

# Innovative EHC™ Group II+ base stocks offer higher performance and improved blend efficiency

ExxonMobil

While other lubricants have similar, in-specification blend properties, EHC-based lubricants outperform both Group II/III or Group II/II+ in use, as shown in bench oxidation tests that simulate severe engine operating conditions.

The testing showed that EHC™ 45 and EHC™ 65 base stocks outperform Group II/III and Group II/II+ based lubricants in viscosity stability and low-temperature performance in use.

## What this means for you

ExxonMobil EHC base stocks provide superior performance when used in API SN/GF-5 5W-30 lubricants, helping to ensure your brand integrity while protecting your customers' equipment.

## The comparative method

SAE 5W-30 lubricants were formulated using:

- EHC 45 and EHC 65 base stocks, and competitive base stocks
- Market general API SN/GF-5 additive package
- At equal KV (100°C) and CCS (-30°C) viscosity

The lubricants were tested using the ASTM D7528 Bench Oxidation test procedure (also known as the Romaszewski Oil Bench Oxidation, or ROBO, test).



Formulating with EHC base stocks gives your lubricants:



Lower used-oil  
viscosity increase



Exceptional  
oxidation stability



Improved low-  
temperature performance

Competitive virgin Group II base stocks required 30 to 50 percent Group III, but were unable to match EHC base stocks' superior performance.

Competitive Group II+ virgin and re-refined base stocks showed poorer performance compared to EHC base stocks.

**In test after test, EHC base stocks significantly outperformed competitive base stocks.**

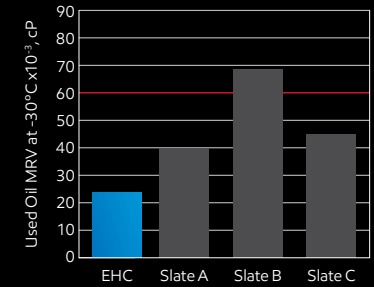
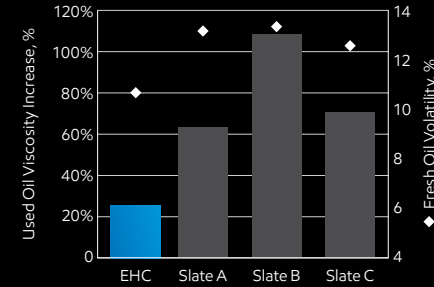
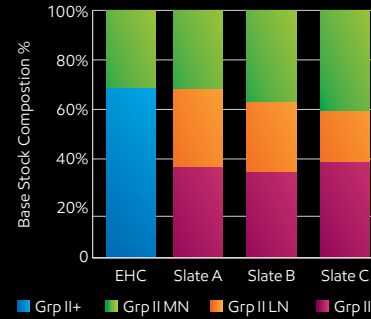
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# EHC™ based lubricants outperform competitive alternatives



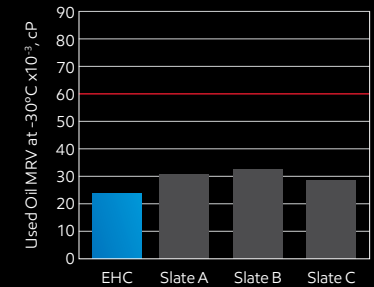
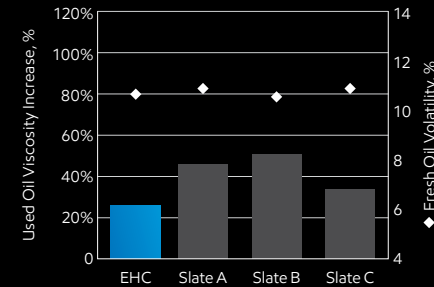
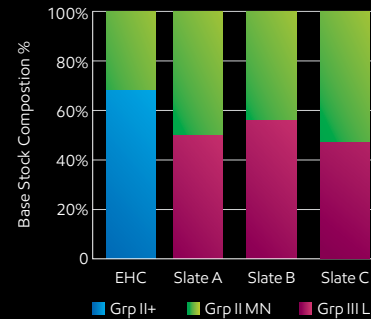
## Up to ~80% lower used-oil viscosity increase than higher complexity blends\*

- EHC™ Group II+ based 5W-30 lubricants use no Group III, while competitive Group II slates require ~30% Group III with higher volatility & blend complexity.
- EHC Group II+ based lubricants have more oxidative stability and retain low-temperature performance better in use vs. competitive Group II base stocks.



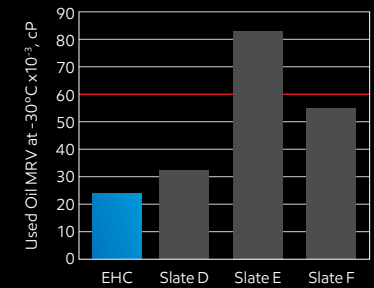
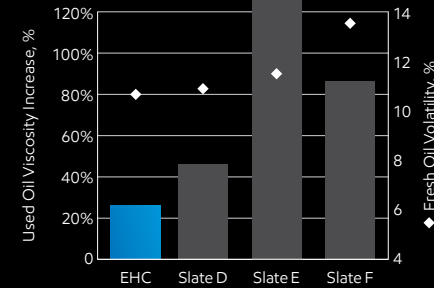
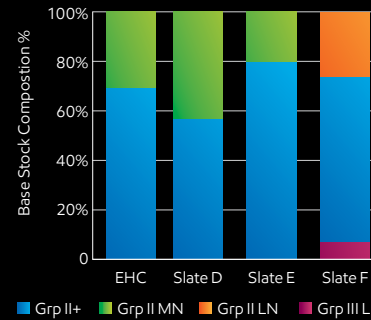
## Up to ~30% lower used-oil MRV than high Group III blends\*

- EHC Group II+ based 5W-30 lubricants use no Group III, while competitive Group II slates require ~50% Group III for similar volatility & blend complexity.
- EHC Group II+ based lubricants show better oxidative stability and low-temperature performance retention in use vs. competitive Group II base stocks.



## Up to ~80% lower used-oil viscosity vs. competitive re-refined Group II+ blends\*

- EHC Group II+ based 5W-30 base stocks achieve markedly superior performance against competitive Group II+ re-refined and virgin products.



\*Based on 5W-30 lubricant comparisons in ASTM D7528 Bench Oxidation tests using a GF-5 market general additive package; 5W-30 lubricants blended at equivalent KV at 100°C and CCS at -30°C.

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