RUST CONVERTER WITH IMPROVED ADHESION FOR TOPCOATS

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PROTECTION OF ‘AGED’ INDUSTRIAL STRUCTURES BY COATINGS

Surface preparation before application of protective coatings to ‘aged’ industrial facilities is particularly challenging on constructions, that for a variety of reasons, may be unsuitable for abrasive or water blasting. Rust converters applied to hand/power tool cleaned surfaces, which together with topcoats, offer corrosion protective characteristics matching those of blasted surfaces are of imminent technological and economical interest. Performance of VpCI CorrVerter and commercial tannin and phosphoric acid based rust converters applied to specimens cut from an aged, heavily rusted industrial structure, has been investigated.

Extremely rough surface profile may significantly reduce the efficiency of rust converter and coating systems. Following a detailed specification describing appropriate tool cleaned substrate.

Without VpCI CorrVerter is >93%. All three types of coatings investigated, epoxy, alkyd and polyurethane, applied over the VpCI CorrVerter layer, adhered well to the hand tool cleaned steel substrate. Among all the tested systems, systems with VpCI CorrVerter, applied to hand tool cleaned steel covered with epoxy and alkyd coatings, had impedances closest to those obtained in the case of epoxy applied to Sa 2½ sand blasted surface. The improvement of impedance of the epoxy system with VpCI CorrVerter over the epoxy system without VpCI CorrVerter is >93%. All three types of coatings investigated, epoxy, alkyd and polyurethane, applied over the VpCI CorrVerter layer, adhered well to the hand tool cleaned substrate.

Various combinations of substrate, rust converters and polymer coatings have confirmed beneficial influence of VpCI CorrVerter and tannin type converter on overall system protective ability. For phosphate converter, the improvement over converter untreated surface was not observed.

PHOSPHATE CONVERTER WITH IMPROVED ADHESION FOR TOPCOATS

Among all the tested systems, systems with VpCI CorrVerter, applied to hand tool cleaned steel covered with epoxy and alkyd coatings, had impedances closest to those obtained in the case of epoxy applied to Sa 2½ sand blasted surface. The improvement of impedance of the epoxy system with VpCI CorrVerter over the epoxy system without VpCI CorrVerter is >93%. All three types of coatings investigated, epoxy, alkyd and polyurethane, applied over the VpCI CorrVerter layer, adhered well to the hand tool cleaned surface.

Extremely rough surface profile may significantly reduce the efficiency of rust converter and coating systems. Following a detailed specification describing appropriate technique of rust converter and coating application is imminent for attaining their synergistic protective ability.

CONCLUSIONS

Various combinations of substrate, rust converters and polymer coatings have confirmed beneficial influence of VpCI CorrVerter and tannin type converter on overall system protective ability. For phosphate converter, the improvement over converter untreated surface was not observed.

Among all the tested systems, systems with VpCI CorrVerter, applied to hand tool cleaned steel covered with epoxy and alkyd coatings, had impedances closest to those obtained in the case of epoxy applied to Sa 2½ sand blasted surface. The improvement of impedance of the epoxy system with VpCI CorrVerter over the epoxy system without VpCI CorrVerter is >93%. All three types of coatings investigated, epoxy, alkyd and polyurethane, applied over the VpCI CorrVerter layer, adhered well to the hand tool cleaned substrate. Extremely rough surface profile may significantly reduce the efficiency of rust converter and coating systems. Following a detailed specification describing appropriate technique of rust converter and coating application is imminent for attaining their synergistic protective ability.