

Vaccine Cold Chain Monitoring Solution

CT Vaccine Cold Chain Monitoring Solution provides a cloud-based software platform that pairs with either CT's latest hardware or with third party equipment to comprehensively monitor vaccine temperature from manufacture through to end-point delivery.

By adopting an end-to-end platform, global stakeholders can be assured and informed about the transit and storage of individual vaccine batches, and instantly be alerted to actual or potential issues.

Can I know if this vaccine batch has ever exceeded its **temperature envelopes**?

Can I know if this vaccine batch has ever been **dropped or shaken**?

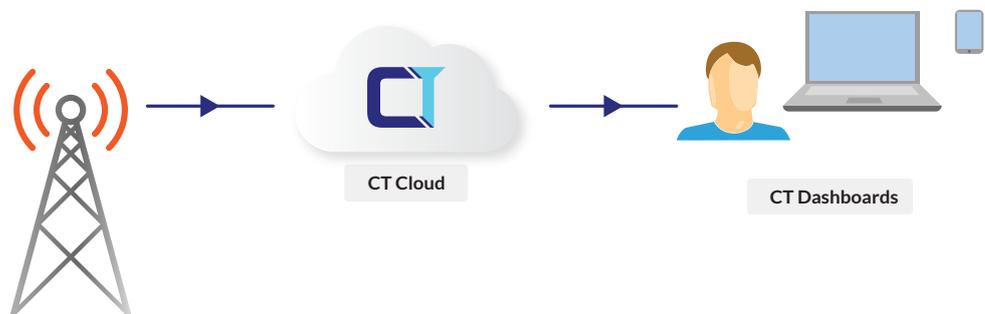
If they did, **when** did these events occur and **who had custody** at that time?

Are **real-time alerts** sent when there are issues and can potential issues be **alerted ahead of time** and thus be avoided?

Can I access and distribute one set of **end-to-end reports** on the shipment and storage?

Is the information **third-party and immutable**?

► In transit or at rest, CT1 ensures accurate and reliable cold chain monitoring from door to door.



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Making Data Make Sense



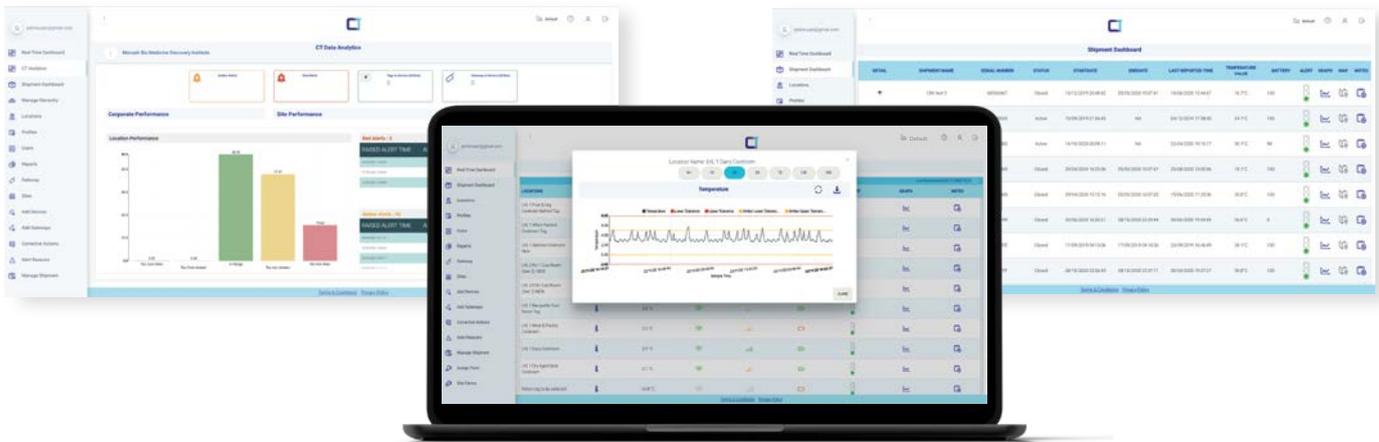
CT Software

Embedded GPS Antenna

Periodically obtains and sends shipment geo-locations to the cloud.

Temperature and Humidity Sensor

Record and log product temperature from source to destination.



CT ALERT!
Vaccine Shipment
NSW temperature out
of tolerance (-1C) at
17/10/2020 8:57



CT Features



Easy to Install

CT's Smart Tags are designed for self-installation.



Geofence and Get Notified

Geofence health facilities, research centers, retail and other zones. Notifications can be sent when the vaccine shipment leaves or enters these zones, or for any breaches.



Intelligent Reporting and Real Time Alert

CT's platform users can benefit from threshold alerts sent to them via SMS and email, and record any corrective actions. The users can generate data for any defined time period.



CT Compliance Management

Manage your vaccine compliances and task management activities digitally.



Smart Analytics

CT's advanced analytics provide insights to empower your organisation to minimise maintenance costs and reduce product wastage.



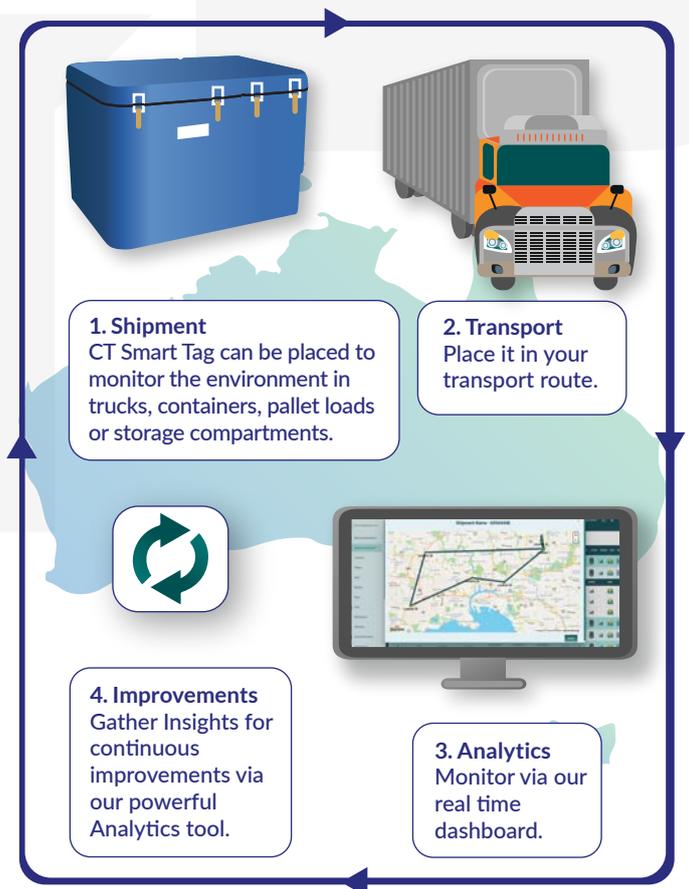
Flexible and Versatile

CT's platform integrates with other IoT solutions and systems, including POS and ERP applications.



Secure and Encrypted

Benefit from CT's proprietary encryption algorithm and protocols to ensure your data is safe and secure.



Key Benefits

- ▶ Accurate cost-effective monitoring at your fingertips.
- ▶ Generate your reports for compliance purposes.
- ▶ Receive real-time alarms to identify and carry out necessary corrective actions.



Case Studies

Monash BioMedicine Discovery Institute (BDI) is a research unit of Monash University that deploys high-end refrigeration units across their campus including negative 80 degree celsius freezers that hold highly valuable research biospecimens that can individually be worth in excess of one million dollars.

CT's monitoring solution provides Monash BDI staff with a self-install sensor unit and log-in to a cloud-based software dashboard that can monitor and help manage sensitive temperature environments with high precision and accuracy across all their refrigeration units and temperature-controlled environments. Cutting-edge monitoring economises energy, assets and labour as well reduces the risk of loss.

The CT platform provides for predictive monitoring to allow proactive management that can help avoid unwanted situations from occurring. Monash University is now doing a broad roll-out of CT's cold chain solution across their main campus.

Barwon Health (BH) is one of the largest and most comprehensive health services in Victoria, Australia.

Seeking the market leading technology solution for temperature and quality management BH has rolled-out CT's solution to monitor catering, pharmaceuticals, research samples, vaccines, and bio samples to continuously monitor, record and report on any regulatory breaches in their temperature-controlled environments including rooms, labs and refrigerated units.

CT monitors specific temperature ranges based on the strict BH and Victorian regulatory requirements including accuracy within one degree down to negative 80 degrees celcius. The client-customised software dashboard helps navigate management through the comprehensive network of units monitored by CT's sensor/platform solution and segregate them based on their respective departments tailored to BH's business processes.

BH has integrated the core features of CT's application into their operating procedures including automated HACCP reports, real-time temperature breach alerts and customised escalation policies to support the achievement of optimal outcomes for safety, compliance and efficiency.



CT LPWAN Tag Specifications

Device Internal Temperature Sensor
Temperature Accuracy
Temperature Sensitivity
Internal Tag Temperature Range
Communication Protocols
Cloud to Device Comms
Offline Storage
Device Dimension (mm)
Enclosure Material, IP66
Battery Life*

Battery Recharge Capabilities
Shipment Monitoring

Geofencing
OTA Calibration
Smart Alerting (SMS/E-Mail)

Sensor Plug Ins

Nist/Nata
+/- 0.5C (0.9F)
0.1C
-30C (-22F) to 60C (140F)
NB-IoT / CAT-M1 / LTE (Carriers: Vodafone or Telstra)
2-Way Encrypted Secure Communication
1,000 Samples *
120 (L) x 61 (W) x 35 (H) mm
Food Grade, IP66 rating
1 year per full charge
(based on default sampling and reporting intervals)
Plug and Recharge Enabled. Max Charge is ~5hrs
Satellite GPS with Accelerometer.
(programmed to take GPS upon movement at every sample interval)
Available
Enabled for all Sensor Variants
Yes. Alarms can be configured to be received via Email and SMS
Can connect different sensor variants to Tag such as RTD Probe, Humidity Sensor, Door Sensor, DO Sensor, etc.

* Battery life is dependent on the reporting intervals set for the sensor. Default is 1.5 hours with 10 min sampling intervals.

Sensor Plug In - RTD Probe Specifications

RTD Probe Temperature Sensor
RTD Probe Temperature Accuracy
RTD Probe Temperature Sensitivity
RTD Probe Temperature Range *
RTD Probe Wire Material
Example Use Cases

RoHS Certified Material
+/- 0.5C (0.9F)
0.1C
-200C (-328F) to 300C (572F)
Insulation Resistant Material. Protects from Wear & Tear
80 Freezers, Glycol Tanks, Coolrooms
with Attached Freezer Rooms, etc

Sensor Plug In - Humidity Sensors Probe Specifications

Humidity Range
Humidity Accuracy
Response Time
Humidity Hysteresis
Ext. Temperature Sensor (at Humidity Probe)
Ext. Temperature Accuracy
Example Use Cases

0-99.9% RH
+/- 2% RH
<6s
+/- 0.3% RH
-40C (-22F) to 80C (176F)
+/- 0.5C (0.9F)
Any Humidity Controlled Environments.

* Other sensor plug-in variants specs can be provided upon request.

