

Global Lubricant Basestocks 2010

In Continuous Publication Since 2007

A comprehensive annual service focused on the dynamic global lubricant basestocks industry

The report for each year includes three modules

- Module 1: Kline FutureView Global Basestock Supply-Demand Forecast Module
- Module 2: Kline Manufacturing CostView Module
- Module 3: Kline PriceView Forecast Module

Full-service subscriptions to this includes complete access to Kline's proprietary supply-demand de-blend model, Manufacturing CostView model, as well as Kline's PriceView Forecast model. Subscription to the service also includes a complete PowerPoint deck that highlights the key findings from each of these modules.

These modules will help the subscribers with:

- An objective assessment of where the basestocks business is today and where it is going to be in the future?
 - By country, by region, by API grade, and by leading viscosity grade
- A clear understanding of the critical supply and demand drivers
- An unbiased assessment of future supply and demand for lubricant basestocks including:
 - Low saturates, high VI API Group I
 - High saturates, high VI API Group II
 - Group II+
 - Group III
 - Gas-to-liquids (GTL) basestocks
 - Naphthenic basestocks
- A critical evaluation of the premium that each grade of high quality basestocks could garner
- Insights into projected plant closings, expansions, grassroots investments for basestocks including GTL
- Manufacturing costs based on different scenarios, including an objective assessment of the future role of GTL conversion in basestocks manufacturing
- Competitive cost positioning of all leading paraffinic and naphthenic basestock refiners worldwide
- A rigorous, interactive pricing model that considers all of the above pricing drivers including transportation and logistical costs, gasoline and diesel fuel pricing, and others

Report Scope

Global Lubricant Basestocks 2010 is an in-depth analysis of the global lubricant basestocks industry.

The report series is designed to provide subscribers with an accurate and independent resource to assess and pursue business opportunities in the global lubricant basestocks market. It provides an excellent resource for basestock producers, additive suppliers, finished lubricant marketers, basestock traders, technology providers, financial equity providers, and others in the lubricant supply chain and elsewhere to build solid strategic plans, make investment/divestment decisions, and respond to competitive forces, emerging technologies, and evolving market needs.

The study is a global study and includes the following regions:

- Asia-Pacific
- Europe
- North America
- Latin America
- Rest of the World (ROW) (primarily will include former CIS states, Africa and the Middle East)

We will put extra emphasis and focus in understanding the supply-demand dynamics emerging in the ROW markets including the former CIS states, as well as the supply by the re-refiners.

Key Benefits

Some key benefits offered to subscribers will include:

- A highly reliable and independent assessment of the global lubricant basestocks marketplace
- An unbiased assessment of current and future lubricant basestock requirements from the perspective of users, additive suppliers, automotive and industrial OEMs, trade and regulatory agencies, and all other stake holders
- An examination of the continuing demand shifts throughout the entire markets in critical areas such as demand growth or decline, viscosity grade shifts, conventional to synthetic formulations, and performance quality level shifts
- Ability to conduct unlimited "what if" scenarios
- A resource tool for sales, marketing, finance, technology and strategy personnel to quickly learn the fundamentals and lubricant requirements of the leading end-use markets
- Competitive intelligence for use in benchmarking

Tentative Outline for the Service

Module 1: KLINE FUTUREVIEW GLOBAL BASESTOCK SUPPLY-DEMAND FORECAST MODEL, 2010 - 2020

- An update to Kline's global basestock supply-demand de-blend model considering:
 - Impact of natural and other disasters on the global basestock supply
 - Hurricanes, fires, explosions, planned and un-planned turn-arounds
 - Impact of all new and planned basestock investments
 - Petronas, Malaysia
 - Pertamina, Indonesia
 - BPCL, India
 - GSCaltex, S Korea
 - Sinopec, China
 - Chevron, US
 - S Oil S Korea
 - SK, S Korea
 - Neste-BAPCO, Bahrain
 - Takreer, Abu Dhabi
 - Status on GTL basestock investments
 - Are these projects on track in terms of timing and cost?
 - Impact of all shut-downs including:
 - MAP, CITGO - US
 - Update on basestock demand growth/decline, especially highlighting the impact of recession
 - Asia
 - Europe
 - North America
 - South America
 - Africa and Middle East
 - Rest of the World
 - Global supply-demand balance, 2010 - 2020
 - By API grade, viscosity grade, region

MODULE 2: KLINE COSTVIEW MODEL, 2010 - 2020

- Will include a rigorous, interactive basestock manufacturing cost model that will enable subscribers to run various scenarios based on changes made in assumptions regarding:
 - Technologies practiced (i.e., solvent extraction, isodewaxing, GTL, etc.)
 - Changes in VGO and crude oil pricing
 - Location of refinery
 - Others

MODULE 3: KLINE PRICEVIEW MODEL, 2010 - 2020

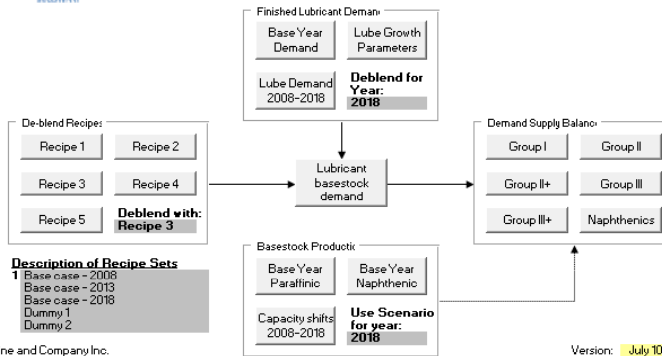
- Will include an interactive basestock price forecasting model that will allow subscribers to make changes to assumptions and run "what if" scenarios around:
 - Crude oil
 - Manufacturing Costs
 - Current and future supply-demand balances
 - Current and future trade patterns
 - Customs, excise, and other duties based on primary export hubs
 - Shipping costs
 - Others

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MODULE 1: Supply Demand Module



FINISHED LUBRICANT DE-BLEND AND BASESTOCK DEMAND SUPPLY BALANCE MODEL ASIA PACIFIC REGION, 2008 - 2018



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Version: July 10, 2009

Summary of Lubricant Basestock Demand Supply Balance, Asia-Pacific

Based on: Recipe 3

	Paraffinic Basestocks					Total	Naphthenic Basestocks	Grand Total
	Group I	Group II	Group II+	Group III	Group III+			
Supply 2018	124,490	81,720	8,140	78,070	-	292,420	24,910	317,330
Demand 2018	173,547	71,073	4,034	14,720	3,021	266,403	23,236	289,732
Surplus / (Deficit)	(49,057)	10,647	4,106	63,342	(3,021)	26,017	2,574	28,591

All figures in B/D

MODULE 2: Manufacturing Cost Module

PLANT: Group I/II/III
LOCATION: Asia

PRODUCT: GROUP III/III+ BASESTOCKS
YEAR: 2008

BASESTOCK CAPCI ■■■ BPCD

MATERIAL FLOW

Production by BP Group			
	I	II	III+ Total
VGO	-	1,820	33,042
Hydrocrack	-	3,000	1,000
LOM	-	4,200	4,200
Basestock	500	-	500
Total	500	8,790	34,940

	Units	SE	PDA	SDW	LHC	Gas DW	Low DW	Wax Prod	HDF	Total
Chemical circulation rate (BPCD)		-	-	-	-	-	-	-	-	-
HEX/HIBK/Toluene conc		-	-	1,944	-	-	-	-	-	1,944
Pressure/Distillate		-	10,052	-	-	-	-	-	-	10,052
Chemical and utility consumption (Units per Calendar Day)										
Hydrogen	1000cf	-	-	104,916	3,071	-	29,329	1,747	139,432	
Catalyst	\$	-	-	27,294	861	-	5,445	991	34,790	
Electricity	kWh	-	3,874	607	252,020	20,920	-	5,252	15,510	951,022

BASESTOCK MANUFACTURE

Group I/II/III Lube Hydrocrack / Solvent

REPLACEMENT CAPITAL COSTS - \$ MM

Direct Capital Cost	1,207
Indirect Capital Cost	362
Total Fixed Capital	1,569
Asset Value	627
Working Capital	942.5

OPERATING COSTS - \$/MM

Item	Units	\$/MM
VGO	BBL	88.46
Hydrogen	1000cf	4.71
Vacuum Resid	BBL	76.72
By-product		
Wax	000	(69.71)
Naphtals	BBL	(15.93)
Gas	BBL	(42.44)
Naphtals	BBL	(81.93)
Solvent	BBL	(84.92)
Net Materials (VGO - By-product)		(84.92)
Chemicals and Utilities		
Electricity	kWh	0.12
Fuel	MMBtu	2.49
Steam	1000lb	0.59
SWP	hr	1.2
HEX/HIBK/Toluene	hr	0.45
Pressure	psi	1.27
Catalyst	\$	1.00
Total Utilities		5.27
TOTAL VARIABLE COSTS		
Labor Cost		
Operator	37	\$/yr
Electricity	30	M\$/yr
Plant Overhead	0	\$/yr
Engineer (on average)		
Total Labor Cost		
Replacement Cost (of Direct Capital Cost)		
Cost of Overhead (of Total Labor Cost)		
Inventory (of Total Asset Value)		
BASESTOCK MANUFACTURE		
TOTAL FIXED CASH COSTS		

MODULE 3: Price Forecast Module

Kline LUBRICANT BASESTOCK PRICE FORECAST MODEL

PERIOD 2009-19

REGION ASIA PACIFIC

LINKS

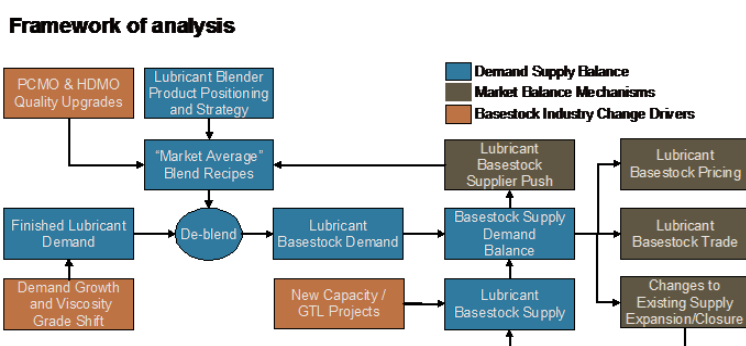
- [ASIA PACIFIC PRICE FORECAST](#)
- [ASIA PACIFIC PRICE FORECAST ALGORITHM](#)
- [GROUP II v CRUDE OIL CORRELATION](#)
- [GROUP III v CRUDE OIL CORRELATION](#)
- [GROUP II SPREAD BETWEEN USGC AND SINGAPORE](#)
- [GROUP III DELTA OVER GROUP II \(ASIA\)](#)

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Methodology

As the leading global consultancy covering lubricants and functional fluids, Kline & Company has developed an analysis approach based heavily on primary research (in-person and telephone interviews). This approach has a proven track record as the most effective and reliable in analyzing the lubricant basestocks and finished lubricant and additives businesses, as well as in identifying business opportunities and threats.

Basestock supply information is developed based on interviews with all basestock refiners located in North America, South America, Europe, Asia Pacific, and Rest of World (RoW) regions. In this edition, we will place a significant focus and emphasis on improving the quality and depth of information from refineries in the RoW bloc as well as re-refiners. Finished lubricant demand numbers are a result of primary research carried out in different country markets. "Market average" blend recipe sets for different regions will be developed on basis of interviews with a wide range of industry experts: formulators, additive suppliers, and basestock marketers. The "market average" blend recipes so developed will be tested with a number of market participants and their feedback will be incorporated where relevant.



Kline Credentials

Kline is a worldwide consulting and research firm dedicated to providing the kind of insight and knowledge that helps companies find a clear path to success. The firm has served the management consulting and market research needs of organizations in the chemicals, materials, energy, life sciences, and consumer products industries for over 50 years.

Kline's research and consulting services extend across the entire energy industry value chain. Our solutions have helped clients develop better ways to create and profit from new business opportunities, respond to competitive and economic threats, improve productivity, achieve sustainable growth, and optimize performance. Kline provides clients with facts, forecasts, and recommendations based solidly on the realities of the market.

Our market research reports and services are designed to provide subscribers with a deeper understanding of their markets, an outlook for their business, and accurate information about their competitors. Our clients tell us they often use Kline's market research to validate their own internal analysis, and many clients rely on Kline reports as their most critical source of information.

For more information about this study or Kline's other services, e-mail us at sales@klinegroup.com, visit our website at www.KlineGroup.com, or contact us at any of our regional offices listed below.

Recently published or in-progress research for the Energy Industry includes:

- Global Lubricant Basestocks Three-Year Annual Service
- Competitive Analysis for the Global Lubricant Basestocks Industry
- Kline Basestock Sellers Database, 2009
- The Outlook for the Global Lubricants Industry: The Impact of Recession, 2009
- Global Synthetic Lubricants 2008: Market Analysis and Opportunities
- LubesNet Database 2009: Annual Online Subscription
- Opportunities in Lubricants North America, 2008-2010
- Metalworking Fluids 2008 Global Series
- Competitive Intelligence for the Global Lubricants Industry, 2008-2018
- Global Lubricant Additives, 2009

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