



Synesstic™ alkylated naphthalene portfolio

Synesstic alkylated naphthalene, ExxonMobil's API Group V base stock, addresses critical challenges in today's market, enabling lubricant formulations that meet the growing need for long-lasting, clean, varnish-free performance, high-thermal oxidative stability, and excellent hydrolytic stability.

Increasing legislative demands on emissions, new technologies and equipment for higher power density, improved energy efficiency, extended durability, and environmental concerns are all paving the way for lubricants and greases that deliver higher performance and improved sustainability. Formulators can benefit from using Synesstic AN base fluids in modern, high-performance lubricating applications, with reduced toxic waste treatment cost.

Grade	SG at 15.6/15.6°C	KV at 100°C cSt	KV at 40°C cSt	VI	Pour point °C	Flash point (COC) °C	Biodegradability	Passenger car motor oil	Heavy duty motor oil	Automatic transmission fluid	Automotive gear oil/Heavy duty transmission	2 & 4 stroke oil	Electric vehicle driveline	Industrial gear oil	Turbine lube	Chain lube	Hydraulic fluid	Compressor oil	Grease	Food processing/textile lube
	ASTM D4052	ASTM D445	ASTM D445	ASTM D2270	ASTM D97 / D5950	ASTM D92	ASTM D92													
Synesstic™ 5	0.908	4.7	29	74	-39	222	Inherently	○	○	○	○	○	○	○	○	○	○	○	○	○
Synesstic™ 12	0.887	12.4	109	105	-36	258	Inherently		○			○		○	○	○	○	○	○	○

○ >80% ○ 40-60% ○ ≤20%

Alkylated naphthalene

With unique structures that resist oxidation and prevent the formation of deposits and varnish, alkylated naphthalene is a family of low and high viscosity base stocks that offer superb oxidative, thermal, and hydrolytic stability.



A double-ring aromatic center with 1,2 or more alkyl side chains

Performance benefits



Long-lasting, clean performance and deposit control in formulations



High performance in wear protection



Excellent thermal-oxidation resistance



Controlled seal swell and additive solubility performance



Excellent hydrolytic and thermal stability



Improved performance under severe conditions



Low volatility



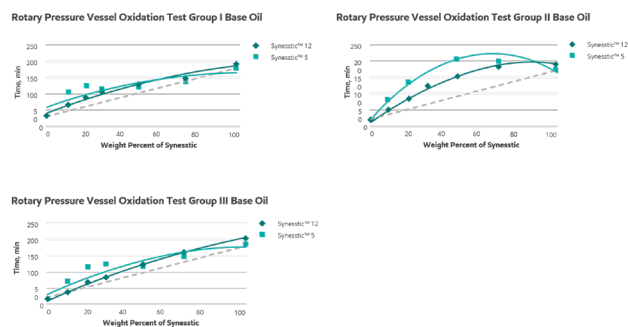
Improved additive response

Application flexibility

Synesstic alkylated naphthalene can be used in a broad range of automotive and industrial applications:

- Compressor
- Industrial gear
- Greases
- Turbine
- Food process machinery
- Chain

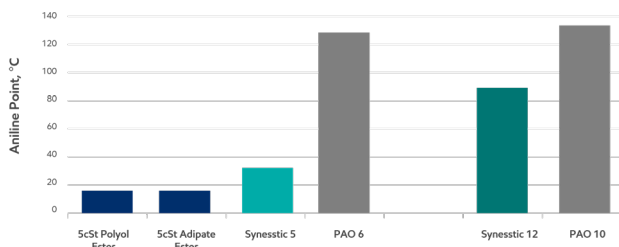
Oxidative stability in Group I - III mineral oils



Synesstic™ AN can improve mineral oil oxidative stability across the board.

Test method: ASTM D2272B

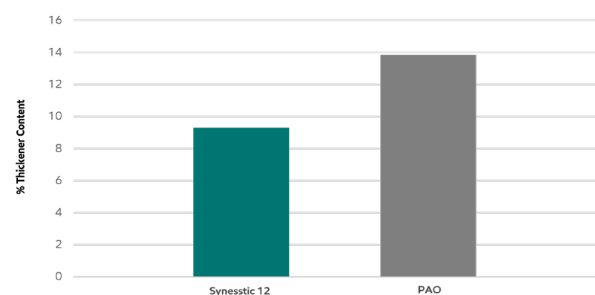
Synesstic™ AN solvency



Synesstic™ AN have excellent additive solvency for polar compounds due to their aromatic structures.

Test method: ASTM D2619

Grease - thickener efficiency

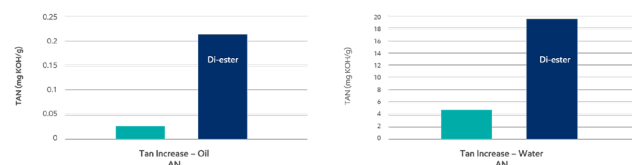


The solvency of Synesstic™ AN allows improved thickener efficiency during grease manufacture.

Synesstic™ AN improves hydrolytic stability

Formulation:

- 73 % PAO
- 25 % Di-ester or Synesstic 5
- 2 % Additive

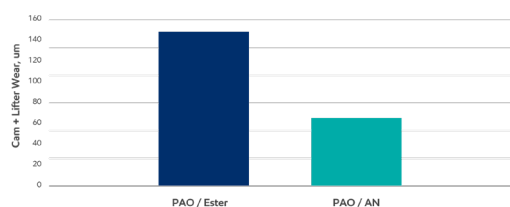


Synesstic™ AN exhibits a lower TAN increase compared to a similar di-ester based formulation.

Test method: ASTM D2619

Synesstic™ AN improved anti-wear additive response

Sequence IIIG Wear Performance of Experimental Low Phosphorus 0W-30 Engine Oils



Synthetic engine oils blended with PAO and Synesstic™ AN demonstrate improved wear performance to PAO/ester formulations.

Regulatory compliance

- Synesstic 5 and Synesstic 12 have been approved for use as lubricant base stock fluids with incidental food contact
- HX-1 National Sanitation Foundation (NSF) registered
- Kosher, Halal
- REACH-registered globally
- MOSH classification (Mineral Oil Saturated Hydrocarbons): European Food Safety Authority (EFSA) defines MOSH as a subset of Mineral Oil Hydrocarbons (MOH), containing linear, branched and cyclic alkanes.
- MOAH classification (Mineral Oil Aromatic Hydrocarbons): EFSA defines MOAH to be a subset of MOH containing four distinct structural types: non-alkylated aromatic hydrocarbons (including naphthalene and polyaromatic hydrocarbons), alkylated aromatic hydrocarbons, partially hydrogenated hydrocarbons and sulfur-containing aromatic compounds.

Synesstic™ AN base stocks are distinct from the chemical constituents of concern in MOSH and MOAH fractions of mineral oil hydrocarbons.

©2023 ExxonMobil. ExxonMobil, the ExxonMobil logo, the interlocking "X" device and other product or service names used herein are trademarks of ExxonMobil, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without ExxonMobil's prior written authorization. To the extent ExxonMobil authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to or reproduce it in whole or in part on a website. ExxonMobil does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, suitability, accuracy, reliability, or completeness of this information or the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. This document is not an endorsement of any non-ExxonMobil product or process, and we expressly disclaim any contrary implication. The terms "we," "our," "ExxonMobil Product Solutions" and "ExxonMobil" are each used for convenience, and may include any one or more of ExxonMobil Product Solutions Company, Exxon Mobil Corporation, or any affiliate either directly or indirectly stewarded.



Scan to learn more

ExxonMobil