

# RFID Time/Temperature in Cold Chain Management

*by*

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# CFDR

*The mission of the Center is to provide the food industry a unique environment for developing knowledge that will assure **food quality and safety** throughout the **whole distribution chain.***



# CFDR

## ***External Advisory Board***

***Ten top international decision makers in  
the retail food industry***

***Retailers, Food Service Companies,  
Restaurant Chains and End-users  
(President or V-President)***



# CFDR

**Why is Time/Temperature  
tracking so important ?**

**Food Industry  
and  
Pharmaceutical Industry**



# Food Industry

**Most perishable products  
are highly affected by  
temperature  
(quality and safety)**



# Food Industry

**Each year a retail store can  
lose \$400 000 due to bad  
temperature management**



# Food Industry

Where temperature may be a problem?

Field, cooling, warehouse, transit, distribution and the store



# Food Industry

**Knowing real-time  
temperature can allow to  
predict “residual shelf life”  
and make decision based on  
this knowledge**





# Food Industry

## Models predicting quality



# Food Industry

Models predicting quality  
can be done at:

**Pallet level**

**Case level**

**Item level**



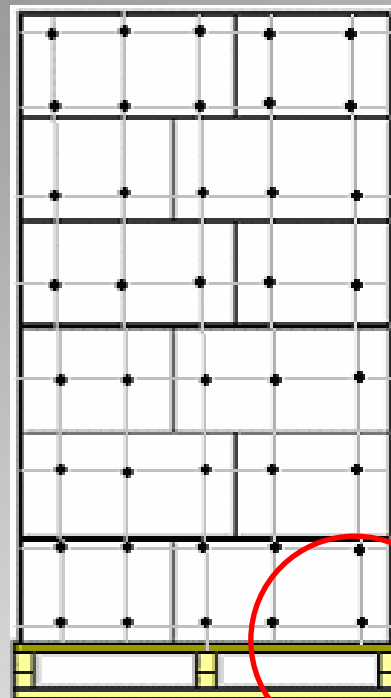
# Food Industry

**Due to high water content,  
RFID temp tags must be  
placed on the outside.**



# Food Industry

## Pallet level

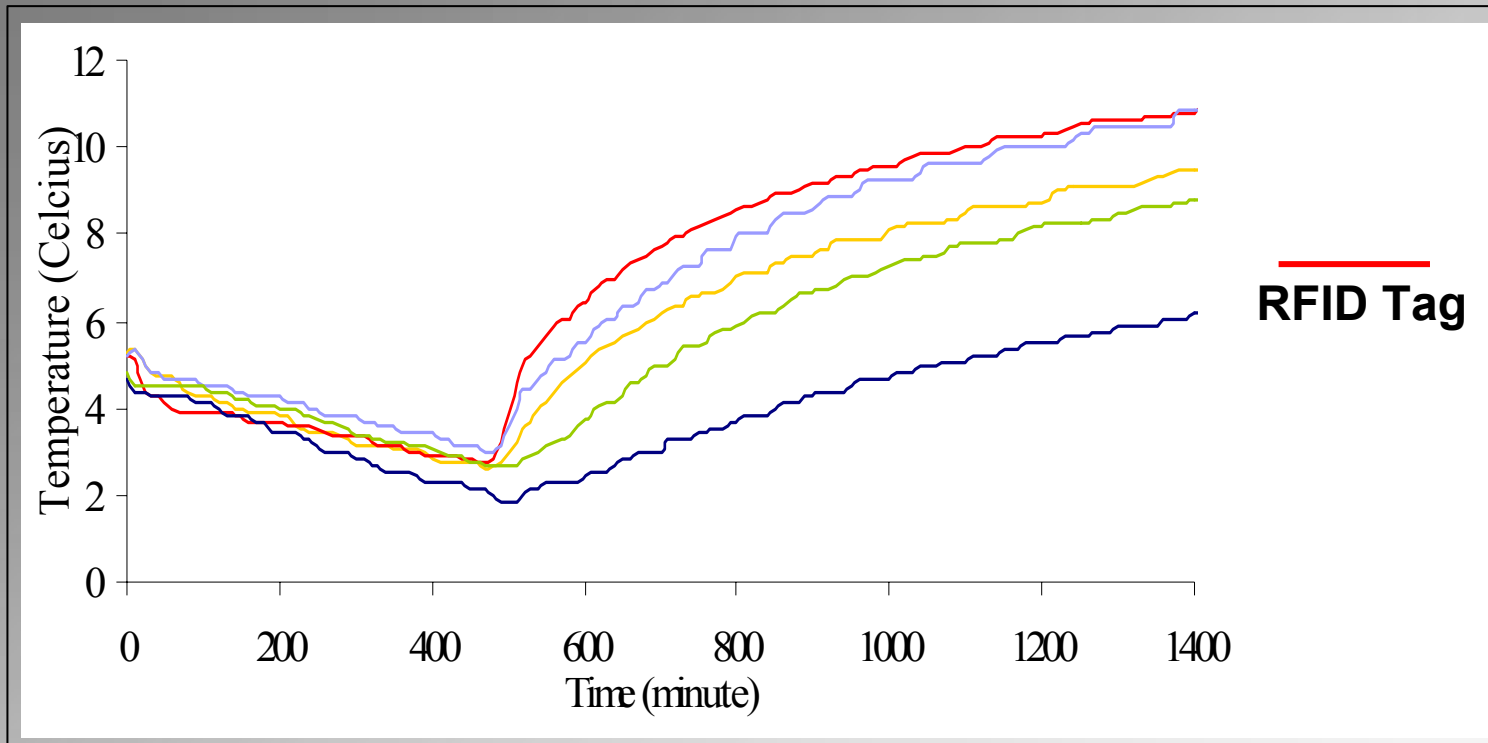


RFID Temp Tag



# Food Industry

## Pallet level



# Food Industry

## Case level

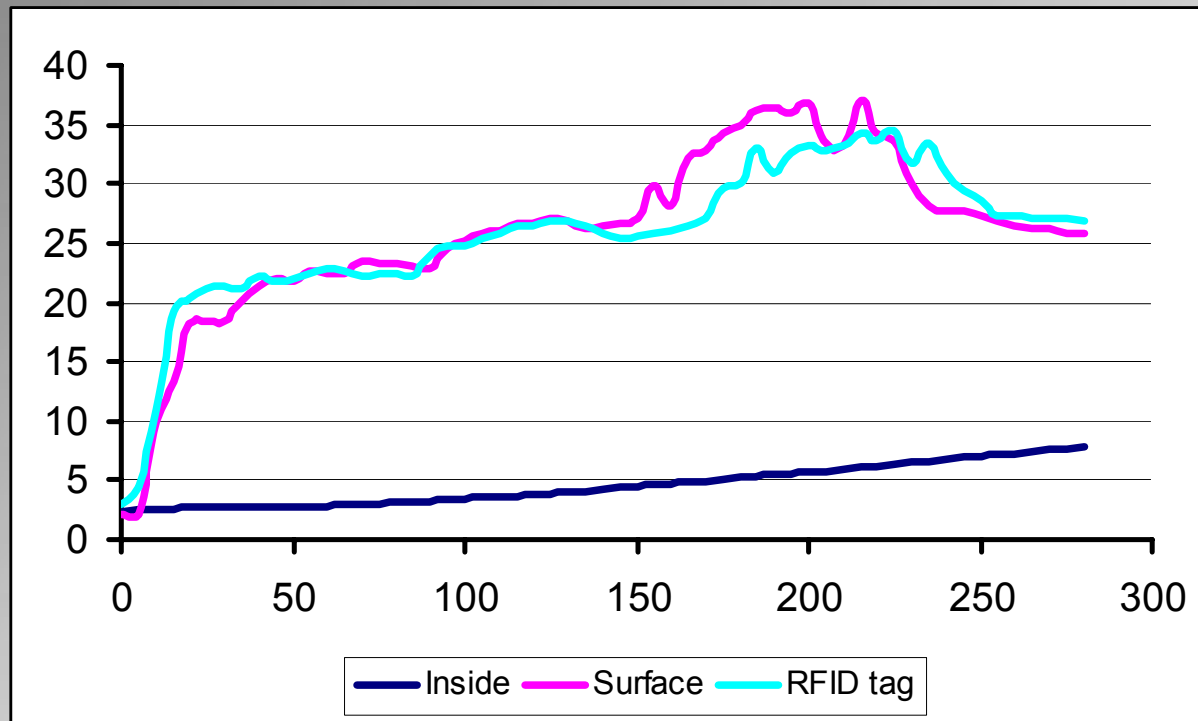


RFID Temp Tag



# Food Industry

## Case level



# Food Industry

**Item level**  
**(punctual temperature)**





# Dynamic Shelf life

(cold chain)



***UNBROKEN***



***BROKEN FOR  
9 HRS***

# **Food Industry**

## **Item level**

**(punctual temperature)**

**Prevent misplacement of Products**  
**Smart display**  
**Dynamic “best before date”**  
**Home applications**



# **Food Industry**

## **More applications**

**Prevent misplacement of products at DC**

**Smart transportation**

**Cooling optimization**

**Prevent “non-safe food” to enter in the  
distribution chain**

**Cold Chain Diagnostic**



# **Pharmaceutical Industry**

**Strict regulations about  
temperature range**

**Need very good accuracy**

**Able to read before opening  
the container**



# Pharmaceutical Industry

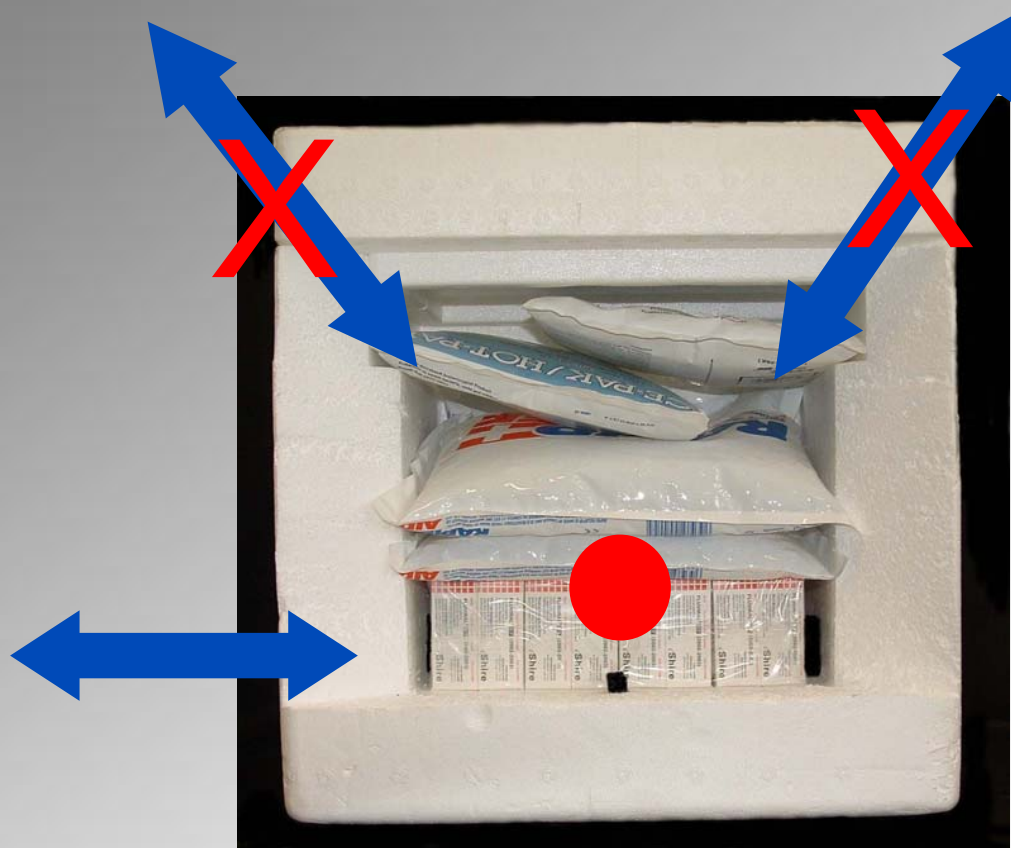
Many components of a shipping container are “unfriendly” to typical RFID Temperature Tags



# Pharmaceutical Industry

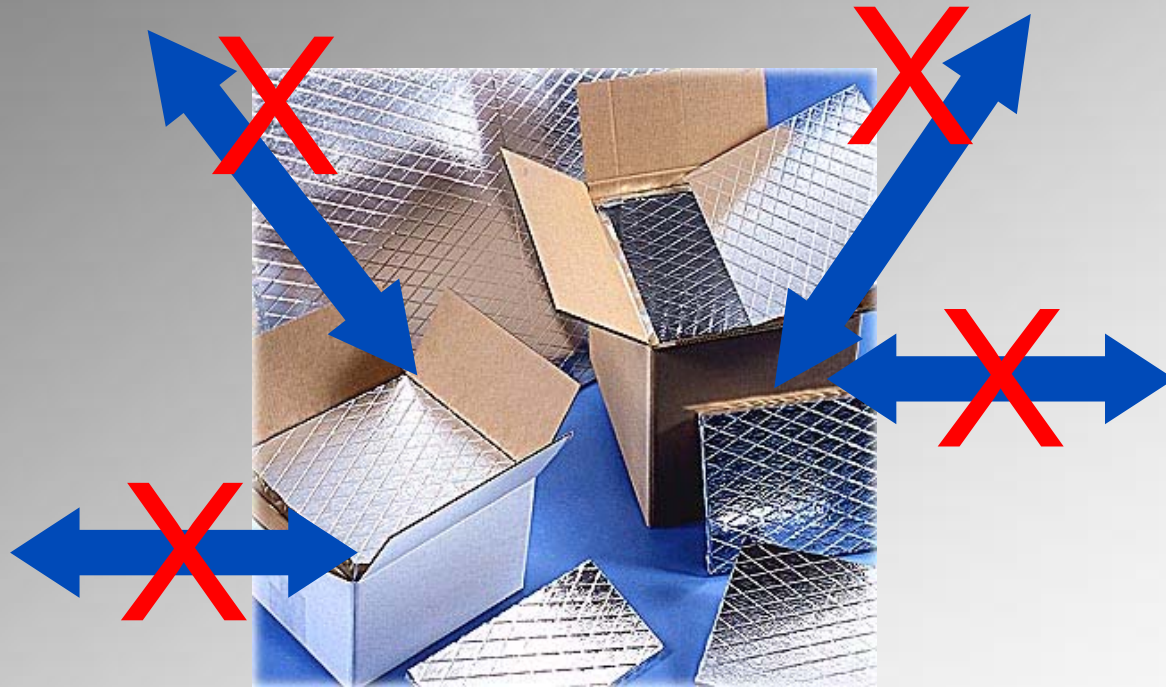


# Pharmaceutical Industry



# Pharmaceutical Industry

## Vacuum panels





# Conclusion

**RFID Temp Tags open a new era in Cold Chain Management**

**Food Industry will benefit from new “smart technologies” using RFID**

**Pharmaceutical Industry can have a “real time” visibility of the cold chain**

