



ENVIRONMENTAL PACKAGING AND PLASTICS INITIATIVES

DoD CFD

Ration-related packaging is a major contributor to the solid waste stream. Army capability requirements include reducing solid waste generation and increasing the use of bio-based, recyclable and/or biodegradable packaging. NSRDEC's expertise and active participation in current biomaterials and sustainable packaging research, along with NSRDEC's Polymer Film Center of Excellence and external partnerships with government, academia and industry, will lead these technologies for the Warfighter.

WHY ARE THEY NEEDED?

A need exists to reduce solid waste by developing "green", environmentally friendly military ration packaging with optimal performance and functionality, minimized materials use and reduced dependence on petroleum-based polymers. Solid waste management practices for Army contingency operations are expensive, negatively impact the environment, and potentially place the health and safety of the Warfighter at risk from hazards such as smoke/toxins from solid waste burn pits.

TECHNOLOGY:

CFD initiatives focus on the investigation of novel plant-based, biodegradable, efficient, lightweight, recyclable, reusable and/or renewable polymers, films, formulations and/or additives for primary, secondary and unit load-level packaging systems, including fiberboard containers, container and pallet load strapping, pallet wraps and pallets.

CURRENT CFD INITIATIVES:

- Combat Feeding Research and Engineering Program (CFREP)
 - Bio-Based Hybrid Materials for Combat Ration Packaging
 - Packaging Optimization with Polymeric Microspheres
 - Sustainable Technologies for Ration Packaging Systems
 - Alternative Polymer Processing Technologies
 - Performance Metrics of Optimized Packaging
 - Permeability Modeling of Advanced Packaging Systems
 - Multi-Functional Secondary Packaging
- Multilayer Films and Multi-Component Fibers from Soy Protein and Biodegradable Polyesters for Food Packaging Applications (U.S. Soybean Board)
- Nanocomposites for Optimized Packaging Systems
- Waste Reduction Afloat Protects the Sea/Plastics Removal in the Marine Environment (WRAPS/PRIME)
- Environmental Security Technology Certification Program (ESTCP)
 - Sustainable Fiberboard Packaging for Military Rations
 - Biodegradable Sonobuoy Decelerators



KEY FEATURES/BENEFITS:

- **More environmentally friendly packaging** — Decreased weight, waste, density and footprint
- **Reduced disposal and life cycle costs** — Given continuing rising costs of polymer resin and oil
- **Multifunctional characteristics** — Compatibility with logistics system and novel processing methods

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