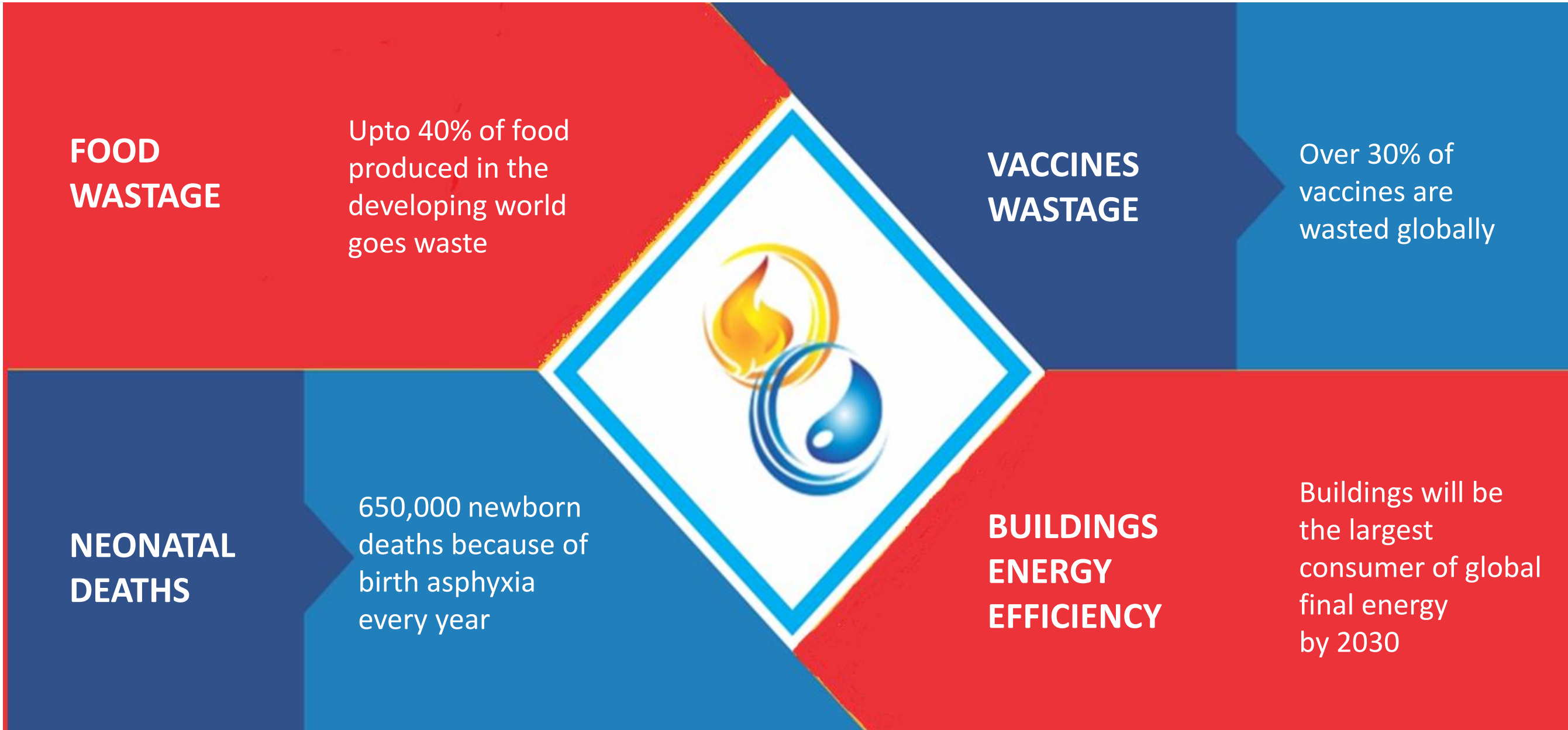
celsure[®]

Temperature Controlled Packaging



PLUS ADVANCED TECHNOLOGIES

PLUSS- Problems Addressed

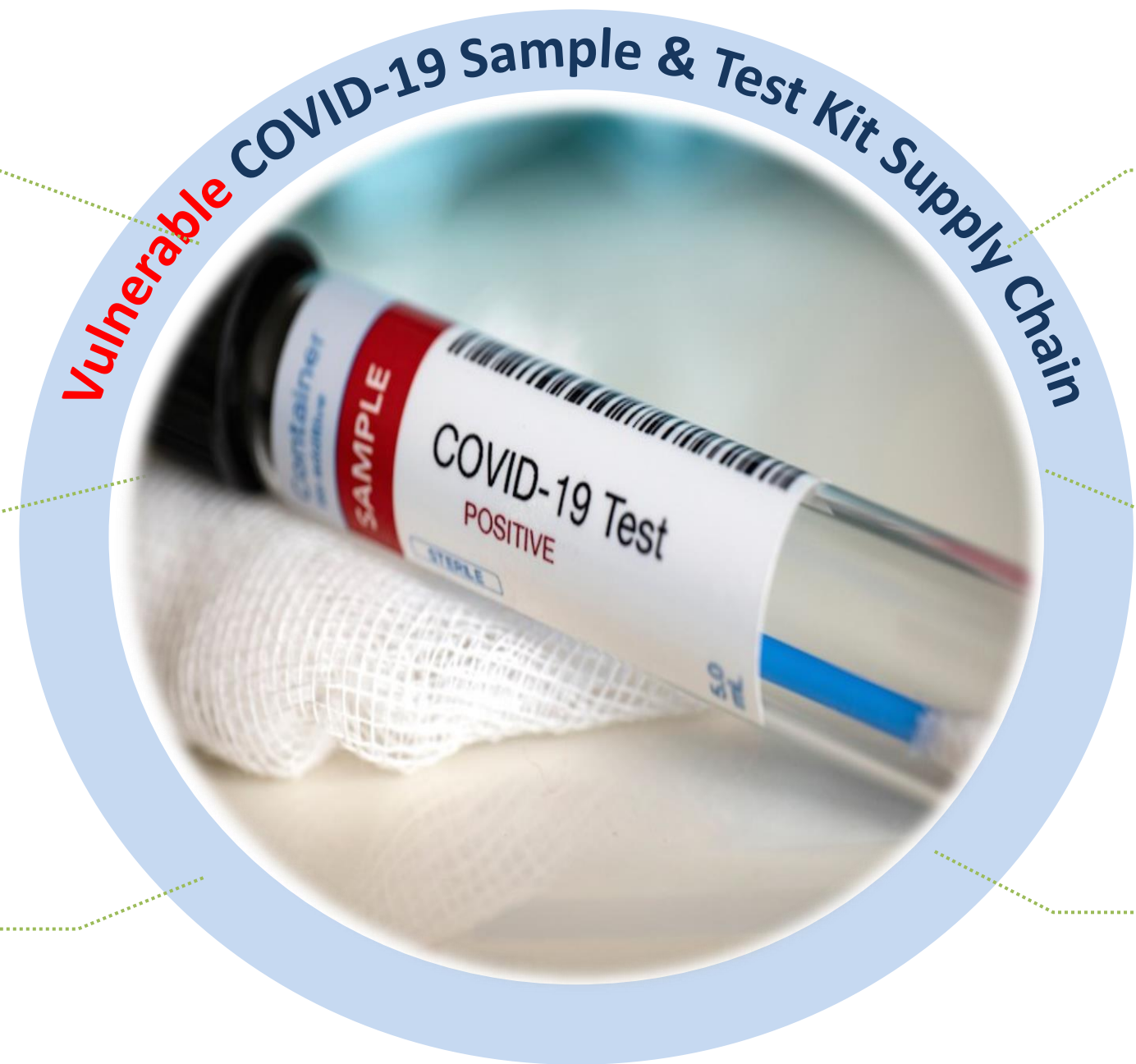


COVID-19: Cold-Chain Challenges

Need for precise temperature control – As per WHO, viral swab samples to be transported @ 2-8° C, and testing kits @ -20 ° C.

Long and Complex Supply Chain – 70% of our population lives in villages. Samples and kits travel thousands of kms to reach lab

Gel packs not enough– Carry the risk of freezing samples which would then need to be thawed and may get potentially compromised



Current Methods unvalidated– We are validating our tests, validating our vaccines, but did we validate packaging?

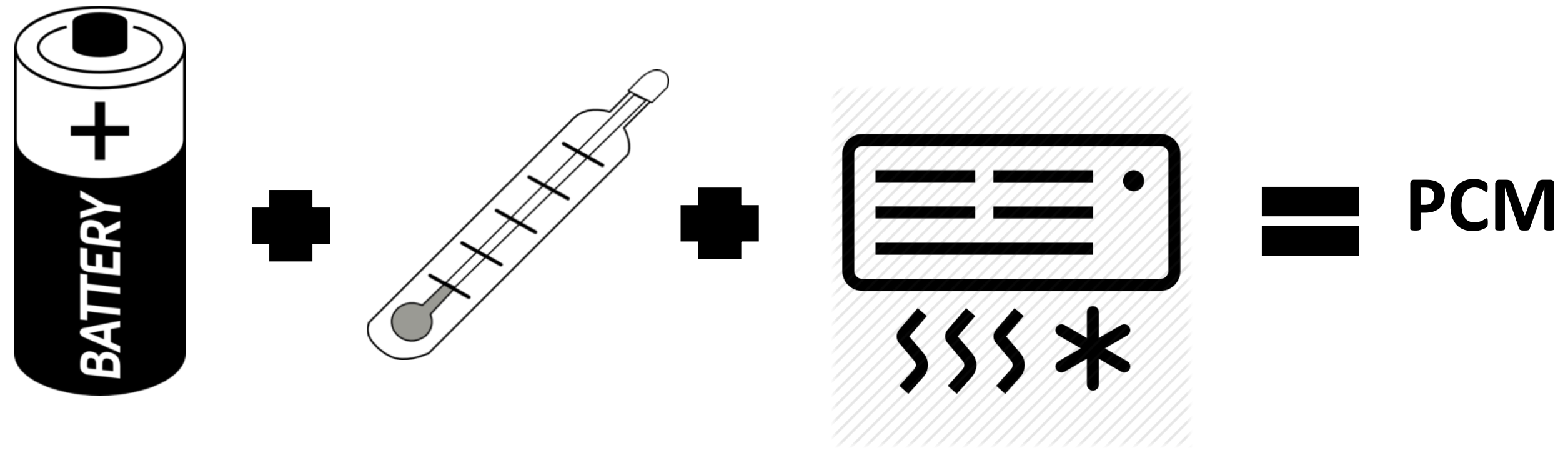
Extreme Climate – Adding to problems would be India's extreme tropical summer, set to hit the country.

Dry ice – Inaccessible, hazardous to health workers and not environment friendly (releases CO₂)

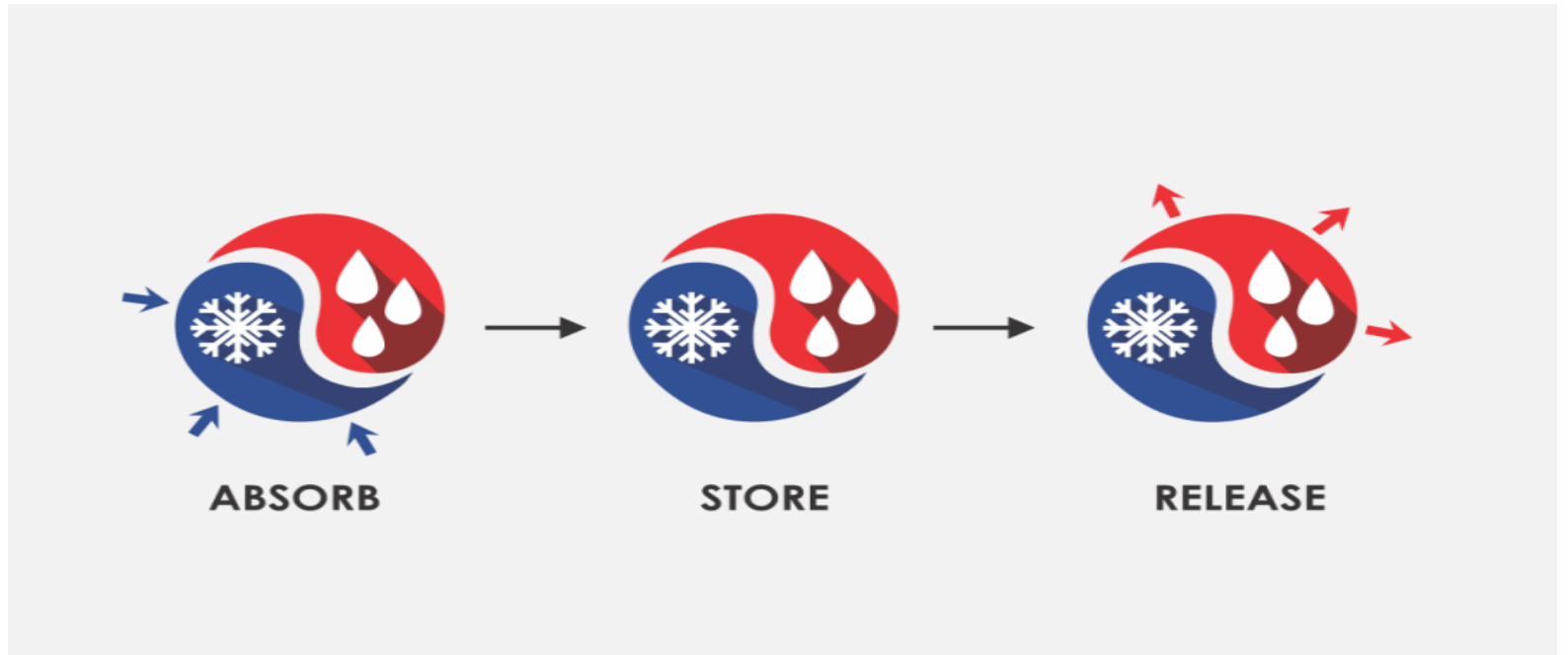
Phase Change Materials



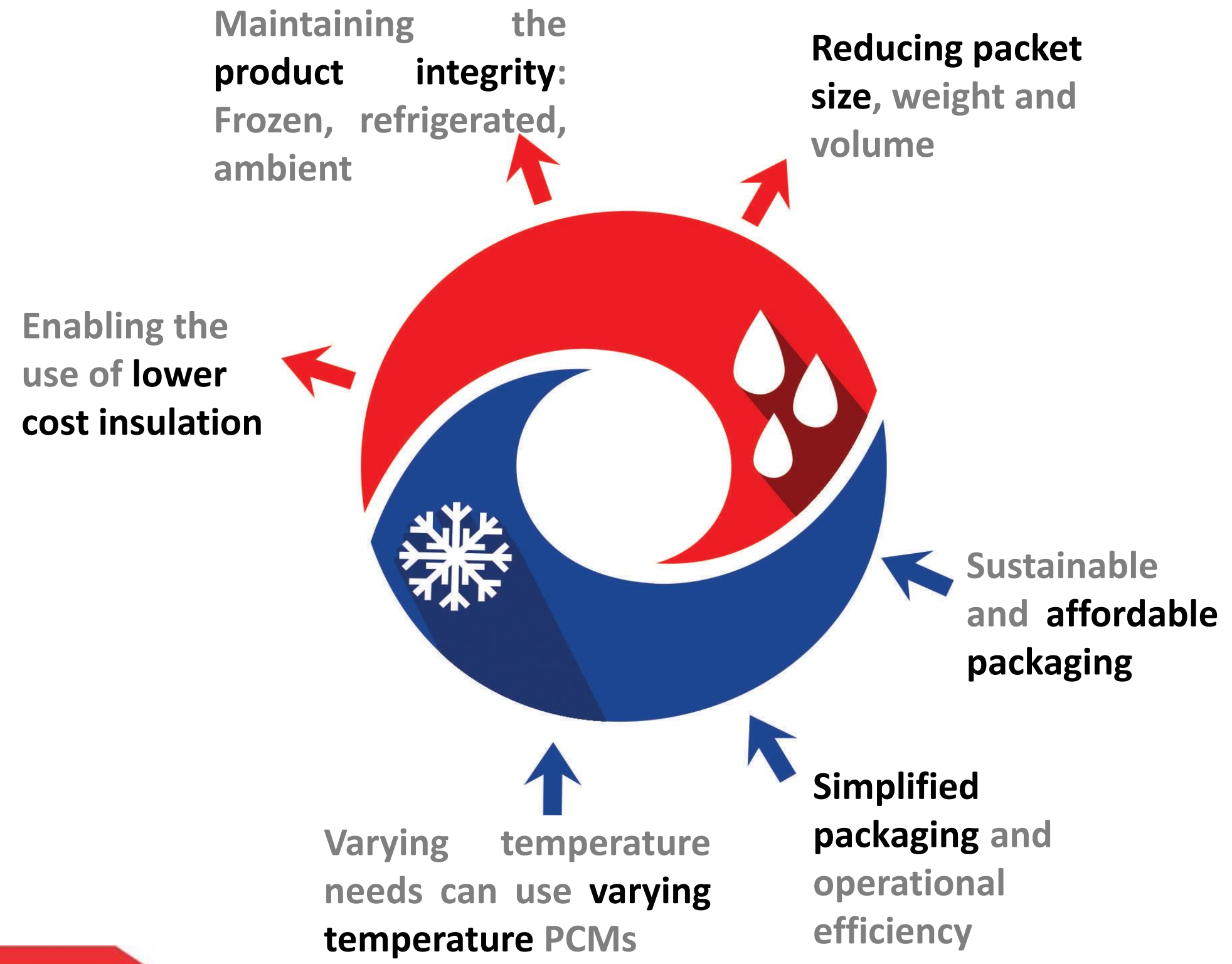
What is PCM?



- PCM = Phase Change Material
- Stores large energy in the form of latent heat
- Also called Passive Cooling materials.
- Release/Absorption of heat at constant temperature
- Release /Absorption process repeatable over a substantial number of cycles.



PCMs in Temperature Controlled Packaging for Pharmaceuticals



celsure[®]

Temperature controlled packaging for pharmaceuticals

C-CAMP COVID-19 INNOVATIONS DEPLOYMENT ACCELERATOR (C-CIDA)

C-CIDA Week 4 Stars For Impact

Near Deployment Ready

Novel Screening Platform For Anti COVID-19 Drugs



Eystem

Rapid Diagnostics Kit



DNA PERTS

Control Of Viral Contaminants In Waste Water



NEED INOVATION

Surface Sanitization



IRR ANIMAL HEALTH CARE LTD.

Cold Chain Support For Viral Swabs



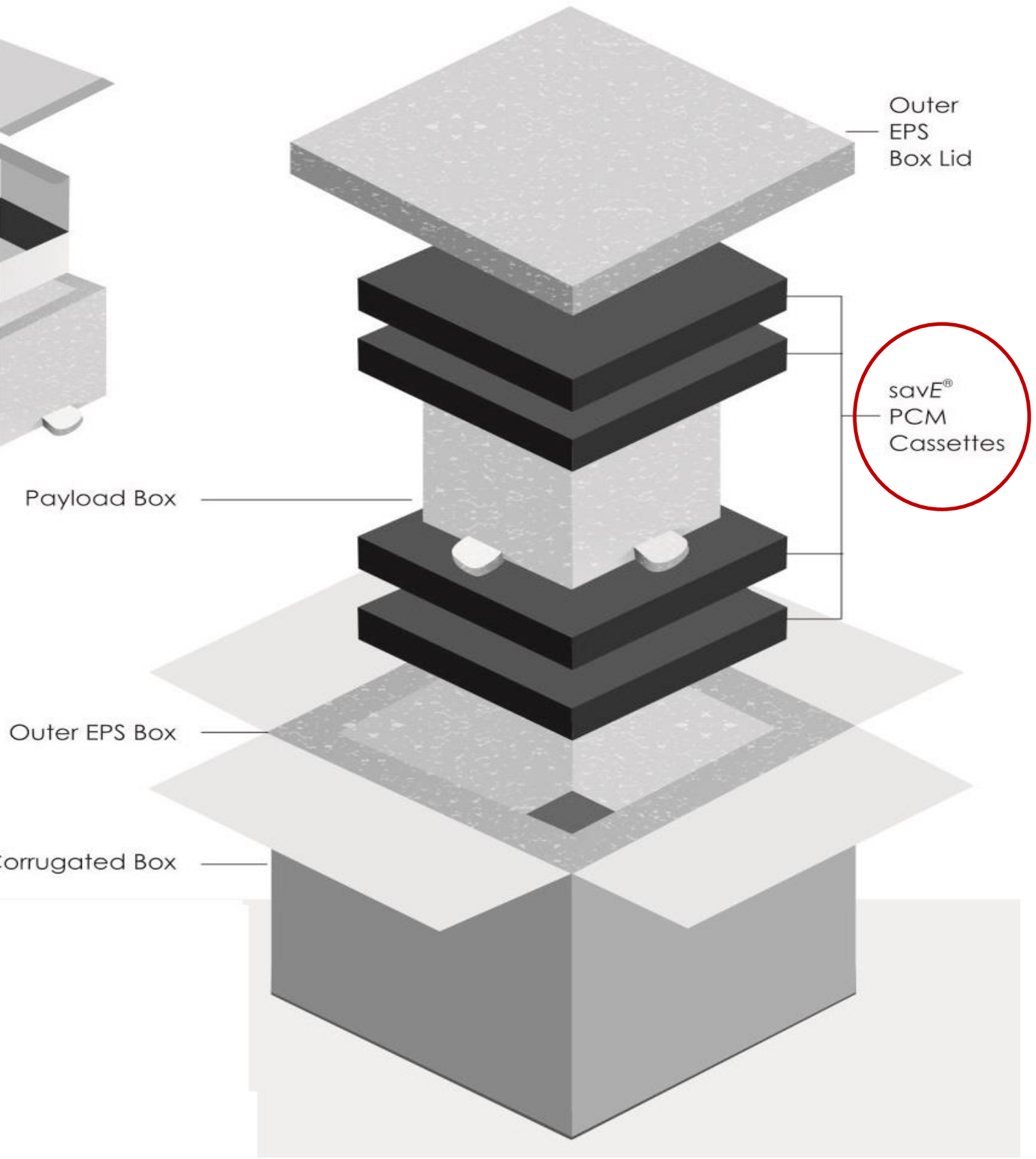
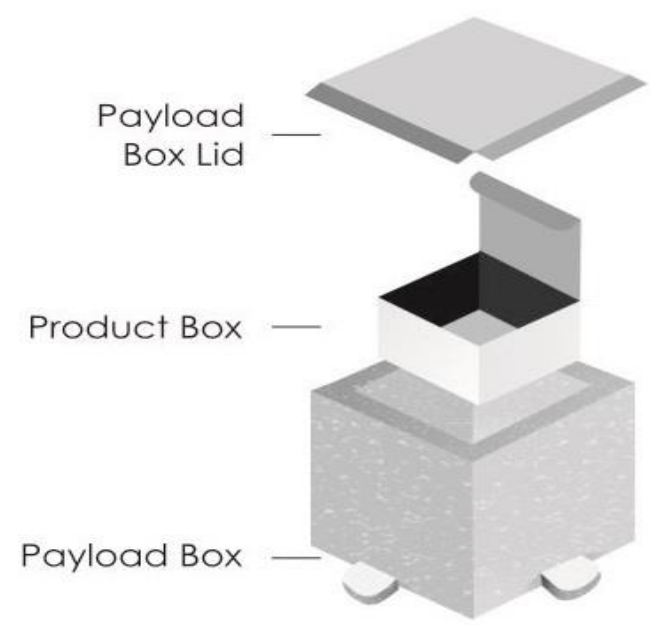
PLUSS[®]
TECHNOLOGY FOR A BETTER WORLD

Therapeutics Approaches



innaumation
Medical Devices

<https://timesofindia.indiatimes.com/india/covid-19-over-1000-tech-proposals-in-4-weeks-by-start-ups/articleshow/75377701.cms>



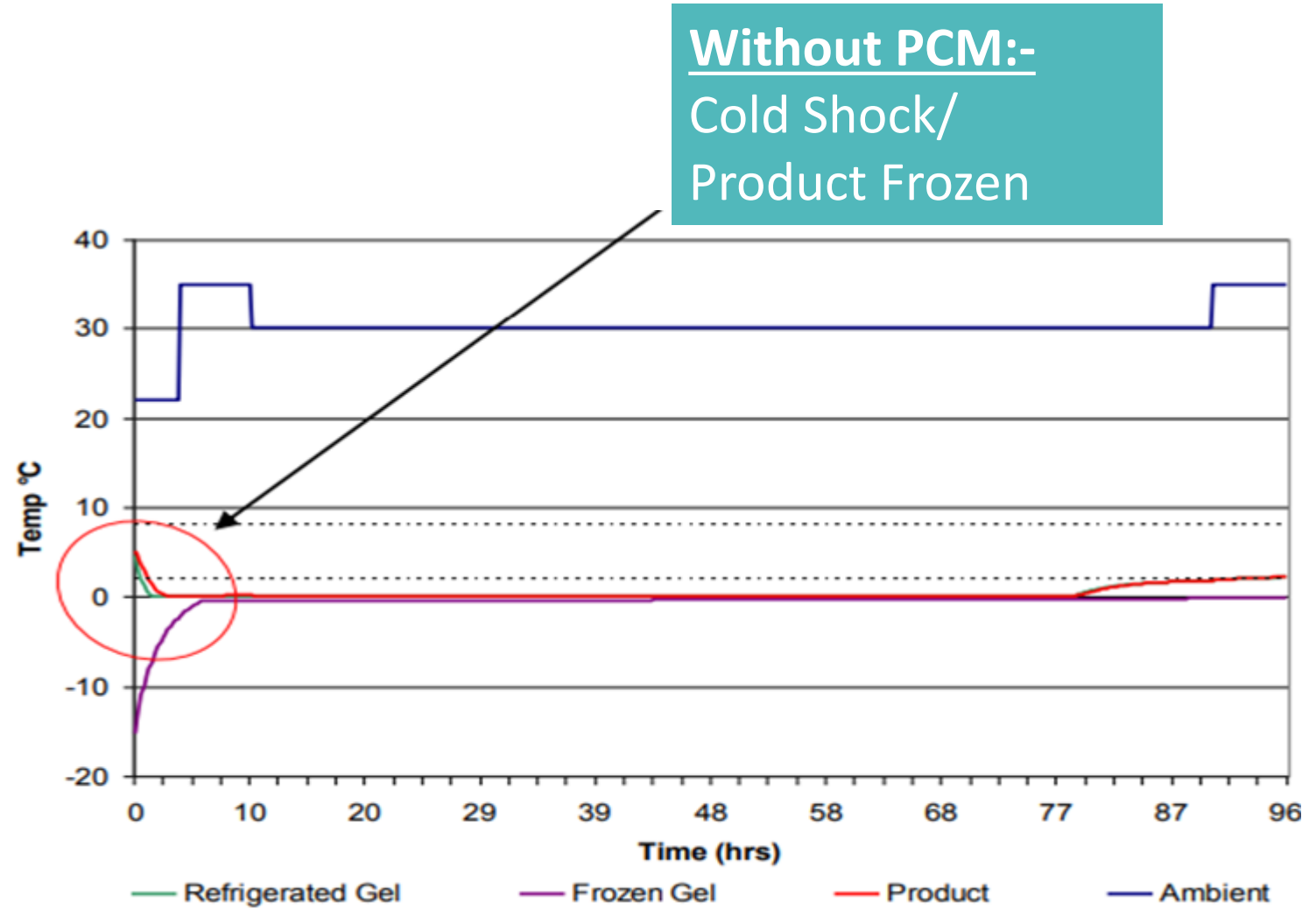
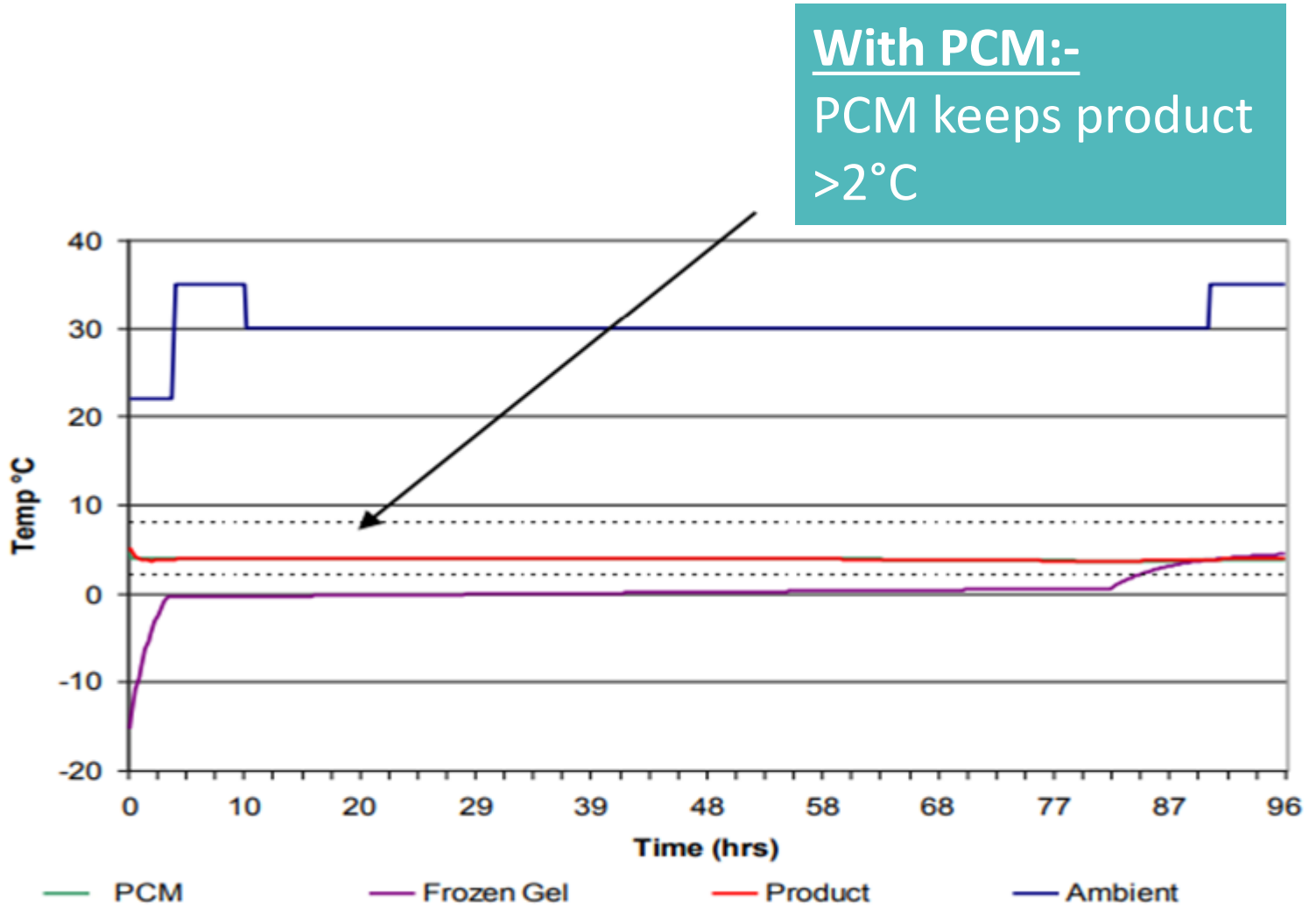
Validation
ISTA 7D

Backup Duration
up to
120 HOURS

**THINKING
INSIDE
THE BOX.**

Technology: Phase Change Material (PCM) inside

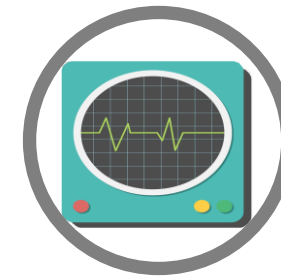
- PCMs are Phase Change Materials
- Store large amount of energy as latent heat at specific phase change (freezing) temperature
- Release/absorb heat at constant temperature
- Repeatable over a substantial number of cycles.



Features



Precise. 2-8 deg C for Viral swabs and -20 deg C for RT-PCR kits



Real time monitoring (optional) for temperature, location, etc.



No Dry ice



System generated smart notifications and alerts



Assembly time only five minutes



AI based root-cause analysis and predictive insights



Validation for upto 120 hours of backup



Patent pending design

Backup 96-120 hours (*International & National Shipments*)

Model No.	Temp. Range	Backup Duration (hrs.)	Ext. Dimensions (mm)	Payload Dimensions (mm)	Payload Vol. (ltr.)	Tare Wt. (kgs)
7L4D-08P/25P	Chilled/ CRT	96-120	500x500x460	230x230x130	7	15.5
14L4D-08P/25P	Chilled/ CRT	96-120	535x535x510	300x300x155	14	21.7
28L4D-08P/25P	Chilled/ CRT	96-120	570x570x600	335x335x250	28	25
7L5D-25N	Frozen	120	535x535x510	230x230x130	7	35

Backup <72 hours (*National & Intercity Shipments*)

Model No.	Temp. Range	Backup Duration (hrs.)	Ext. Dimensions (mm)	Payload Dimensions (mm)	Payload Vol. (ltr.)	Tare Wt. (kgs)
4L2D-08P/25P	Chilled/ CRT	48	300x300x355	195x120x203	5	4.3
7L2D-08P/25P	Chilled/ CRT	48-72	488x488x385	230x230x130	7	10.2
14L2D-08P/25P	Chilled/ CRT	48-72	523x523x435	300x300x155	14	12.4
28L2D-08P/25P	Chilled/ CRT	48-72	558x558x545	335x335x250	28	19.6
3L1D25N	Frozen	24-36	300x300x355	192x107x98	3	5



Backup 24-48 hours *(Last Mile Delivery and Intracity Shipments- Hard Case boxes)*

Model No.	Temp. Range	Backup Duration (hrs.)	Ext. Dimensions (mm)	Payload Dimensions (mm)	Payload Vol. (ltr.)	Tare Wt. (kgs)
25L24H-08P	Chilled	24	490x345x330	275x175x190	9	7
25L48H-08P	Chilled	48	490x345x330	275x175x190	9	12

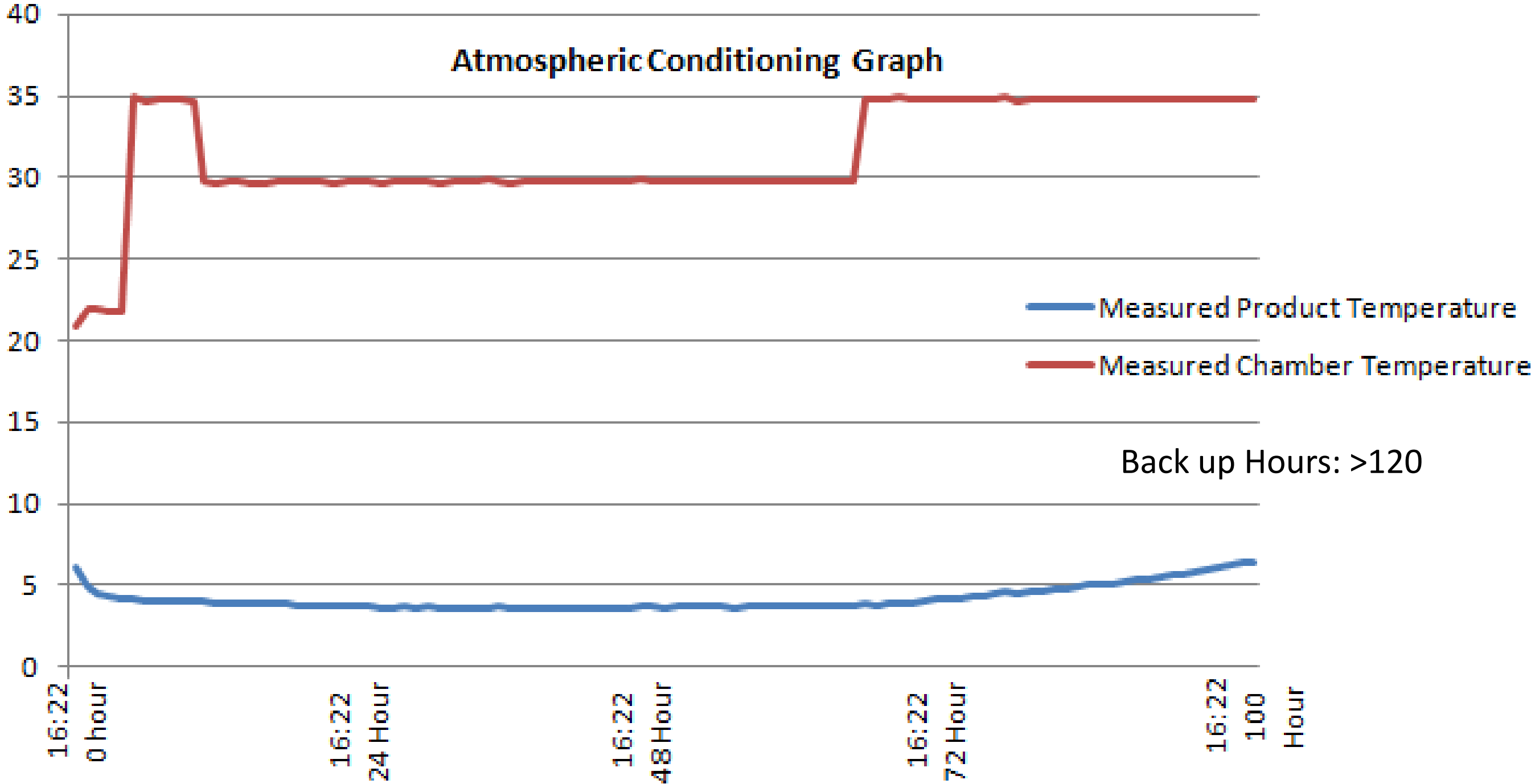


Backup 10-12 hours *(Last Mile Delivery and Intracity Shipments- Bags)*

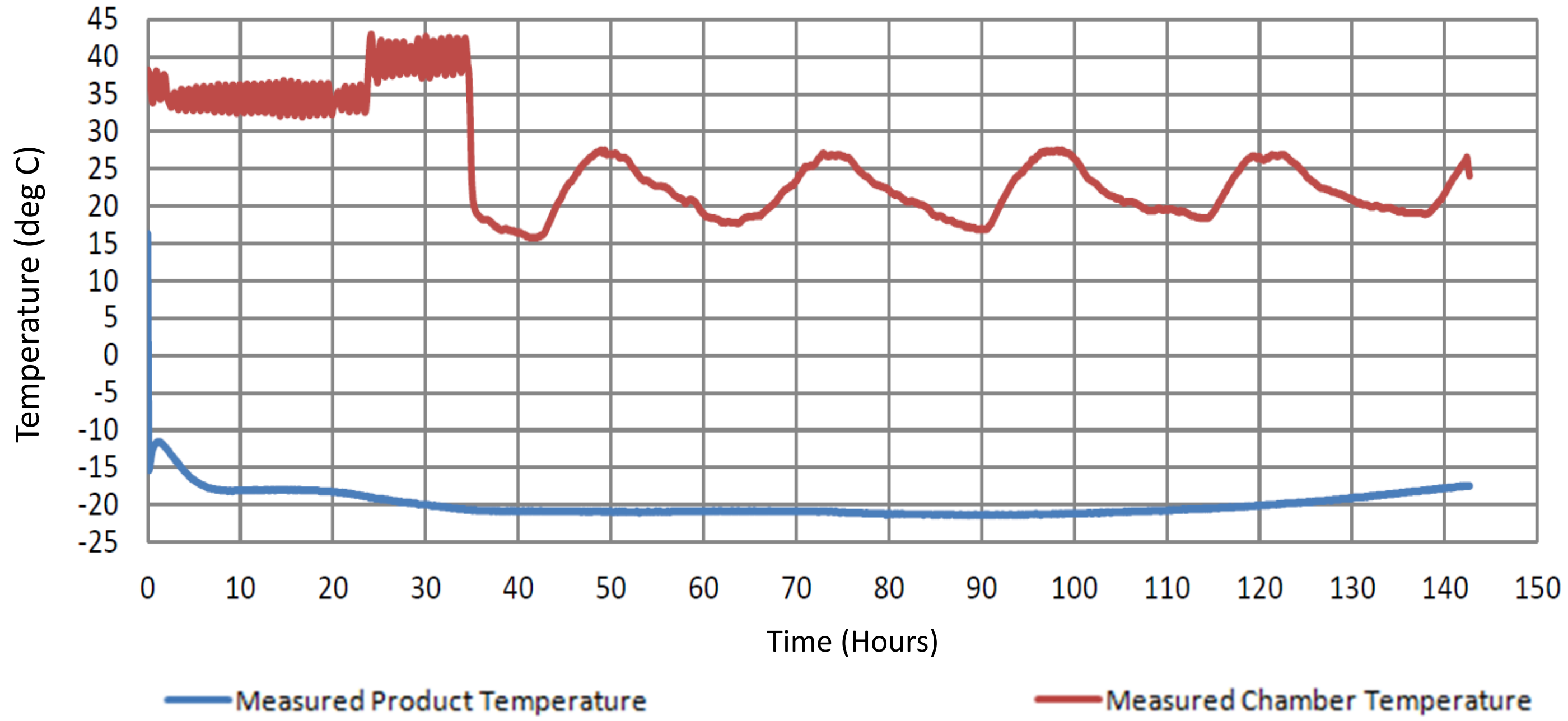
Model No.	Temp. Range	Backup Duration (hrs.)	Ext. Dimensions (mm)	Payload Dimensions (mm)	Payload Vol. (ltr.)	Tare Wt. (kgs)
3L12H-08P	Chilled	10-12	200x200x220	143x143x153	3	4
20L12-08P	Chilled	10-12	375x215x490	310x150x450	20	5.1



Celsure[®] 7L4D-08P (2-8°C)- Validation by TUV Singapore as per ISTA 7D



Celsure[®] 7L5D-25N (-20°C) Validation



Back up
Hours: >120

Key Recognition





celsure®

Temperature controlled packaging
for pharmaceuticals

Protected

3.5M vaccines

from being *wasted*.



United National Sustainable Development Goals



16 trademarks | 10 patents | 175 customers | 20 countries

PLUSStainable

/plʌsteɪnə'bi(ə)l/

the ability to maintain the optimal rate or level to meet the needs of the present without compromising the needs of future generations, **the PLUSStainable way.**

PLUSStainable[®] | TECHNOLOGY FOR
A BETTER WORLD

 www.pluss.co.in