

## **Introduction**

The Defense Logistics Agency, U.S. Army Natick Research, Development and Engineering Command (RDECOM), and the U.S. Department of Agriculture have developed strong partnerships with industry in an effort to "green" the DoD and fulfill EO 13101 (and now EO 13423). In March 2007, the Defense Supply Center Philadelphia (DSCP), a field activity within the Defense Logistics Agency, initiated acquisition of biobased utensils (fork, knife and spoons). This acquisition followed extensive research, development and testing spanning several years and involving the Army as well as DSCP's long term, reliable, supplier of the conventional plastic product, LC Industries (which is a National Industries for the Blind (NIB) organization). Multiple production and manufacturing problems arose, such as utensil odor, color, tensile strength, heat resistance, insect attraction, injection cycle time and mold costs. Government and industry partners pushed forward and the result was that DSCP's biobased procurement for this family of items has totaled \$2,402,607 from March 2007 to January 2008.

### **Biobased Utensils (Fork, Knife and Spoon)**

Since 1999, the Defense Supply Center-Philadelphia, Directorate of Subsistence, has placed a major emphasis on introducing biobased utensils in the DoD supply chain. Initially, many problems had to be overcome with production and manufacturing of biobased cutlery (i.e. utensil odor, color, tensile strength, heat resistance, injection cycle time and mold costs, and insect attraction). Headquarters-DLA has stressed the importance of this project and tried to quicken the progress towards introduction and mass production, offering their cafeteria as a field test location and providing other resources. Enhanced research/development/testing was stepped up by the U.S. Army Natick, and USDA issued Federal Acquisition guidelines for the purchase of biobased products by the Federal Government, followed by a proposed notice that specifically addressed biobased cutlery.

Four main factors hampered DLA efforts to place biobased cutlery into the DoD supply chain. The cost associated with biobased resin was the major factor limiting use. Our customers were not about to pay for biobased cutlery that would cost eight times the price of petroleum-based plastic products, nor would DLA force such a change in program. Up until the start of FY 2006, projected cost estimates for biobased were still 10-25% higher than conventional plastic ware!

A second factor preventing the switchover was the Javits-Wagner-O'Day (JWOD) and NIB-NISH programs. Although other companies, such as BioCorp, had established a good, useable biobased utensil, our Agency had a dilemma. The current DLA plastic ware supplier, LC Industries, a NIB-NISH organization has been a sole source, JWOD set aside on this particular item for many years. LCI has been and still is a good, reliable contractor, performing well on all their contracts. However, since 1999, LC Industries had struggled with the "production transition" to biobased utensils. In mid 2001, LC Industries presented a proposal at HQ-DLA, detailing a \$22 million plan to "spur" its production of biobased items. The company found US senatorial support in their home state of Mississippi, but the 9/11 tragedy, followed by the "war against terror" quickly stifled their plan and efforts, as Federal dollars were needed elsewhere.

The actual biodegradable resin used to produce the cutlery was a third major factor affecting mass production of biobased cutlery. LC Industries began the evaluation of several different biobased resins which have become available for mass production. While Midwest Grain Inc. continued to work with their formulation for LC, Metabolix was working with LC on their polylactic acid (PLA) resin and "reduced injection cycle time." DSCP awarded a small R&D contract on their PLA formula in an effort to correct the long cycle time of mass production. Another resin manufacturer being entertained by LC worked with inorganic material

embedded with bio-based/biodegradable polymers that degrade in compost and sea water. When LC finally determined which biobased resin to "use", DLA and US Army Natick had to revisit the requirements/testing/approval process for the new, "improved" resins. At this juncture, one "promising point" was that the vast "cost gap" had significantly narrowed in 2007, allowing DSCP to make the first acquisition of biobased cutlery. Over the last few years, affordability of plastic ware had been overriding movement towards biobased cutlery.

The final factor, the actual "educating the user" or marketing of the item is still ongoing within the Department of Defense and Federal Government. DSCP-Subsistence tried to educate its respected customers by newspaper articles, conferences, electronic messages, displays at Customer Conferences.

DSCP even established National Stock Numbers to spur interest in the use of biobased cutlery; see the list below. Several packaged options for the cutlery product are available, including the popular dining packet, which includes a fork, knife and spoon along with a napkin, sugar, salt and pepper, all packaged together. (See photo showing the packet components.) The dining packet now replaces a conventional product in the Unitized Group Ration, reaching thousands of military service members around the world each month.



Product Description

NSN

Biobased Dining Packet

7360-01-509-3586

As all of these factors seemed to come to a head, LCI pushed forward at a rapid rate, performing most of the finishing R&D work on their own. The result: in March 2007, DLA/DSCP-Subsistence made its first acquisition of biobased cutlery for the Unitized Group Ration (UGR) program starting with the UGR-A and UGR-Heat and Serve. Since March 2007, DSCP ordered \$1,933,662 of the 9 pack bag and \$468,945 of the 25 pack bag for a total biobased procurement of \$2,402,607, through January 2008.