



Non-Confidential Description

Unique Sol-Gel Hybrid Coatings with Superior Properties for Wide Range of Industrial Applications

Technology Case: RFT-240

Invention Summary

This invention pertains to the preparation of two-component polyurethane coating formulation comprising: an epoxy functional binder, and a blended curing component (having one sol-gel and one amine cross-linker).

Benefits

- Properties of this coating include hard abrasive resistant coatings with good thermal stability, adhesion and solvent resistance, and unique behavior towards adhesion.
- A wide range of applications such as abrasion resistant coating materials for the paint industry are available.

Invention Premise

Organic–inorganic hybrid materials have received considerable attention for developing materials having tunable properties from the hybrid combination of soft organic and hard inorganic counterparts. These materials impart both organic (flexibility of the composites) and inorganic (hardness and mechanical impact resistance) characteristics. The sol–gel methodology provides the solution. Specific properties are conferred on the sol-gel coating through the formation of hard inorganic silicate network in the soft organic binder.

Patents

This technology has an issued US Patent No. 8,097,741 with fully preserved U.S. patent rights and is available for licensing/partnering opportunities.

The Lead Inventor



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Dept of Coatings and Polymeric Materials

Dr. Webster worked for Sherwin-Williams Company where he was involved in resin development for industrial coatings as well as long-range research in new resins and crosslinking chemistry. While in Chicago, he helped develop the Coatings Technology program at DePaul University and taught a course in coatings resin technology. In 1993, he moved to Eastman Chemical Company where he led project teams in the areas of applications development for new monomers, new chemistry for coatings systems, and polymer development for coatings. He joined the Coatings and Polymeric Materials Department at NDSU in the fall of 2001.

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