

## **Air Products' Newest Surfactants Offer Performance and Environmentally Friendly Solutions for Coatings Formulators**

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### **Gemini Technology Debuted in Specific Regions of the World Now Poised for Global Commercialization**

Air Products and Chemicals, Inc. has expanded its multifunctional surfactant offerings based on Gemini technology with new additions to the EnviroGem® surfactant family of products. Providing environmentally-friendly solutions to the formulating and performance challenges facing today's surfactant marketplace, EnviroGem® AD01 surfactant and a series of EnviroGem® AE surfactants are being featured by Air Products at the International Coatings Expo 2002 being held from October 30 to November 1 in New Orleans, La.

"This entire family of products is very versatile in terms of the many different coatings and graphic arts applications that can be addressed," said Lee Miller, North American marketing manager for Coatings at Air Products. "Based on green chemistry, these novel products are high-performance providers with environmental benefits." Miller said the EnviroGem AE surfactant series of products was first introduced in Europe, where demand for biodegradable surfactants initiated, and that Air Products is ready to proceed to global commercialization. Conversely, EnviroGem AD01 surfactant was first introduced in North America, and Air Products is now in the process of obtaining broader registration and expanding its offering on a global basis.

Some of the featured EnviroGem surfactant products at the International Coatings Expo include:

- EnviroGem AD01 surfactant, a defoaming wetting agent based on Gemini technology. This 100 percent active liquid has fast knock-down defoaming, outstanding micro-foam reduction and control, and is excellent in reducing dynamic surface tension. EnviroGem AD01 surfactant is a solvent free, low odor, clear liquid that contains no hazardous air pollutants (HAP's free) or alkylphenol ethoxylates (APE-free). "This product has a wide compounding latitude for a formulator looking for a high-performance surfactant in waterborne systems that can both defoam and act as a wetting agent," said Miller. EnviroGem AD01 surfactant can be used in coatings applications such as automotive OEM (original equipment manufacturer) and refinish, OEM, DIY (do-it-yourself) and UV (ultra violet) wood, industrial maintenance, metal and paper. It also offers higher performance in graphics arts applications including printing inks, overprint varnishes and fountain solutions.
- EnviroGem AE surfactants include the expanded series of EnviroGem® AE01, EnviroGem® AE02 and EnviroGem® AE03 surfactant products. These surfactants are readily biodegradable, low-foam wetting agents that are 100 percent active, low-viscosity liquids and provide excellent dynamic surface tension reduction. "We have seen tremendous performance benefits in testing these surfactants in varied applications," said Marna B. Schmidt, New Products marketing specialist at Air Products. "The performance benefits range from enhanced flow and leveling properties to improved defoaming and dynamic surface tension reduction. These attributes help to reduce or eliminate coatings defects." In Europe, environmental trends and regulations have many customers looking for green alternatives for their coatings applications. Classified as "Readily Biodegradable," the EnviroGem AE surfactants satisfy many of these requirements without sacrificing additive performance. Schmidt said that use of these products is targeted for the coatings and graphic arts markets including automotive, industrial maintenance and wood coatings, as well as dye synthesis, overprint varnishes, printing inks and pigment grinding.

The EnviroGem AD01 and EnviroGem AE surfactant series of products performance attributes are based on Gemini technology that places 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. Gemini technology offers two hydrophiles and at least two hydrophobes within a single molecule. "This structure allows Gemini surfactants to be more surface active than their single hydrophile-single hydrophobe analogs," said Schmidt.

Air Products (NYSE:APD) serves customers in technology, energy, healthcare and industrial markets worldwide with a unique portfolio of products, service and solutions, providing atmospheric gases, process and specialty gases, performance materials and chemical intermediates. The company is the largest global supplier of electronic materials, hydrogen, helium and select performance chemicals. Founded in 1940, Air Products is recognized for its innovative culture, operational excellence and commitment to safety and the environment. With annual revenues of \$5.4 billion and operations in over 30 countries, the company's 17,200 employees build lasting relationships with their customers and communities based on understanding, integrity

and passion. For more information, visit [www.airproducts.com](http://www.airproducts.com).

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