Packaging plays a critical role in ensuring a safe, nutritious, hedonically desirable, convenient, and readily available food supply. The first hurdle that all food packaging must meet is that of safety; that is, unintended substances from packaging materials shall not migrate to the food/beverage, promote degradation of the food/beverage, or allow cross contamination from external sources. The next hurdle that food packaging must meet is to preserve nutritional quality, organoleptic characteristics, and extend product shelf-life. Developments in active packaging enable controlled release of antimicrobials or antioxidants, oxygen scavengers, carbon dioxide emitters/absorbers, moisture absorbers, ethylene absorbers, ethanol emitters, flavor releasing/absorbing systems, temperature or shelf-life indicators, etc. In meeting these first hurdles and providing convenience and visual appeal that promotes consumer purchase intent, food/beverage packaging has contributed to plastic waste issues. Consequently, new materials are needed which deliver against the food safety, nutritional preservation, organoleptic quality, convenience and visual appeal, while limiting the environmental impact.

The goals of this symposium are to:

- Offer unique and expert safety perspectives from each of the stakeholders from raw materials to package forming to product filling and storage which bring food products into consumer’s homes.
- Identify areas for improvement across each link in the packaging supply chain.
- Recent developments in active materials and packaging technologies that are able to
  - increase safety
  - preserve the organoleptic and nutritional qualities
  - extend the shelf life of various food products
- Review diverse needs of food/beverage packaging relative to developing new sustainable materials
- Highlight emerging trends for developing new materials that meet sustainability challenges
1. Safety of Food Packaging Materials throughout the Supply Chain

Migration from food contact materials is one of the largest sources of chemical contaminants in foods. Consumer safety must be ensured during the mass transfer of components from packaging and other food contact materials into food, which means the absence of a substance transferred to food in potentially health-relevant amounts. Raw materials of the chemical industry are produced in large volumes for many applications and not always for the purpose of food contact materials. In global supply chains, food manufacturers and retailers increasingly rely on suppliers to ensure there are no gaps in compliance. Regulatory reviews consider migration as tolerable if the safety standard of reasonable certainty of no harm is ensured with the analytical tools and migration models presently available. All stakeholders in the supply chain hold the responsibility to ensure safe products used as food contact materials and effectively communication with each other is critical. This symposium aims to offer unique and expert safety perspectives from each of the stakeholders from raw materials to package forming to product filling and storage which bring food products into consumer’s homes. We also aim to identify any areas for improvement across each link in the packaging supply chain.

2. Active Food Packaging

Loss of color, flavor, nutrients, or texture, generation of off-flavors and spoilage are common food deteriorations due to many interrelated factors such as atmospheric oxygen (O₂), carbon dioxide (CO₂), temperature, endogenous enzymes, moisture, light and most importantly, microorganisms. Pathogenic microorganism contaminations on food are a major food safety
concern. In contrast to the traditional passive packaging, active packaging technologies provide innovative approaches to minimize food losses and provide safe, better quality, fresh, and convenient food products by using proper packaging materials and methods, including controlled release of antimicrobials or antioxidants, oxygen scavengers, carbon dioxide emitters/absorbers, moisture absorbers, ethylene absorbers, ethanol emitters, flavor releasing/absorbing systems, temperature or shelf-life indictors, etc. These materials can be applied in the forms of packaging film, pouch, coating, sachets, inserts, etc. Topics of this session will include the recently developed active materials and packaging technologies that are able to (1) increase the safety; (2) preserve the organoleptic and nutritional qualities; or (3) extend the shelf life of various food products.

3. Sustainability

The intent of the sustainability section of this symposium is to explore developments in packaging materials that maintain the critical aspects of food and beverage safety and delivery, while reducing impact on the environment. Packaging plays a critical role in ensuring a safe, nutritious, hedonically desirable, convenient, and readily available food supply. Nevertheless, food packaging also contributes to issues of waste accumulating in our landfills and waterways. Consequently, new materials are needed that can protect our foods during distribution yet have a minimal impact on the environment. As new materials are developed that meet the sometimes conflicting needs of functionality and sustainability, there may also be a need to adjust consumer appearance expectations for food and beverage packaging. In this section of the symposium, we plan to review the various roles and needs that food and beverage packaging fulfills across the supply chain and explore how new materials are being developed that meet these needs with a reduced environmental impact. We also hope to articulate further challenges relating to consumer acceptance of these materials.

Please contact the organizers for more information.