MOF-199 as a storage matrix for diphenylamine.

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As researchers have focused on finding new substitutes for traditional inhibitors to solve different problems, nanostructured systems can play a vital role among various alternatives [1].

Application of diphenylamine to MOF-199, which is considered a corrosion inhibitor in the literature, has a positive effect on corrosion resistance. MOF-199 itself , a mixed-type inhibitor, was synthesized using a well-known technique [2] to obtain samples of a microporous structure (Fig.).

The sorption capacity with respect to diphenylamine is 303 mol/d. The chromatographic retention time of diphenylamine was determined using methanol, acetonitrile, and tetrahydrofuran as eluents. The temperature control was performed at 25 °C with an eluent velocity of 1.25 ml/min. The best retention time was observed in methanol at 25 °C and was 0.83 seconds. In acetonitrile and tetrahydrofuran, the contact time is reduced to 0.57 s and 0.77 s accordingly.

Thus, the best fusion of diphenylamine with the MOF-199 surface is provided by an alcohol solution.

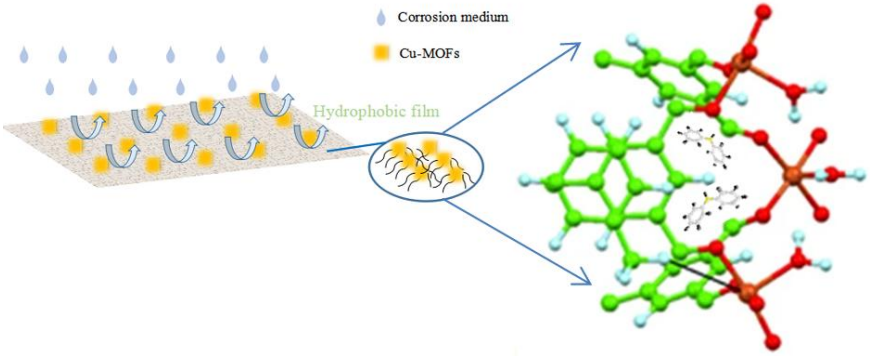

Fig. Composite inhibitory behavior model

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References

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