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- (71) Applicant: INSTITUTO SUPERIOR TECNICO [PT/PT]; Av. Rovisco Pais, P-1049-001 Lisboa (PT).
- (72) Inventors: LAMAKA, Sviatlana V.; Calçada Poço dos Mouros, N°22-2° Esq., 1170-318 Lisboa (PT). BRUSCIOTTI, Fabiola; Travessa do Convento de Jesus, N°23-2° Dto., 1200-125 Lisboa (PT). SNIHIROVA, Darya V.; Av. de Roma, N°83-2° Esq., 1700-344 Lisboa (PT). MONTÉMOR, Maria de Fátima; Quinta Nova, 2125-107 Marinhais (PT).

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(54) Title: HYBRID COATINGS FOR IMPROVED CORROSION PROTECTION OF MAGNESIUM ALLOYS

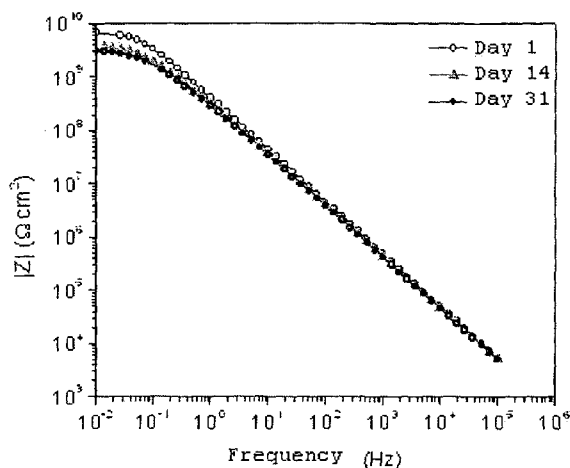


Figure 1(A)

(57) Abstract: The proposed invention concerns anti-corrosion coatings for magnesium alloys, used in automotive and aeronautic industry, and their preparation method. In particular, it relates to the coatings composition, the films formed over the substrate and the anti-corrosion properties of the overall system when immersed in an aggressive electrolyte. More specifically, the coatings consist of an epoxy component (e.g. Poly (bisphenol A-co-epichlorohydrin), glycidyl end-capped), a silane (e.g. AminoPropylTriEthoxySilane, APTES) and an amine (e.g. Diethylenetriamine, DETA), in organic solvents. The coating solution can be applied to the magnesium alloys substrates by dip-coating or spraying, followed by thermal curing in a specific range of conditions. The thickness of the coating varies from 5 to 20 micrometers. The magnesium alloys coated with such films have an excellent resistance to corrosion and after one-month immersion in sodium chloride their performance is remarkably higher compared to conventional coatings, as presented in the state of the art.



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