

Temperature Monitoring at Lineage Logistics



27th January 2021



Agenda

- Introduction
- Recent improvements to our network
- Temperature Monitoring
 - The past
 - The present
 - The future
- Opportunities that temperature monitoring can unlock
- Summary



Our Vision

To be the world's most dynamic
temperature-controlled logistics company



Lineage



Our Purpose

To transform the food supply chain, eliminate waste
and help feed the world



We Store, Move and Prepare the World's Food

Grown or
Produced



Moved to
Production
Warehouse



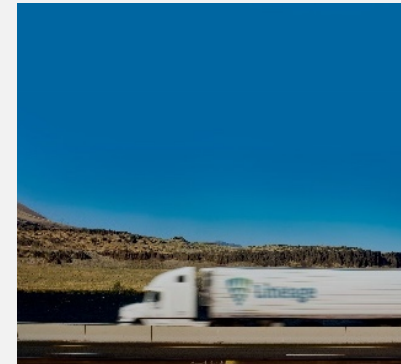
Stored Safely by
Lineage PRW



Moved to
Distribution
Warehouse



Distributed to
Store or
Restaurant



Consumed by
Families



Lineage®





Our Network by the Numbers

Cold Storage You Can Trust

Lineage operates a network of sophisticated, strategically located cold storage facilities to serve our clients and their customers. Over 4 billion cubic feet of freezer and cooler capacity combined with over 300 locations worldwide allow us to handle the scale of your cold chain.

4.1B+

Total Cubic Feet Capacity

13M+

Pallet Positions

340+

Global Buildings

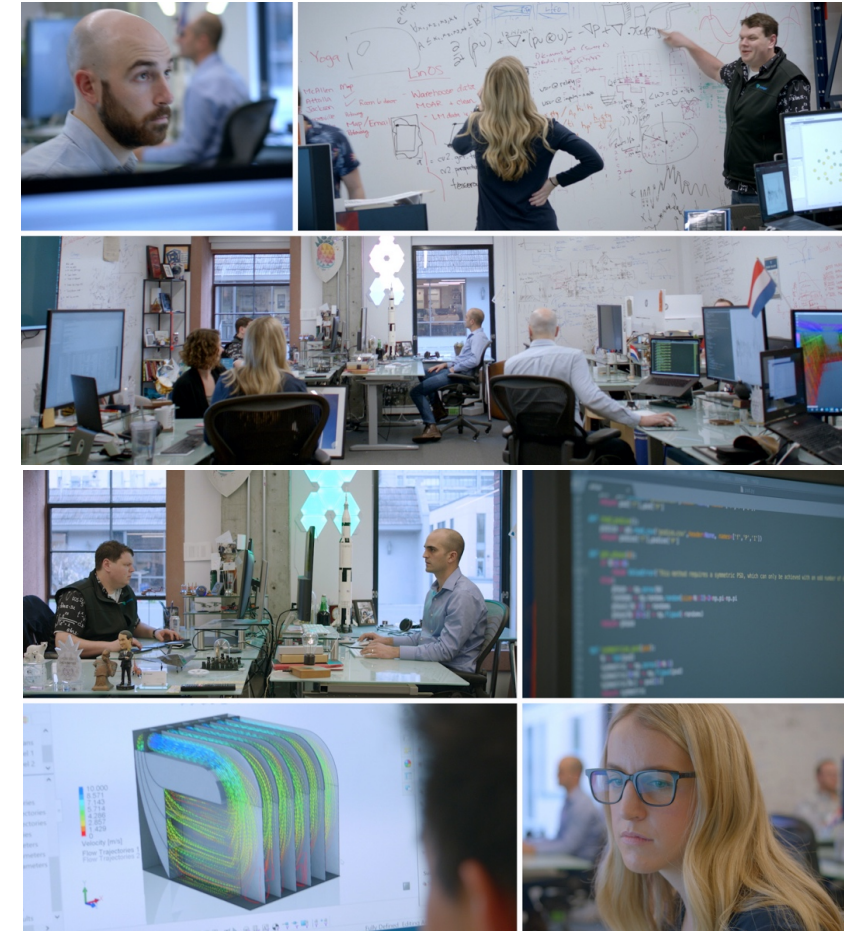
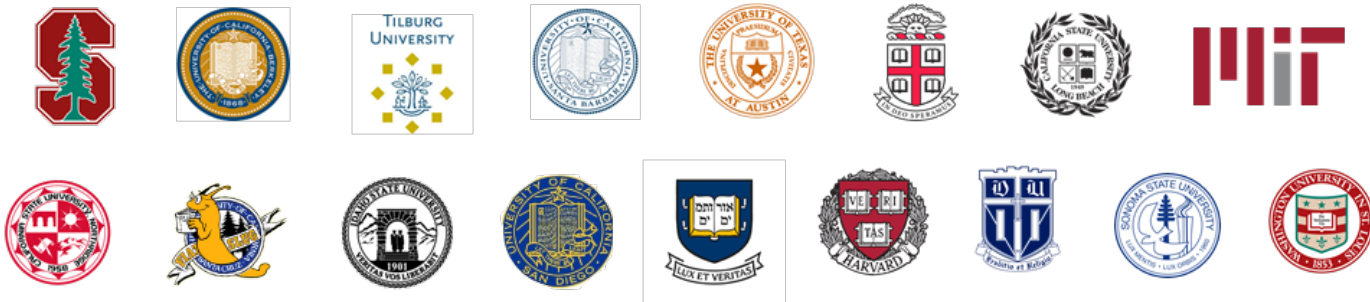
21.3YR

Average Building Age

Our Team Turns Data Into Growth and Efficiency

Lineage's Data Science Team, located in the heart of Silicon Valley in downtown San Francisco, consists of eight scientists with Ph.D.s and advanced degrees from the country's most prestigious universities in areas such as engineering, mathematics, statistics, physics, biology and systems engineering.

This team utilizes big data and technology to revolutionize the cold chain industry and apply science to bring unprecedented innovation to Lineage.





The Journey begins – site improvements

Refurbed insulation



New compressors





Improvements continued

Efficient plant



Plant controls



Capturing data





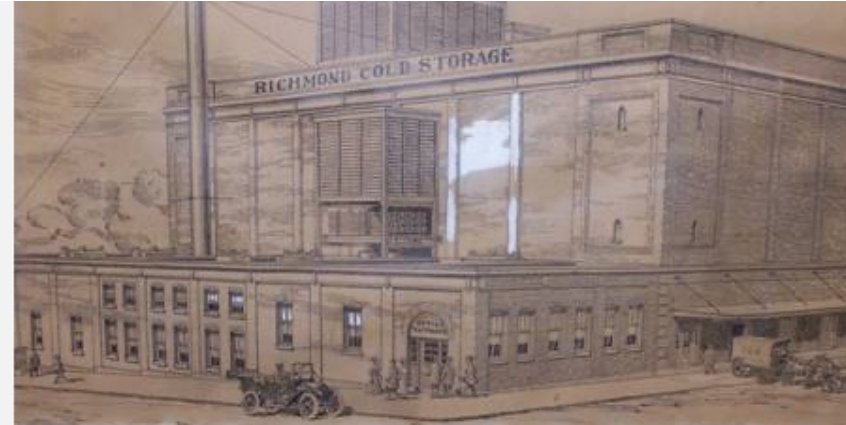
Our WHY?

- Reduced risk and improved food safety
- Higher COP
- Environmental benefit
- Aligns us with company vision



Temperature monitoring – The past

Our work dates back to the founding of New Orleans Cold Storage in New Orleans, Louisiana in 1886 – the oldest cold storage company in North America.



The manual temperature log

Record keeping in paper





Temperature monitoring – The past

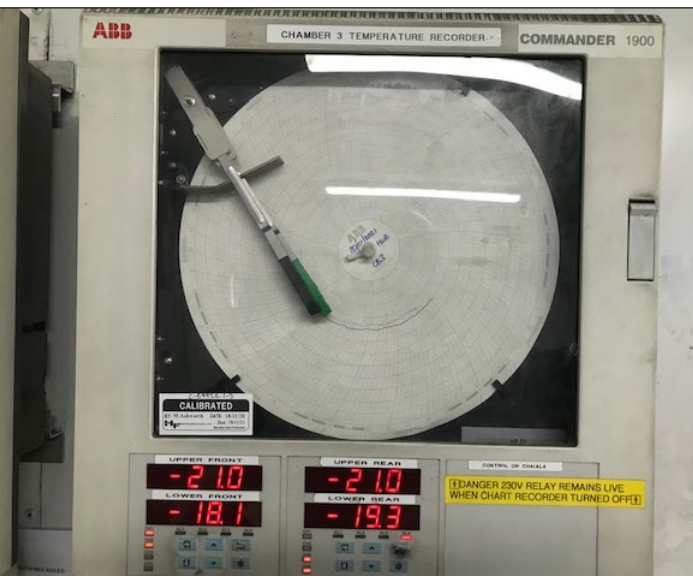
- Average temperatures used to prove compliance
- Hard wired sensors giving readings at high level

SC2 - Fridge/Cold Room/Display Chill Temperature Records

Month: June , Year: 2007

Temperature Of Fridge/Cold Room/Display Chill*														
(Insert Name Or Number Of Units In Shaded Boxes Below)														
Unit	AM		1PM		AM		1PM		AM		1PM		Comments/Action	Sign
Date	AM	1PM	AM	1PM	AM	1PM	AM	1PM	AM	1PM	AM	1PM		
1 st	2°C	10°C	7°C										Gauge adjusted (Re-checked 1 hr later)	A Jones
2 nd														
3 rd														
4 th														
5 th														
6 th														
7 th														
8 th														
9 th														
10 th														
11 th														
12 th														

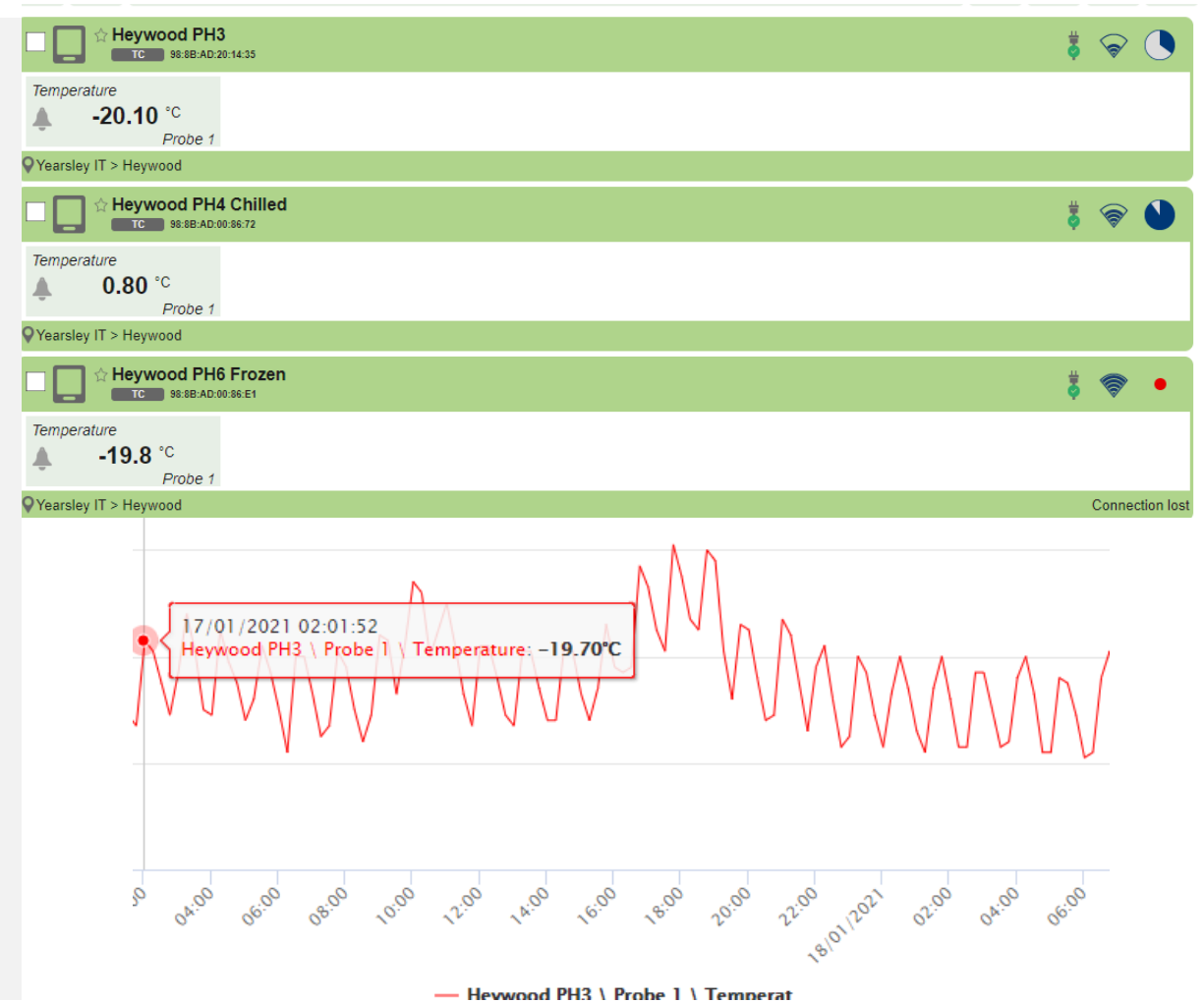
Temperature of food must not exceed 8°C. *Some businesses may wish to record freezer temperatures. †It is recommended that fridge temperatures are checked at least once per day. Some businesses may wish to check fridges more frequently.





Temperature recording – the present

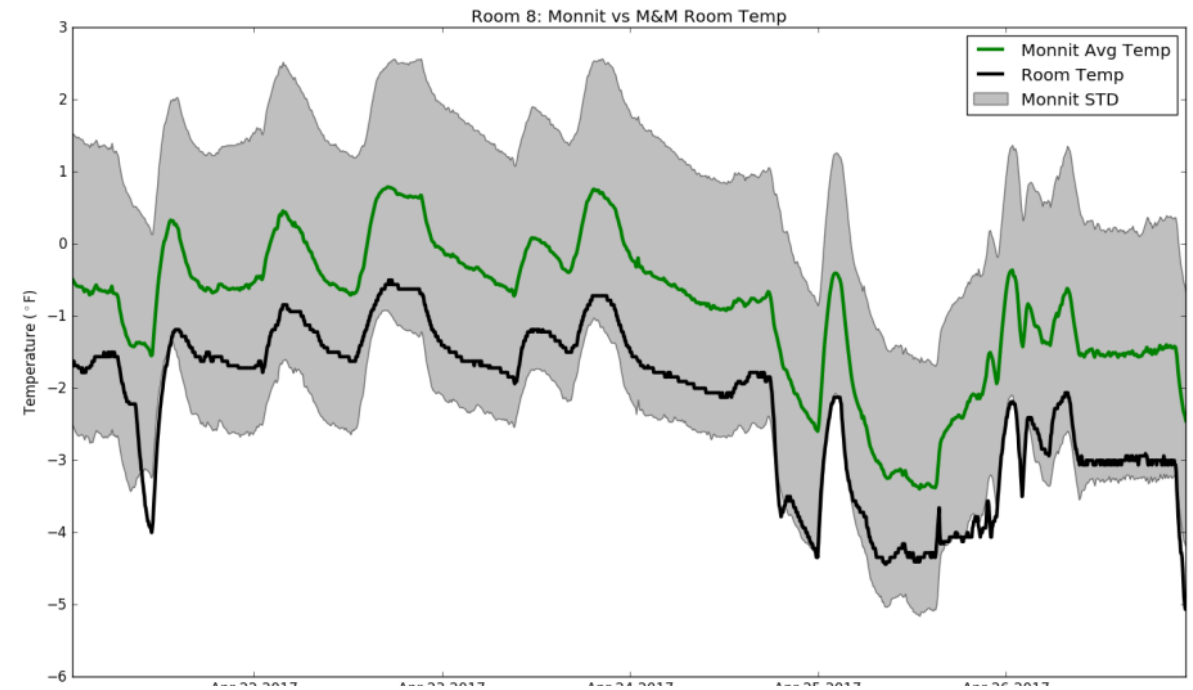
- Wireless data loggers
- Real time information





Temperature recording – the present

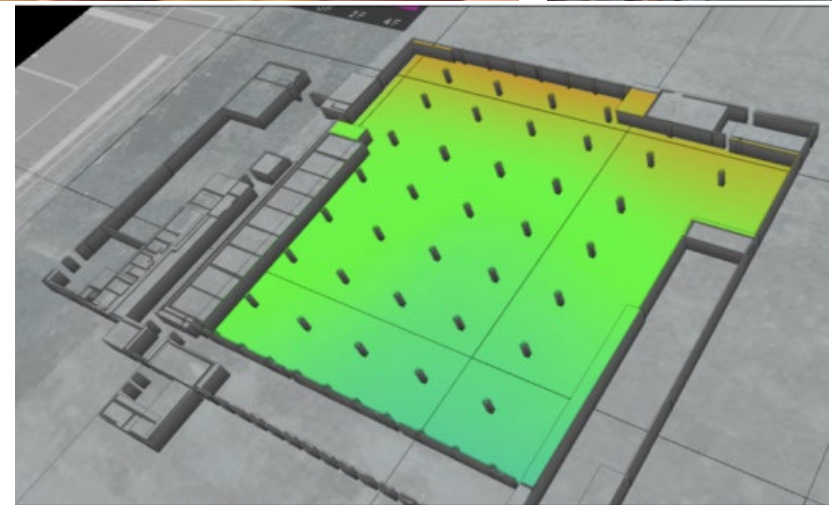
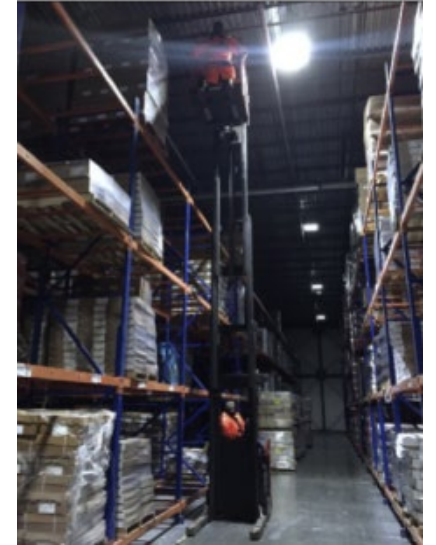
- 2 versions of the truth





Temperature recording – the future

- Improved systems give us more data which in turn open up opportunities to improve the way we manage our refrigeration loads.





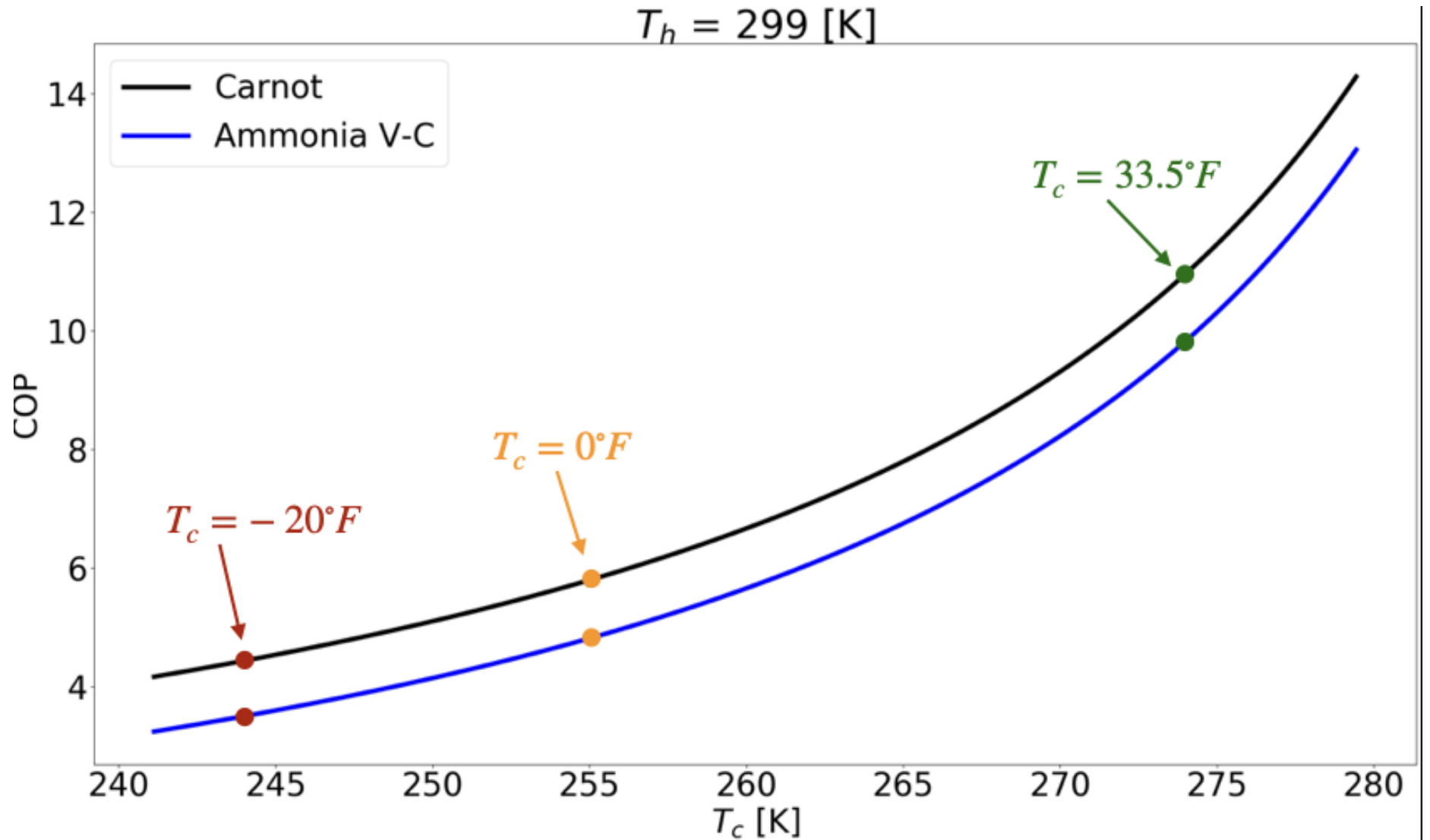
Temperature recording – the future

- Uncertainty leads to waste
- Using data to push the envelope on temperature parameters
- Align systems to give us accurate readings and refined plant controls
- Improved COP
- Improve compliance



Temperature recording – the future

- COP





Summary

- Improvements to food safety unlocks other opportunities
- Help us to align with company values and eliminate waste
- Reduce our impact on the environment
- Applying Science to Move Our Industry Forward
- Build the Coldstore of tomorrow



THANK YOU