Novel Environmentally Friendly Metallo-Organic Corrosion Inhibitors

Volkan Cicek, Allen. W. Apblett

Oklahoma State University, Department of Chemistry, Stillwater, OK, 74078, United States
volkancicek@gmail.com

Chromate conversion coatings provide excellent corrosion protection but environmental factors are driving the search for a replacement [1]. Motivated by the same reason, we developed and tested metallo-organic replacements for chromate. To do that, we have combined different chemical constituents, which are already known with their corrosion inhibitive properties hoping that we would have complimentary corrosion inhibition, or in other words, synergism. Theoretically, this idea only makes sense since in most cases corrosion inhibitors inhibit corrosion through different mechanisms, especially when there are both organic and inorganic inhibitors at hand [2-4].

Experimentally, we have synthesized corrosion inhibitors based on our proposed theory and tested them for mild steel and 2024, 6061, 7075 alloys of Aluminum both in aqueous media and in sol-gel coatings. As a result, some of these compounds have been found to be quite effective corrosion inhibitors for different applications [5].

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