



PREKOTE: AN ALTERNATE SOLUTION TO THE USE OF CHROME CONVERSION COATING

Headquarters Air Force Material Command Pollution Prevention Integrated Product Team (HQ AFMC P2IPT) has, in part, funded the transition of PreKote (formerly known as X-IT Prekote) for the F-16 aircraft at Ogden Air Logistics Center (OC-ALC). PreKote is an alternative solution to the use of chrome conversion coating (CCC). PreKote offers excellent adhesion, improved paint flexibility, and superior corrosion protection on painted surfaces. PreKote can reduce paint preparation time and costs by up to 40% compared to other hazardous material and process currently used.

Details related to the AFMC funded portion of this technology transfer effort are documented in the *Solutions Database* and some of the key points related to this solutions are provided below.

Process Description

PreKote (Diethylene glycol monobutyl ether, n-methyl pyrrolidone), manufactured by Pantheon Chemical Company, is a nonchromated surface preparation used as a prepaint surface treatment for aluminum, magnesium, stainless steel, titanium, and carbon steel. It promotes paint bonding at



a molecular level, resulting in superior adhesion, improved corrosion resistance and increased flexibility.

PreKote is biodegradable, non-toxic, non-flammable, non-hazardous, non-corrosive, and free of phosphates and heavy metals. The ideal application procedure is spraying and scrubbing the surface and then air-drying. The process is repeated a second time and then the surface is immediately rinsed. This procedure eliminates the need of soap wash, solvent wipe down, CCC and acid brightener steps.



Some of the benefits of **PreKote** include the following:

- ◆ Decreased use of solvents, detergents, CCC and acid brighteners.
- ◆ Corrosion resistant anodize surface is preserved because less sanding is required to get the desired paint adhesion.
- ◆ Same process is used on aluminum, titanium, and magnesium.
- ◆ Decreased step for paint preparation which saves both time and money in painting the aircraft.

Measurement of Success

The Air Force has approved the use of **PreKote** on the T-37, T-38, T-1A, and the F-16 aircraft. There were two major factors for the successful transition of this technology at OO-ALC. The first factor was the advocacy provided by Richard Buchi to ensure sufficient data was collected to answer the questions and concerns of all stakeholders. A second factor, which usually drives successful P2 transition efforts, was the increased flow time from the process change. Approval for the use of Prekote on the F-16 was driven as much for production improvement as for the associated environmental benefits. The process change achieved a 35% reduction in labor to prepare and paint an aircraft, which translates into a \$6,000 savings per F-16 aircraft.

Additional Opportunities for AFMC Transition

Richard Buchi is working with the C-130 System Program Office (SPO) to transition PreKote to this platform. This

technology has Air Force wide applicability.

Available Resource

- ◆ Pantheon Chemical: <http://www.panthenchemical.com>
- ◆ ProAct's Cross Talk: <http://www.afcee.brooks.af.mil/pro-act/cross/ed104.asp>
- ◆ AFMC's Solutions Database: https://www.en.wpafb.af.mil/p2_solutions/p2_solutions.asp ●

"The number one reason that PreKote has been successful is its great adhesion that has resulted in no reworks for F-16 SPO. Other reasons are workers health/safety, environmental advantages, cost and time savings, and the fact that PreKote is much more forgiving than Alodine.

To complete the transition of the PreKote Process throughout the Air Force, other SPOs need to accept its use as the process is already in the T.O. 1-1-8.

The stakeholders that made this effort a success include the F-16 SPO, Major Dan Bullock AFPCO, Owen and Ruth Jett AFPCO, CTIO Office, John H Stallings ASC/GRE, Ken Patterson AFRL/MLS-OL, Wayne Patterson and Clyde Gowers from OO-ALC/MADL."

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