

Air Products Debuts New Surfactant Offerings at ICE 2001

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Unique Products Feature Gemini Surfactant Technology

LEHIGH VALLEY, Pa., Nov. 5 /PRNewswire/ -- Air Products and Chemicals, Inc. (NYSE: APD) today launched new surfactant products boasting the unique chemistry of Gemini surfactant technology, the emerging technology in today's surfactant marketplace. EnviroGem(TM) AE Surfactants and EnviroGem(TM) AD01 Low Foam Wetting Agent were introduced at Air Products' exhibit at the International Coatings Expo 2001 in Atlanta, Ga. being held from November 4-7.

"These products will provide solutions to several of the current challenges facing coating formulators," said Kelly A. Boyer, Global Marketing Manager for Specialty Additives for Air Products. "These new products are both environmentally-friendly and each have performance attributes based on Gemini technology that will place them at the leading edge of surfactant technology."

The unique molecular structure of Gemini surfactants produces highly efficient, multi purpose additives that enable the use of water as a solvent. "Because Gemini technology offers two hydrophiles and at least two hydrophobes within a single molecule, Gemini surfactants are more surface-active than their single hydrophile-single hydrophobe analogs," said Dr. Robert E. Stevens, Technology Manager for Coatings and Inks Applications Development and Technical Service.

EnviroGem AE surfactants are readily biodegradable, low foam wetting agents. Based on Gemini surfactant technology, these unique additives are comprised of naturally-occurring acids commonly used as food and beverage flavorings and are prepared utilizing clean process technology. Other advantages of these surfactants include low viscosity and excellent dynamic surface tension reduction. "These products are fine examples of green chemistry. They are made from compounds that can be found in nature and the only by-product from the manufacturing process is water," said Dr. Stevens.

The family of EnviroGem AE surfactants is recommended for use in waterborne and other systems that require environmentally-friendly solutions. These applications include: automotive, industrial maintenance, and wood coatings, fountain solutions, overprint varnishes, printing inks, pigment grinding, oil and gas processing, agricultural formulations, dye synthesis, and cleaning products.

For formulators searching for a 100% active, liquid, low foam wetting agent based on Gemini technology, Air Products offers EnviroGem AD01 surfactant. A clear, colorless liquid that is low odor, EnviroGem AD01 surfactant provides excellent foam control and dynamic surface tension reduction, as well as alkaline stability and medium viscosity.

EnviroGem AD01 surfactant is recommended for use in waterborne and other systems in which a solvent-free wetting agent and defoamer is desired. It also provides the additional benefit of enabling customers to consolidate raw materials, reduce inventory-holding costs, and simplify formulating options compared to current technology. The many potential applications for EnviroGem AD01 surfactant include automotive, industrial maintenance, and wood coatings, printing inks, overprint varnishes, pigment grinding, oil and gas processing, cleaning products, semiconductor manufacturing, dye and pigment synthesis, and agricultural formulations.

Air Products and Chemicals, Inc. (www.airproducts.com) is the world's only combined gases and chemicals company. Founded more than 60 years ago, the business has annual revenues of \$5.7 billion and operations in 30 countries. Air Products is a market leader in the global electronics and chemical processing industries, and a longstanding innovator in many industrial markets, including coatings, adhesives and polyurethanes. The company distinguishes itself through its 18,000 employees around the world, who build lasting relationships with their customers and communities based on understanding, integrity and passion.

***NOTE: This release may contain forward-looking statements. Actual results could vary materially, due to changes in current expectations.

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/NOTE TO EDITORS: It is because of the dimeric nature of the two head groups that these materials have been dubbed "Gemini surfactants" after the twins of Greek mythology./

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