

## Sun™ Advanced Product Testing Lab

Transportation, cold chain, traceability, and shelf life testing for the food and beverage industry



### Highlights

- ISO-9001 certified, independent, fully equipped environmental test lab
- Testing in accordance with major USDA, FDA, transportation, and RFID standards and many other specifications
- 32,000 square-foot facility combines state-of-the-art “shake and bake” with advanced environmental and stress testing
- RFID testing to meet EPCglobal, CAGE, Department of Defense, and major retail standards and certifications



Safety concerns, competitive pressures, regulatory requirements, and a global supply chain are creating more demand than ever before for more information about food and beverage products as they come through the supply chain. Ensuring that food and beverage products arrive at the retailer with maximum quality and shelf life is challenging, but regulatory agencies and consumers are increasingly interested in all aspects of the life cycle—from farm to fork. Requirements for food traceability and cold-chain verification call for the ability to record, organize, present, and communicate data about where an individual food product came from and how it was processed, encompassing suppliers, processors, logistics, distributors, and retailers. The Sun™ Advanced Product Testing (APT) Laboratory can help you analyze, design, and test virtually all aspects of an end-to-end food and beverage supply chain, including packaging, traceability, and cold chain methodology to ensure that food and beverage products arrive cost-effectively, and with maximum quality and shelf life.

#### Transportation testing and packaging

Ensuring that their products arrive on retailer shelves in pristine condition is the goal of every food and beverage manufacturer and distributor. Contents; container, carton and pallet design; stackability; mode of transportation; environmental conditions; cost; industry standards; and government regulations are all factors in determining how products move through the supply chain. Sun APT Laboratory has worked with leading food and beverage companies to help them improve their packaging design and complement transportation logistics.

#### Cold chain and traceability

A cold chain is defined as a supply and distribution chain for products that must be kept within a specific temperature range. A well-implemented cold chain minimizes shrinkage and maximizes quality, optimizing energy consumption while protecting the merchandise, and ultimately, the brand.

Traceability is the process of collecting and storing data about a food product or process at every step of the supply chain. Traceability helps everyone make more informed business decisions in relation to ongoing operations.

The impact of poor food supply chain tracking and visibility: Facts and figures

- **\$100-250 million, and over 1,200 confirmed illnesses<sup>1</sup>**– Cost to agribusiness of a salmonella outbreak, first thought to be borne by tomatoes, but later confirmed to be jalapeno peppers. It took over 14 weeks to identify the source of the contamination. Authorities struggled to determine if the peppers were tainted on the farm, at the processing plant, or a packing house.
- **205 confirmed illnesses and 3 deaths<sup>2</sup>**– Human costs of the E.coli:157:h7 outbreak in September 2006.
- **\$350 million<sup>3</sup>**– Cost to the farming and agribusiness industries as the nation turned away from a growing trend of eating fresh, ready-to-eat spinach.

<sup>1</sup> <http://www.sacbee.com/101/story/1099266.html>

<sup>2</sup> <http://www.fda.gov/bbs/topics/NEWS/2007/NEW01593.html>

<sup>3</sup> [http://www.usatoday.com/money/industries/food/2007-09-20-spinach-main\\_N.htm](http://www.usatoday.com/money/industries/food/2007-09-20-spinach-main_N.htm)

This information can prove invaluable in the service of process optimization and product quality improvement, advancing continuous improvement initiatives, activity-based costing, and various inventory management strategies. RFID technology enables both cold chain monitoring and traceability throughout the supply chain. Using RFID sensors to monitor and validate time and temperature throughout the cold chain, the end customer can verify end-to-end environmental while identifying failure points where goods may have spoiled.

### Shelf-life testing

Consumer demand for maximum freshness has driven the need for accurately testing food and beverage shelf life, as well as industry's desire to drive supply chain efficiency, reduce costs, and increase customer satisfaction. The Sun APT Lab offers shelf-life testing that is customized for each client, and can test the performance of packaging materials, preferred storage and handling conditions, safety and transportation issues, as well as determine and measure the critical deterioration factors in food and beverage products.

### Comprehensive, one-stop testing

The Sun APT Laboratory has a comprehensive range of test and measurement capabilities which can be set at different temperature and humidity levels along with various lighting conditions. The Sun APT Lab can simulate almost any conceivable climatic or dynamic environmental condition. This includes individual tests, such as shock, vibration, and altitude; and, combined tests such as temperature/humidity/vibration. Our state-of-the-art facility and team of dedicated, knowledgeable professionals provide expedient testing services to the food and beverage industry.

### RFID consulting services

The Sun APT Laboratory offers a comprehensive range of RFID consulting services, and has consulted on scores of successful RFID deployments in all industries. Consulting services can help achieve 100-percent tag readability—such as successful project with stainless steel beer kegs—and improve visibility into process flow. The APT Lab RFID consulting services include:

- RF Site Analysis identifies sources of interference and enables remediation before initial installation, saving time and expenses.
- Process Analysis can seamlessly integrate RFID technology into your existing processes increases flow and visibility. By identifying the optimal placement of all RFID equipment,

capital costs can be minimized while process visibility is maximized.

- Portal Design can maximize readability across a range of products—including customized, application-specific portals for difficult-to-read items.
- RFID component advisory—Unbiased recommendations help you select the best readers, antennae, printers, and tags for your application and environment. The Sun APT Lab acts as a trusted RFID advisor to leading companies and government organizations.

### Standards support and certifications

The Sun APT Lab performs testing in accordance with the following governmental agencies, associations, and corporations:

- American Standard for Testing and Materials (ASTM)
- Ball Aerospace Approved Vendor
- Department of Transportation (DOT)
- International Electrotechnical Commission (IEC)
- International Safe Transit Association (ISTA)
- Institute of Electrical and Electronics Engineers (IEEE)
- Institute of Environmental Studies (IES)
- Institute of Environmental Science and Technology (IEST)
- International Standards Organization (ISO) 9001 Certified
- RFID: EPCglobal Generation 2 (UHF Gen2) readers and tags; EPC Tag Data Specification 1.1; ISO; Department of Defense (DoD); Commercial and Government Entity (CAGE); and read/write tags, major retail certifications Radio Technical Commission for Aeronautics (RTCA/DO-160)/ DOT

#### Learn More

Sun's Advanced Product Testing Lab can help you analyze and implement food safety and traceability, cold chain monitoring and reporting, product shelf life, and food and beverage packaging. To find out how, please call 800.348.1458