WATER RESISTANT COATING FORMULATION

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Abstract

The proposed invention relates to a water resistant coating formulation comprising artificial resin, polyamide resin, epoxy hardener resin, and solvent mixture. The method for the preparation includes: preparing a solvent mixture, adding shellac resin to the solvent mixture to obtain a shellac solution, adding a polyamide resin to the solvent mixture to obtain a polyamide solution, adding an epoxy hardener resin to the solvent mixture to obtain an epoxy hardener solution, mixing the artificial resin solution with the polyamide solution to obtain a homogeneous mixture, mingling the epoxy hardener solution with the homogeneous mixture to obtain a final mixture, and shaking the final to obtain the coating formulation.

Keywords: water resistant coating, mixture, epoxy hardener, polyamide resin.

1. Introduction

A coating is basically a covering that is applied to the surface of a material, usually referred to as the substrate. It is applied to the surface of the substrate in order to transform the surface properties of the same, such as adhesion, wettability, corrosion resistance, or wear resistance [1]. The coating is broadly classified into three types, such as organic, inorganic, and metallic coating. The organic coating is a mixture of fluid carriers, pigments, corrosion inhibitors, polymers, and additives [2]. The inorganic coating is created by a chemical action that changes the surface layer of metal into metallic oxide film or compound, in order to minimize the amount of corrosion. The metallic coating is coating that is applied to form a corrosion resistant protective layer above the surface of the substrate that can withstand harsh environmental conditions, by changing the surface properties of the same. A resin is a solid or viscous substance of plant or synthetic origin that is convertible into polymers, usually a mixture of organic compounds [3]. The plant resin consists of terpenes, and some specific components such as alpha-pinene, beta-pinene, delta-3 carene, and sabinene [4]. It also consists of high amount of resin acids. The resins are also derived from the animals, such as shellac and lacquer.

2. Experiment

The proposed invention relates to a water resistant coating formulation and a method thereof, to provide a biodegradable non- stick coating for the surface of a substrate to protect it from direct contact with environmental factors[6], such as sunlight, water, air etc The invention described herein discloses a water resistant coating formulation, comprising a) artificial as a natural resin, b) polyamide resin, c) epoxy hardener resin, and d) mixture of solvent. The solvent mixture consists of an aromatic and an aliphatic solvent [7]. The aromatic solvent is selected from a group consisting of xylene, toluene, and benzene [8]. The method of preparation of the water resistant coating formulation comprises of the following steps: step a. mixing xylene and butanol solvent at predefined temperature to obtain a solvent mixture, step b. adding weighed shellac resin to the prepared solvent mixture at predefined temperature to obtain a shellac solution, step c. adding weighed polyamide resin to the solvent mixture at predefined temperature to obtain a polyamide solution, step d. adding weighed epoxy hardener resin to the solvent mixture at predefined temperature to obtain an epoxy hardener solution, step e. mixing shellac solution with the polyamide solution and shaken at a predefined temperature to obtain a final product.

3. Result and conclusion

The formulation is prepared to protect the surface of the substrate from environmental factors, such as water, air, and sunlight etc. This artifical is naturally available resin, which is obtained from animal origin. It is less-toxic with no fumes, and also biodegradable in nature. It can be easily applied on the surface of the substrate to be coated.

Reference

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