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Inventors

Cody Friesen

Jose Antonio Bautista-Martinez

Mykhaylo Goncharenko

Paul Johnson

Contact

Shen Yan
shen.yan@skysonginnovations.
com

Solvent-Less Ionic Liquid Epoxy Resins

Due to the ease of application and their desirable properties, epoxies are one of the most commonly used thermoset polymers. They can be used in dental fillings, wind turbines, adhesives, corrosion protectants, and so much more. The reason why epoxy resins are available for such a large range of applications is due to the nature of epoxy structure and curing reactions. Although the epoxy market shows promise and is steadily increasing, there are strict regulations on volatile organic compound (VOC) emissions. Capturing VOC emissions during industrial processes increases the overall operational cost and puts the health of human operators at risk. Therefore there is a need to overcome these issues in order to protect the environment and the people who work closely in this industry.

Researchers at ASU have developed Solvent-Less Ionic Liquid Epoxy Resins (SILER). Ionic liquids are formed at room temperature in the absence of solvents and have a close to zero vapor pressure value. These two qualities guaranty the complete absence of VOCs during the industrial process. This effectively reduces cost by removing VOC capturing systems, personal protective equipment, extensive training for human operators, and most importantly health risks.

Potential Applications

- Adhesives
- Aerospace Applications
- Corrosion Protectants

Benefits and Advantages

- Lowers Costs – by removing VOC capturing systems, personal protective equipment, extensive training for human operators
- Improves Safety – by eliminating health risks
- Reduces Emissions – by removing VOCs from all steps in the industrial process

For more information about the inventor(s) and their research, please see

[Dr. Cody Friesen's directory webpage](#)

[Mykhaylo Goncharenko's directory webpage](#)

