

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.

Contents

<i>Description of the Study</i>	2
<i>Table of Contents</i>	4
<i>Sample Tables</i>	13
<i>Qualifications and Personnel</i>	17
<i>How to Subscribe</i>	19

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.

TABLE OF CONTENTS

	<u>Page</u>
Preface	ii
EXECUTIVE SUMMARY	iii
TABLE OF CONTENTS	xxv
List of Tables	xxx
List of Figures	xxxiii
I. INTRODUCTION	I-1 - I-3
II. NORMAL PARAFFIN PROCESS TECHNOLOGY	II-1 - II-28
Introduction	II-1
Separation Processes	II-1
Union Carbide Isosiv ^R Process	II-2
Texaco Selective Finishing Process (TSF)	II-4
UOP Molex ^R Process	II-4
Exxon Ensorb ^R Process	II-7
Urea Adduct Formation	II-7
Other Processes	II-8
Feedstocks For Separation Processes	II-8
Quality Aspects of Detergent-Range n-Paraffins	II-9
Development of Modified LABS (MLAS)	II-10
Synthesis Processes	II-12
Background	II-12
GTL Technology	II-17
Chemistry of Syngas Production	II-17
Chemistry of Fischer-Tropsch Synthesis	II-17
Future Process Research	II-27
III. NORMAL PARAFFIN SUPPLY	III-1 - III-41
Introduction	III-1
Historical Production	III-2
Gas-To-Liquids Production	III-4
Producers by Region	III-8
Introduction	III-8
North America	III-9
ExxonMobil	III-9
Sasol	III-10
Potential GTL Projects	III-12
Latin America	III-13
Petrobras	III-13
Repsol-YPF	III-14
Venoco	III-15
Potential GTL Projects	III-15

Table of Contents (continued)

	<u>Page</u>
West Europe	III-16
Petresa	III-17
Sasol	III-18
Veba	III-19
Potential GTL Projects	III-20
Asia	III-20
Fushun	III-22
Jinling	III-23
IPCL	III-23
Nirma	III-24
Reliance	III-25
Tamilnadu	III-26
Nikko	III-27
Nippon	III-27
Shell	III-28
Isu	III-28
CPC	III-29
FPCC	III-30
Ho Tung	III-30
Potential GTL Projects	III-31
Other Regions	III-32
East Europe	III-32
Middle East	III-34
Africa	III-38
IV. NORMAL PARAFFIN MARKETS IV-1 - IV-92	
World Overview IV-1	
World Consumption by Region	IV-1
North America	IV-2
Latin America	IV-3
West Europe	IV-3
Asia	IV-4
East Europe	IV-5
Middle East/Africa	IV-6
World Consumption by Market	IV-6
Linear Alkylbenzene	IV-8
Introduction	IV-8
North America	IV-9
Market Trends and Issues	IV-9
Regional Demand Forecast	IV-11
Customers	IV-13
Latin America	IV-15
Market Trends and Issues	IV-15
Regional Demand Forecast	IV-16
Customers	IV-16
West Europe	IV-18
Market Trends and Issues	IV-18
Regional Demand Forecast	IV-20
Customers	IV-20
Asia	IV-22

Table of Contents (continued)

	<u>Page</u>
Market Trends and Issues	IV-22
Regional Demand Forecast	IV-23
Customers	IV-25
East Europe	IV-30
Market Trends and Issues	IV-30
Regional Demand Forecast	IV-31
Customers	IV-32
Middle East/Africa	IV-33
Market Trends and Issues	IV-33
Regional Demand Forecast	IV-33
Customers	IV-34
Secondary Alcohols	IV-37
Introduction	IV-37
Asia	IV-37
Market Trends and Issues	IV-37
Regional Demand Forecast	IV-38
Customers	IV-38
Internal Olefins	IV-40
Introduction	IV-40
North America	IV-41
Market Trends and Issues	IV-41
Regional Demand Forecast	IV-41
Customers	IV-42
Latin America	IV-42
Market Trends and Issues	IV-42
West Europe	IV-43
Market Trends and Issues	IV-43
Regional Demand Forecast	IV-43
Customers	IV-44
Asia	IV-45
Market Trends and Issues	IV-45
Regional Demand Forecast	IV-45
Customers	IV-46
Chlorinated Paraffins	IV-48
Introduction	IV-48
North America	IV-50
Market Trends and Issues	IV-51
Regional Demand Forecast	IV-52
Customers	IV-53
Latin America	IV-54
Market Trends and Issues	IV-54
West Europe	IV-55
Market Trends and Issues	IV-55
Regional Demand Forecast	IV-57
Customers	IV-59
Asia	IV-60
Market Trends and Issues	IV-61
Regional Demand Forecast	IV-61
Customers	IV-63
East Europe	IV-68

Table of Contents (continued)

	<u>Page</u>
Market Trends and Issues	IV-68
Regional Demand Forecast	IV-68
Customers	IV-69
Middle East/Africa	IV-70
Market Trends and Issues	IV-70
Regional Demand Forecast	IV-70
Customers	IV-71
Paraffin Sulfonates	IV-72
Introduction	IV-72
West Europe	IV-72
Market Trends and Issues	IV-72
Regional Demand Forecast	IV-74
Customers	IV-75
Oilfield Chemicals	IV-77
Introduction	IV-77
North America	IV-78
Market Trends and Issues	IV-78
Regional Demand Forecast	IV-79
Customers	IV-80
Asia	IV-80
Market Trends and Issues	IV-80
Rolling Oils	IV-82
Introduction	IV-82
North America	IV-83
Market Trends and Issues	IV-83
Regional Demand Forecast	IV-83
Customers	IV-84
West Europe	IV-84
Market Trends and Issues	IV-84
Regional Demand Forecast	IV-84
Customers	IV-85
Asia	IV-85
Market Trends and Issues	IV-85
Regional Demand Forecast	IV-85
Customers	IV-86
Other Markets	IV-87
Introduction	IV-87
North America	IV-88
Market Trends and Issues	IV-88
Regional Demand Forecast	IV-89
Customers	IV-90
West Europe	IV-90
Market Trends and Issues	IV-90
Regional Demand Forecast	IV-90
Customers	IV-91
Asia	IV-91
Market Trends and Issues	IV-91
Regional Demand Forecast	IV-92
Customers	IV-92

Table of Contents (continued)

	<u>Page</u>
V. SUPPLY/DEMAND BALANCE	V-1 - V-26
World Overview	V-1
World Normal Paraffin Production	V-11
World Normal Paraffin Demand Summary	V-12
North America Supply/Demand Features	V-13
Latin America Supply/Demand Features	V-14
West Europe Supply/Demand Features	V-15
Asia Supply/Demand Features	V-16
East Europe Supply/Demand Features	V-17
Middle East/Africa Supply/Demand Features	V-18
Current Pricing and Outlook	V-20
Historical Pricing	V-20
Normal Paraffin Price Forecast	V-25
VI. APPENDIX	VI-1 - VI-7
List of Abbreviations	VI-1
List of Contacts	VI-6

LIST OF TABLES

<u>Table</u>	<u>Page</u>	
1	World - Normal Paraffin Consumption by Region, 2000-2010	iii
2	World - Normal Paraffin Consumption by Market, 2000-2010	iv
3	World - Normal Paraffin Capacity by Region, 2000-2010	v
4	Potential N-Paraffin Capacity of Proposed GTL Projects	vii
5	World - Normal Paraffin Demand by Market, 2000-2010	ix
6	World - Normal Paraffin Consumption for Linear Alkylbenzene by Region, 2000-2010	x
7	World - Normal Paraffin Production by Region, 2000-2010	xv
8	World - Normal Paraffin Demand by Region, 2000-2010	xvi
9	World - Normal Paraffin Supply/Demand Balance, 2000-2010	xvi
10	North America - Normal Paraffin Supply/Demand Balance, 2000-2010	xviii
11	Latin America - Normal Paraffin Supply/Demand Balance, 2000-2010	xix
12	West Europe - Normal Paraffin Supply/Demand Balance, 2000-2010	xx
13	Asia - Normal Paraffin Supply/Demand Balance, 2000-2010	xx
14	East Europe - Normal Paraffin Supply/Demand Balance, 2000-2010	xxi
15	Middle East/Africa - Normal Paraffin Supply/Demand Balance, 2000-2010	xxii
I-1	UOP LAB Plants and Dates of Construction	I-2
II-1	GTL Projects, in Operation, Study, Planning or Construction	II-13
II-2	Steady-State Activity and Selectivity Data For FE/K/CU/SI and CO/AL Catalysts	II-20
II-3	Hydrocarbon Distributions of Cobalt and Iron Catalysts	II-23
III-1	Normal Paraffin Producer Integration, 2000	III-1
III-2	World - C ₁₀₊ N-Paraffin Capacity and Production by Region, 1994 and 1999	III-3
III-3	World - Potential N-Paraffin Capacity of New GTL Projects, 2005-2010	III-6
III-4	World - C ₁₀₊ Normal Paraffin Capacity by Region, 1999-2010	III-8
III-5	North America - Normal Paraffin Producers and Capacities, 1999-2010	III-9
III-6	Latin America - Normal Paraffin Producers and Capacities, 1999-2010	III-13
III-7	West Europe - Normal Paraffin Producers and Capacities, 1999-2010	III-16
III-8	Asia - Normal Paraffin Producers and Capacities, 1999-2010	III-21
III-9	East Europe - Normal Paraffin Producers and Capacities, 1999-2010	III-32
III-10	Middle East - Normal Paraffin Producers and Capacities, 1999-2010	III-35
III-11	Africa - Normal Paraffin Producers and Capacities, 1999-2010	III-39
IV-1	World - Normal Paraffin Consumption by Region, 2000-2010	IV-1
IV-2	North America - Normal Paraffin Consumption by Market, 2000-2010	IV-2
IV-3	Latin America - Normal Paraffin Consumption by Market, 2000-2010	IV-3
IV-4	West Europe - Normal Paraffin Consumption by Market, 2000-2010	IV-4
IV-5	Asia - Normal Paraffin Consumption by Market, 2000-2010	IV-5
IV-6	East Europe - Normal Paraffin Consumption by Market, 2000-2010	IV-5
IV-7	Middle East/Africa - Normal Paraffin Consumption by Market, 2000-2010	IV-6
IV-8	World - Normal Paraffin Consumption by Market, 2000-2010	IV-7
IV-9	World - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-8
IV-10	World - Normal Paraffin Consumption For Linear Alkylbenzene By Region, 2000-2010	IV-9

List of Tables (continued)

<u>Table</u>	<u>Page</u>
IV-11 North America - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-12
IV-12 Latin America - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-16
IV-13 West Europe - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-20
IV-14 Asia - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-24
IV-15 East Europe - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-31
IV-16 Middle East/Africa - Linear Alkylbenzene Production and Normal Paraffin Requirements, 2000-2010	IV-33
IV-17 Asia - Secondary Alcohol Production and Normal Paraffin Requirements, 2000-2010	IV-38
IV-18 World - Normal Paraffin Requirement for Internal Olefin Production by Region, 2000-2010	IV-40
IV-19 North America - Internal Olefin Market and Normal Paraffin Requirements, 2000-2010	IV-42
IV-20 West Europe - Internal Olefin Market and Normal Paraffin Requirements, 2000-2010	IV-44
IV-21 Asia - Internal Olefin Market and Normal Paraffin Requirements, 2000-2010	IV-46
IV-22 World - Normal Paraffin Consumption For Chlorinated Paraffins Production by Region, 2000-2010	IV-50
IV-23 World - Normal Paraffin Cuts Required For Chlorinated Paraffins Production, 2000-2010	IV-50
IV-24 North America - Chlorinated Paraffins Production and Normal Paraffin Requirements, 2000-2010	IV-53
IV-25 North America - Normal Paraffin Cuts Required For Chlorinated Paraffins Production, 2000-2010	IV-53
IV-26 North America - Chlorinated Paraffin Producers, Locations and Capacities, 2000	IV-54
IV-27 West Europe - Chlorinated Paraffins Production and N-Paraffin Requirements, 2000-2010	IV-58
IV-28 West Europe - Normal Paraffin Cuts Required For Chlorinated Paraffins Production, 2000-2010	IV-58
IV-29 West Europe - Chlorinated Paraffin Producers, Locations and Capacities, 2000	IV-60
IV-30 Asia - Chlorinated Paraffins Production and N-Paraffin Requirements, 2000-2010	IV-62
IV-31 Asia - Normal Paraffin Cuts Required For Chlorinated Paraffins Production, 2000-2010	IV-63
IV-32 Asia - Chlorinated Paraffin Producers, Locations and Capacities, 2000	IV-65
IV-33 East Europe - Chlorinated Paraffins Production and Normal Paraffin Requirements, 2000-2010	IV-69
IV-34 East Europe - Normal Paraffin Cuts Required For Chlorinated Paraffins Production, 2000-2010	IV-69
IV-35 East Europe - Chlorinated Paraffin Producers, Locations and Capacities, 2000	IV-70
IV-36 Middle East/Africa - Chlorinated Paraffins Production and Normal Paraffin Requirements, 2000-2010	IV-71
IV-37 Middle East/Africa - Normal Paraffin Cuts Required For Chlorinated Paraffins Production, 2000-2010	IV-71
IV-38 Middle East/Africa - Chlorinated Paraffin Producers, Locations and Capacities, 2000	IV-71
IV-39 West Europe - Paraffin Sulfonate Production and Normal Paraffin Demand, 2000-2010	IV-75
IV-40 West Europe - Paraffin Sulfonate Producers, Locations, Capacities and Process, 2000	IV-76
IV-41 North America - Normal Paraffin Consumption in Oilfield Chemicals, 2000-2010	IV-80
IV-42 World - Normal Paraffin Consumption For Rolling Oils by Region, 2000-2010	IV-83

List of Tables (continued)

<u>Table</u>	<u>Page</u>
IV-43 North America - Normal Paraffin Consumption in Rolling Oils, 2000-2010	IV-84
IV-44 West Europe - Normal Paraffin Consumption in Rolling Oils, 2000-2010	IV-85
IV-45 Asia - Normal Paraffin Consumption in Rolling Oils, 2000-2010	IV-85
IV-46 World - Normal Paraffin Consumption For Solvents and Other Uses by Region, 2000-2010	IV-88
IV-47 World - Normal Paraffin Cuts Required For Solvents and Other Uses, 2000-2010	IV-88
IV-48 North America - Normal Paraffin Consumption For Solvents and Other Uses, 2000-2010	IV-89
IV-49 North America - Normal Paraffin Cuts Required For Solvents and Other Uses, 2000-2010	IV-89
IV-50 West Europe - Normal Paraffin Consumption For Solvents and Other Uses, 2000-2010	IV-91
IV-51 West Europe - Normal Paraffin Cuts Required For Solvents and Other Uses, 2000-2010	IV-91
IV-52 Asia - Normal Paraffin Consumption For Solvents and Other Uses, 2000-2010	IV-92
IV-53 Asia - Normal Paraffin Cuts Required For Solvents and Other Uses, 2000-2010	IV-92
V-1 World - Normal Paraffin Supply/Demand Balance, 2000-2010	V-2
V-2 World - Normal Paraffin Capacity By Region, 2000-2010	V-3
V-3 Potential N-Paraffin Capacity of Proposed GTL Projects	V-4
V-4 World - Potential N-Paraffin Capacity of New GTL Projects, 2005-2010	V-6
V-5 Small Kerosene Based LAB Producers Potentially Closed by Large Fischer-Tropsch LAB Producers, 2000	V-9
V-6 Small Normal Paraffin Merchant Producers Potentially Closed by Low Cost Normal Paraffin Production From Fischer-Tropsch Plants, 2000	V-10
V-7 Large Merchant Market Producers That Could be Closed by Low Cost Normal Paraffin Production From Fischer-Tropsch Plants, 2000	V-10
V-8 World - Normal Paraffin Production by Region, 2000-2010	V-12
V-9 World - Normal Paraffin Demand by Region, 2000-2010	V-13
V-10 North America - Normal Paraffin Supply/Demand Balance, 2000-2010	V-14
V-11 Latin America - Normal Paraffin Supply/Demand Balance, 2000-2010	V-15
V-12 West Europe - Normal Paraffin Supply/Demand Balance, 2000-2010	V-16
V-13 Asia - Normal Paraffin Supply/Demand Balance, 2000-2010	V-17
V-14 East Europe - Normal Paraffin Supply/Demand Balance, 2000-2010	V-18
V-15 Middle East/Africa - Normal Paraffin Supply/Demand Balance, 2000-2010	V-19
V-16 U.S. - Crude Oil/Kerosene Jet Fuel and Kerosene Prices, 1994-2001	V-22
V-17 Asian - Jet Fuel/Normal Paraffin Price Spread, 1994-2001	V-23

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
II-1	Linde Isosiv ^R Process	II-3
II-2	Sorbex Simulated Moving Bed for Adsorptive Separation	II-5
II-3	Molex ^R Process	II-6
II-4	Feedstock and Return Stream Values	II-9
II-5	Simplified Process Overview For Production of Liquid and Gaseous Fuels and Chemicals From (A) Coal and (B) Natural Gas, By Means of Fischer-Tropsch	II-19
II-6	Distribution of Different Hydrocarbon Cuts as a Function of α	II-22
II-7	Molar Olefin Content in the Linear Hydrocarbon Fraction as a Function of Carbon Number Produced During F-TS on a Re-Promoted CO/Zirconia Catalyst	II-24
II-8	Carbon Distribution Impact of Hydrocracking on Fischer-Tropsch Product	II-25
II-9	Concentration of Iso-Paraffins in the Kerosene and Gasoil Fractions vs. Conversion of the C ₂₂₊ Fraction	II-26
II-10	Concentration of Iso-Paraffins in the Kerosene Fraction vs. Conversion of C ₂₂₊ Fraction	II-27

SAMPLE TABLES

Table 7								
WORLD - NORMAL PARAFFIN PRODUCTION BY REGION, 2000-2010 (thousand tons)								
	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									

Table IV-4				
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.

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.

Colin A. Houston & Associates, Inc.
20 Milltown Road, Suite 206
Brewster, NY 10509 USA
845-279-7891
Fax No.: 845-279-7751
E-Mail: caha1@colinhouston.com
Website: www.colin-houston.com