



WATER TOLERANCE TEST FOR LUBRICANTS

Application

This procedure is used to determine the tendency of rear axle 85W-140 lubricants to stain and corrode axle components in the presence of water.

Apparatus Required

Heating Bath

Capable to heat up to 99 +/- 2 °C, stirrer included with velocity rate 1000± RPM. Stanhope Seta, catalog # 11200-3.

Beaker

Capacity – 400mL, Berzelius long form, approximately 127 mm height and 70 mm inner diameter. Pyrex, catalog # 1060-400.

Flask cover

Stanhope Seta, catalog # 11335-0.

Plastic Holder

Stanhope Seta, catalog # 11290-0

Sand paper

Norton, 150 and 240 grit, catalog # T223

Polish equipment

Polimatec, catalog # 665

Graduated Cylinders

500mL and 10mL, V. W.R Scientific, catalog # 24710-180 or equivalent

Steel Bar

Stanhope Seta, catalog # 11220-1

Automatic Timer

Boeco, catalog # BOE 200

Date	Action	Revisions
2005 07 25	Activated	



**Materials Required****Distilled water**

Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type II of Specification D-1193

Petroleum Naphtha

ASTM Precipitation Naphtha (Warning – see Note 1) shall conform to the following requirements:

Test	Requirements	ASTM Designation
Density, 15 °C	0.692 to 0.702	D 1298 or D 4052
Aniline Point	58 to 60 °C	D 611
Initial Boiling Point	no less than 50 °C	D 86
50% point	70 to 80 °C	D 86
End Point	not more than 130 °C	D 86

Note 1: Warning – Extremely flammable, harmful if inhaled

Note 2: Precipitation naphtha is sometimes referred to or sold by other names, such as petroleum naphtha, petroleum ether, ligroine, petroleum benzin, and industrial naphtha. One should confirm that it meets the requirements shown at table.

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.

Procedure

1. Heat the thermal bath to 99 °C.
2. Take 300mL of sample using graduated cylinder and to transfer to a flask.
3. Place the sample flask into the bath.
4. Cover the flask and adjust the mixer.
5. Put the holder with polished steel bar in the opening.
6. Turn on mixer and to let it steering for 30 minutes.
7. Add 6mL of distilled water and start the timer.
8. After 6h, add more 6mL of distilled water.
9. After 15h, add more 6mL of distilled water.
10. After 24h, turn off mixer and heating.
11. Take off steel bar and wash out with above specified petroleum naphtha.
12. Observe the steel bar under normal light (650 lux).
13. The following data is reported at the conclusion of the test:

• pass	No pitting in steel bar
• failure	Pitting encountered in steel bar

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