



PetroTrends

Your Global Pipeline for information on the Petroleum Industry

Global Business Opportunities in Lubricant Base Stocks, 2005 - 2010

A SYNDICATED REPORT designed to provide subscribers with high-value information and insights on the global supply and demand for lubricant base stocks. The report will provide base stock and lubricant manufacturers with an accurate and objective assessment of:

- *Current and projected global demand for base stocks by region*
- *Global trends and developments impacting demand*
- *Current and projected global supply and demand balances*
- *Import and export activity*
- *Impact of GTL on the global base stock business*
- *Base stock producer profiles*
- *Business opportunities for base stock producers*

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Background

The lubricants industry is undergoing a series of changes that greatly affect both finished lubricant formulations and the dynamics of how the business is conducted. One of the most significant changes is the industry's transition to a global market.

The North American market is one example of this transition. Today, no less than three major North American refineries have demonstrated capability to produce API Group III base stocks, however lubricant blenders still welcome competitive alternatives from other regions of the world. As a result, such companies as SK Corporation and S-Oil in Korea, and Norway's Fortum have been successful in penetrating the non-conventional North American base stock market. Moreover, they have successfully demonstrated that such traditional barriers to global base stock trade as reliability of delivery, consistency of products and price can be overcome. This has recently been extended into the conventional market where LUKOIL has begun to export its API Group I base stocks into selected regions of North America.

But what does the future hold for these and other global players in the base stock business? Will the mature and relatively lackluster North American market continue to hold their attention and help shape the competitive landscape in the region? Or will their focus, and that of others, shift to China and other markets that might deliver higher returns?

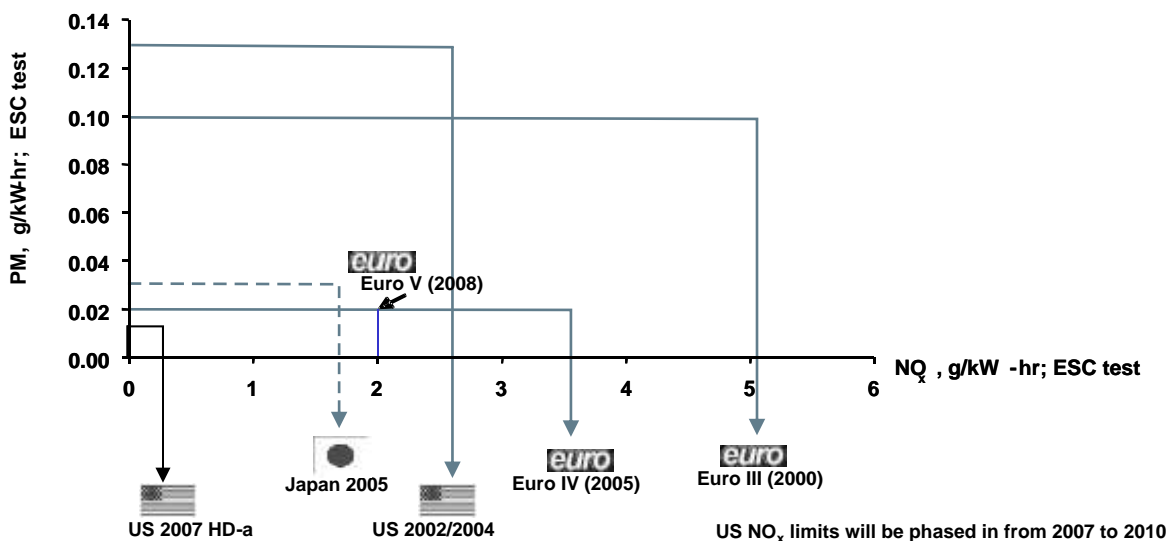
Gas-to-liquid (GTL) technology is another issue expected to drive the transition to a global business. Base stocks produced by GTL technology offer excellent performance characteristics at very competitive manufacturing costs. But the attractive economics are contingent on a number of issues, including the ability of the producer to convert stranded natural gas into liquids with world-scale plants in various regions of the globe. This means GTL base stocks will likely get their start in regions other than where they are produced. But how significant and how soon will the impact of GTL base stocks be felt on global supply and demand balances? In preparation for GTL, do refiners upgrade facilities to handle wax as a feed either separately in a blocked operation, or as a co-processed feed with HCBs? Will these base stocks be produced in remote

Global Business Opportunities in Lubricant Base Stocks, 2005 - 2010 provides the level of current and comprehensive market research required by planners, marketers, and buyers to make informed business decisions in today's increasingly competitive and complex base stock business.

regions of the world and shipped around the globe to areas of need (e.g. Shell has processed Fischer-Tropsch wax from its Malaysia plant at both its Japanese and French refineries to produce API Group III base stocks)? Or, will the output from GTL plants in remote regions be shipped to existing lube base stock plants for upgrading in regions of high demand? And most importantly, will GTL base stocks compete with Group II⁺, III and IV market space, or will producers look to capture volume by competing with the workhouse Group I and IIs? Each of these questions and other key supply side issues will be addressed in *Global Business Opportunities in Lubricant Base Stocks, 2005-2010*.

In addition to changes on the supply side, demand is also undergoing a significant global transformation. This transformation has been most pronounced in the automotive segment of the business (PCMO, HDMO, ATF, gear oil) where the drive towards improved fuel economy, reduced emissions and equipment reliability had led to increasingly stringent and more frequent performance upgrades.

Although timetables have varied by region (see Figure 1), reduced emissions is a common theme that will greatly impact lubricant quality over the next several years. To meet these higher performance requirements, formulators will increase their use of API Group II, II⁺ and III base stocks. This again has been regionally influenced, both by the technological growth rate and the approach by which refiners optimize their manufacturing plants to produce higher quality base stocks.



In North America, the current ILSAC GF-3 and pending ILSAC GF-4 PCMO requirements have stressed the use of a high-end hydroprocessed base stocks, designated API Group II⁺. Although, within the category definition of API Group II several companies are exploring the option of

blending more conventional API Group II hydroprocessed base stocks with API Group III fluids to achieve the API Group II⁺ quality level. In addition, others are extending this concept to API Group I/III combinations, particularly when higher saturates API Group I base stocks are considered. These higher quality API Group I base stocks have also begun to establish themselves as a unique part of their own category and in some instances are being promoted as API Group I⁺.

Amidst all of this change, the dynamics of the marketplace have remained intact and continue to play a major global role as base stocks, both high and low in quality, are routinely traded between regions, reflecting a global lubricants market. High quality API Group III base stocks are routinely shipped from the Far East and Europe to North America, while API Group I base stocks are now shipped to North America from as far away as Russia. At the same time, API Group I, II, IV and V (i.e. naphthenic) base stocks are exported from North America to areas such as Europe, Africa, India, South America and Asia-Pacific. The transportation of hydrocracker bottoms and wax are also globally traded commodities that further support this complex industry.

The base stock business has truly evolved into a global market over the last ten years, and this evolution will continue. For some, the globalization process has opened, and will continue to open, doors of opportunity. *Global Business Opportunities in Lubricant Base Stocks, 2005 to 2010* is designed specifically to shine light on these opportunities and to assist base stock manufacturers and marketers to grow their businesses.

Scope

The geographic scope of *Global Business Opportunities in Lubricant Base Stocks, 2005 to 2010* includes:

- **North America**
- **Western Europe**
- **Asia Pacific**
- **Eastern Europe**
- **South and Central America**
- **Middle East**

Although the report will focus on API Group I, II, II⁺ and III base stocks, it will also include information and insights on GTL, PAO, and other conventional (e.g. naphthenic) and non-conventional (e.g. ester) base stocks.



Study Benefits

GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010 is a high-value report designed specifically to provide base stock producers, suppliers and users with detailed information and insights on the business, and, most importantly, to assist base stock manufacturers and marketers in growing their businesses.

- **Obtain information and insights on market size and segmentation**
- **Assess competitive threats**
- **Identify and/or confirm business opportunities**

Information Sources and Research Methodology

GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010 will be based primarily on interviews and research with persons in major oil companies, independent lubricant manufacturers, additive formulators, original equipment manufacturers (OEMs) and other pertinent individuals.

In addition to personal and telephone interviews, this report will draw on information from (1) lubricant, base stock, and additive suppliers' product literature; an evaluation of statistical data from government and industry trade associations; a search of recent trade and technical literature and press releases; supplier annual reports and other financial information; and Petroleum Trends' database.

Content

GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010 will be written in a style that provides a relatively high level of technical detail to support assumptions and forecasts, and to address the needs of technical-orientated managers. At the same time, however, the writing (along with powerful graphics) will seamlessly bridge the technical detail with a pragmatic market analysis designed for use by marketers, refiners and other professionals engaged in business development and planning activities.

The report will comprise twelve sections, as shown in the following tentative Table of Contents.

TABLE OF CONTENTS (Tentative)

1) EXECUTIVE SUMMARY

2) INTRODUCTION

3) GLOBAL LUBRICANT DEMAND AND REGION DEMAND TRENDS, 2005 TO 2010

- a) North America (the following will be provided for each region)
 - i) Forecast demand for 2005
 - ii) Demand drivers
 - (1) Market
 - (2) Technical (e.g. specifications)
 - iii) Forecast demand, 2010
- b) Western Europe
- c) Asia Pacific
- d) Eastern Europe
- e) South and Central America
- f) Middle East

4) BASE STOCK DEMAND BY REGION AND DEMAND DRIVERS, 2005 TO 2010

- a) North America
 - i) Base stock demand by type and grade, 2005
 - ii) Demand drivers
 - (1) Market
 - (2) Technical (e.g. specifications)
 - iii) Formulation options
 - (1) Cost trade-offs
 - iv) Forecast demand by type and grade, 2010
- b) Western Europe
- c) Asia Pacific
- d) Eastern Europe
- e) South and Central America
- f) Middle East

5) BASE STOCK DEMAND BY TYPE AND GRADE, 2005 TO 2010

Base stock demand for each type featured in this section will include demand volumes for very light, light, medium, heavy, and bright stock (where applicable).

- a) Group I
- b) Group II
- c) Group II⁺
- d) Group III
- e) Group IV (PAO)
- f) Group V
- g) Other (e.g. Group VI/PIO)

6) BASE STOCK DEMAND BY PRODUCT, END-USE APPLICATION AND REGION

Demand regions for each product type and application detailed in this section will include those shown in Section 3 of this outline.

- a) Automotive
 - (1) PCMO
 - (2) HDMO
 - (3) ATF
 - (4) Automotive gear oil
 - (5) Small engine
- b) Industrial lubricants
 - (1) Hydraulic fluid
 - (2) Gear oil
 - (3) Compressor oil
 - (4) Others
- c) Marine engine oil
- d) Railroad engine oil
- e) Natural gas engine oil
- f) Aircraft engine oil
- g) Metalworking fluids
- h) Process oils

7) BASE STOCK SUPPLY BY REGION AND SUPPLIER

- a) North America
- b) Western Europe
- c) Asia Pacific
- d) Eastern Europe
- e) South and Central America
- f) Middle East

8) GLOBAL IMPORT AND EXPORT MOVEMENTS

- a) 2005 Import and export activity
- b) Forecast global base oil movements up to 2010

9) GLOBAL SUPPLY AND DEMAND BALANCE

10) GAS-TO-LIQUIDS IMPACT ASSESSMENT

- a) Technology
- b) Supply
 - i) Quality
 - ii) Quantity
- c) Demand
- d) Impact assessment

11) SUPPLIER PROFILES

Profiles on 20 of the leading global producers

12) BUSINESS OPPORTUNITIES

- a) By region
- b) By base stock type and grade
- c) By application (e.g. PCMO, ATF)

Price

The pre-launch price for ***GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010*** is (US) \$17,500. This price will be extended to orders received prior to September 1, 2005. The price after August 31, 2005, will be (US) \$19,500. A 25% deposit is required to secure the pre-launch discount.

Assuming a sufficient number of subscribers to this report are obtained by August 31, 2005, the study will be delivered in April 2006.

Credentials

Petroleum Trends International, Inc. is an independent strategic planning and market research consulting firm based in Metuchen, New Jersey. The firm specializes in lubricant and fuel issues related to market size and segmentation, new business development, manufacturing economics, competitive forces, customer intelligence, strategic and tactical planning, benchmarking, and best practices. It assists its clients to increase sales and grow by identifying business opportunities and emerging market trends, and to achieve operational excellence and reduce costs.

In addition to its solid consulting experience, the firm's staff and network of industry partners has a reputation built on decades of real-world experience in lubricant sales, technical service and product development, jobber relations, blending and packaging, supply and distribution, strategic planning, and other lubricant and fuel-related issues.

Thomas F. Glenn, president of Petroleum Trends International, Inc., is a well-known industry thought leader who is published monthly in columns with *Lubes 'n' Greases* and *JobbersWorld*. In addition, his papers and articles have been published in *Gas-to-Liquids News*, *NLGI Spokesman*, and other lubricant-related trade journals. Glenn is also a regular presenter and moderator at NPRA, ILMA, STLE, NLGI, ICIS-LOR and other industry trade meetings and conferences.

GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010 will be the second in a series of syndicated base stock studies launched by Petroleum Trends International, Inc. The first in this series, ***Business Opportunities in Base Stocks North American***, was completed in 2003. This study was well received both domestically and globally. The subscription base included chemical companies, additive and base stock producers, and base stock buyers.

PUBLICATION

— Order Form —



Publication Order Form and Agreement

GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010

Our company (hereafter "Client") agrees to order the Petroleum Trends International, Inc. report *GLOBAL BUSINESS OPPORTUNITIES IN LUBRICANT BASE STOCKS, 2005 - 2010* in accordance with the following terms and conditions:

- 1) Petroleum Trends International, Inc. will provide Client with two (2) hard copies of the report.
- 2) The report and its content is for the sole use of Client and will be retained by Client as a confidential document for its own use and use by any affiliates and subsidiaries where Client has 51 percent or greater ownership. Client agrees that it cannot, however, make the report and/or its contents available to an affiliate or subsidiary (regardless of ownership position) if affiliate or subsidiary is in the publishing business or the business of market and marketing research or management consulting. Client agrees not to reproduce (copy, scan or by any other means, mechanical or electronic) the report or any pages within the report. The obligations defined in this agreement shall remain in effect for five (5) years from receipt of the report(s).
- 3) The pre-launch price for the report is \$17,500, excluding applicable sales tax. The post-launch price (price after August 31, 2005) is \$19,500. A 25% deposit is required to lock in the pre-launch discount price. The balance of the payment will be billed with delivery of the completed report.

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