

ANTI CORROSION COATING



Abstract: The anti-corrosion coating for carbon steel substrates includes coating the substrate surface with NaH_2PO_4 first, followed by a second layer of Nickel nanoparticles

Invention

The invention is a novel corrosion resistant coating composition and method for protection of metal substrates such as carbon steel. The coating consists of two layers, Monobasic Sodium Phosphate (NaH_2PO_4) and Nickel nanoparticles. The metal surface is coated with a first layer comprising corrosion inhibitor NaH_2PO_4 , and a second layer of nickel nanoparticles, as shown in Figure-1.

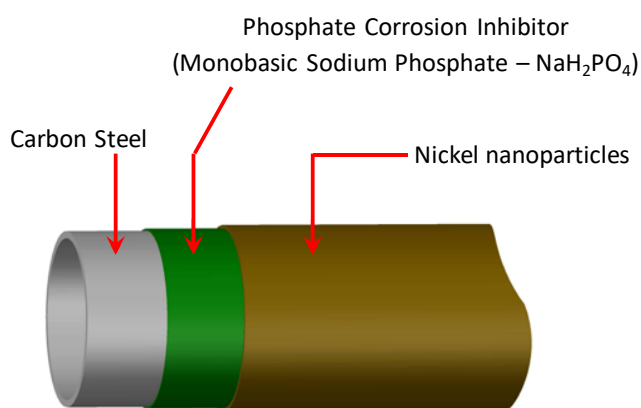


Figure-1: Anti-Corrosion Coating Composition

Applications

Possible applications could be in:

- Oil and Gas industry
- Water/wastewater industry
- Construction/manufacturing industry
- Transportation of pipelines

Advantage(s)

Low corrosion rate of 0.7026 mpy was achieved for a carbon steel sample coated with NaH_2PO_4 and Nickel nanoparticles in laboratory conditions.

Market Size and Growth

The global anti-corrosion coatings market was valued at \$18.87 billion in 2016, it is expected to reach \$24.36 billion by 2023, at Cumulative Annual Growth Rate (CAGR) of 3.7% as shown in Figure-2.

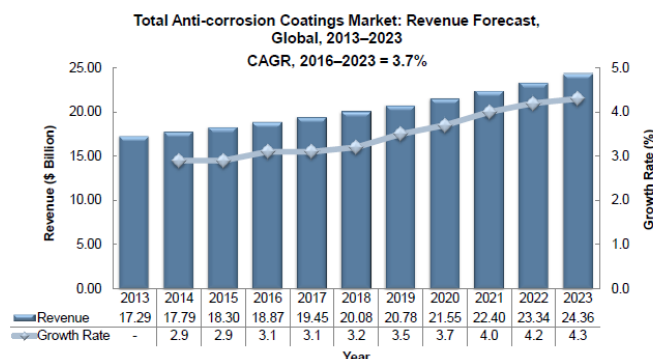


Figure-2: Global Anti-Corrosion Coatings Market

Source: "Global Anti-Corrosion Coatings Market, Forecast to 2023", Frost and Sullivan, June 2017.

Looking for Industrial Partner for Technology Development

KFUPM is interested in seeking market feedback from industry, licensing the technology to a company to commercialize it and/or partner with a company for further development of this technology.

Intellectual Property (IP) Protection

The invention is protected through US patent application 14/989430 that was filed on Jan 06, 2016 and covers the coating composition and method of applying the coating. The IP is owned by King Fahd University of Petroleum & Minerals.

About KFUPM

King Fahd University of Petroleum & Minerals is a leading educational organization for science and technology. The Innovation & Industrial Relations (IIR) office at KFUPM is tasked with taking innovation from lab to market place. For any inquiries regarding this technology, please get in touch with IIR using the contact details below.

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