

EHCTM 50 and EHCTM 110

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+ EHCTM 50 and EHCTM 110 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 EHCTM base stock slate offers broad blend coverage and simplified qualification testing across the globe.

EHC base stocks may also be used in industrial and marine applications where formulations benefit from increased oxidation stability and higher viscosity index (VI).



EHC 50

- Group II+
- Excellent low-temperature
 performance
- Excellent volatility
- High saturates



EHC 110

- Group II
- Good low-temperature
 performance
- High saturates



BOB is a revolutionary new tool for lubricant innovators. Ask your ExxonMobil representative for further details.



Both

- Designed to cover most API, ACEA and industrial lubricants
- Can formulate 10W HDEO without Group
 III corrector stocks
- Reduces Group III required for 5W and dexos[®] lubricants

Smart product design

EHC[™] 50 and EHC[™] 110 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, helping to reduce the need for Group III.

Base oil CCS and volatility needs for latest major engine oils





5W-30 formulation

Lower your 5W-30 PCMO formulation costs

Help to reduce the need for Group III "corrector" stocks and viscosity modifier

Formulate competitive 5W-30 PCMO with reduced Group III

Base oil composition*



Potential to reduce Group III^{*} use by up to



and VM treat rate^{*} by up to 15%

5W-30 PCMO API SN/GF-5			
Composition %	EHC	Group II/III	
EHC ⁻ 50	72.2	_	
Group II LN (150N)	—	48.6	
Group III (4 cSt)	10.4	32.6	
VM	7.8	9.2	
DI	9.6	9.6	
Estimated properties	EHC	Group II/III	
KV at 100°C, cSt	10.7	10.9	
KV at 100°C, cSt CCS (@-30°C), cP	10.7 6300	10.9 6270	
KV at 100°C, cSt CCS (@-30°C), cP NOACK Volatility, wt%	10.7 6300 11.7	10.9 6270 12.6	
KV at 100°C, cSt CCS (@-30°C), cP NOACK Volatility, wt% HTHS at 150°C, cP	10.7 6300 11.7 3.2	10.9 6270 12.6 3.3	

*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 EHCTM base stocks

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

- Potential to blend dexos[®] with EHC[™] 50 vs full Group III
- 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*



Potential to reduce 509

	and VM treat rate by up to 12%		
lexos [®] 5W-30 PCMO			
Composition %	EHC	Group III	
EHC ⁻ 50	45.0	—	
Group III LN (4 cSt)	28.2	62.5	
Group III MN (6 cSt)	9.8	19.4	
/M	7.8	8.9	
DI	9.2	9.2	
stimated properties	EHC	Group III	
KV at 100°C, cSt	10.9	10.9	
CCS (@-30°C), cP	5900	4100	
NOACK Volatility, wt%	12.0	12.0	
HTHS at 150°C, cP	3.1	3.0	

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10W-40 formulation

Optimize your 10W-40 HDEO formulations

- No need for Group III "corrector" stocks and heavy neutral base stock*
- Reduce blending complexity
- Potential to lower VM treat rate due to better CCS

Blend competitive HDEO 10W-40 without Group III^{*} and with superior CCS

Base oil composition*

Potential to reduce Group III^{*} use by up to

100%

10W-40 HDEO API CK-4				
Composition %	EHC	Group II/III		
EHC ⁻ 50	76.0	—		
Group II LN (150N)	—	36.7		
Group II HN (500N)	0.0	12.6		
Group III (4 cSt)	0.0	26.9		
VM	9.8	9.6		
DI	14.2	14.2		
Estimated properties	EHC	Group II/III		
KV at 100°C, cSt	14.4	14.4		
CCS (@-25°C), cP	5890	6740		
NOACK Volatility, wt%	11.3	11.3		
HTHS at 150°C, cP	4.1	4.1		
MRV @-35°C Apparent viscosity, cP	23200	29200		

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10W-40 formulation

Enhance your 10W-40 HDEO API CJ-4 blends

- EHC[™] base stocks enable competitive formulation of 10W-40 HDEO without Group III
- Minimize the need for heavy neutral Group II
- Option for VM optimization

Formulate competitive 10W-40 HDEO without Group III*

Base oil composition*



Group II LN 43% HN 21% Group III 36%

Competitor base stocks Potential to reduce Group III^{*} use by up to



10W-40 HDEO API CJ-4				
Composition %	EHC	Group II/III		
EHC ⁻ 50	72.0	_		
Group II LN (150N)	—	33.4		
Group II HN (500N)	6.0	16.5		
Group III (4 cSt)	0.0	27.9		
VM	8.6	8.8		
DI	13.4	13.4		
Estimated properties	EHC	Group II/III		
KV at 100°C, cSt	14.4	14.4		
CCS (@-30°C), cP	6250	6700		
NOACK Volatility, wt%	11.6	11.9		
HTHS at 150°C, cP	4.0	4.0		
MRV @-35°C Apparent viscosity, cP	24400	34700		

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Optimize and simplify formulations

- Broader API engine oils and industrial lubricants coverage with limited number of base stocks
- EHC[™] slate allows BOI and read-across, reducing development cost and increasing flexibility
- EHC base stocks support lower-cost PCMO and HDEO formulations and ease complexity by:
 - Limiting the amount of more expensive Group III required*
 - Potential additive savings; ability to blend at reduced viscosity modifier treat levels*

- A higher-saturates, lower pour point EHC is highly suited for hydraulic, gear and circulating oils
- EHC offers advantages when higher oxidation stability and/or lower air release is needed in industrial lubricants



Product coverage with EHC[™] slate

EHC[™] Group II/II+ base stocks

EHC[™] base stocks comprise a global Group II slate as defined within API/ATIEL guidelines for formulation and qualification of automotive lubricants. With base oil interchange and viscosity grade read-across capabilities, EHC base stocks offer broad coverage that enables supply chain flexibility and simplified qualification testing requirements. EHC base stocks may also be used in industrial and marine applications where formulations benefit from increased oxidation stability and higher viscosity index (VI). Our rigorous processes ensure reliable delivery of consistent quality base stocks.

Key benefits

Consistent quality to help formulators produce high-performance blends that:



TEEP



Meet or exceed engine oil quality requirements

E‰onMobil

Energy lives here

For more information, contact your local representative or visit our website. **exxonmobil.com/basestocks**

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