

The ExxonMobil logo is positioned in the top right corner of the image. It consists of the word "Exxon" in a white, sans-serif font, followed by the word "Mobil" in a similar font, with a red and blue chevron symbol integrated between the two words. The background of the entire image is a high-speed, close-up photograph of water being poured from a glass pitcher into a glass, creating a dynamic splash and ripples. The lighting is dramatic, with deep blues and bright highlights on the water's surface.

ExxonMobil

EHC™ 45 and EHC™ 65

Enabling enhanced formulations

Energy lives here

Advanced lubricants begin with advanced base stocks.

ExxonMobil Basestocks is committed to delivering an advanced product slate designed to help you formulate better. Our Group II+ EHC™ 45 and Group II EHC™ 65 base stocks are part of our global Group II slate for formulation and qualification of automotive lubricants. With base oil interchange (BOI) and viscosity grade read-across (VGRA) capabilities, our EHC base stock slate offers broad blend coverage and simplified qualification testing across the globe.



EHC™ 45

- Group II+
- 115 VI
- Excellent low-temperature performance
- Superior volatility*
- High saturates



EHC™ 65

- Group II
- 105 VI
- Excellent low-temperature performance
- Excellent volatility
- High saturates



Both

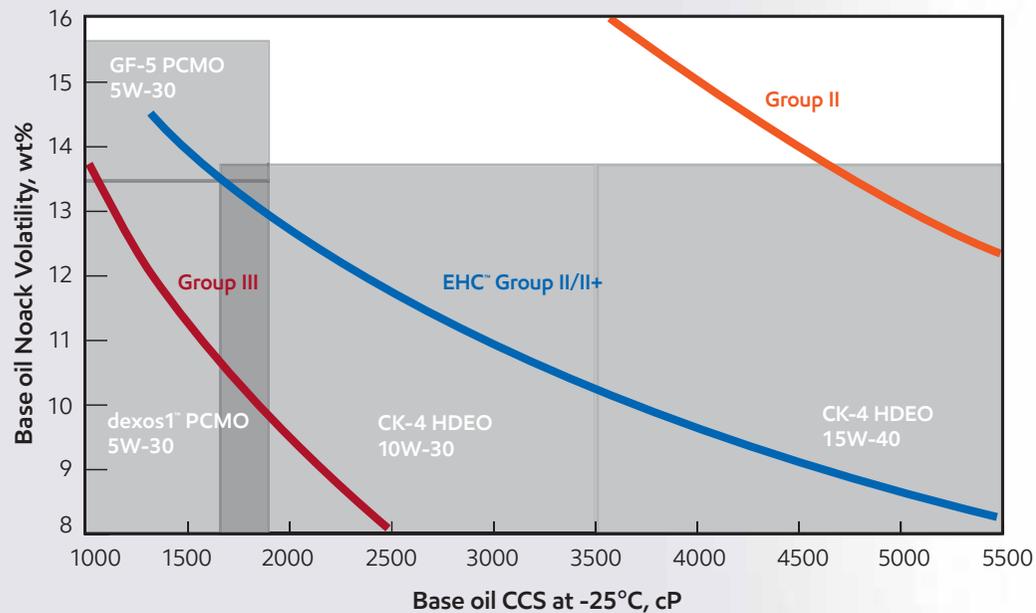
- Designed to cover most API lubricants
- Can formulate 5W PCMO and 10W HDEO without Group III corrector stocks
- Reduces Group III required for 0W and dexos® lubricants

*Compared to Group II base stocks.

Smart product design

EHC™ 45 and EHC™ 65 base stocks can be used together to meet the requirements of the most popular lubricants. This outstanding capability provides blenders with increased flexibility and a broader blending range, reducing the need for Group III.

Base oil CCS and volatility needs for major North American engine oils



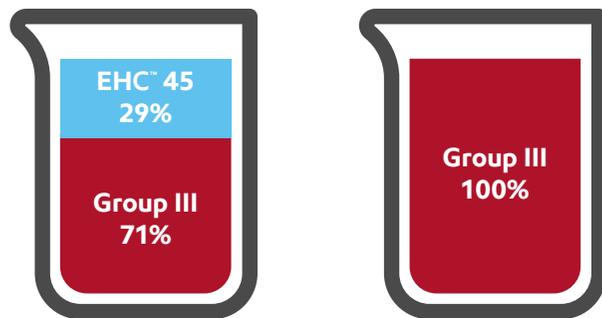
0W-20 formulation

Spend less on your 0W-20 PCMO formulation

- Reduces need for Group III base stocks in 0W-20 lubricants
- Further opportunity to lower cost by maximizing EHC™ 45 content to reduce VM requirement

Blend 0W-20 PCMO using reduced Group III

Base oil composition



ExxonMobil

Competitor

Potential to reduce lubricant costs* by up to

10%

0W-20 API SN/GF-5 PCMO

Composition	EHC™	Group III
EHC™ 45, %	24.2	--
Grp III LN, %	59.3	74.1
Grp III MN, %	--	9.7
Additives, %	16.5 (VM slightly higher)	16.2

Estimated properties	EHC™	Group III
KV at 100°C, cSt	8.4	8.4
CCS (-35°C), cP	5777	5800
Noack Volatility, wt%	13	13
HTHS at 150°C, cP	2.6	2.8

*Dependent on additive chemistry and formulation approvals. ExxonMobil estimates with applicable additive packages. External factors, such as price and quality variation, VM diluent oil, etc. may cause deviations from these estimates; they are intended to be starting points for formulation evaluations. Lubricant blender is responsible for obtaining appropriate approvals and licensing of all formulations.

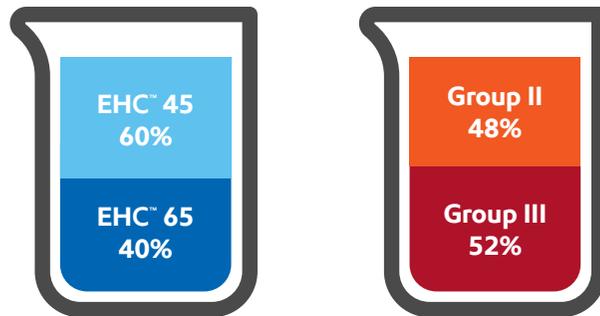
5W-30 formulation

Lower your 5W-30 PCMO formulation costs

- Eliminates the need for Group III "corrector" stocks
- Potential to reduce lubricant costs* by up to 10 percent
- EHC™ 45 Group II+ value compares favorably vs. Group III price premium

Formulate competitive 5W-30 PCMO without Group III

Base oil composition



ExxonMobil

Competitor

Potential to reduce lubricant costs* by up to

10%

5W-30 API SN/GF-5 PCMO

Composition	EHC™	Group II/III
EHC™ 45, %	49.7	—
EHC™ 65, %	33.5	—
Group II MN, %	—	39.9
Group III LN, %	—	43.4
Additives, %	16.8	16.7

Estimated properties	EHC™	Group II/III
KV at 100°C, cSt	10.9	10.9
CCS (-30°C), cP	6300	6300
Noack Volatility, wt%	12.1	12.3
HTHS at 150°C, cP	3.2	3.2

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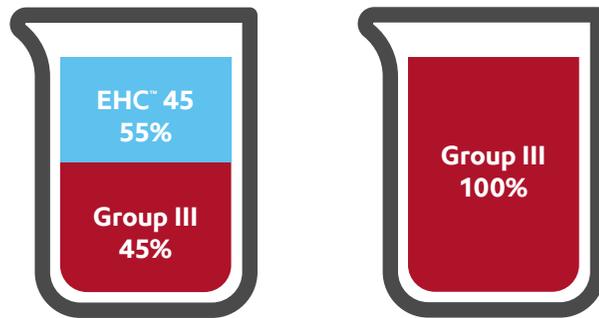
Enabling dexos®-quality lubricants with EHC™ base stocks

EHC™ base stocks enable dexos®-quality 5W-30 PCMO

- Up to 15 percent potential cost savings* vs. Group III alternatives at comparable blend properties
- Consistent base stock quality and supply security assured by ExxonMobil's product integrity process

Formulate dexos® 5W-30 PCMO with less Group III

Base oil composition



ExxonMobil

Competitor

Potential to reduce costs* by up to **15%** vs. Group III alternatives with comparable blend properties

dexos® 5W-30 PCMO		
Composition	EHC™	Group III
EHC™ 45, %	45.1	--
Group III LN, %	15.6	50.7
Group III MN, %	21.3	31.2
Additives, %	18	18.1

Estimated properties	EHC™	Group III
KV at 100°C, cSt	10.9	10.9
CCS (-30°C), cP	4586	4033
Noack Volatility, wt%	11.2	11.1
HTHS at 150°C, cP	3.1	3.2

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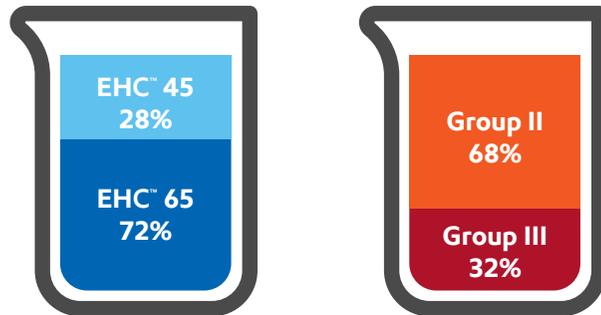
10W-30 formulation

Optimize your 10W-30 HDEO formulations

- No need for Group III "corrector" stocks
- Potential to reduce lubricant costs* by up to 15 percent

Blend competitive HDEO 10W-30 without Group III

Base oil composition



ExxonMobil

Competitor

Potential to reduce lubricant costs* by up to

15%

10W-30 API CK-4 HDEO

Composition	EHC™	Group II/III
EHC™ 45, %	22.3	--
EHC™ 65, %	57.7	--
Group II MN, %	--	54.3
Group III LN, %	--	25.2
Additives, %	20	20.5

Estimated properties	EHC™	Group II/III
KV at 100°C, cSt	11.9	11.9
CCS (-25°C), cP	6700	6700
Noack Volatility, wt%	10.3	11.8
HTHS at 150°C, cP	3.5	3.5

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15W-40 formulation

Enhance your 15W-40 HDEO blends

- EHC™ base stocks enable competitive formulation of 15W-40 HDEO with superior CCS*
- Minimize the need for heavy neutral Group II by using EHC™ 65 base stock
- EHC 65 base stock performs better than a Group II medium neutral/heavy neutral blend with a simplified formulation
- Option for VM optimization

Formulate competitive 15W-40 HDEO with superior CCS

Cold crank performance at -20°C



ExxonMobil
EHC™



Competitor
Group II

Can provide superior cold-temperature performance, as indicated by CCS viscosity

15W-40 HDEO API CK-4

Composition	EHC™	Group II
EHC™ 65, %	78.2	--
Group II MN, %	--	77.3
Additives, %	21.8	22.7

Estimated properties	EHC™	Group II
KV at 100°C, cSt	14.4	14.4
CCS (-20°C), cP	5012	5542
Noack Volatility, wt%	9.1	10.9
HTHS at 150°C, cP	4.0	4.0

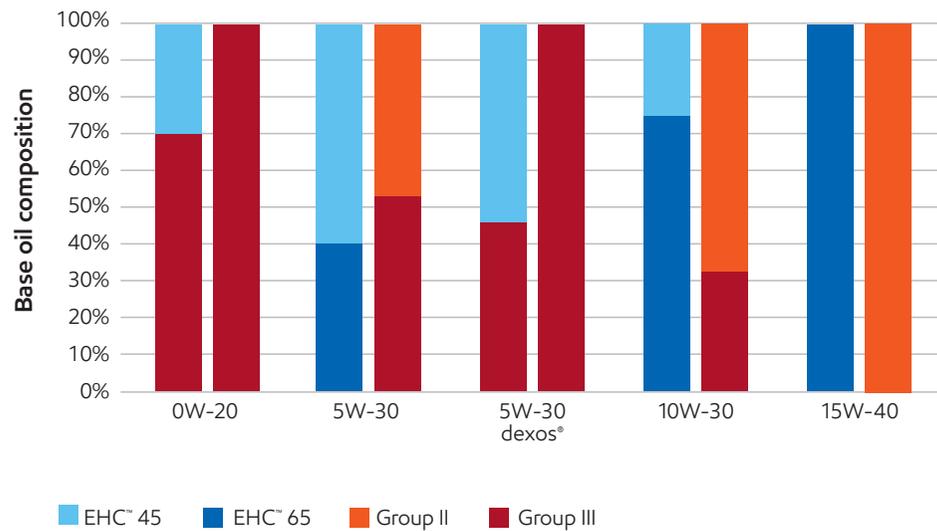
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Optimize and simplify formulations

Reduce need for Group III base stock

- EHC™ base stocks support lower-cost PCMO and HDEO formulations
- Broader API engine oil coverage
- Potential additive savings
- Ability to blend at reduced viscosity modifier treat levels

North American engine oil coverage with EHC™ vs. traditional Group II/III base stocks



Americas availability of EHC™ 45 and EHC™ 65

8 locations throughout North and South America

- Refinery
- Terminal
- Distributor

Why ExxonMobil Basestocks?

At ExxonMobil, we solve through science and deliver consistent base stocks so you can blend consistent formulations. Your product depends on ours, so we take care at every step of the way with our brand and product integrity management system.

We support this consistency through six foundational pillars:



1. Quality
2. Performance
3. Representation
4. Regulatory compliance
5. Customer experience
6. Brand identity

What's the result of our rigor?

Our detailed management systems and methodical approach to doing business leads to operational excellence across our organization.



- It makes us a trusted global supplier.
- It helps us ensure brand and product integrity.
- It gives our customers a competitive advantage.
- It makes us a rock-solid business partner who keeps our promises.

For more information, contact your local representative
or visit our website.

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