

Environmental evaluation of silanes as adhesion promoters for organic coatings

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Abstract-

In the literature of silane treatment there are not many studies about the deterioration of baths of silane and the possible treatments that could be used to reduce their polluting effects. The purpose of this paper is to study how the silanes (1,2-Bis(triethoxysilyl)-ethane) (BTSE) and (c-methacryloxypropyltrimethoxysilane) (MPS) can be safely returned to the environment under certain conditions after they are used as adhesion promoters. There is a restriction on the level of pH, conductivity, and chemical oxygen demand (COD) of waste waters by the European Union. Therefore, the two solutions were tested using permanganate to oxidize the silane under different pH levels to determine the most effective way to treat and decrease the COD level. Also, infrared spectroscopy (FTIR-ATR) tests were performed to correlate with the species present after different times of aging.

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