



**STATE OF NORTH CAROLINA
 NORTH CAROLINA STATE UNIVERSITY
 EXPERIMENTAL EVALUATION OF MOTOR OILS
 FOR USE IN STATE VEHICLES
 6/12/02**

1) SAE J-1349 Engine Power Test Code and SAE J-1312 Engine Performance and Fuel Consumption Test Procedure results:

Emission Results:

**Carbon Monoxide CO
 Nitrous Oxide NOx
 Soot Soot**

**Royal Purple Emissions Reduction
 Diesel Engines**

**-28.15%
 -12.06%
 -17.58%**

Fuel Consumption Results:

**1200 RPM – 20lb Load
 1600 RPM – 20lb Load**

**Royal Purple Fuel Improvement
 Gas Engines Diesel Engines**

**+7.14% +3.68%
 + 5.75% +2.48%**

2) Federal Test Procedure (EPA 75 city) emissions test results:

Emission Results:

**Carbon Monoxide (CO)
 Nitrous Oxide (NOx)
 Hydrocarbon**

**Royal Purple Emissions Reduction
 Gasoline Engines**

**-19.96%
 -32.26%
 - 4.80%**

3) North Carolina Highway Patrol – 25 Ford Crown Victoria patrol cars showed a 2.5% fuel mileage improvement from using Royal Purple Oil. The patrol also documented a 40° drop in automatic transmission temperature from using the Royal Purple ATF in selected high speed pursuit Cameros.