

File

FILE COPY

O T T A W A

October 26, 1945.

R E P O R T

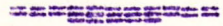
of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1950.

(Subsequent to Report of
Investigation No. 1943,
dated September 28, 1945.)

Corrosion Protection of Exterior Rust
Preventive Compounds.



Bureau of Mines
Division of Metallic
Minerals

Physical Metallurgy
Research Laboratories

CANADA

DEPARTMENT
of
MINES AND RESOURCES

Mines and Geology Branch

O T T A W A

October 26, 1945.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1950.

(Subsequent to Report of)
(Investigation No. 1943,)
(dated September 28, 1945.)

Corrosion Protection of Exterior Rust
Preventive Compounds.

=====

Background:

A letter, dated March 19, 1945, from Dr. D. Wolochow, Secretary, Canadian Government Purchasing Standards Committee, National Research Council, Ottawa, Ontario, requested that the corrosion protection of a number of different rust preventive compounds be investigated. The letter stated, in part:

"In connection with the work of our Wartime Subcommittee on Petroleum and Associated Products, it has been suggested that the several laboratories, who are equipped for testing rust preventive compounds to the specifications which we are sending you, be asked to test a number of exchange samples to be supplied by the producing companies."

(Background, cont'd) -

The present report gives the results obtained in the investigation of the corrosion protection of two Exterior Rust Preventive Compounds, numbered 700-1 and 700-2. These were tested to Specification D.N.D. 700.

Investigation Procedure:

The above-mentioned Exterior Rust Preventive Compounds were tested for the following:

1. Protection At High Humidity.

(a) One group of tests on the two compounds was performed exactly according to Paragraph D-1e(1) of Specification D.N.D. 700, except that the panels were prepared for testing in a different manner. This variation was necessary because the procedure outlined in the specification gave unsatisfactory results on very humid days. The following procedure was used in preparing these panels:

After surfacing with the 150 grit wheel, the panels were wrapped in clean white paper. As soon as possible they were degreased in trichlorethylene vapour, scrubbed with a brush while immersed in trichlorethylene liquid, again suspended in trichlorethylene vapour, and, finally, wrapped in clean white paper until the coating could be applied.

(b) One of the two compounds was tested exactly according to Paragraph D-1e(1) of the specification except that

(i) the panels were surfaced with a 180 grit belt instead of a 150-200 grit wheel;

(ii) air was passed continually through the humidity cabinet.

In all other respects it was possible to prepare these panels for testing exactly according to the specifications, because

(Investigation Procedure, cont'd) -

there was no difficulty with high atmospheric humidity at that time of the year (early spring).

2. Salt Spray Test.

Both compounds were tested according to Paragraph D-1e(2) of Specification D.N.D. 700, except that the panels were prepared for testing by the new method described above.

Results:

The results of the investigation were as follows:

Compound No.	RESULTS OF TESTS		
	PROTECTION AT HIGH HUMIDITY		SALT SPRAY TEST
	Without Air Passing Through The Cabinet	With Air Passing Through The Cabinet	
700-1	Passed.	Passed.	Failed (see Figure 1).
700-2	Passed.	-	Failed (see Figure 2).

Remarks:

1. In the humidity test, Compound 700-1 gave the same results with and without air passing through the cabinet.
2. The humidity cabinet used throughout this investigation was the one described by Todd in INDUSTRIAL AND ENGINEERING CHEMISTRY, Analytical Edition 16, 394 (June), 1944.
3. Information regarding the results obtained by other investigators would be much appreciated.
4. The construction of our new humidity cabinet (built to Specification AN8517) has been completed. Some minor changes are being made to eliminate obvious defects. No oils have been tested in it as yet. However, there can be no doubt that the conditions are much more severe than in the Todd cabinet.

ooooooooooooo
oooooooooo
oo

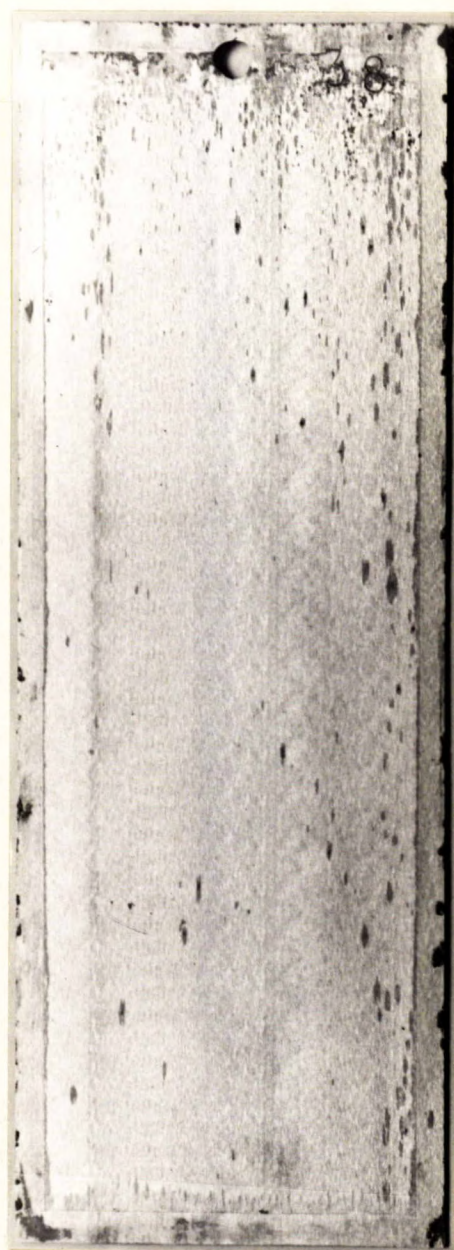
(Figures 1 and 2 follow,
on Pages 4 and 5.)

RRR:LB.

Figure 1.



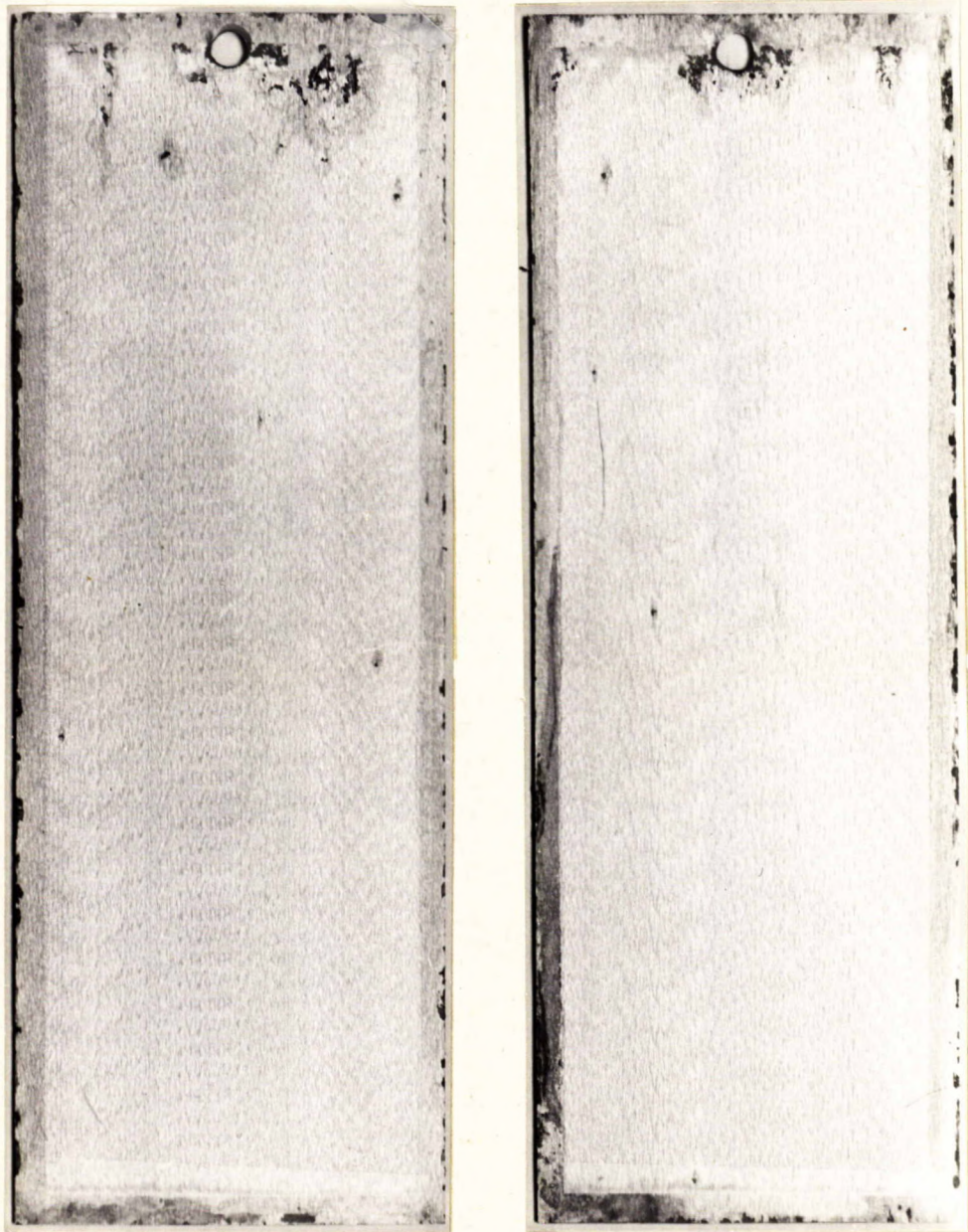
(a)



(b)

PANELS COATED WITH COMPOUND 700-1, AFTER
200 HOURS IN THE SALT SPRAY CABINET.

Figure 2.



(a)

(b)

PANELS COATED WITH COMPOUND 700-2, AFTER
200 HOURS IN THE SALT SPRAY CABINET.

=====
=====

RRR:LB.