



## Cold Chain Traceability

The RFID sensor enabled solution allows manufacturers to trace their products' quality and integrity down to the end user. Our priced-right, web-based application will not only ensure the identity and purity of the product, but also the quality of the transportation efficiency. End users do not have to download or purchase any type of software, and manufacturers can receive their products' information instantly, with their customers' cooperation. Temperature and humidity sensitive products may become "unsaleable" or even dangerous to the public health if exposed to environmental conditions above or below their standards. As a result, storage and transportation conditions became a critical component and an inseparable part of the cold chain.



There are many environmentally sensitive products (perishables) in many different vertical markets, including food, dairy, pharmaceutical and biotechnology. According to the Biotechnology Industry Organization, there is a growth of 15% of environmentally sensitive products every year. Food products such as meat, poultry and dairy products must be refrigerated or frozen after processing and before shipment to

inhibit spoilage and growth of pathogens. During transportation and storage, the challenge is to maintain proper refrigeration temperatures and to keep the "cold-chain" from breaking during steps such as palletization, staging, loading and unloading of containers and in storage.

In addition, spoilage remains an important factor of shrinkage, deaths and other health related risks. Advanced information about the quality of storage, handling and transportation down to case/box level, will allow manufacturers to keep their quality standards and benchmarks, as well as respond better to alerts before the products reach the consumers.

## RFID Sensor-Based Solutions Provide Advanced Traceability

Widespread real-time authentication solutions will sufficiently reduce consumer and patient health risks by allowing manufacturers, distributors and end users to detect and control spoilage down to the item level. The solution will create the temperature pedigree for each individual product and ensure the quality of a product before it reaches the consumers.

Currently, food, dairy and pharmaceutical companies are already tracking their environmentally sensitive products using temperature data loggers placed in their transportation vehicles, containers or even pallets. However, this technology only provides information for a certain part of the cold chain. If a box is taken away from a pallet, the temperature data logger currently used cannot track the conditions of that specific box anymore.

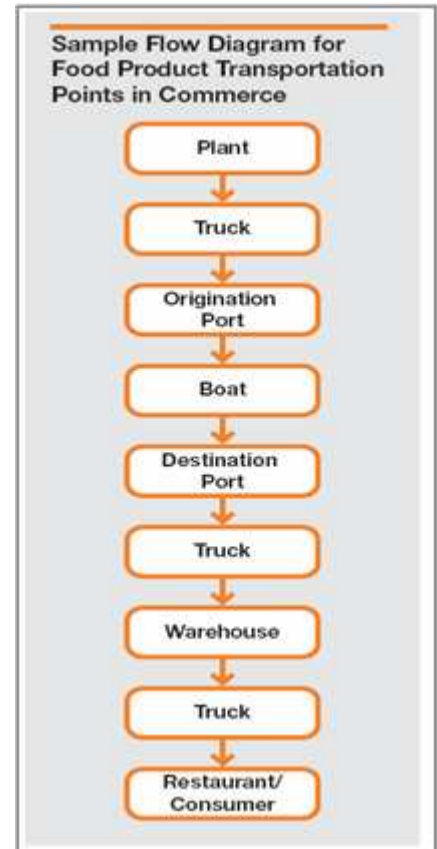
Priced right semi-passive RFID sensor tags allow manufacturers to place them on their cases – depending on the margins – and receive more efficient information about each individual case, not just a pallet or container. This solution gives users the ability to identify spoiled goods down to case level, without opening those cases.

In addition, RFID technology allows brand owners to protect their product integrity from counterfeit and grey markets. With “parent-child” hierarchy, end users can now identify each individual product in each case and therefore, its environmental condition. Using 2D

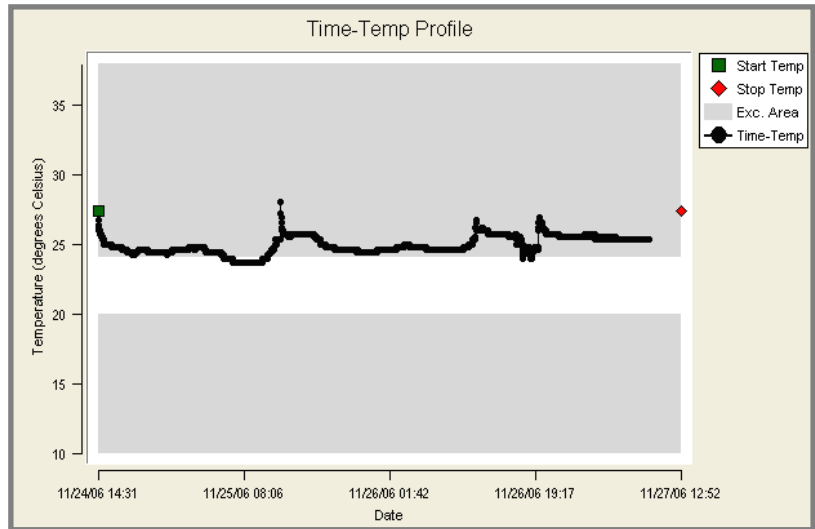


bar code serialization at the point of production, manufacturers can associate the EPC (Electronic Product Code) of the RFID sensor tag with the SN (Serial Number) encoded in each individual product – with the use of 2D bar code or RFID tag. This will allow their end user to authenticate the integrity of a product down to the item level and therefore avoid purchasing counterfeit and spoiled goods.

When the product is ready to be palletized, an RFID sensor tag is activated and then placed on the product containing information such as description, destination, and date of departure. This information is also stored in a secure database, when the card is activated through the manufacturer with a use of an RFID reader. The



tag can be set by the product owner to take temperature readings in preset intervals. When the product arrives to its first location, the user will scan the RFID sensor tag, and after a secure login into the web-based solution, will upload the tag data into the database using time and data stamping, to avoid data tampering. This process will continue until the product reaches its final destination, where additional data will be uploaded into the database and become instantly available to the manufacturer by inserting the SN of the tag into the web application and downloading the information.



This method allows end users to instantly receive the products' temperature pedigree, while the manufacturer receives location and temperature pedigree that can be later used towards documentation for insurance claims.

### About Syntax Commerce

Syntax Commerce, Fast Heat's Inc RFID Sensor Solutions Division, offers customized B2B solutions for any value chain and takes into account the varied business goals and data sharing parameters of each segment across the supply chain. Our advanced RFID temperature sensor technology along with the web-hosted analytics package, provide a complete solution that can leverage your value chain. Our company is based in Elmhurst, Illinois. For additional information about Syntax Commerce, call (866) 464-7604 or visit [www.syntaxcommerce.com](http://www.syntaxcommerce.com).

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