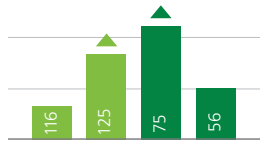


# Meeting API and ACEA requirement

## Interchangeable and linked group II base oils

In accordance with API and ACEA protocols, Saudi Aramco has successfully completed test programs that demonstrated the interchangeability and lineage between Group II base oils from our global manufacturing sites. The extensive testing programs covers API SN/GF-5, API CJ-4 together with ACEA A3/B4, E7 and E9 automotive engine in addition to demonstration in industrial and gear oils applications.

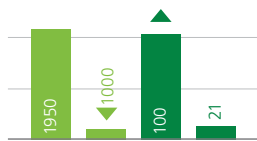
## AramcoPRIMA HDD Test Program



Oxidation Height A/cm

### Volvo T-13

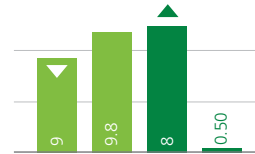
Aramco PRIMA in 15W-40



Sludge Rating, merit

### Cummins ISM

Aramco PRIMA in 10W-30

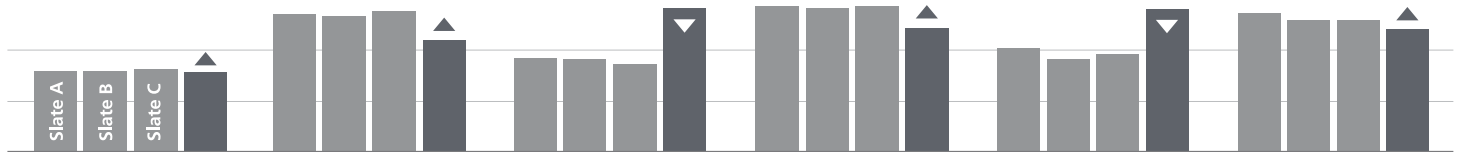


Engine Sludge, merit

### OM50LA

Aramco PRIMA in 10W-30

## European Engine Test (ACEA A3/B4)



Piston Cleanliness

EOT TBN

Average Cam Wear

Rocker Pad Rating

Cam Wear Inlet

Engine Sludge

### Volkswagen TDi (CEC L-78-T-99)

4 cyl., 1.9L, turbocharged, direct injection

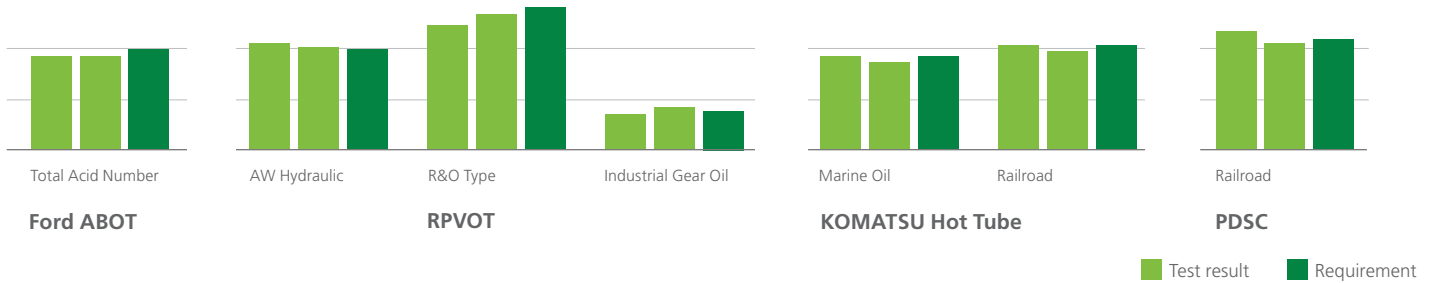
### Peugeot TU3M (CEC L-38-A-94)

OHC, 4 cyl., gasoline, 1,360cc

### Mercedes Benz OM646LA (CEC L-099-08)

4 cyl., 2.2L, VTG turbocharged, direct injection

## Driveline & Industrial Oxidation Tests



The Group II base oils show satisfactory performance in various API and ACEA engine tests across a number of metrics including oxidation, anti-wear, piston cleanliness, and sludge formation resistance using suitable additive technologies.

