

EHC™ 45 and EHC™ 65

Enabling enhanced formulations

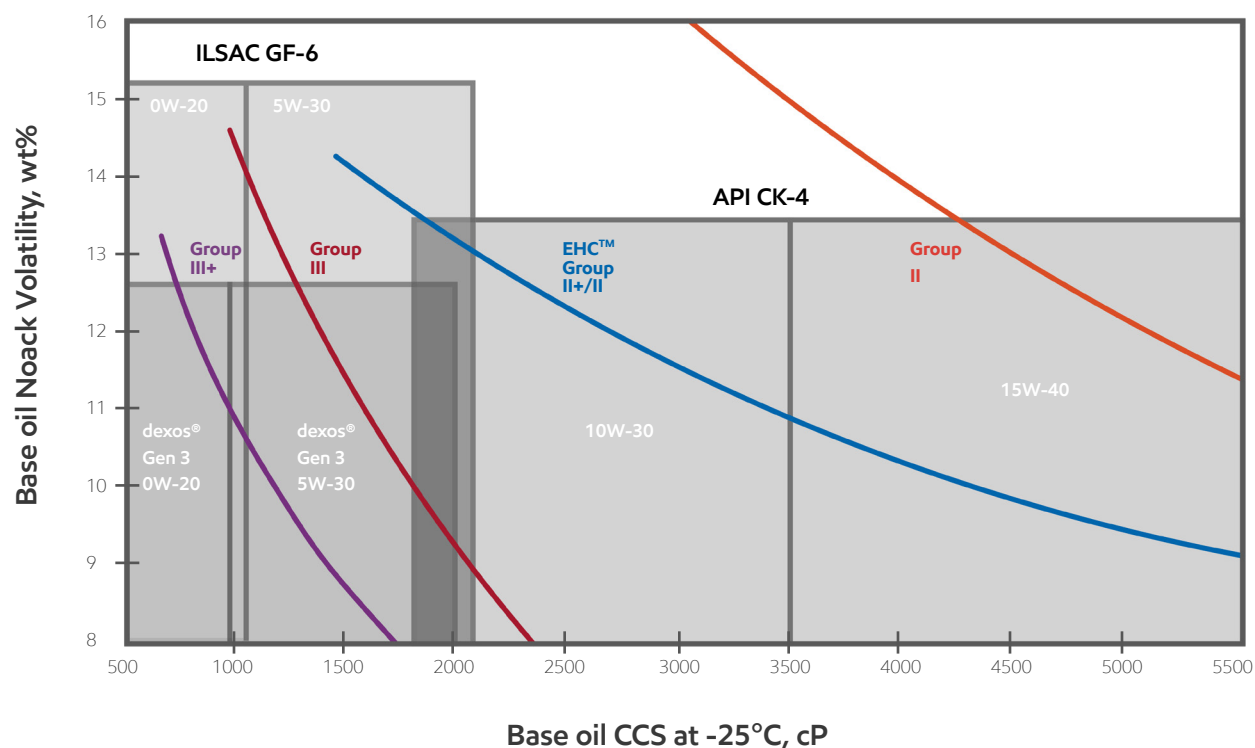
ExxonMobil



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



Advanced lubricants begin with advanced base stocks.

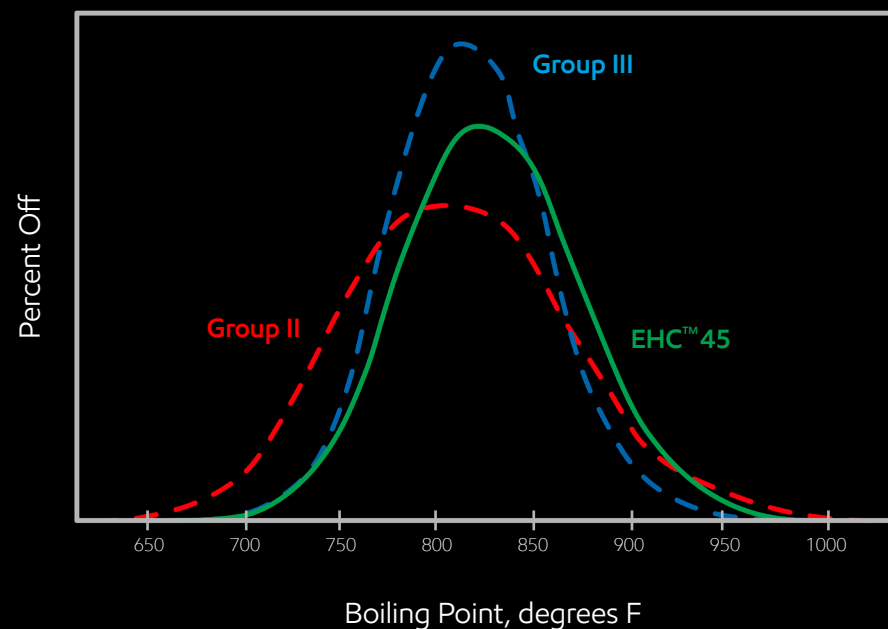
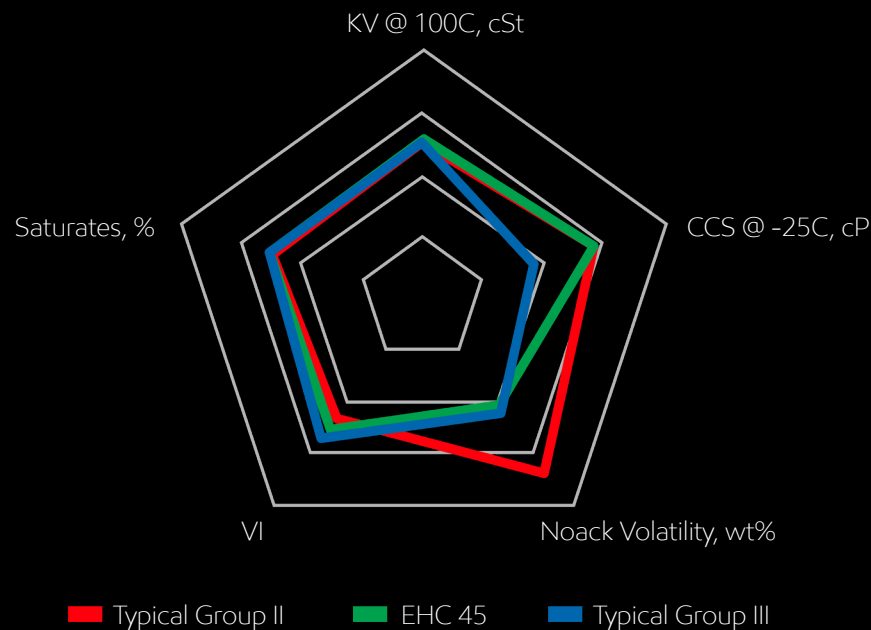


EHC™ 45

- Group II+
- Superior volatility*
- Narrower boiling point range*
- Excellent low-temperature performance
- High saturates
- Higher viscosity index*

*Compared to Group II 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.



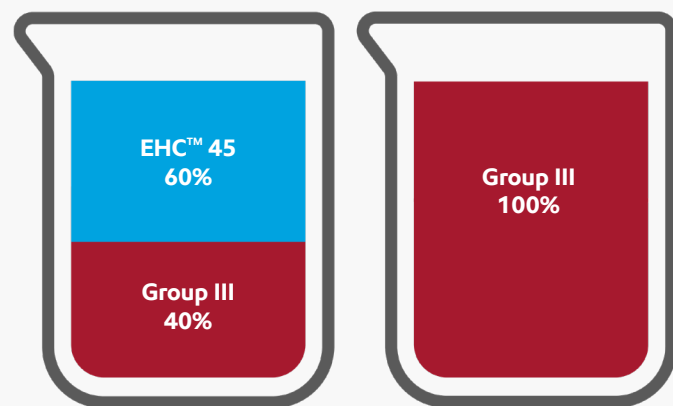
Enabling dexos®-quality lubricants with EHC™ base stocks

EHC™ 45 is designed to uniquely fit into low volatility dexos® 1 Gen 3 lubricants

- Up to 10 percent potential cost savings* vs. Group III alternatives at comparable blend properties
- Consistent base stock quality and supply security assured by ExxonMobil Brand & Product Integrity Management System

Approved GM dexos® 1 Gen 3 SAE 5W-30 with less Group III

Base oil composition



ExxonMobil

Competitor

Potential to reduce costs* by up to **10%** vs. Group III alternatives with comparable blend properties

SAE 5W-30 GM dexos® 1 Gen 3 PCMO		
Composition	EHC™	Group III
EHC™ 45, wt%	50.0	--
Group III LN, wt%	32.1	59.4
Group III MN, wt%	--	21.2
Additives, wt. %	17.9	19.4
Estimated properties	EHC™	Group III
KV at 100°C, cSt	10.4	10.8
CCS (-30°C), cP	4285	3700
Noack Volatility, wt%	10.4	9.8
HTHS at 150°C, cP	3.2	3.1

*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.

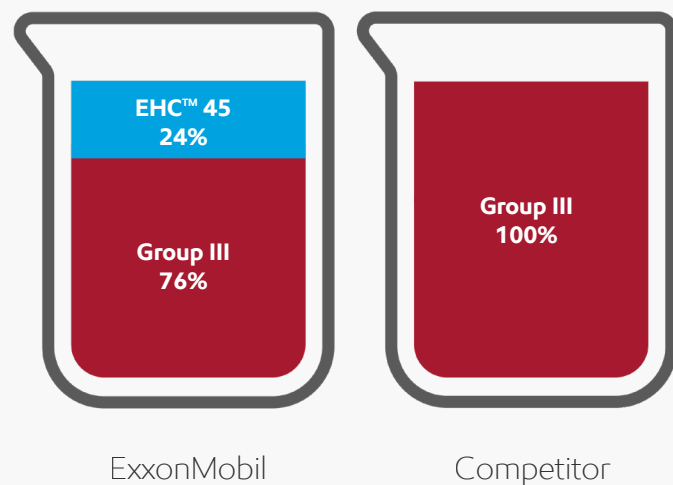
Enabling dexos[®]-quality lubricants with EHC[™] base stocks

EHC[™] 45 is designed to uniquely fit into low volatility dexos[®] 1 Gen 3 lubricants

- Up to 5 percent potential cost savings* vs. Group III alternatives at comparable blend properties
- Consistent base stock quality and supply security assured by ExxonMobil Brand & Product Integrity Management System

Approved GM dexos[®] 1 Gen 3 SAE 0W-20 with less Group III

Base oil composition



Potential to reduce costs* by up to **5%** vs. Group III alternatives with comparable blend properties

SAE 0W-20 GM dexos [®] 1 Gen 3 PCMO		
Composition	EHC [™]	Group III
EHC [™] 45, wt%	19.9	--
Group III LN, wt%	65.1	73.7
Group III MN, wt%	--	10.0
Additives, wt. %	15.1	16.3
	100.0	100.0
Estimated properties	EHC [™]	Group III
KV at 100°C, cSt	8.3	8.6
CCS (-35°C), cP	5800	5700
Noack Volatility, wt%	10.5	10.6
HTHS at 150°C, cP	2.7	2.7

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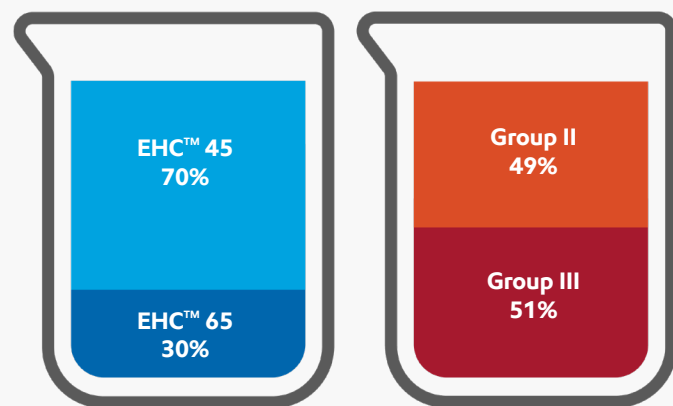
Enabling API SP/GF-6 SAE 5W-30 lubricants without Group III base stocks

Lower your SAE 5W-30 PCMO formulation costs

- Eliminates the need for Group III “corrector” stocks
- Up to 15% potential cost savings* vs. Grp II/III alternatives at comparable blend properties
- Consistent base stock quality and supply security assured by ExxonMobil’s Brand & Product Integrity System

Formulate competitive SAE 5W-30 PCMO without Group III

Base oil composition



ExxonMobil

Competitor

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

SAE 5W-30 API SP/GF-6 PCMO		
Composition	EHC™	Group II/III
EHC™ 45, wt%	57.7	--
EHC™ 65, wt%	24.7	--
Group II MN, wt%	--	40.55
Group III LN, wt%	--	42.1
Additives, wt. %	17.6	17.4
Estimated properties	EHC™	Group II/III
KV at 100°C, cSt	11.3	11.3
CCS (-30°C), cP	6250	6250
Noack Volatility, wt%	12.1	12.5
HTHS at 150°C, cP	3.1	3.2

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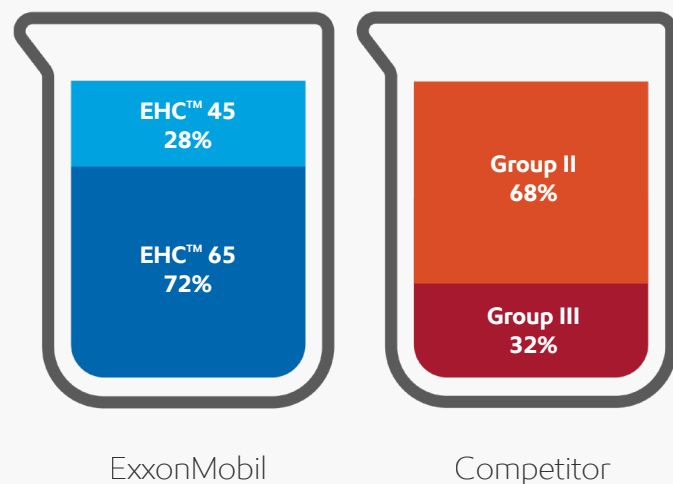
Enabling API CK-4 SAE 10W-30 lubricants without Group III base stocks

Optimize your 10W-30 HDEO formulations

- Eliminates the need for Group III “corrector” stocks
- Up to 5% potential cost savings* vs. Grp II/III alternatives at comparable blend properties
- Consistent base stock quality and supply security assured by ExxonMobil’s Brand & Product Integrity System

Blend competitive HDEO SAE 10W-30 without Group III

Base oil composition



Potential to
reduce costs* by up to **5%**
vs. Group III alternatives with comparable blend properties

SAE 10W-30 API CK-4 HDEO		
Composition	EHC™	Group II/III
EHC™ 45, wt%	22.3	--
EHC™ 65, wt%	57.7	--
Group II MN, wt%	--	54.3
Group III LN, wt%	--	25.2
Additives, wt. %	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

*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.

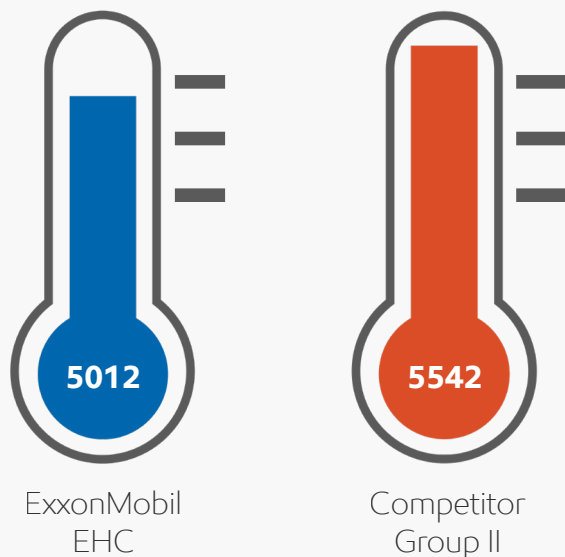
Enabling API CK-4 SAE 15W-40 lubricants

Enhance your 15W-40 HDEO Formulations

- EHC base stocks enable competitive formulation of 15W-40 HDEO with superior CCS*
- Opportunity for VM optimization
- Consistent base stock quality and supply security assured by ExxonMobil's Brand & Product Integrity System

Formulate competitive SAE 15W-40 HDEO with superior CCS & Volatility

Cold crank performance at -20°C



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

SAE 15W-40 HDEO API CK-4		
Composition	EHC™	Group II
EHC™ 65, wt%	78.2	--
Group II MN, wt%	--	77.3
Additives, wt%	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

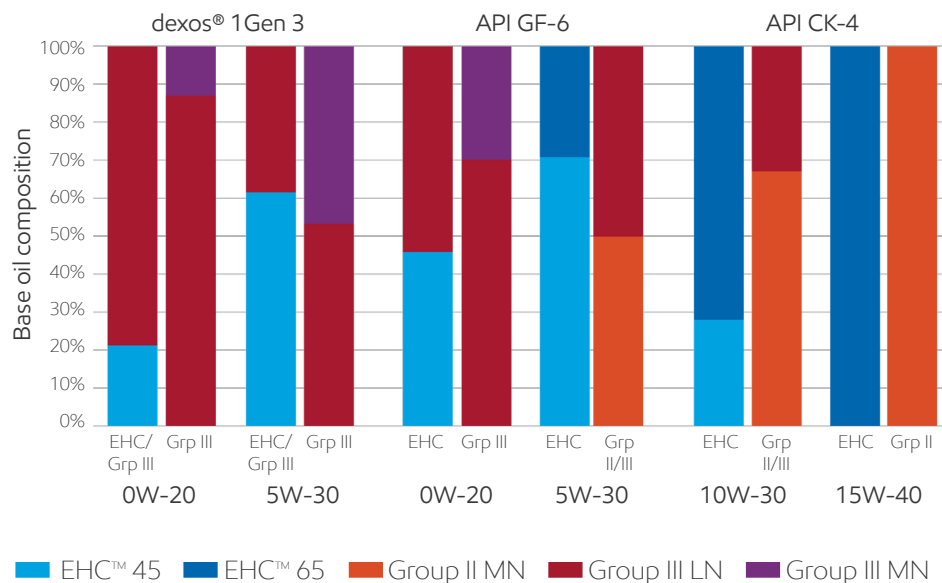
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Optimize and simplify formulations

Reduce need for Group III base stock

- EHC™ base stocks support lower-cost PCMO and HDEO formulations
- Broad engine oil coverage
- Formulation approvals available
- 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?

We are the premier base stocks manufacturer who brings you the expertise to help meet your customers' evolving needs so you can profitably grow your business for years to come.



Commitment to our customers and our industry

- Building new manufacturing capacity
- Striving to be more collaborative
- Maintaining security of supply
- Commitment to sustainability



Innovation and insights to stay ahead of industry trends

- Developing the next generation of base stocks
- Identifying and sharing high-impact insights and trends
- Elevating customer service experience
- Leading industry change



Efficiency to simplify

- One stop shop
- Harmonized global slates
- OEM-approved formulations
- Supply chain transparency



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