

Technologies Available for Licensing

BIOMEDICAL COATINGS 2011

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TECHNOLOGIES AVAILABLE FOR LICENSING (Biomedical Coatings)

LIST OF TECHNOLOGIES

INVENTION TITLE	Tech No.
• Anti-Microbial Coatings Containing Chemically Bound Biocide for Biomedical Application	RFT 282
• Multifunctional 'Dual Action' Anti-Microbial Coatings for Implantable Catheters and Tubes	RFT 260
• Quaternary ammonium functionalized POSS compounds as anti-fouling, anti-microbial agent	RFT 242
• Antibacterial Siloxane Polymer Containing Tethered Levofloxacin	RFT 232
• Modified Biocide (Triclosan) with Water-Soluble Characteristics	RFT-207
• Novel Environment Friendly Coatings for Bio-Medical Applications	RFT 179

Brief Descriptions

RFT 282

ANTI-MICROBIAL COATINGS CONTAINING CHEMICALLY BOUND BIOCIDES FOR BIOMEDICAL APPLICATION

The invention relates to novel antimicrobial environment-friendly coatings that are derived from acrylic polyols that contain chemically bound (tethered) biocide moieties. The coatings show antimicrobial activity towards various microorganisms including gram-positive and gram-negative bacteria, diatomaceous algae and opportunistic fungal pathogens.

These paints can be suitable for application as paints and coatings in internal or external biomedical device applications.

RFT 260

MULTIFUNCTIONAL 'DUAL ACTION' ANTIMICROBIAL COATINGS FOR IMPLANTABLE CATHETERS AND TUBES

This invention pertains to 'dual action' antimicrobial polysiloxane coatings having a leachable antimicrobial agent in conjunction with a surface-bound contact active microbial agent. The composition uses silver ions and nanoparticles and quaternary ammonium salts and can be used in coating of implantable medical devices such as urinary catheters and endotracheal tubes.

The covalently bound QAS groups inhibit biofilm formation by microorganisms that come into contact with the coating, such as those present prior to insertion of the device into the body, while the leachable antimicrobial inhibits biofilm formation by microorganisms in the vicinity of the device that do not come into direct contact with the device.

RFT 242

QUATERNARY AMMONIUM FUNCTIONALIZED POSS COMPOUNDS AS ANTI FOULING, ANTI-MICROBIAL AGENT

This invention pertains to the synthesis of quaternary ammonium functionalized POSS compounds (Q-POSS) as anti-fouling, anti-microbial agents in a *two step process*. Antimicrobial activity (Bio-efficacy studies) towards gram-negative (*E.coli*) and gram-positive (*S. aureus*) bacterium has been determined).

These compounds may find applications as contact biocides in liquids (disinfectants to contain microbial growth) and could be incorporated into siloxane network in order to develop anti-fouling anti-microbial coatings with improved mechanical properties.

RFT 232

ANTIBACTERIAL SILOXANE POLYMER CONTAINING TETHERED LEVOFLOXACIN

This invention pertains to the development of a polymer material that exhibits superior sustained release of therapeutic levels of the active antibiotic when compared to simple physical bending or doping technologies. The material is prepared by combining a powerful, broad spectrum antibiotic (Levofloxacin), tethered to a siloxane polymer. This invention can potentially be used to coat a variety of biomedically implanted devices for prevention of microbial infection.

RFT 207

MODIFIED BIOCIDES (TRICLOSAN) WITH WATER-SOLUBLE CHARACTERISTICS

Scientists at North Dakota State University have invented a modified version of Triclosan (TCS) - Epoxy-Triclosan (ETCS) that is water soluble and has very different solubility characteristics than TCS of toxic levels of tin and copper. While TCS is known to have restricted utility due to its limited solubility characteristics, this water soluble Epoxy-Triclosan maintains the same broad range biocidal activity as TCS and yet has solubility properties that enables it to be amenable to a wider range of applications, particularly in formulations used in cosmetics, creams and personal hygiene products.

RFT 179

NOVEL ENVIRONMENT FRIENDLY COATINGS FOR BIO-MEDICAL APPLICATIONS

This invention pertains to the synthesis of a formulation that has biocidal activity in a single polymeric compound. The formulation is a unique environmentally friendly coating that holds promise in medical applications. It consists of biocidal moieties that are tethered to its polymer matrix, which in turn prevent them from leaching into the environment.

The mechanical properties of these coatings are similar to silicone elastomers, yet the coating contains biocidal moieties to deter settlement of organisms. To inhibit leaching of toxic components into the water, biocide moieties are tethered to the polymer matrix.

The formulations for these coatings are based on the modification of moisture cure siloxane elastomers with an alkoxy silane functional polymer containing ammonium salt groups. These coatings can be applied on the surfaces of medical devices.

FOR FURTHER INFORMATION

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