RFID Labels for Pharmaceutical and Food Safety Monitoring

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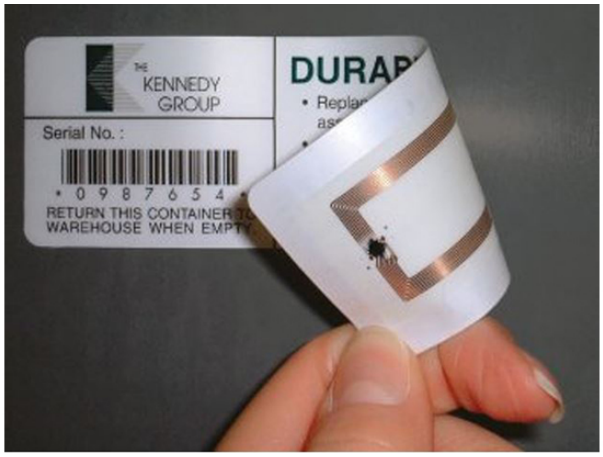

RFID label

Technology Summary

The present invention allows for producer and consumer information about perishable items by providing for automated readout through radio-frequency identification (RFID) labels and readers at low cost. The technology is a sensor composed of cobalt/antimony (Co/Sb) multilayer films. A single sensor requires only micrograms of material and coupled with the self-assembly of the nanoparticles makes the sensor inexpensive to produce. At ambient temperatures, the electrical resistivity decreases, and this is a thermally activated process that follows Arrhenius kinetics. This Arrhenius decay of the sensor's resistivity can be matched to the time-temperature decay of a particular food item. Coupling the electronic properties of the sensor within an RFID label allows for automated readout.

Application & Market Utility

This technology is a thermally activated time-temperature indicator (TTI) suitable for use in passive and active RFID applications. This type of indicator can be used in the cold chain to monitor thermal age of foods and pharmaceuticals to provide more accurate estimates of shelf life. Readout with RFID allows automated processing along the supply chain as well as automated real time information for consumers (accurate, updated expiration dates) through cell phones and smart refrigerators with RFID readers. This technology is protected by US Patent 9,041,419.

Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL 4-7

Seeking

Investment | Licensing | Research

Keywords

- time-temperature indicator
- electronic nanoparticles
- food safety
- food storage

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