Isotron®
Advanced Polymer Composites

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RADIONUCLIDE LOCK DOWN COATING DUAL USE TESTING FOR DUST ABATEMENT

March 21, 2006 (Seattle, WA) - Isotron announces the completion of trials in Eastern Washington to determine the viability of the IsoFix™ coating system for dual use application to mitigate the in-theatre effects of helicopter brownout.

The IsoFix™ coating system was originally developed to resolve the operational threat is that faced by emergency responders in securing a radionuclide contaminated site area after a dirty bomb event such that recovery and/or decontamination operations can be carried out safely and without spreading contamination outside of the "isolation zone" of the event. The use of polymer media to prevent the airborne spread of radionuclide contaminants has been used in the past, but certain major limitations exist. For example, following the Chernobyl disaster in 1986, film-forming lingosulphonate polymer materials were immediately used to stabilize radioactive dust in the area. Reports show that more than $1Km^2$ was coated over the first days following the accident. However this effort was abandoned early on when it was found that these cured polymers could not be adequately decontaminated and later cracked, causing additional re-aerosolization issues. In January 2004, the Technical Support Working Group (TSWG) contracted with Isotron Corporation to develop a system that would address the lock down of contaminant particles in a sprayable, elastomeric, easily removable (or rapidly biodegradable) polymer media. This system was required to be robust enough to withstand emergency operations, including: emergency ground vehicle traffic, airlift helicopter support traffic, and massive foot traffic. The result of this research was the IsoFIX™ coating formulation, which was demonstrated in a pilot scale contamination simulation in November 2004.

IsoFIX™ has been identified to solve another problem related to dust aerosolization: dust cloud formation over expeditionary landing pads in military theaters such as Iraq and Afghanistan. Helicopters operating in dusty environments often experience a state called "brown out", a hazardous condition that is the result of massive dust suspension in the rotor wash. Brown outs pose two hazards. First, they limit the pilot's situational and navigational awareness. It is estimated that about three of every four helicopter accidents in Afghanistan was caused by brown outs[1]. A reported 50% of the helicopter accidents in Iraq in the last year were the direct result of brown outs[2]. Second is the longer term effect of the dusty Foreign Object Debris (FOD) on bearings, intakes and other rotor and engine components. The cost of replacing major engine and rotor parts and the danger to personnel that result from brown outs is not acceptable to the U.S. military. In the past 2 years, there has been significant military interest in advancing traditional landing pad technologies with innovative private sector commercial-off-the-shelf (COTS) solutions that can further support forward operating base operations. According to one U.S. Army pilot:

"We need to develop a spray or membrane to disperse over the area that will withstand the rotorwash of an MH-47 to reduce brown outs during landing and taxi operations. They need to make it biodegradable so there is no need to recover the device or membrane when the unit departs the area."

The tests described herein were modeled after those conducted in April 2004 by the US Army Corps of Engineers[3], under the direction of the Marine Corps Systems Command (MARCORSYSCOM) and the Marine Warfighting Laboratories. The April 2004 study, conducted in Yuma, AZ, was a field-scale study of several candidate polymer formulations, each designed to provide a "spray or membrane" that mitigates the brown out conditions described above. These tests established that IsoFIX has is a viable "dual use" candidate for the mitigation of dust in high shear, such as helicopter landing, environments.

A copy of the Helipad Test Report is available on http://www.isotron.net/products.

[1] Special Operations Technology Online, vol. 2, issue 4 (July 13, 2004)
[2] Office of Naval Research, NavAIR, Air Systems Team
[3] J. S. Tingle, A. Harrison, and J. F. Rushing, "Evaluation of Expedient Methods for Mitigating Dust on Helipads", U. S. Army Corps of Engineers, Engineer Research and Development Center, ERDC/GSL TR-04-XX, April 2004