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For Immediate Release

Growth rates for glucosamides, a new sugar-based surfactant championed by Procter & Gamble, will average over 15 percent/year in the U.S. between 1994 and 1998, and over 20 percent/year in West Europe between 1993 and 1998, according to a new study by Colin A. Houston & Associates, Inc. (CAHA), a consulting firm in Mamaroneck, NY. Glucosamides were introduced in 1993 in West Europe, and in 1994 in the U.S. They are used primarily in household laundry and hand dishwashing detergents, markets that are growing only one percent/year in the U.S., and decreasing at almost one percent/year in West Europe.

Exclusively for the CAHA study, glucosamides were evaluated by an independent laboratory for performance attributes in hand dishwashing and heavy duty liquids and powders, as well as for stain removal, impact on enzyme activity and stability to bleach. The results were assessed against the efficacy of glucosamides claimed in the patent literature and confirmed their role as co-surfactants rather than as primary surfactants. The strengths and weaknesses of glucosamide as a co-surfactant are summarized by CAHA and the overall positioning of Procter & Gamble in the global detergent industry in relation to its use of glucosamide is analyzed.

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“Sugar-based nonionic surfactants offer a number of desirable features to a large detergent producer such as P&G”, says Joel Houston, President. “These surfactants are generally very mild and ecologically benign, with raw materials that are almost completely sourced from renewable resources; and there are no ethylene oxide economics to be concerned about”.

“The P&G patents on glucosamides certainly emphasize the renewable resources”, notes Dr. Arno Cahn, consultant. “In almost every patent preamble, the desirability of reducing reliance on non-renewable resources for the manufacture of disposable consumer goods is cited”.

“The choice of glucosamide surfactants for use in household detergent formulations probably arose out of Procter & Gamble’s desire to have a nonionic surfactant that is environmentally friendly, non-toxic and derived from naturally occurring resources”, according to Darrel Muck, Senior Research Associate. “However, the large scale use of glucosamide was apparently justified by unique performance attributes such as solubilization of co-ingredients, stabilization of enzymes and enhanced removal of greasy soils on synthetic fabrics”.

“Especially interesting to me were the effects of formulation variables on enzyme activity”, noted George Feighner of Scientific Services, who performed the laboratory evaluation of glucosamides.

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The material used by Procter & Gamble, a fatty acid N-methyl glucosamide, is derived from three basic raw materials: monomethyl amine, glucose, and fatty acid ester. The monomethyl amine is first combined with glucose to produce N-methyl glucamine, which is then reacted with the fatty acid ester to form the glucosamide. CAHA's study analyzes the availability of these raw materials and discusses current and potential producers.

"It's important for the companies that supply detergent ingredients to Procter & Gamble to understand the economics of this new material", says Mr. Muck. "So we included a complete process description for the production of glucosamide, with block diagrams, material balance and energy balance. We developed total capital cost estimates for 50 million and 100 million lbs per year plants, incorporating major equipment lists. Plant level cost estimates for methyl ester, N-methyl glucamine and glucosamide are included, and the sensitivity of glucosamide cost to methyl ester by-product credits is discussed".

Formulation cost estimates for light and heavy duty liquids and heavy duty powder detergents were also developed by CAHA for glucosamide-containing products and compared to those for non-glucosamide formulations and competitive products.

Consumption for the years 1993, 1994, 1995 and 1998 for both the U.S. and West Europe for glucosamides and the major competing surfactants is included.

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Using scenarios, growth in consumption of glucosamide is evaluated and the outlook on a global basis for new production capacity is given.

Further details of the study entitled *Glucosamides: The Challenge of a New Sugar-Based Surfactant, 1993-1998* are available from Colin A. Houston & Associates, Inc., 20 Milltown Road, Suite 206, Brewster, NY 10509; Phone: 845-279-7891; Fax: 845-279-7751