Corn-Hybrid Polymer (CHP) Blasting Benefits Aviation Weapon Systems

Traditional Approach
To prevent damage while removing coatings from delicate substrates, maintenance workers use chemical strippers and manual coatings removal methods such as pneumatic hand sanding. These methods may reduce damage to the substrates in comparison to plastic media or other blasting techniques, but they also can release solvent vapors into the atmosphere, generate hazardous waste, and expose workers to potentially unsafe working conditions.

CHP Blasting Technology
CHP blasting is a dry abrasive blasting process that uses a crystallized cornstarch that is organic, nontoxic, and biodegradable. This environmentally friendly medium is most applicable to delicate substrates where hand sanding and chemical wiping are used. CHP media meet military specification MIL-P-85891 for Type VII plastic media.

NDCEE CHP Demonstrations
More than 100 people witnessed NDCEE CHP demonstrations that were held over a two-year period. These demonstrations showed that the CHP process satisfies the following Service requirements:
- Is user friendly
- Does not cause significant damage to delicate substrates
- Meets or exceeds current removal rates
- Meets or reduces current process costs

Demonstrations were held at:
- Corpus Christi Army Depot (CCAD), Texas
- Fleet Readiness Center Southeast (FRCSE), Florida
- Fort Bragg, North Carolina
- HeliSpex, Inc. (Fort Rucker equipment), Alabama
- Naval Station (NS) Mayport, Florida
- Naval Submarine Base (NSN) Kings Bay, Georgia
- Robins Air Force Base (AFB), Georgia

In addition to the above facilities, stakeholders included Naval Surface Warfare Center (NSWC) - Carderock Division, National Aeronautics and Space Administration (NASA), U.S. Army Environmental Command (USEAC), and the Aviation Engineering Directorate (AED) of the Army’s Research, Development, and Engineering Command (RDECOM).

Technology Implementation
As a result of the successful demonstrations, CHP was implemented at NSN Kings Bay, NS Mayport, and FRCSE. Robins AFB has purchased the CHP equipment and is in the process of technology implementation. A Maintenance Engineering Order (MEO) was issued to allow CHP to be used for Army airframe maintenance at CCAD.

Contacts
- Naval Surface Warfare Center, Carderock Division, Code 6301, 301-227-5196
- U.S. Army Environmental Command, 410-436-5910
- Ms. Donna Provance, NDCEE/CTC, 919-303-4323, provance@ctc.com
- Mr. William Thomas, Jr., NDCEE/CTC, 703-310-5665, thomasw@ctc.com

NDCEE
National Defense Center for Energy and Environment
DoD Executive Agent
Office of the Assistant Secretary of the Army (Installations and Environment)
NDCEE is operated by:
Dyncor Government Solutions, Inc.
United Technologies Corporation