

**MINERAL OIL CONTAMINATION OF BRAKE FLUID BY ALCOHOLIC SOLUTION AND COLORIMETRY
(RELEASED FOR FSAO)****Application**

This procedure describes a method for detecting and estimating mineral oil contaminants above 0.005% in DOT 4 or superDOT4 brake fluids by ethyl alcohol solution and colorimetry.

Apparatus Required**pH meter**

Accuracy of +/- 0.06

Glass pH electrode**Graduated test tube**

100mL

Glass buret

50 mL

Volumetric flask

1000mL

Colorimeter

Photometer accuracy of +/- 0.001A, Wavelength 430nm, 520nm, 570nm and 620nm, precision of +/- 2nm, LED as light source and 10mm sample cell.

Materials Required**DOT 4 or superDOT4 fluid sample****Alcoholic solution**

Solution 45% v/v ethyl alcohol (99.5%) in deionized water, neutralized to pH 7.0 +/- 0.5 using NaOH 0.1N solution. Volume 1000mL.

Note: When preparing alcoholic solution, add ethyl alcohol under deionized water.

Blank solution

Solution 30% v/v Dot 4 superDOT4 fluid sample free of mineral oil in alcoholic solution.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5% relative humidity for not less than 24h prior to testing and tested under same conditions unless otherwise specified.

Date	Action	Revisions
2006 03 14	Activated	

**Documents**

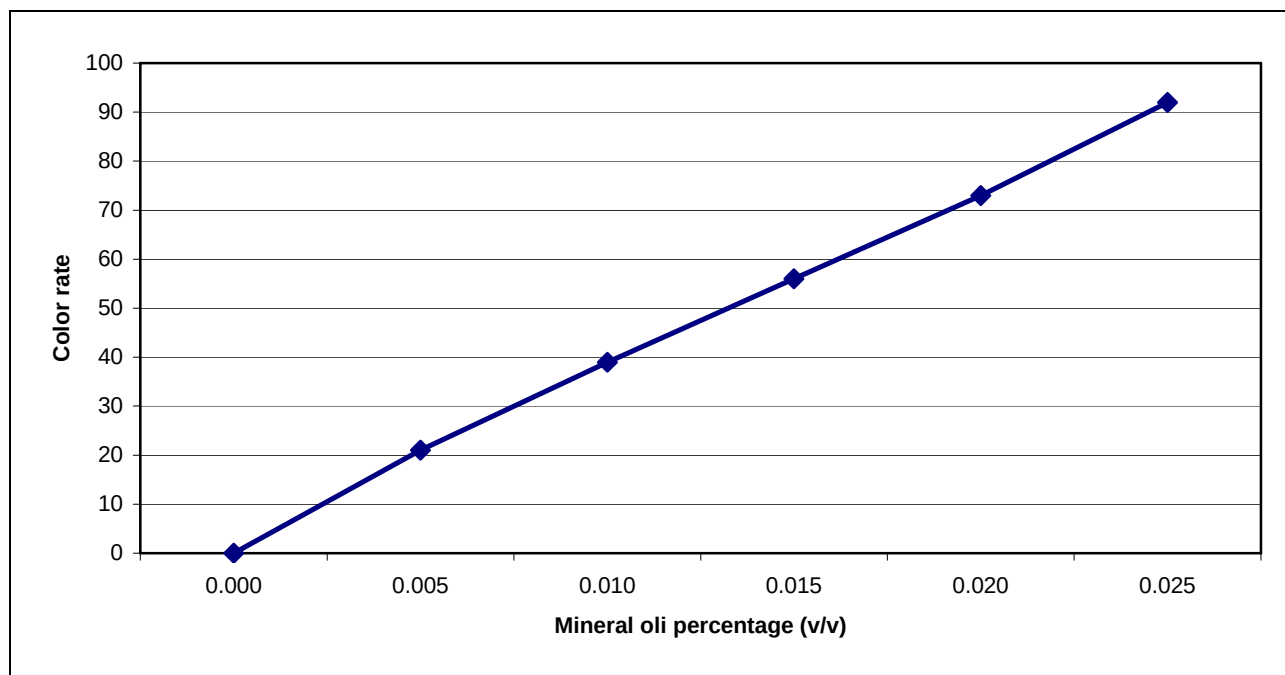
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Procedure

1. Prepare a 100mL sampling solution by adding fluid sample under alcoholic solution previous prepared
2. Let it rest at least 30 minutes
3. Acquire color data for blank solution and record as **B**
4. Acquire color data for sampling solution and record as **S**
5. Record color rate as **C = S - B**
6. Use **C** value to obtain mineral oil concentration (percentage) from plot 01 bellow
7. For the first time, repeat at least 20 times to get standard deviation (SD)



Plot 01- Color rate versus mineral oil percentage from power steering fluid WSA-M2C195-A used in FSAO.

Evaluation

The acceptance criteria is **C** < 90, given for <0.025% of mineral oil in DOT4 or SuperDOT4 brake fluids. Report C +/- SD.

Chemicals, materials, parts, and equipments referenced in this document must be used and handled properly. Each part is responsible for determining the proper use and handling in its facilities.