



Continental Airlines calls on chromium-free compounds

It is usually the military that borrows maintenance best practices from the commercial sector. However, in the case of finding alternatives to chromium-based compounds for aircraft painting, it is the airlines that are playing catch-up.

Continental Airlines recently took a major industry step forward on the path to eliminating toxins in the painting of aircraft when it specified only chromium-free pretreatments and/or paints for its aircraft. The airline joins **Air Canada** as the only other carrier on the continent making extensive use of nontoxic compounds in their aircraft repainting programs, though the rest of the aero-



Pantheon's chromium-free PreKote surface pretreatment is applied to a Continental Airlines Boeing 777-200 at HAECO in Hong Kong.

space painting industry will soon catch up due to a new **Occupational Safety & Health Administration** standard that significantly reduces permissible exposure limits for hexavalent chromium.

Proponents of environmentally safer products say it has been an uphill battle trying to wean airlines off paints containing hexavalent chromium—known to cause asthma and lung cancer and made infamous by Erin Brockovich after it was found in the drinking water of a small town in Southern California—because there has never been anything better in helping paint stick to metal.

"People have always been pro-chromium, in conversion coatings and primers," said Laura Roberts, CEO of Phoenix-based **Pantheon Chemical**. "Chrome has always been the primary corrosion preventative and it was needed."

However, a number of tests since the 1990s with products like Pantheon's chromium-free PreKote surface treatment and others from companies like **Henkel** and **Advanced Chemistry & Technology** have demonstrated good adhesion and paint quality results.

Some of the earliest tests were conducted at Hill Air Force Base in Utah in the 1990s. The Ogden Air Logistics Center there performs depot maintenance on F-16, A-10, and C-130 Hercules aircraft, and all three aircraft types are

now pretreated with chromate-free PreKote from Pantheon.

Continental Airlines was the first commercial airline to test PreKote following the experiments at Hill AFB. A 22-month performance analysis on two **Boeing 737-800** aircraft validated the in-service performance of PreKote, and in September 2006 the airline rewrote its paint/strip specifications to require PreKote pretreatment for all aircraft, including wide-body aircraft operated internationally.

Continental outsources its paint and strip needs, and in the U.S. that work is done by **Leading Edge Aviation Services**, which operates five paint hangars at Amarillo International Airport in Texas. Overseas, the painting is done by **Hong Kong Aircraft Engineering Co. (HAECO)** at Chek Lap Kok airport.

Use of PreKote also eliminates several paint/strip steps, including alkaline washes, acid brighteners, and wipe-downs with solvents like MEK (methyl ethyl ketone). On a 737-800, for example, those skipped steps knock 12 hours out of the 7-day paint/strip process, letting Continental return the aircraft to revenue service a half-day sooner, according to Rob Mather, Pantheon Director of Engineering.

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