COLIN A. HOUSTON & ASSOCIATES, INC. ANNOUNCES A NEW MARKET STUDY ON

DETERGENT ALKYLATES - WORLD MARKETS, 1995-2010

With more than 2.7 million tons of global capacity, detergent alkylates have reached a period of relative prosperity. Environmental pressures and trade disorganization problems, which were the prime features earlier in the decade, have been largely left behind. A short term feedstock shortage is close to correcting. Competition from detergent alcohol has lessened for the time being. Producers seem to face unprecedented prosperity in the new millennium.

There are important issues that must also be faced. The feedstock situation could turn from famine to feast, reversing a key price driver. Competition from detergent alcohols is set to revive with the addition of 200 to 300 thousand tons of new alcohols capacity around 2002/2003. With the rate of BAB substitution having slowed, the major growth engine for LAB will be the substitution of soap-based products in developing economies, and this penetration no longer proceeds rapidly. In a number of markets, competition from other anionics like AES and AOS may impact future growth levels for LAB.

Detergent Alkylates - World Markets, 1995-2010 includes a detailed global analysis of LAB, BAB and its sulfonated derivatives by region over the 1995-2010 period. The study reports on areas of substitution, consumption and trends, as well as competing materials. It evaluates historical, current and future (based on current announcements) supplies in each region for both LAB and BAB and documents trade by country for 1999. It also contains information by region on the need for additional capacity.

The report provides a full view of all facets of the detergent alkylate industry: raw material supplies and requirements, producers, surfactant consumption, environmental issues, and sulfonation capacities. It provides the outlook for LAB and BAB and their derivatives on a regional and global basis in the context of formulation issues, consumer preference, competition with other surfactants, demographic, environmental and customer-related issues.

This comprehensive study was completed in August 2000, is priced at $15,000 and is available for immediate delivery. The following pages contain the table of contents and other details. Please contact us at the address on the back of the cover if you have any questions.

CONTENTS

DESCRIPTION OF THE STUDY

Detergent Alkylates - World Markets is a comprehensive study which details the production, capacity, trade and supply/demand balance by region for both LAB and BAB. Major factors affecting the outlook are examined including raw material requirements, surfactant consumption trends, novel technological developments, sulfonation capacity, and environmental issues, among others. Historical and forecast consumption of LABS and BABS is reviewed in depth over the 1995-2010 period by application and end use, incorporating an understanding of the formulation trends, competition with alcohol-based surfactants, consumer preferences and customer-oriented requirements.

CAHA's in-depth analysis of this major market is offered as a 523-page report organized in the following chapters. A brief discussion of each of the main chapters is provided below.

<u>RAW MATERIALS</u>

Regional capacities for normal paraffins, internal olefins, alpha-olefins, and propylene tetramer are detailed over the 1994-1999 period. Supply/demand issues are also addressed for each of these raw materials. The impact of the new Gas-to-Liquid plants, which offer a new source of normal paraffins, is reviewed. Demand for internal and alpha-olefins is declining as LAB plants consuming these two raw materials have closed or will convert to n-paraffin feedstock in the future. Feedstock requirements for LAB and BAB production over the 1999-2010 period are forecast. Present and historical prices for these raw materials are also included to complete the picture.

<u>LAB AND BAB MARKETS</u>

This section includes a review of alkylbenzene technologies including processes, raw materials, reactor design and resulting LAB compositions. A discussion of the ongoing technological developments emphasizes novel processes and potential new variants of LABS.

Regional market analyses include an overview of current (1999), historical and future capacities with a detailed discussion of each producer. A historical 1995-1999 supply/demand balance is presented and includes demand and demand growth, production, and operating rates. A future 2000-2010 supply/demand balance details demand and demand growth in the context of current and future supply, and quantifies the expected surplus or shortage in LAB and BAB production capacities required to meet future regional demand.

A series of regional 1999 trade balances offer valuable insight about inter-regional movements of LAB and BAB along with individual country imports and sourcing. Pricing, consumption, market trends and demand-oriented issues are also addressed.

SURFACTANT END USE MARKET TRENDS AND ISSUES

This analysis of global and regional surfactant markets details total surfactant consumption by end use market area and discusses LABS, BABS and competing surfactants. Formulation issues, consumer preferences, and competition with other products such as alcohol-based surfactants are organized by major end use area: household, industrial and institutional cleaners and industrial applications. Details of individual applications are included.

ENVIRONMENTAL ISSUES

Environmental and health issues related to branched and linear alkylbenzene sulfonate as well as other surfactants are reviewed. Issues such as biodegradability, toxicity and environmental pollution are discussed and their potential impact on future regional consumption evaluated. Legislative efforts, testing methods and results are explained along with other prominent issues.

LINEAR AND BRANCHED ALKYLBENZENE SULFONATE

This chapter begins with a discussion of sulfonation technology and tables of sulfonators and their capacities by country. Supply changes in terms of new sulfonation capacity as well as closures over the 1995-1999 period are quantified and detailed.

LABS and BABS consumption is analyzed over the 1995-2010 period for each major region. Consumption of each sulfonated product is segmented by end-use market (household, I&I, industrial) and by application (HDL, HDP, and LDL) when available, over the 1995-2010 period. Each regional analysis encompasses a discussion of end use markets and customers in which demographics, formulations, environmental issues and customer-related issues are evaluated.

TABLE OF CONTENTS

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

LIST OF TABLES

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

LIST OF FIGURES

SAMPLE TABLES

Table 4

WORLD - ALKYLBENZENE BALANCE, 1999
(thousand tons)

	Production	Net Imports	Net Exports	Consumption
LINEAR ALKYLBENZENE				
North America				
Latin America				
West Europe				
Asia/Pacific				
East Europe				
Middle East/Africa				
TOTAL				
BRANCHED ALKYLBENZENE				
North America				
Latin America				
West Europe				
Asia/Pacific				
East Europe				
Middle East/Africa				
TOTAL				

Table 5

WORLD - LINEAR ALKYLBENZENE DEMAND, CAPACITY AND DIFFERENCE BY REGION, 2000-2010
(thousand tons)

Region	2000	2005	2010	AAGR % 2000-2010
NORTH AMERICA				
Demand				
Capacity				
Surplus (Deficit)				
LATIN AMERICA				
Demand				
Capacity				
Surplus (Deficit)				
WEST EUROPE				
Demand				
Capacity				
Surplus (Deficit)				
ASIA/PACIFIC				
Demand				
Capacity				
Surplus (Deficit)				
EAST EUROPE				
Demand				
Capacity				
Surplus (Deficit)				
MIDDLE EAST/AFRICA				
Demand				
Capacity				
Surplus (Deficit)				
WORLD				
Demand				
Capacity				
Surplus (Deficit)				

Table 7

WORLD - RAW MATERIAL CONSUMPTION FOR ALKYLATE PRODUCTION, 1995-2010
(thousand tons)

Raw Material	1995	1999	2000	2005	2010	AAGR (%) 1999-2010
Normal paraffins						
Alpha-olefins						
Internal olefins						
Propylene tetramer						
TOTAL						

Table III-15

NORTH AMERICA - ALKYLBENZENE SUPPLY/DEMAND, 1995-1999
(thousand tons)

	1995	1996	1997	1998	1999	AAGR % 1995-1999
LINEAR ALKYLBENZENE						
Demand						
Net Exports (Imports)						
Production						
Capacity						
Operating Rate (%)						
BRANCHED ALKYLBENZENE						
Demand						
Imports						
ALKYLBENZENE						
Demand						
Net Exports (Imports)						
Production						
Capacity						
Operating Rate (%)						

Table III-27

LATIN AMERICA - LAB TRADE BALANCE, 1999
(thousand tons)

Producer	Capacity	Production	Imports		Exports		Consumption
			Country	Volume	Country	Volume	
ARGENTINA							
BRAZIL							
VENEZUELA							
MEXICO							
COLOMBIA							
CHILE							

Table III-27 (continued)

Producer	Capacity	Production	Imports		Exports		Consumption
			Country	Volume	Country	Volume	
ECUADOR							
PERU							
URUGUAY							
Other Central America							
Caribbean Region							
Other South America							
TOTAL							

Table III-41

ASIA/PACIFIC - ALKYLBENZENE SUPPLY/DEMAND, 2000-2010
(thousand tons)

	2000	2001	2002	2003	2004	2005	2010	AAGR% 2000-2005	AAGR % 2000-2010
LINEAR ALKYLBENZENE									
Demand									
Capacity									
Surplus (Deficit) Capacity									
BRANCHED ALKYLBENZENE									
Demand									
Capacity									
Surplus (Deficit) Capacity									
ALKYLBENZENE									
Demand									
Capacity									
Surplus (Deficit) Capacity									

Table IV-6

NORTH AMERICA - MAJOR HOUSEHOLD PRODUCT CONSUMPTION, 1995-2010
(thousand tons)

	1995	1998	2000	2005	2010	AAGR % 1995-2000	AAGR % 2000-2010
Heavy duty powders							
Heavy duty liquids							
Light duty liquids							
Others							
Hard surface cleaners							
Auto dish products							
Others							
Subtotal							
Laundry aids							
TOTAL							

Table IV-47

WEST EUROPE - SURFACTANT CONSUMPTION IN
HEAVY DUTY POWDERS BY COUNTRY, 1998
(thousand tons)

Country	LABS	AE	AES	AS	Other[a]	TOTAL
France						
Germany						
Italy						
Spain						
U.K.						
Other						
TOTAL						

[a] Does not Include soap.

Table IV-48

WEST EUROPE - SURFACTANT CONSUMPTION BY TYPE IN HEAVY DUTY POWDERS, 1995-2010
(thousand tons)

	1995	1998	2000	2005	2010	AAGR % 1995-2000	AAGR % 2000-2010
Linear alkylbenzene sulfonates							
Alcohol ethoxylates							
Alcohol ethoxysulfates							
Alcohol sulfates							
Glucosamides							
Other[a]							
TOTAL							

[a] Does not Include soap

Table VI-25

WEST EUROPE - LINEAR ALKYLBENZENE SULFONATE
CONSUMPTION IN SELECTED MAJOR APPLICATIONS, 1995-2010
(thousand tons)

	1995	1998	2000	2005	2010	AAGR % 1995-2000	AAGR % 2000-2010
HOUSEHOLD							
Heavy Duty Powders							
Heavy Duty Liquids							
Light Duty Liquids							
Miscellaneous							
Subtotal							
I&I							
INDUSTRIAL							
TOTAL							

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 in North America, West Europe, Asia/Pacific and Other regions.

In 1995, CAHA completed its fourth global detergent alkylate study. Previous world detergent alkylate studies were conducted in 1988, 1990 and 1992.

The project team approach utilized by CAHA includes a core of senior and technical professionals augmented by expert consultant associates. The following brief synopses present the staff and consultants who carried out the study, DETERGENT ALKYLATES - WORLD MARKETS, 1995-2010.

Joel H. Houston, President,

was the project leader for numerous 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. He is a member of CDMA, AOCS and ASTM.

Marilyn L. Bradshaw, Vice President,

was the project leader for INDUSTRIAL APPLICATIONS OF SURFACTANTS - NORTH AMERICAN FORECAST TO 2010, POLYOLEFIN COMONOMERS - WORLD MARKETS, 1995-2005 and ALPHA-OLEFINS - WORLD MARKETS, 1990-2002. 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 author 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.

Dr. Darrel L. Muck, Senior Research Associate,
authored our multiclient studies GLUCOSAMIDES: THE CHALLENGE OF A NEW SUGAR-BASED SURFACTANT, 1993-1998 and DEVELOPMENTS IN DETERGENT BUILDER SYSTEMS - NORTH AMERICAN REPORT TO 2005. He has also contributed sections of CAHA's studies INDUSTRIAL APPLICATIONS OF SURFACTANTS - NORTH AMERICAN FORECAST TO 2010, SURFACTANTS FOR EMERGING MARKETS IN ASIA/PACIFIC, 1995-2010, SURFACTANTS FOR CONSUMER PRODUCTS - NORTH AMERICAN FORECAST TO 2008, OPPORTUNITIES IN PERFORMANCE SURFACTANTS IN THE U.S. and was responsible for the Paint end use chapter of MAJOR INDUSTRIAL APPLICATIONS OF SURFACTANTS - NORTH AMERICAN FORECAST TO 2005. Dr. Muck has 30 years experience in the chemical industry and was most recently Director of Commercial Development, FMC Chemicals Division. He holds B.S./ M.S. degrees in chemistry from Wichita State University and a Ph.D. in Organic Chemistry from the University of Florida. He is a member of ACS and AOCS.

H. James Bigalow, Senior Research Associate,
authored the Paper and Textiles end use sections of our multiclient studies INDUSTRIAL APPLICATIONS OF SURFACTANTS - NORTH AMERICAN FORECAST TO 2010 and SURFACTANTS FOR EMERGING MARKETS IN ASIA/PACIFIC, 1995-2010, contributed to DETERGENT ALKYLATES - WORLD MARKETS, 1995-2010 and SURFACTANTS FOR CONSUMER PRODUCTS - NORTH AMERICAN FORECAST TO 2008 and has 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.

Max M. Negrin, ***Project Director***,

recently joined CAHA and was a primary author of DETERGENT ALKYLATES - WORLD MARKETS, 1995-2010. He also authored a section of a proprietary study on a new bleach catalyst and conducted a study of the market potential for a new bio-flavor. Mr. Negrin has over 12 years of experience in the chemical industry spanning basic R&D, product development, sales and marketing, chemical trading and chemical business consulting. Product and market areas have included polymers and coatings, adhesives and sealants, plating and electronic chemicals, polyacrylates, polyethylene, styrene block copolymers and fluoropolymers. Mr. Negrin has published four patents among which are patents on unique water soluble systems. He holds a B.A. in Chemistry and an M.S. in Physical Chemistry from New York University.

HOW TO SUBSCRIBE

To subscribe to the study please contact CAHA:

Colin A. Houston & Associates, Inc.
69 Westchester Ave.
P.O. Box 427
Pound Ridge, NY 10576 U.S.A.
Telephone No.: (914) 764-1022
Fax No.: (914) 764-1067
E-Mail: CAHA1@colinhouston.com
Website: www.colin-houston.com