

Colin A. Houston and Associates, Inc.
announces a new study entitled

NORMAL PARAFFINS - WORLD MARKETS, 2000-2010

Worldwide consumption of normal paraffins is expected to grow at an average annual rate of 3 percent, from 2.4 million tons in 2000 to 3.2 million tons in 2010, according to a new study from Colin A. Houston & Associates, Inc. (CAHA). After four years of tight supplies that drove prices to levels not seen since the early 1990s, the n-paraffin market is coming into balance, but if all the planned new plants and expansions proceed, n-paraffin capacity could greatly exceed demand after 2005. These are among the findings of a new multiclient study, entitled *Normal Paraffins - World Markets 2000-2010*, recently published by CAHA.

CAHA has over 25 years of experience researching surfactant raw materials and intermediates, including normal paraffins, for both multiclient studies and proprietary studies. Most recently, CAHA reviewed normal paraffins for *Detergent Alkylates - World Markets, 1995-2010* (August 2000). Proprietary projects have included a global analysis of the markets for a range of normal paraffins covering not only surfactant intermediates, but also chloroparaffins, solvents and other non-surfactant end uses.

The following pages contain the Table of Contents, sample tables and other details of this report published in March 2002.

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DESCRIPTION OF THE STUDY

KEY ISSUES

The n-paraffin market is facing two unprecedented developments: the potential for large new production associated with gas-to-liquids (GTL) projects, and modified versions of linear alkylbenzene that could radically impact the use of n-paraffins.

GTL projects primarily designed to produce liquid fuels from natural gas or coal via Fischer-Tropsch (F-T) technologies can also produce non-fuel hydrocarbon products including n-paraffins. Over two dozen GTL projects are planned worldwide over the next decade, and they offer the possibility of nearly five million tons per year of additional normal paraffins by 2010. Not all of these projects will proceed, and of the ones that do, only a limited number will produce normal paraffins.

The modified linear alkylbenzene sulfonate (MLAS) being promoted by Procter & Gamble and others, reduces surfactant requirements in detergent products, but offers advantages to potential producers in terms of feedstock efficiencies. MLAS could develop into a significant competitor to conventional linear alkylbenzene sulfonate (LABS), the largest market for normal paraffins.

REPORT ORGANIZATION

The report provides a comprehensive view of n-paraffins today along with an analysis of the challenges this important intermediate market faces. The report is organized into the following sections.

Process Technology

This chapter describes five commercial separation processes for the production of n-paraffins, discusses kerosene feedstock issues, and explains the development and technical aspects of MLAS. The chapter also describes in detail the chemistry of Fischer-Tropsch synthesis, including catalyst choice and hydrocarbon product selectivities, carbon distribution, iso-paraffin concentration and areas for future process research. A table detailing proposed GTL projects, including producers, locations, capacities, capital costs and status is also included.

Supply

This chapter begins with an overview of historical n-paraffin capacity, production and operating rates by region, and forecasts capacity by region annually through 2005,

as well as a longer range forecast to 2010. It discusses the outlook for GTL-based n-paraffins and includes a list of GTL projects for which n-paraffin production is either planned or likely, and quantifies the potential capacity for GTL-based n-paraffins annually for 2005 through 2010.

Profiles of individual n-paraffin producers are provided for each region, including proposed new producers. The profiles include announced capacity increases, a review of plant operations including process technology and carbon chain lengths produced; raw material sources; integration, including LAB capacity and expansion plans; and captive use versus merchant sales.

Markets

The study also discusses market trends and issues and quantifies and forecasts n-paraffin consumption by end use. Linear alkylbenzene (LAB) is the most important outlet for normal paraffins, accounting for over 70 percent of the world's total normal paraffin consumption. Other end uses include secondary alcohols, internal olefins, chlorinated paraffins, paraffin sulfonates, oilfield chemicals, rolling oils, and miscellaneous others. These are all detailed in CAHA's study, which also includes profiles of customers by end use and by region.

Supply/Demand Balance

This chapter analyzes and forecasts the supply/demand picture to 2010 for North America, Latin America, West Europe, Asia, East Europe, and the Middle East/Africa region. The impact of GTL paraffins is considered, and a discussion of pricing includes historical data and a price forecast.

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	2000	2001	2002	2003	2004	2005	2010	AAGR % 2000-2010
North America								
Latin America								
West Europe								
Asia								
East Europe								
Middle East/Africa								
TOTAL								

Table III-8

ASIA - NORMAL PARAFFIN PRODUCERS AND CAPACITIES, 1999-2010
(thousand tons)

Producer	Location	1999	2000	2001	2002	2003	2004	2005	2010
CHINA									
TOTAL CHINA									
INDIA									
TOTAL INDIA									
JAPAN									
TOTAL JAPAN									
OTHER ASIA									
TOTAL OTHER ASIA									
TOTAL ASIA									

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WEST EUROPE - NORMAL PARAFFIN CONSUMPTION BY MARKET, 2000-2010 (thousand tons)				
	2000	2005	2010	AAGR% 2000-2010
Linear Alkylbenzene				
Internal Olefins				
Chlorinated Paraffins				
Paraffin Sulfonates				
Rolling Oils				
Other				
TOTAL				

Table IV-31				
ASIA - NORMAL PARAFFIN CUTS REQUIRED FOR CHLORINATED PARAFFINS PRODUCTION, 2000-2010 (thousand tons)				
	2000	2005	2010	AAGR% 2000-2010
C ₁₀ -C ₁₃				
C ₁₄ -C ₁₇				
C ₁₈ -C ₂₀ , C ₂₀₊				
TOTAL				

Table V-15								
MIDDLE EAST/AFRICA - NORMAL PARAFFIN SUPPLY/DEMAND BALANCE, 2000-2010 (thousand tons)								
	2000	2001	2002	2003	2004	2005	2010	AAGR % 2000-2010
Capacity								
Production								
Demand								
Net Export/Imports								
Operating Rate (%)								

Table V-17

ASIAN - JET FUEL/NORMAL PARAFFIN PRICE SPREAD, 1994-2001

Year	Quarter	Asian C ₁₀ -C ₁₃ n-Paraffin Prices (\$/MT)	Singapore Kerosene Type Jet Fuel Prices (\$/MT)	Spread (\$/MT)	Spread (¢/lb)
1994	1st				
	2nd				
	3rd				
	4th				
1995	1st				
	2nd				
	3rd				
	4th				
1996	1st				
	2nd				
	3rd				
	4th				
1997	1st				
	2nd				
	3rd				
	4th				
1998	1st				
	2nd				
	3rd				
	4th				
1999	1st				
	2nd				
	3rd				
	4th				
2000	1st				
	2nd				
	3rd				
	4th				
2001	1st				
	2nd				
	3rd				
	4th				
2002	1st Est				

QUALIFICATIONS AND PERSONNEL

Colin A. Houston & Associates, Inc. was founded in 1971 to provide consulting services to the chemical industry worldwide. The primary area of expertise was and continues to be surfactants: raw materials, intermediates, major surfactants, and the surfactant-consuming industries. Other areas of activity include: a variety of industry studies on such topics as detergent builders, ingredients for personal care products, and bleaching agents; engineering studies such as a worldwide study of glycerine evaporation plants with recommendations for improved efficiency; a world study of the state of the art in spray-drying detergents; contracts with the U.S. Government to develop industry effluent guidelines; and business strategy and acquisition studies.

The reputation thus earned by CAHA for comprehensive, high quality techno-economic and market analyses has led to a variety of engineering, marketing, and strategic planning studies for individual clients on five continents.

The project team approach utilized by CAHA includes a core of senior and technical professionals augmented by expert consultant associates. The following synopses present the staff and consultants who carried out the study, NORMAL PARAFFINS - WORLD MARKETS, 2000-2010.

Joel H. Houston, President,

was the project leader for NORMAL PARAFFINS - WORLD MARKETS, 2000-2010 and numerous other multiclient studies including HIGHER ALCOHOLS: MARKET FORECAST TO 2010, SURFACTANTS FOR EMERGING MARKETS IN ASIA/PACIFIC, 1996-2010, OPPORTUNITIES IN PERFORMANCE SURFACTANTS IN THE U.S., SURFACTANTS FOR CONSUMER PRODUCTS - NORTH AMERICAN FORECAST TO 2008, and DETERGENT ALKYLATE - WORLD MARKETS, 1992-2005. He has guided CAHA's research in oleochemicals since 1980, and in detergents since 1987. Mr. Houston has extensive experience in projects for consumer products, has presented papers at CMRA, ECMRA and CSMA meetings, and is the editor of CAHA's global detergent newsletter, AGGLOMERATIONS and THE LAB MARKET REPORT. He is a member of CDMA, AOCS and ASTM.

Marilyn L. Bradshaw, Vice President,

authored sections of NORMAL PARAFFINS - WORLD MARKETS, 2000-2010. She was the project leader for ALPHA-OLEFINS - WORLD MARKETS 2000-2010, INDUSTRIAL APPLICATIONS OF SURFACTANTS - NORTH AMERICAN FORECAST TO 2010 and POLYOLEFIN COMONOMERS - WORLD MARKETS, 1995-2005. Other recent multiclient studies she has directed include THE U.S. METALWORKING INDUSTRY AND SURFACTANT CONSUMPTION, 1995-2005, and U.S. I&I CLEANING PRODUCTS - SURFACTANT SUPPLIERS

AND CUSTOMERS. She is the editor of CAHA's monthly alpha-olefin newsletter and provides consultation to clients on alpha-olefins. Since joining CAHA in 1980, she has also been the project leader for numerous proprietary projects such as an analysis of the growth prospects for 22 U.S. surfactant ethoxylators. Ms. Bradshaw has a B.A. from Finch College and an economics and management certificate from Manhattanville College. She is an active member of CDMA.

H. James Bigalow, Senior Research Associate,

authored several sections of NORMAL PARAFFINS - WORLD MARKETS, 2000-2010 and ALPHA-OLEFINS - WORLD MARKETS, 2000-2010 AND ALPHA-OLEFIN MARKET INTELLIGENCE DATABASE. In addition he has contributed to numerous multiclient studies including INDUSTRIAL APPLICATIONS OF SURFACTANTS - NORTH AMERICAN FORECAST TO 2010, SURFACTANTS FOR EMERGING MARKETS IN ASIA/PACIFIC, 1995-2010, DETERGENT ALKYLATES - WORLD MARKETS, 1995-2010 and SURFACTANTS FOR CONSUMER PRODUCTS - NORTH AMERICAN FORECAST TO 2008. Mr. Bigalow has also worked on proprietary detergent and surfactant studies. Mr. Bigalow has over 20 years experience as a senior marketing research executive in the chemical industry. He has conducted successful business analysis projects which have included financial evaluations of businesses and acquisition candidates, identifying current and future markets for new and existing products, and product development and usage. Additional experience has included economic and sales forecasting, strategic planning, proprietary market research projects, benchmarking, and product safety. He is a member of the CDMA, the Society of Competitive Intelligence Professionals (SCIP), ACS and the Chemical Marketing and Economics Division of the ACS. Mr. Bigalow holds an M.S. Industrial Administration, Krannert School of Management, Purdue University and a B.S. degree in Chemistry, Denison University.

Holly Burnside, Research Associate

has authored various sections of the multiclient study entitled NORMAL PARAFFINS - WORLD MARKETS, 2000-2010, SURFACTANT DEVELOPMENTS - FORECAST TO 2010. Ms. Burnside is also an author on *the* LAB BI-MONTHLY MARKET REPORT. She holds a B.S. degree in Physics, Union College, Schenectady, NY.

COST AND DELIVERY SCHEDULE

The cost of the study, *NORMAL PARAFFINS - WORLD MARKETS, 2000-2010* is \$8,250. One-half of the fee is payable on signing the contract, and the balance is due on receipt of two (2) copies of the report. Additional copies are available at \$250.00 each plus shipping.

Individual sections of the study may be purchased separately.

HOW TO SUBSCRIBE

To subscribe to the study please complete and sign the contract and mail to the address below. On receipt, we will countersign it and return a photocopy to you for your files along with our invoice for the first half payment.

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CONTRACT

The following constitutes an agreement between **COLIN A. HOUSTON & ASSOCIATES, INC.** of Brewster, New York, hereinafter called **CAHA**, and the company shown below hereinafter called the **CLIENT**.

WHEREAS: CAHA has published a study entitled **NORMAL PARAFFINS - WORLD MARKETS, 2000-2010** substantially as outlined in the prospectus for a multiclient study annexed hereto and CLIENT desires to be a subscriber. **NOW THEREFORE**, the parties hereto agree as follows:

1. CAHA will deliver to the CLIENT two (2) copies of the said study.
2. CLIENT will pay CAHA the subscription fee of \$8,250*.

CLIENT desires to purchase _____ additional copies at \$250.00* per copy, plus shipping.

*All New York subscribers, please add sales tax.

3. CAHA will not disclose the results of this study for a lesser amount to any other client or publicly for a period of three (3) years from the date of the issuance of this study.
4. The CLIENT will not permit the study to be read or used by other than employees of the CLIENT and its subsidiaries and/or affiliates.** The CLIENT will make every effort to maintain the study as "**confidential**" for a period of three (3) years from date of issuance of such study. CLIENT will not reproduce all or any part of the study without CAHA's consent and will immediately recover all counterparts from anyone who ceases to be an employee and from any subsidiary or affiliate which ceases to be such.

**The CLIENT will be entitled to share in rights to the study with subsidiaries or affiliates which are at least 50% owned by the CLIENT or its parent company.

IN WITNESS WHEREOF, this agreement is hereby executed by CLIENT on the _____ day of _____, 20__.

Accepted by:

COLIN A. HOUSTON & ASSOCIATES, INC.
20 Milltown Road, Suite 206, Brewster, NY 10509

BY _____

Typed
Signature _____

Title _____

Date _____

Accepted by:

COMPANY _____

ADDRESS _____

Signature _____

Typed
Signature _____

Title _____