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O T T A W A July 18, 1945.

R E P O R T

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1906.

Alternative Technique for Cleaning the Surface of Steel Test Panels Prior to Coating with Rust Preventive Compounds (D.N.D. 700, 701, 702, 703).

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(Copy No. 10.)

Bureau of Mines
Division of Metallic Minerals
-
Physical Metallurgy
Research Laboratories

CANADA
DEPARTMENT
OF
MINES AND RESOURCES
Mines and Geology Branch

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Background:

Rust preventive compounds have been tested to Specifications D.N.D.700, 701, 702 and 703 in these Laboratories over a period of some months. When the first tests were made the cleaning procedure outlined in the specifications was followed exactly and excellent results were obtained. Within the past few weeks the same cleaning procedure has caused the panels to start rusting before the protective compounds could be applied.

(Background, cont'd) -

There can be little doubt that this rusting was due to higher atmospheric humidity during the summer months. This is corroborated by the experience of investigators in the U.S.A. A cleaning procedure which seems to eliminate the undesirable effect of high atmospheric humidity has been developed and is described in this report.

Cleaning Procedure Outlined in Specifications D.N.D. 700, 701, 702, 703:

Cleaning of steel test panels obviously is required in Specifications D.N.D. 700, 701, 702 and 703, in order to obtain a fresh metal surface free from grease, dirt and rust. The following cleaning procedure, which is taken from Specification D.N.D. 701 for Rust Preventive Compounds - Interior, is typical:

> After treatment with emery, the surface of the panel shall be
>
> (a) washed in mineral spirits with a fibre brush to remove all grit and dust;
>
> (b) placed in a trichlorethylene vapour bath or liquid;
>
> (c) washed in ether to remove fingerprints;
>
> (d) washed in methyl alcohol of not less than 90 per cent and having a pH value between 6.8 and 7.6; and
>
> (e) dried rapidly at about 120° F.

This procedure gives excellent results under ordinary conditions when the atmospheric humidity is not too high.

New Procedure:

After investigating various procedures the following one was found to give satisfactory results even under very

(New Procedure, cont'd) -

humid conditions:

After treatment with emery the panel shall be

(a) wrapped in clean white paper until ready for (b);

(b) treated in the vapour trichlorethylene degreaser;

(c) washed in clean, freshly distilled liquid trichlorethylene with a brush to remove all grit and dust;

(d) removed quickly to the vapour degreaser while still covered completely with trichlorethylene liquid, and given another treatment in trichlorethylene vapour;

(e) washed in methyl alcohol of not less than 90 per cent strength and having a pH value between 6.8 and 7.6; and

(f) dried rapidly at about 120° F.

The ether treatment can be eliminated because no fingerprints can get on the panels by the method of preparation used in these Laboratories.

Conclusions:

1. The new procedure gives a metal surface which is just as free from oil, dirt and rust as that produced by the procedure in the specifications.

2. The new procedure is more useful than the one in the specifications, under conditions of high atmospheric humidity.

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