

June 16, 2003  
Chemical Market Reporter  
COPYRIGHT 2003 Schnell Publishing Company, Inc.  
Author/s: Joseph Chang

**Venture capital activity heats up in nanotechnology and catalysis: chemical firms also step up venture capital investments.**

While the chemical industry has hardly been a hotbed for venture capital (VC) investments, certain start-up with promising technologies in areas such as nanotechnology and catalysis are attracting a great deal of interest. Activity is picking up, with relatively significant amounts of money being raised from a large group of intrepid investors. Chemical companies themselves are getting in the game, making sure they get a piece of what could be “the next big thing” in chemicals and materials.

“Innovation isn’t easy. You can’t schedule innovation, so it makes sense to outsource it,” says Banc of America Securities analyst Mark Gulley. “I think chemical companies are looking for windows into technologies, and not all the best ideas are going to come out of their own labs.”

Last week, Air Products and Chemicals Inc. made an equity investment in Nanotechnologies Inc., a producer of high-performance nanoparticles for use in transparent coatings, antimicrobials and electronic materials. The companies also signed a confidential joint development agreement. The investment is Air Products’ first in nanotechnology.

“We chose to work with Nanotechnologies because of its proprietary process of making metal and metal oxide nanoparticles’, says Jeffrey DePinto, business development manager for nanotechnology strategies at Air Products. “Their technology is scalable and economical, and provides great potential value for Air Products’ targeted growth markets in our performance materials division.”

Nanotechnologies’ uniqueness lies in its ability to make nanoparticles that do not stick to each other. “Nanoparticles tend to clump together, and most of the process out there to produce dry nanoparticles result in agglomerated material’ notes Mr. DePinto. “That’s one of the key hurdles that has limited the use of nanoparticles in a variety of applications to date.”

“This year, because we are scaling for commercialization, we have proven ourselves as a high-performance nanoparticle supplier, and [having] developed a number of partnerships, we’ve seen more interest from investors and commercial partners,” says a Nanotechnologies official.

The Air Products investment is part of a new round of financing for Nanotechnologies, which in May 2002 raised \$6.3 million in its second round of funding.

“This is a terrific development because it really provides validation for the whole area of nanotechnology when we get very large chemical companies interested in this,” comments Mel Melsheimer, president, chief operating officer and chief financial officer of Harris & Harris Group Inc., a publicly traded venture capital firm specializing in investments in nanotechnology. “We’re absolutely delighted to see it.”

Harris & Harris invested around \$170,000 in Nanotechnologies’ latest round, bringing its total investment in the company to \$920,000, representing a 6.48 percent stake.

Harris & Harris has a relatively long history in nanotechnology, being an early investor in now publicly traded Nanophase Technologies Corp. in 1994. The VC firm cashed out in August 2001.

“Our deal flow has certainly remained very strong since February 2002, when we announced we were focusing on nanotechnology’,” remarks Mr. Melsheimer. The company made six investments in nanotechnology in 2002, and has completed its third investment in the sector this year.

#### Nanosys Offering Oversubscribed

For Fuller, Nanosys represents its first VC investment since the arm was launched in earnest in March 2003. “Our primary focus is strategic investments in the \$500,000 to \$2 million range,” says Bob McGrath, managing director of H.B. Fuller Ventures. “In the areas of advanced materials and nanotechnology, there will be advances that will be important for the chemical industry, and we’d like to be on the leading edge to take advantage of those materials in our formulations.”

Earlier this month, Nanosys Inc., a developer of nano-enabled products for a range of applications, such as in chemical and biological sensing, electronics and photovoltaics (solar cells), raised a total of \$38 million in its second round of financing. Among the 18 investors led by Taiwan-based CDIB BioScience Ventures was H.B. Fuller Ventures, the venture capital arm of specialty chemicals firm H.B. Fuller Company. Harris & Harris also participated, investing \$1.5 million in Nanosys.

“Nanosys has developed key relationships with some of the leading universities,” notes Mr. McGrath. “The company has developed a broad IP [intellectual property] portfolio of over 100 patents, and has technologies in surface chemistry-hydrophilic and hydrophobic coatings as well as advanced adhesives. That’s really what we’re most interested in.”

Nanosys had raised \$30 million in the first closing of the second round of financing in April, but held the round open for a second closing due to exceptionally strong interest.

“The offering was substantially oversubscribed,” says Stephen Empedocles, director of business development at Nanosys. “We ended up issuing more shares in order to take in

more investors that wanted to participate, and we still had to turn away a number of potential investors.” More than 60 investors lined up for a piece of the action.

“I’m hopeful that the nanotech financing market is turning around,” Mr. Empedocles adds. “From our standpoint, we had an extremely successful closing. Hopefully this is a sign of good things.”

Nanosys’ strategy is to focus on the core nanotechnology element of products and work through corporate partners to bring those products to market. The company has a corporate partnership in nanotech-based solar cells with Matsushita Electric Works Ltd. and aims to bring its first product to market at the end of 2006.

Fuller continues to look for more VC opportunities in nanotechnologies, aiming to make around two to three strategic investments per year.

#### Public Nanotech Stocks on Fire

Mirroring the strength in the venture capital market for nanotech plays, publicly traded nanotech companies are on fire. Nanophase Technologies Corp., which went public in November 1997, trades at over \$6 per share, sporting a market capitalization of \$92 million. The stock is up nearly threefold from its 52-week low of \$2.10 in March.

Altair Nanotechnologies Inc. trades at just around \$1.15 with a market cap of \$41 million. However, the shares are up from a low of 30 cents in April. Both stocks have had big spikes up in May. Nanotech VC firm Harris & Harris is trading at around \$7.20-up from a 52 week low of \$1.85 in October 2002, but far off its all-time high of over \$30 at the height of the technology bubble in 2000.

#### Catalytic Solutions Raises \$32.4 Million

Along with nanotechnology, the field of environmental catalysis is drawing attention with a newcomer to the market that could change the face of the automotive catalyst industry.

In May, Catalytic Solutions Inc., which has developed a breakthrough catalytic coating technology (called Mixed Phase Catalyst) to dramatically reduce the precious metals content in automotive catalysts, raised \$32.4 million in “Series D” equity financing from at least eight investors (CMR, 5/26103, p. 15). Among them was BASF Venture Capital GmbH.

Last year, Catalytic Solutions signed supply contracts with auto giants General Motors (February 2002) and Ford (December 2002). The company has been supplying catalysts to Honda since 2001.

BASF Venture Capital has been active this year, investing in plant biotechnology company Anawab Inc. in May and battery technology firm Zoxy Energy Systems AG in January. In June 2002, BASF made an investment in nanotechnology firm Oxonica Ltd.

