

**OXIDATION-CORROSION TEST FOR GREASES
(Modified ASTM D 942 Oxidation Test)**

Application

This procedure is used to determine the oxidation stability and corrosion effect of greases on brass, copper, beryllium copper and silver.

Description of Test

A sample of grease in five dishes is oxidized in a sealed container filled with oxygen at 758 kPa and 99 °C. In the center three dishes of the dish holder, any or all of the above material specimens are embedded in the grease. The degree of oxidation after a given period of time is determined by the corresponding decrease in oxygen pressure. The specimens are examined for corrosion.

Apparatus Required

Apparatus as Defined in ASTM D 942

Microscope

Capable of 45x magnification. VWR Catalog No. 41433-111 or equivalent.

Balance

160 g; precision +/- 0.001 g. VWR Catalog No. 11371-343 or equivalent.

Source: VWR Scientific
3140 Grand River
Detroit, Michigan

Material Required

Test Specimen

Thin sheet stock or wire of such dimensions to have a surface area of 76.00 +/- 13.00 mm²

Oxygen

U.S.P. 99.5 +/- 0.1 % purity. CAUTION: Fire hazard - can support and accelerate combustion.

Date	Action	Revisions
2001 07 24	Revised	Editorial – no technical change A. Cockman
1990 06 18		

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Steel Wool

No. 0

Lintless Paper

Naphtha

CAUTION: Low flash point.

Pentane

Refer to above caution for Naphtha.

Sulfuric Acid

Reagent grade 96 - 98 %. CAUTION: Corrosive.

Solutions Required

Sodium Dichromate Solution

Reagent grade. Saturated solution. ($\text{Na}_2\text{Cr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$)

CAUTION: Toxic, dangerous to eyes.

Cleaning Solution

Add 1 L of 96 - 98 % H_2SO_4 by slowly stirring into 35 mL of saturated sodium dichromate solution.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Prepare oil bath and maintain at $99 \pm 2^\circ\text{C}$.
2. Clean five sample dishes thoroughly using the cleaning solution; avoid touching inside of the dishes during handling.
3. Clean the specimen strips or wires by rubbing with No. 0 fine steel wool, followed by rubbing with lintless paper and washing with naphtha and pentane.