Epoxidation Modification of Renewable Lignin to Improve the Corrosion Performance of Epoxy Coating

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The epoxidation modification of renewable lignin was achieved by using epichlorohydrin under alkaline condition. Modified lignin (ELG) was characterized by FTIR and used to improve the corrosion performance of epoxy coatings. SEM images showed that ELG was well-dispersed in epoxy coatings, indicating that good compatibility of modified lignin with the epoxy resin. The anticorrosive properties of ELG/epoxy coatings coated on Q235 steel in 3.5% NaCl solution were studied by polarization curves and electrochemical impedance spectroscopy (EIS). Compared with pure epoxy coating, the addition of ELG greatly improved the corrosion protection performance of Q235 steel. Especially, the epoxy coating with 2% ELG achieves high corrosion protection performance.

Keywords: lignin; epoxy resin; anticorrosion; Q235 Steel

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