



*The First in Synthetics*®

# Comparative Motor Oil Testing



## AMSOIL 10W-30

**VS.**

Castrol GTX

Chevron Supreme

Formula Shell

Havoline

Mobil 1 Extended Performance

Motorcraft Synthetic Blend

Pennzoil

Pennzoil Platinum

Quaker State Advanced Full Synthetic

Trop Artic Synthetic Blend

### Motor Oils Tested

AMSOIL ATM  
Mobil 1 Extended Performance  
Quaker State Advanced Full Synthetic  
Pentzoi Platinum  
Trop Artic  
Motorcraft  
Castrol GTX  
Chevron Supreme  
Havoline  
Formula Shell  
Pentzoi

### Test Areas

Thin Film Oxygen Uptake (ASTM D-4742)  
High Temperature/High Shear (ASTM D-4683)  
NOACK Volatility (ASTM D-5800)  
Pour Point (ASTM D-97)  
Total Base Number (ASTM D-2896)  
Cold Cranking Simulator (ASTM D-6293)  
Four-Ball Wear (ASTM D-4172)

AMSOIL Synthetic 10W-30 Motor Oil (ATM) and 10 competing conventional, synthetic and synthetic blend 10W-30 motor oils were subjected to a series of motor oil tests. The competing oils included petroleum-based Castrol GTX, Chevron Supreme, Havoline, Formula Shell and Pentzoi, as well as synthetic-blends Trop Artic and Motorcraft, and full-synthetic Pentzoi Platinum, Quaker State Advanced Full Synthetic and Mobil 1 Extended Performance.

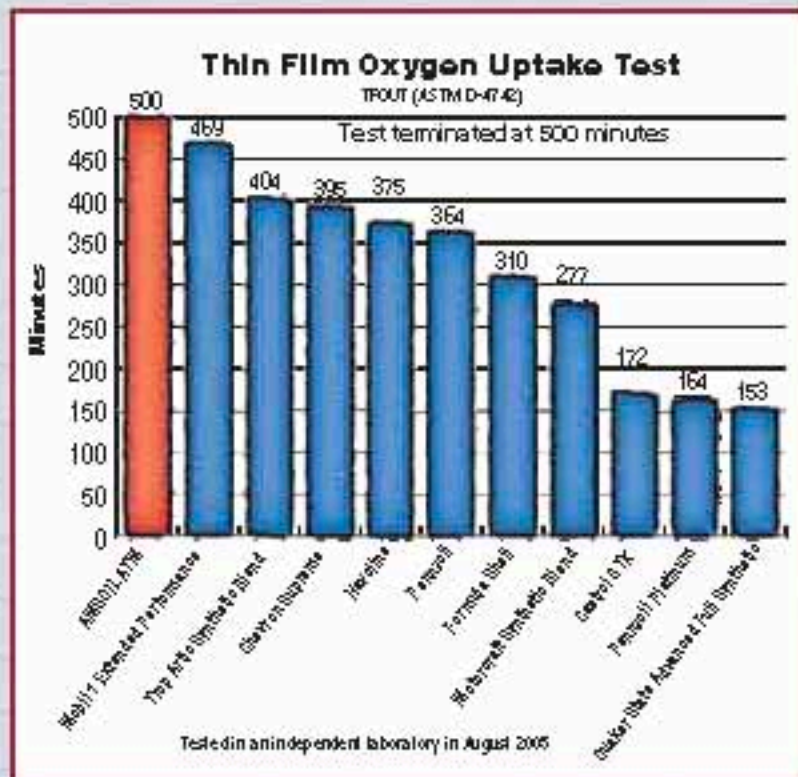
Seven tests were run on the motor oils. The Thin-Film Oxygen Uptake Test (TFOUT) measures the oxidation stability of engine oils. The High

Temperature/High Shear Test (HTHS) measures a lubricant's viscosity under severe operating conditions. The NOACK Volatility Test measures the evaporation loss of oils in high temperature service. Pour Point indicates the lowest temperature at which a fluid will flow. Total Base Number (TBN) is the measurement of a lubricant's reserve alkalinity for combating acids. The Cold Cranking Simulator Test (CCS) indicates the degree to which a lubricant can impact cold weather starting. The impressive test results show AMSOIL Synthetic 10W-30 Motor Oil outperformed the competitors in nearly every test.

## EXTENDS OIL LIFE

The Thin Film Oxygen Uptake Test (TFOUT) is used to evaluate engine oil's ability to resist heat and oxygen breakdown when contaminated with oxidized/nitrated fuel, water, and soluble metals such as lead, copper, iron, manganese and silicon. This test is designed to mimic the operating conditions of a gasoline engine.

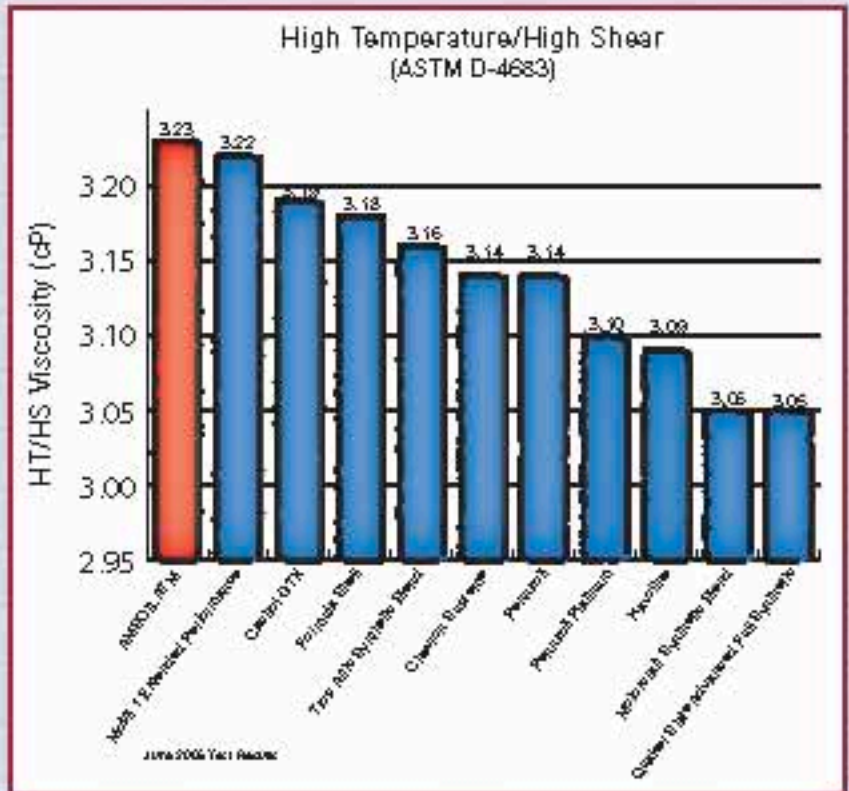
AMSOIL 10W-30 Synthetic Motor Oil has superior heat and oxidation resistance to control sludge deposits and extend oil life. Engines stay clean for maximum protection and oil changes are reduced, saving time and money.



## PROTECTS HOT ENGINES

The High Temperature/High Shear Test measures a lubricant's viscosity under severe high temperature and shear conditions that are similar to severe service applications in an engine. In order to prevent wear, it is important for a lubricant to maintain its protective viscosity level under severe operating conditions.

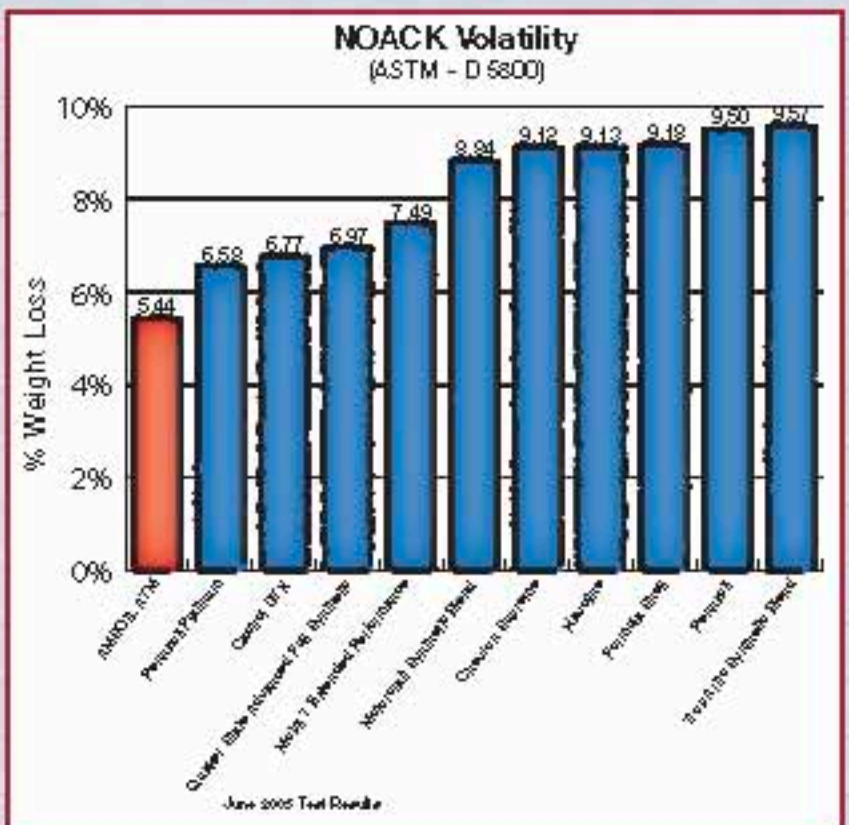
AMSOIL 10W-30 Synthetic Motor Oil does not "shear back" and thin out like other motor oils. Its superior viscosity stability provides unsurpassed bearing protection for dependable engine operation, especially during hot operating conditions.



## MAXIMIZES FUEL ECONOMY, REDUCES OIL CONSUMPTION AND EMISSIONS

The NOACK Volatility Test determines the evaporation loss of lubricants in high temperature service. The more motor oils vaporize, the thicker and heavier they become, contributing to poor circulation, reduced fuel economy and increased oil consumption, wear and emissions.

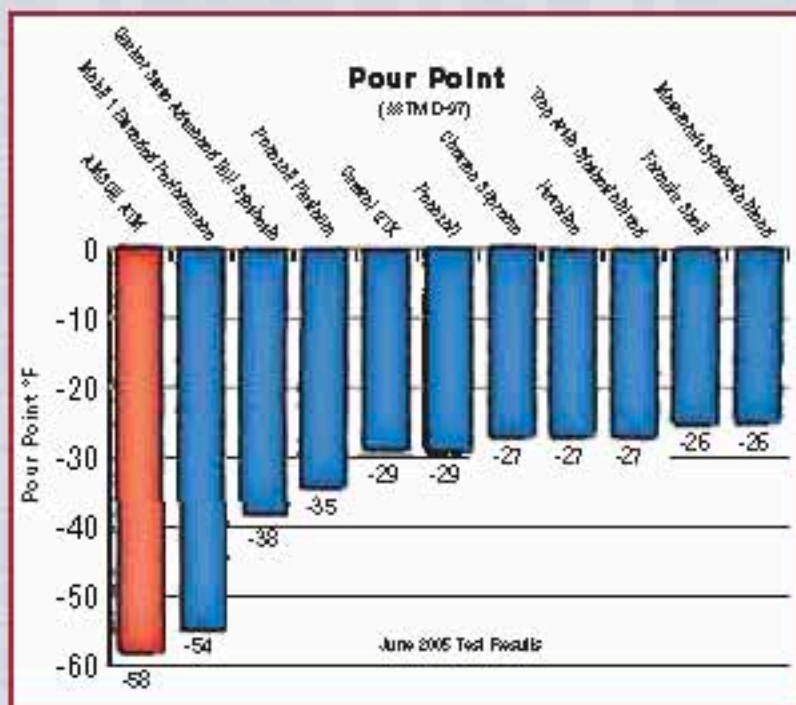
AMSOIL 10W-30 Synthetic Motor Oil resists high temperature volatilization (evaporation) better than other motor oils. AMSOIL Synthetic Motor Oil maintains peak fuel efficiency and reduces oil consumption and emissions.



## IMPROVES COLD TEMPERATURE STARTUP

The Pour Point Test determines the lowest temperature at which a lubricant will flow. The lower a lubricant's pour point, the better protection it provides in low temperature service.

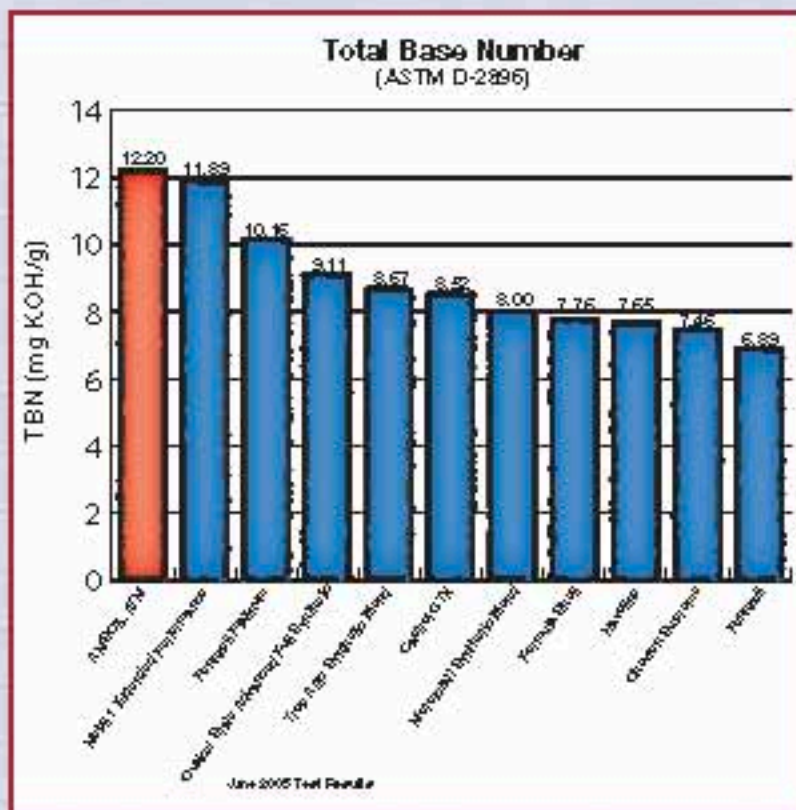
Unlike conventional oils that solidify in cold temperatures, AMSOIL 10W-30 Synthetic Motor oil remains fluid down to -58° F. AMSOIL Synthetic Motor Oil helps engines turn over easier and flows quickly to engine parts for critical start-up protection. Engines start faster and wear is greatly reduced for extended engine life.



## CONTROLS ACID FORMATION

Total Base Number (TBN) is the measurement of a lubricant's reserve alkalinity, which aids in the control of acids formed during the combustion process. The higher a motor oil's TBN, the more effective it is in suspending wear-causing contaminants and reducing the corrosive effects of acids over an extended period of time.

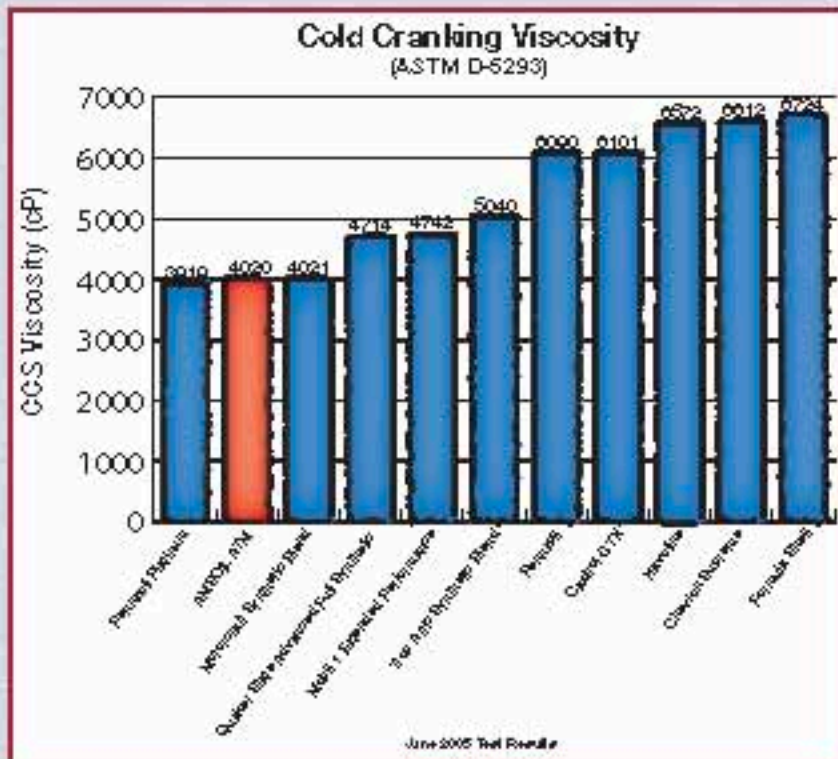
The high TBN of AMSOIL Synthetic 10W-30 Motor Oil allows it to effectively combat wear-causing contaminants and acids, providing superior protection and performance over extended drain intervals.



## HELPS ENGINES START EASIER

The Cold Crank Simulator Test determines the apparent viscosity of lubricants at low temperatures and high shear rates. Viscosity of lubricants under these conditions is directly related to engine cranking and startability. The lower a lubricant's cold crank viscosity, the easier an engine will turn over in cold temperatures.

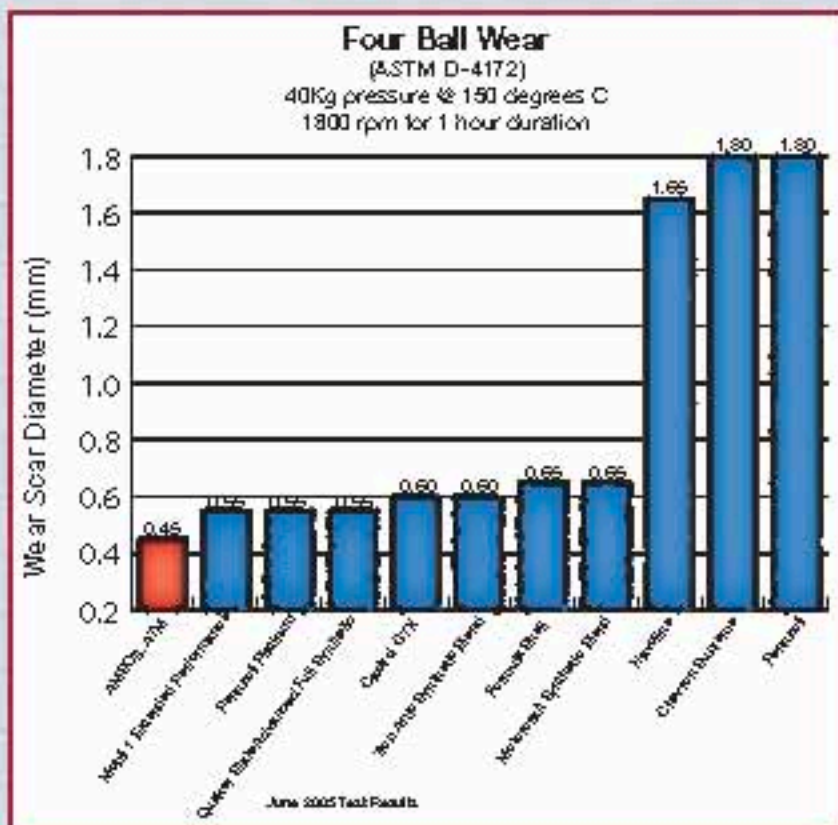
The low cold crank viscosity of AMSOIL Synthetic 10W-30 Motor Oil reduces drag on moving engine parts and allows engines to achieve critical cranking speed in extremely frigid temperatures. Engines turn over quickly and dependably in the coldest winter temperatures.



## PROTECTS AGAINST WEAR

The Four-Ball Wear Test evaluates the protection provided by engine oil under conditions of pressure and sliding motion. The size of the scar left as a result of the test determines the amount of wear protection the lubricant provides. The smaller the wear scar, the better the protection.

Tests show that AMSOIL 10W-30 Synthetic Motor Oil has better anti-wear performance than all other oils tested. With AMSOIL Synthetic Motor Oil, engine life can be extended and major repairs are often reduced.



# The Company of Firsts

## Over 30 Years of Innovation and Leadership

- **First** to develop an API rated 100 percent synthetic motor oil.
- **First** to introduce the concept of "extended drain intervals" with a recommended 25,000-mile/12-month drain interval.
- **First** U.S. company to utilize the NOACK volatility test as a standard of performance excellence.
- **First** to produce synthetic motor oils for diesel engines, racing engines, turbos and marine engines.
- **First** to introduce synthetic oils that legitimately contribute to improving fuel efficiency.
- **First** to manufacture synthetic gear lube for automotive use.
- **First** to manufacture a 100:1 pre-mix synthetic 2-cycle oil.
- **First** to manufacture a synthetic automatic transmission fluid for automotive use.

AMSOIL products and Dealership information are available from your local AMSOIL Dealer.

