

Lubricants, Synthetic

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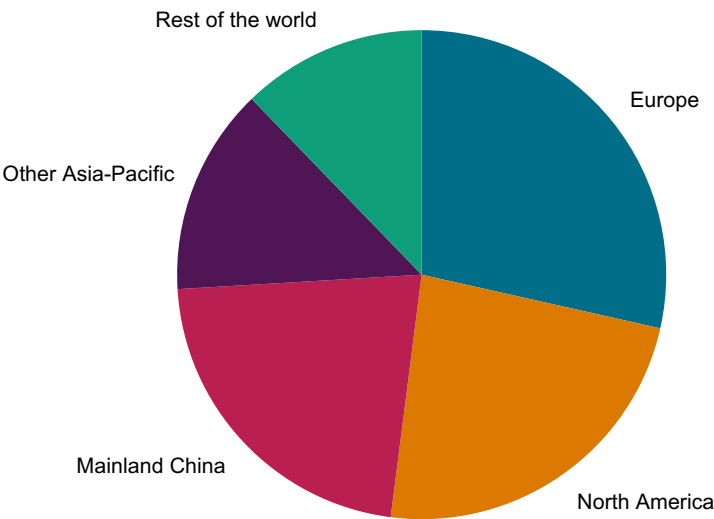
Abstract

Synthetic lubricants (synlubes) are formulated products made from synthetic base stocks and additives, offering superior physical and chemical properties over conventional mineral oil-based lubricants. This makes them ideal for applications with demanding performance requirements. Synthetic lubricant base stocks are generally more expensive than conventional mineral oils, traditionally limiting their use to applications requiring high performance. However, industrial customers are increasingly considering long-term cost benefits, opting for synthetic lubricants to reduce maintenance; minimize disposal issues; and meet health, safety or environmental regulations.

Since the 1990s, the automotive sector has experienced significant growth in synlube adoption, fueled by promotional campaigns and evolving automaker requirements, especially in Europe. Additionally, synlubes are increasingly utilized as refrigerator oils, ensuring compatibility with newer refrigerants that have replaced harmful chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). This trend reflects a broader commitment to sustainability and efficiency in industrial operations.

The following pie chart shows world consumption of synthetic lubricant base stocks on a volume basis:

World consumption of synthetic lubricant base stocks — 2023




Data compiled Sept. 27, 2024.
Source: S&P Global Commodity Insights.
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The market for synthetic lubricant base stocks is dominated by three product groups — polyalphaolefins (PAO), esters and polyalkylene glycols (PAG). Their combined market share in 2023 was more than 87%. PAO is the most important synthetic lubricant base stock, used largely in automotive and aviation applications and in industrial compressor oils and hydraulic fluids. Esters have a much broader application range than all other synlube base stocks, with use in refrigeration and air conditioning, fire-resistant hydraulic fluids (FRHFs) and aviation turbines. The use of PAG in synlube applications represents only a minor share of total PAG production — between 5% and 10%, depending on the region. Industrial applications dominate usage of PAG as a lubricant, especially FRHFs, metalworking oils and process oils.


The total share of synthetic lubricant base stocks in the global lubricant base oil business is only around 4%, but their importance is growing as more applications demand a level of performance that is borderline or beyond the capabilities of conventional lubricants. Nearly all synlube base stocks enjoy growth rates that are higher than those of mineral oils, and many are growing faster than other specialty chemical product types.

For more detailed information, see the table of contents, shown below.


S&P Global’s Specialty Chemicals Update Program – *Synthetic Lubricants* is the comprehensive and trusted guide for anyone seeking information on this industry. This latest report details global and regional information, including




Industry structure, operating characteristics and regulatory environment




Products, functions and markets



Cost structure/ profitability



Technology changes and emerging substitution practices



Quantitative market analysis and forecasts

Key benefits

S&P Global's Specialty Chemicals Update Program – *Synthetic Lubricants* has been compiled using primary interviews with key suppliers and organizations, and leading representatives from the industry in combination with S&P Global's unparalleled access to upstream and downstream market intelligence and expert insights into industry dynamics, trade and economics.

This report can help you

- Identify the competitive environment and key players
- Assess key issues facing both suppliers and their end-use customers
- Understand industry integration strategies
- Keep abreast of industry structure changes, regulatory requirements and other factors affecting profitability
- Identify new business opportunities and threats
- Follow important commercial developments
- Recognize trends and driving forces influencing specialty chemical markets

Table of contents

Executive summary	9
Summary	10
Introduction	16
Composition	16
Base oils	17
Additives	18
Abbreviations	19
Overview of the lubricant industry	21
Industry structure	21
World base oil capacity and demand	21
World finished lubricant demand	23
Major world lubricant suppliers	26
Overview of the synthetic lubricants industry	27
Structure of the industry	27
Company profiles	30
BASF	30
Dow Inc.	31
ExxonMobil Chemical Company	31
KAO Corporation	31
LANXESS	32
Lion Corporation	32
NOF Corporation	33
Quaker Houghton	33
Sinopec Lubricant Company	33
Mergers and acquisitions	34
Operating characteristics	35
Research and development	35
Manufacturing	35
Marketing	36
Cost structure and profitability	36
Government regulations	37
North America	37
European Union	38
REACH regulation	38
Automotive lubricants	38
Fire-resistant hydraulic fluids	39
Refrigeration lubricants	39
EU Ecolabel for lubricants	41
Waste oil management	42
India	42
Mainland China	44
Refrigerants	44

Vehicle emission standards	45
Vehicle fuel standards	46
Lubricant standards	46
Japan	47
South-eastern Asia	47
Oceania	48
Trends and opportunities	48
North America	48
Europe	49
Southern Asia	50
Eastern Asia	51
Mainland China	51
Other Eastern Asia	51
South-eastern Asia	53
Oceania	53
Critical factors for success	54
Products and functions	56
Synthetic lubricants types	56
Polyalphaolefins	56
Esters	59
Polyol esters	59
Dibasic esters	63
Monoesters	65
Tribasic esters	65
Polymer esters	66
Secondary polyol esters	67
Polyalkylene glycols	67
Phosphate esters	69
Polybutenes	70
Dialkylbenzenes	71
Alkyl naphthalenes	72
Other specialty products	73
Fluorinated compounds	73
Silicones and fluorosilicones	74
Polyphenyl ethers	75
Polyvinyl ethers	75
Multiply alkylated cyclopentanes	76
Silicate ester lubricants	76
Competing products	76
Group III/III+ base oils	76
GTL base oils	76
Synthetic lubricant applications	77
Automotive lubricants	77
Engine oils	77
Gear oils	78
Hydraulic fluids	78
EV fluids	78

Aviation lubricants	79
Turbine oils	79
Hydraulic fluids	79
Four-cycle engines	79
Marine	79
Metalworking fluids	79
Metal forming/rolling	79
Metal cutting	79
Industrial lubricants	80
Compressor oils	80
Refrigeration oils	80
Gear and bearing oils	80
Wind turbines	81
Hydraulic fluids	81
Textile process oils	82
Insulation oils	82
Greases	82
Synthetic lubricant markets by region	83
North America	83
Consumption and markets	83
Polyalphaolefins	84
Automotive	86
Aviation	86
Industrial applications	87
Grease and miscellaneous applications	87
Polyol esters	87
Automotive and aviation applications	89
Industrial applications	89
Polyalkylene glycols	89
Automotive applications	91
Industrial applications	91
Process oils/other	91
Mono-/di-/tribasic acid esters	91
Automotive and aviation applications	93
Industrial applications	93
Polybutenes	93
Automotive applications	94
Industrial applications	94
Phosphate esters	94
Aviation applications	95
Industrial applications	95
Alkyl naphthalenes	96
Other specialty products	97
Silicones and fluorosilicones	97
Fluorinated products	97
Polyphenyl ethers	97
Market participants	98

Polyalphaolefins	98
Polyol and other esters	98
Polyalkylene glycols	99
Other base stocks	100
Polybutenes	101
Phosphate esters	101
Alkyl-naphthalenes	101
Other specialty products	102
Novel biosynthetic lubricants	102
Prices	102
Latin America and the Caribbean	103
Europe	106
Consumption and markets	109
Polyalphaolefins	109
Polyol esters	112
Monoesters, dibasic and tribasic acid esters	116
Polyalkylene glycols	118
Polybutenes	120
Phosphate esters	122
Alkyl-naphthalenes	123
Other specialty base oils	123
Silicones and fluorosilicones	124
Fluorinated compounds	124
Dialkylbenzenes	125
Polymer esters	125
Silicate esters	125
Market participants	125
Polyalphaolefins	125
Esters	126
Polyalkylene glycols	128
Other synlube base stocks	129
Prices	130
Eurasia	131
Consumption and markets	131
Market participants	133
Middle East	134
Consumption and markets	134
Market participants	136
Africa	136
Consumption and markets	136
Market participants	138
Southern Asia	138
Consumption and markets	138
Polyalphaolefins	141
Polyalkylene glycol	142
Polybutene	143
Polyol esters	143

Market participants	144
Eastern Asia	145
Mainland China	145
Consumption and markets	145
Overview	145
Polyalphaolefins	148
Polyol esters	151
Polyalkylene glycols	153
Mono-, di- and triesters	155
Polybutene	156
Phosphate ester	157
Dialkylbenzene	158
Other specialty base stock	159
Market participants	160
Polyalphaolefins	160
Esters	161
Polyalkylene glycols	162
Other base stocks	162
Prices	162
Other Eastern Asia	163
Consumption and markets	163
Japan	163
South Korea	178
Taiwan	180
Market participants	182
Polyalphaolefins	184
Polyalkylene glycols	184
Polyol esters	185
Polybutenes	185
Dibasic acid esters	185
Phosphate esters	185
Dialkylbenzenes	185
Silicones	185
Fluorinated products	186
Other specialty products	186
Prices	186
South-eastern Asia	187
Consumption and markets	187
Polybutenes	190
Polyalphaolefins	190
Polyol esters	191
Polyalkylene glycols	191
Di-/tribasic esters and phosphate esters	191
Market participants	192
Oceania	193
Consumption and markets	193
Market participants	196

Appendix — Geographic regions	197
Revisions	198
Data Workbook	199

CONTACTS

Americas: +1 800 597 1344

Asia-Pacific: +60 4 296 1125

Europe, Middle East, Africa: +44 (0) 203 367 0681

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