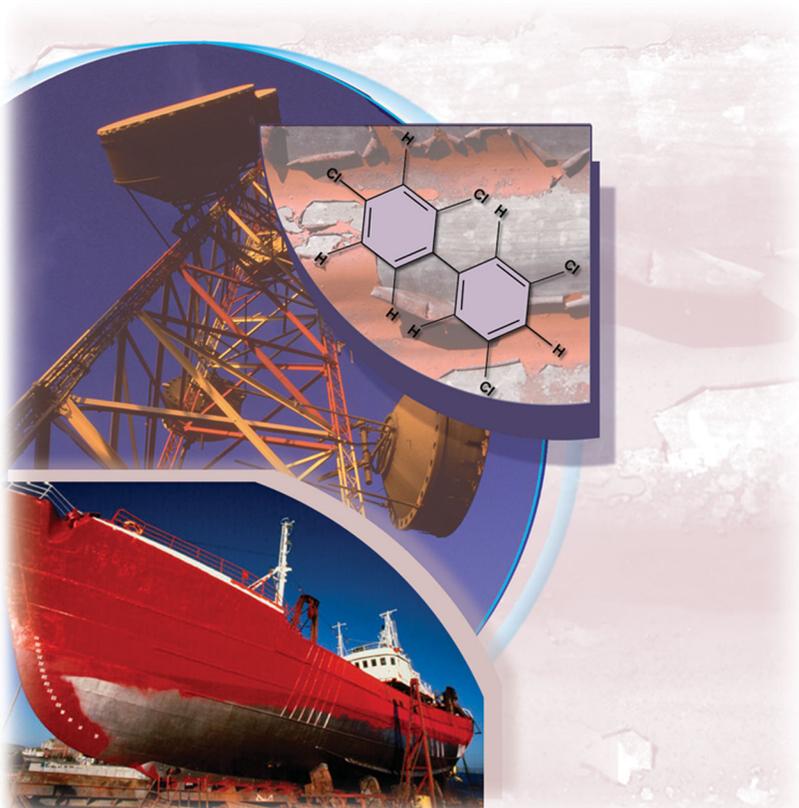




John F. Kennedy Space Center's Bimetallic Treatment System (BTS) for Paints



The National Aeronautics and Space Administration (NASA) seeks partners interested in the commercial application of the Bimetallic Treatment System (BTS) for Paints. NASA's Kennedy Space Center is offering companies licensing or partnering opportunities in the development of this innovative remediation technology.

Current extraction methods are able to remove polychlorinated biphenyls (PCBs) from painted surfaces; however, these methods typically create a new waste stream that must be treated. In contrast, BTS removes PCBs and breaks them down into benign by-products. Therefore, no additional waste stream is created. Also, because the treated surface can be reused following application, BTS has advantages over methods like incineration, which destroys the underlying material.

www.nasa.gov

BENEFITS

- Non-destructive—does not affect the material beneath the paint and allows for the surface to be repainted/reused following application
- In situ—treats PCBs in place, versus traditional abatement methods that generate a secondary waste stream
- Cost-competitive—requires none of the costs associated with placing a building under vacuum; or transporting, treating, and/or disposing of a secondary waste stream
- Effective—has been shown in lab-scale tests to remove approximately 80% of PCBs from paint (three layers in thickness with initial PCB concentration as high as 700 parts per million [ppm]) within 4 hours, and approximately 100% of PCBs within 48 hours
- Safe—produces benign by-products
- Versatile—can be used as a “paint-on/wipe-off” method for in-situ applications or as an immersion method (e.g., for dismantled parts awaiting disposal)

technology ■ opportunity

APPLICATIONS

- Soils
- Waste oils
- Electrical transformers
- Waste clothing
- Capacitors
- Other debris
- Transformer oils

TECHNOLOGY STATUS

- Patent pending
- U.S. patent
- Copyrighted
- Available to license
- Available for no-cost transfer
- Seeking industry partner for further codevelopment

Technology Details

PCBs have been shown to cause cancer in animals and to have other adverse effects on immune, reproductive, nervous, and endocrine systems. Although the production of PCBs in the United States has been banned since the late 1970s, many surfaces are still coated with PCB-laden paints. The presence of PCBs in paints adds complexity and expense for disposal. Some treatment methods (e.g., use of solvents, physical removal via scraping) are capable of removing PCBs from surfaces, but these technologies create a new waste stream that must be treated. Other methods, like incineration, can destroy the PCBs but destroy the painted structure as well, preventing reuse.

To address limitations with traditional abatement methods for PCBs in paints, researchers at NASA's Kennedy Space Center (KSC) and the University of Central Florida have developed the Bimetallic Treatment System (BTS) for Paints. This innovative technology consists of a solvent solution (e.g., ethanol, d-limonene) that contains a catalyzed zero-valent metal (e.g., magnesium coated with small quantities of palladium).

BTS is first applied to the painted surface. The solution then extracts the PCBs from the paint. The extracted PCBs react with the micro-scale metal catalysts and are degraded into benign by-products. This technology can be applied without removing the paint or dismantling the painted structure. In addition, the surface can be reused following treatment.

Partnership Opportunities

All NASA licenses are individually negotiated with the prospective licensee, and each license contains terms concerning commercialization (practical application), license duration, royalties, and periodic reporting. NASA patent licenses may be exclusive, partially exclusive, or nonexclusive. If your company is interested in the new bimetallic treatment system for paints technology, or if you desire additional information, please reference Case Number KSC-12878 and contact:

Lew Parrish
NASA Kennedy Space Center
Phone 321.867.5033
Fax 321.867.2050
E-mail Lewis.M.Parrish@nasa.gov

Jim Nichols
NASA Kennedy Space Center
Phone 321.867.6384
Fax 321.867.2050
E-mail James.D.Nichols@nasa.gov
<http://technology.ksc.nasa.gov>