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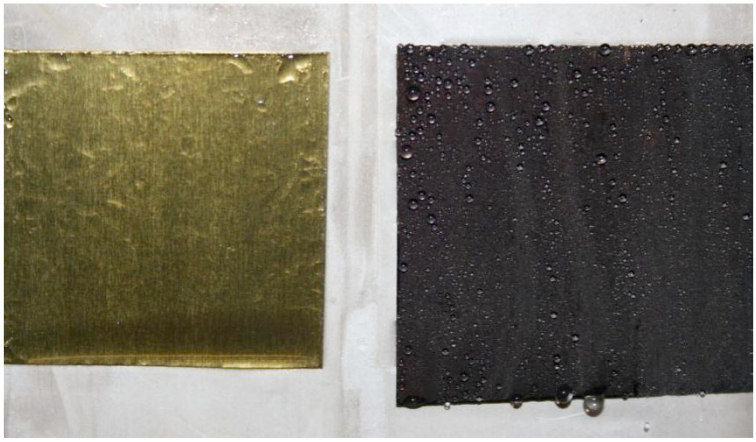
FOR IMMEDIATE RELEASE

NEI Corporation Introduces Superhydrophobic Surface Treatment Technology for Heat Exchangers

NEI Corporation has developed a nanotechnology-based surface treatment for promoting dropwise condensation in vapor-to-liquid heat exchangers, which enhances the heat transfer performance by an order of magnitude.

SOMERSET, NJ - NEI Corporation, a leading developer and manufacturer of nanotechnology-based advanced materials, has developed a new superhydrophobic surface treatment that promotes dropwise condensation in steam-to-liquid heat exchangers and solvent-to-liquid condensers. Unlike filmwise condensation, dropwise condensation enhances the rate of heat transfer by an order of magnitude. Consequently, the new technology has the potential to drastically reduce the size of the heat exchangers and condensers. Conversely, retrofitting currently used heat exchangers with the NEI surface treatment can significantly increase the capacity of the heat exchanger. Scientists at NEI made a brass surface superhydrophobic using a simple wet chemistry method. The surface mimics the lotus leaf on which water contact angle reaches 170° and the water drop rolls off easily. The uniqueness of the NEI technology is that the superhydrophobicity is highly stable in a high temperature steam environment. When the NEI surface treatment is applied on steam-to-liquid heat exchanger tubes, it leads to dropwise condensation which drastically enhances the heat transfer by frequently renewing the insulating water condensate. Traditional heat exchanger designs, however, are based on filmwise condensation, where a continuous insulating film forms and acts as a barrier for heat transfer.



Filmwise condensation on an untreated brass surface (left) and dropwise condensation on a NEI superhydrophobic brass surface (right)

The US Department of Energy is supporting NEI's development program. Heat transfer studies on heat exchangers with the NEI surface treatment are being carried out by Prof. Kwang Kim, who is the Chair of the Department of Mechanical Engineering at the University

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of Reno, Nevada. Prof. Kim said “The NEI superhydrophobic surface treatment represents an advancement of the state of the art, and we are excited to perform both theoretical and experimental studies in a simulated use environment”. “Our objective at this stage of the development of the technology is to demonstrate the economic benefits of using a durable superhydrophobic surface for heat exchanger tubes, by way of improved energy efficiency and reduced cost”, says Dr. Jiong Liu, Senior Scientist at NEI Corporation. Dr. Ganesh Skandan, CEO of NEI Corporation added, “We welcome interest from manufacturers and end-users of heat exchangers to collaborate with us to implement this new superhydrophobic surface treatment technology in suitable applications”. Additional details available at www.neicorporation.com

About NEI Corporation

NEI Corporation develops, manufactures, and distributes nanoscale materials for a broad range of industrial and government customers around the world. The company’s products incorporate proprietary nanotechnology and advanced materials science to create significant performance improvements in high-volume manufactured goods. NEI’s products include advanced protective coatings, high performance battery electrode materials, and nanomaterials for emerging markets, including heat transfer fluids. NEI has creasted a strong foundation in the emerging field of Nanotechnology that has enabled the company to become a leader in selected markets. Established in 1997, the company is based in Somerset, NJ. For more information, contact NEI Corporation at (732) 868-3141 or www.neicorporation.com.