

February 27, 2014



US Patent and Trademark Office allows NEI Corporation's Claims for a Self-healing Coating

Somerset, New Jersey – [NEI Corporation](#) announced today that the USPTO has issued a notice of allowance for its patent for a self-healing coating technology. The allowed claims describe an environmentally benign, conversion coating formulation, specifically applicable to copper and copper alloys. The inorganic-organic hybrid coating (NANOMYTE® PT-30), which can be applied by dipping, spraying or flow coating, provides protection against corrosion caused by dissolved salts and ammonia. The development of NANOMYTE® PT-30 was aided in part by funding from the EPA's Small Business Innovation Research (SBIR) program. NEI has developed similar coatings to mitigate corrosion of aluminum, magnesium, stainless steel and galvanized steel. Patent applications for these coatings are pending office action. NANOMYTE® coatings are versatile, and can be modified to introduce color and other features to meet performance and aesthetic requirements.

Coatings typically get scratched and damaged, which makes the exposed metal corrode rapidly. Stripping the coating and reapplying is expensive, and the process has associated environmental hazards. While metal "rusting" is a widespread general problem, there are specific instances where corrosion is expected to worsen over the next decade. For example, the use of municipal wastewater in place of fresh water in many applications can lead to corrosion since it is inherently more corrosive. The NEI self-healing coating has the ability to repair itself when damaged, thereby providing excellent corrosion protection.

The self-healing phenomenon was demonstrated on coated Copper and Copper-Nickel (90-10) alloy panels subjected to dynamic flow using impaired water. Test conditions were made more severe by artificially increasing the ammonia concentration and temperature. Coated metal parts showed no signs of corrosion during a three-week long accelerated corrosion stress test. The findings were consistent with salt spray testing (ASTM B117) results where a drastic reduction in corrosion buildup was observed at defect sites due to the self-healing capability of the coating. Advanced microscopic characterization, elemental analysis and electrochemical evaluation confirmed the damage repair mechanism. The thin protective coating, when applied to the inside of heat exchanger tubes, provided corrosion protection, while maintaining the desirable heat transfer properties.

The NANOMYTE® line of coatings provides an array of advanced protective surface treatments for metal, wood, and polymers. The coatings have tailored functionalities such as anti-corrosion, self-healing, scratch resistance, ice-phobicity, and easy-to-clean. NEI also offers a **Materials Analysis, Testing, & Characterization** service (MATCH) to help customers attain their materials performance objectives.

About NEI Corporation: NEI Corporation is an application-driven company that utilizes nanotechnology to develop and produce advanced materials. The company's core competencies are in synthesizing nanoscale materials and prototyping products that incorporate the advanced materials. NEI offers an array of Advanced Protective Coatings for metal and polymer surfaces.

For more information, contact:

Ms. Krista Martin

(732) 868-3141

sales@neicorporation.com

###