

File

# FILE COPY

O T T A W A

April 19, 1945.

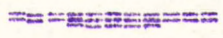
R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1845.

Corrosion Protection Afforded to Steel by Shell Ensis  
Fluid 211 in the Dynamic Humidity Cabinet Test.



(Copy No. 10.)

O T T A W A

April 19, 1945.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1845.

Corrosion Protection Afforded to Steel by Shell Ensis  
Fluid 211 in the Dynamic Humidity Cabinet Test.

=====

Background:

In a letter dated March 19, 1945, (File No. 832-330-11), a request was received from Air Commodore A. L. Johnson, Director of Aeronautical Inspection, for Chief of the Air Staff, Department of National Defence for Air, Ottawa, Ontario, to test a sample of Shell Ensis Fluid 211 to be submitted by the Air Force.

Test Performed:

The Shell Ensis Fluid 211 was tested for its corrosion protection properties by the "Protection" procedure described in Specification C-22-587. This procedure had been

(Test Performed, cont'd) -

used in these Laboratories for testing other materials. It involves keeping steel samples coated with the fluid in a humidity cabinet at 49  $\pm$  3° C. and relative humidity of 95 to 100 per cent for at least 150 hours. The conditioned air passes through the cabinet at the rate of 8 cubic feet per hour.

RESULTS:

When the six coated steel samples were removed from the humidity cabinet at the end of the test, all were found to have corroded considerably. Figure 1 shows the emiered sides of three typical panels. In addition to the corroded spots, areas will be observed in which the "protective" oil had formed into small drop-lets instead of spreading uniformly over the surface of the metal. Figure 2 shows the unemiered sides of these same panels. The encircled areas were visibly free from "protective" material, and considerable corrosion had taken place there during the test.

Note:

When a further supply of the fluid (Shell Ensis Fluid 211) has been received it will be tested by each of the procedures listed in Specification D.N.D. 702.

Figure 1.

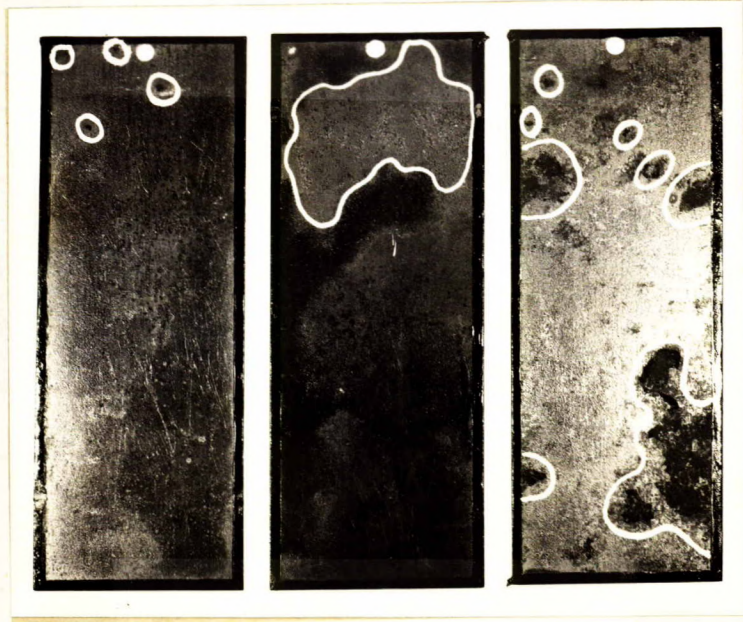


EMIERED SIDES OF TYPICAL STEEL PANELS COATED WITH SHELL ENSIS FLUID 211, AFTER TESTING FOR 150 HOURS IN THE DYNAMIC HUMIDITY CABINET.

(Size of panels, 3 in. x 8 in.).

(Results, cont'd) -

Figure 2.



UNEMERIED SIDES OF THE PANELS  
SHOWN IN FIGURE 1.

Encircled areas were visibly free from the  
"protective" fluid and considerable corrosion  
had taken place there during the test.

(Size of panels, 3 in. x 8 in.).

oooooooooooo  
oooooo  
oo

RRR:LB.