Rust-Oleum
Penetrol
Totrust
Inv. WI-1336
Chambers Works
EX-2-221 Trip Reports

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SUPPLEMENT TO MEMORANDUM REPORT NO. M-263:

RUST-OLEUM, PENETROL AND TOTRUST

The original Report No. M-263, dated August 24, 1949, discussed our knowledge of these competitive products at that time. Analytical break-downs and exposure results were reported, the exposures indicating relatively poor protective properties as systems. This supplementary report covers results which have been obtained in S-10666 which evaluated these products under durable top-coats such as 25-050 Dulux Red and 166-220 Dulux Aluminum.

After 17 months Florida exposure on wire brushed rusted channel irons, the results noted below have been obtained. Delaware results follow the same pattern but to a lesser degree of failure.

Rust-Oleum:

S-9802 showed poor durability of one and two coats of Rust-Oleum products. S-10666 demonstrates that better results are obtained with a durable top-coat of 25-050 over the Rust-Oleum, but that the Rust-Oleum as a primer does not afford the protection of one of our lowest grade primers, 373-819. The following tabulation of results (S-10666) will show a comparison of Rust-Oleum versus three of our standard primers, 25-050 Dulux Red being the top-coat used over each primer.

Primer	2nd Coat	ASTM rating*
Rust-Oleum #586 (LO)	25-050	5.0
Rust-Oleum #769 (SO)	25-050	4.0
373-819	25-050	7.5
373-785	25-050	8.5
67-820	25-050	9.5

*Rating of 10 is perfect. Refinishing indicated at 8.0-8.5.

Failure over the rusted channel irons was due principally to blister type popping of the mill scale which remained intact at the time the panels were wire brushed.

The interjection of a durable intermediate coat such as 67-820 after the Rust-Oleum primer coat shows a definite improvement in durability, but shows no advantage over our two coat system with low cost primers (373-819 and 373-785), (see above table), and is inferior to our two coat systems using 67-820 and 25-050. This comparison in itself indicates Rust-Oleum to be detrimental when used as a primer

under a sound system.

Primer	2nd Coat	3rd Coat	ASTM Rating
Rust-Oleum #586	67-820	25-050	8
Rust-Oleum #769	67-820	25-050	7.5

A test to evaluate SR-42081 Rust-Oleum #633 Drying Oil (thinner for SO type products, also an aluminum vehicle) proves it definitely inferior to our 166-220 Aluminum. The Rust-Oleum vehicle plus two lbs. of aluminum paste per gallon was compared against 166-220 over the same Rust-Oleum primer with the following results:

Primer	2nd Coat	ASTM Rating
Rust-Oleum #586	166-220	8.5
Rust-Oleum #586	Rust-Oleum Vehicle + 2# Al. Paste	4.0

Another group of exposures, S-10883, is now in progress to correlate with the field test systems which were applied to Tank No. TS-81 at the Chambers Works. Recent inspection of both the field test and panel exposures show nothing significant to report at this time. This test includes our counter-match to Rust-Oleum and will be reported on when anything of interest develops.

Penetrol:

This product showed poor durability in S-9946 when exposed without finish coats as reported in the original M-263. In S-10666 it was exposed under 67 -820 and 25-050, and is returning satisfactory durability, but is no better than the two coat system of 67-820 and 25-050 without the Penetrol as the first coat.

In S-10988 we are evaluating this product further to correlate with the field test under way at the Texas Company's Eagle Point Refinery, Westville, N. J. Our P-VO-R-54464 Linseed Oil Penetrant is included in both the exposures and field tests. Neither has shown any significant failure to date.

Totrust:

SR-42039 Totrust Red followed by one coat of 25-050 shows this product to have definitely poor durability as a primer over rusty metal, its A.S.T.M. rating of 4.0 being well below that of 373-819.

Conclusions:

This review confirms our previous suspicions as to the low relative value of Rust-Oleum and Totrust for metal protection. Additional exposure of the tests covering Penetrol will be necessary before we can draw valid conclusions as to its real protective value.

MARSHALL LABORATORY

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