

Pratt and Whitney Switches to Zinc Molybdate Based Primer

Pratt and Whitney, United Technologies Corporation has recently implemented a chromate-free coating system to prevent galvanic corrosion of inserts and fasteners used in the manufacturing of aircraft engines. The new primer is a high-solids alkyd system based on zinc molybdate (Moly-White 101). The primer conforms to Federal Specification TT-P-645B (Primer, Paint, Zinc Molybdate, Alkyd Type). Historically, Pratt and Whitney has relied on the use chromate based primers (e.g. TT-P-1757) for this application. Such primers function as corrosion-inhibiting insulators to prevent bimetallic corrosion of aluminum and magnesium based alloys.

According to a recently released report, the zinc molybdate based primer was selected as an effective replacement to the standard chromate primers through an extensive joint testing program with Pratt and Whitney and the Joint Group on Pollution Prevention (JG-PP). JG-PP is a government/industry partnership program that was established by a number of US government agencies, including the Dept. of Defense (DOD) and the National Aeronautics and Space Administration (NASA). JG-PP's mandate is to find solutions to common pollution problems by working together with industry.

The use of chromate containing paints is considered to represent a serious environmental and worker health problem in the US and abroad. Stringent regulations have been developed and implemented by the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) governing the use of chromate containing materials. An estimated one million US workers, for example, are exposed to hexavalent chromium each year, and studies indicate that 21 percent of these workers are exposed to chromates at levels exceeding the maximum permissible exposure limit established by OSHA. As a result of a recent lawsuit, the US Court of Appeals has directed OSHA to propose a new standard by October 4, 2004.

According to the JG-PP, the benefits of implementing the zinc molybdate alkyd primer include reduced chromium emissions, reduced waste management costs, reduced compliance risk and reduced worker exposure risk.

Full details on this project are available through the JG-PP website at www.jgpp.com (see information sheet for Project Number J-95-MF-003).