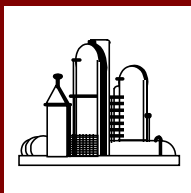


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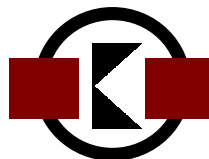
SYNTHETIC LUBRICANTS AND FUNCTIONAL FLUIDS, 1999 TO 2004 - UNITED STATES -



A comprehensive analysis of the synthetic lubricants business, focusing on changes, challenges, and business opportunities in:

- **Polyalphaolefins (PAOs)**
- **Esters**
- **Polyalkylene Glycols (PAGs)**
- **Alkylated Aromatics**
- **Perfluoroalkylpolyethers (PFPEs)**
- **Polychlorotrifluoroethylene (CTFE)**
- **Silicones**

This study includes an insightful and highly detailed analysis of the competition between PAO and API Group III basestocks in automotive and industrial products



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SYNTHETIC LUBRICANTS AND FUNCTIONAL FLUIDS, 1999 TO 2004 provides subscribers with an accurate and independent resource to assess and pursue business opportunities in the nearly \$2 billion synthetic lubricants business in the United States.

The report is an invaluable resource for basestock manufacturers, manufacturers and marketers of finished lubricants, additive suppliers, and others in the lubricant supply chain. It is an excellent resource to build solid strategic plans and respond to competitive forces, emerging technologies, and evolving market needs.

THE BENEFITS

Specifically, the report helps subscribers to:

- Assess the market potential for synthetic basestocks and finished lubricants
- Develop pricing strategies
- Identify new business development opportunities
- Understand the basestock technologies for long-term investment
- Develop market-entry strategies
- Assess the need for additional production capacity
- Focus product/service offerings and target markets
- Compare applications in which synthetics perform best
- Develop strategic plans
- Maximize returns along the value chain
- Train business executives and sales and marketing personnel

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THE SCOPE

Markets. The study focuses specifically on synthetic lubricants used in the industrial, consumer automotive, and commercial automotive market segments. It also includes synthetic basestocks used in synthetic blends and to enhance the performance of API Group I and II basestocks to meet GF-3 performance requirements in passenger car motor oil (PCMO).

Products. Seven types of synthetic lubricant basestocks are analyzed in this study, as shown below:

- Polyalphaolefins (PAOs)
- Esters
- Alkylated aromatics
- Polychlorotrifluoroethylene (CTFE)
- Polyalkylene glycols (PAGs)
- Perfluoroalkylpolyethers (PFPEs)
- Silicones

PAO accounts for close to 40% of total synthetic lubricant volume, and as such, it is given a proportional level of attention in the report. The second leading type of synthetic fluid consumed is silicone. Silicone fluid accounts for roughly 30% of the basestock volume consumed in the United States, as shown in Figure 1. It is important to recognize, however, that the volume of lubricant consumed can be deceiving. Synthetic lubricants based on silicone are an excellent example of this. Although silicone fluids represent the second leading synthetics consumed in terms of volume, sales are close to an order higher than PAO in terms of value.

Geography and base year. The geographic scope of the study includes the United States. The base year for the study is 1999 with demand forecasts to the year 2004.

THE OBJECTIVE

The objective of the study is to provide subscribers with an accurate and independent appraisal of market size and segmentation, business opportunities, and competitive forces in the synthetic lubricant and functional fluids business.

THE STUDY

The study consists of 306 pages with 13 chapters, as shown in the table of contents. The structure and writing style are designed to provide a high-quality, professional presentation of the findings. Unlike other market research reports that are available, Kline & Company's study, **SYNTHETIC LUBRICANTS AND FUNCTIONAL FLUIDS, 1999 TO 2004**, is based on primary research. This research includes both phone and field interviews with basestock manufacturers, finished lubricant manufacturers and marketers, additives suppliers, end users, original equipment manufacturers (OEMs), government agencies, and other industry players.

The result of this approach is a cutting-edge report based on the consolidated views and positions of the industry. This approach makes for a much more powerful and valuable tool than market research just based on secondary data or only one company's internal perceptions of the marketplace.

In addition to presenting market size and segmentation data from this research, the study is rich in information and insights into intermaterial competition, pricing, margins, channels of distribution, competitive forces, and business opportunities. The core sections of the study are discussed below.

Product chapters. **SYNTHETIC LUBRICANTS AND FUNCTIONAL FLUIDS, 1999 TO 2004** provides an in-depth analysis of seven major product categories, including PAOs, esters, PAGs, alkylated aromatics, PFPEs, CTFE, and silicones. Each product chapter includes an objective analysis of both supply and demand issues and emerging applications, as well as a business outlook. The analysis includes estimates of synthetic lubricant and functional fluid demand by both volume and value for 1999. In addition, the product chapters featured include a five-year forecast of demand under three scenarios (most likely, optimistic, and pessimistic). A sampling of material presented in the product chapters is shown in Figure 2.

Intermaterial competition.

Intermaterial competition is one of the hottest issues now impacting the synthetic lubricants market. API Group III basestocks and PAO have started to battle for market share in selected product categories. Group III basestocks have already taken a big bite out of the synthetic lubricants market in PCMO, and Kline & Company will answer the question **how far will this go?**

Two leading marketers of PCMO recently switched from PAO to Group III in their synthetic PCMO formulations. These two switches alone accounted for 5 million gal, a prize for Group III, that came at the expense of PAO.

This section provides an in-depth analysis of the competition between PAO and Group III basestocks. It looks specifically at cost, price, and performance trade-offs,

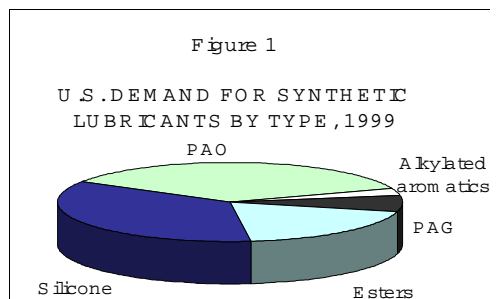


Figure 3

EXAMPLE OF DETAIL PROVIDED IN THE VALUE-CHAIN ANALYSIS CHAPTER



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- LUBRICANT ADDITIVES, 1998
- LUBRICANT BASESTOCKS 1999-2004 - THE AMERICAS
- METALWORKING FLUIDS ASIA-PACIFIC, 1997
- THE CHANGING FACE OF THE LUBE OIL BASESTOCK BUSINESS, 1997
- METALWORKING FLUIDS EUROPE, 1995
- LUBRICANT AND FUEL ADDITIVES, 1994, 1990
- METALWORKING FLUIDS USA, 1994
- AIR CONDITIONING AND REFRIGERATION LUBRICANTS, 1994

SYNTHETIC LUBRICANTS AND FUNCTIONAL FLUIDS, 1999 TO 2004

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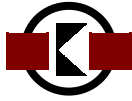
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