



788 Palomar Ave.
Sunnyvale CA 94085

SDN™

SDN™ Technology allows for low-cost, high-throughput nanocomposite multifunctional coatings deposition on almost any substrate.

RUSNANO Invests in Breakthrough SDN Technology for Deposition of Thin Films with Significantly Lower Costs and Higher Quality

SUNNYVALE, Calif. –(December, 22, 2011)-- RUSNANO is investing in the manufacturing of specialized equipment for nanocomposite, multifunctional coating deposition using breakthrough Solution Derived Nanocomposite (SDN) technology, together with the manufacturing of precursor cartridges and other consumables. The total budget is estimated at 1.3 billion rubles, of which RUSNANO will co-finance up to 960 million rubles.

The project includes the production of specialized SDN systems on an industrial scale in Russia, for the deposition of nano-coatings on various surfaces, as well as the production of precursor (starting solution) cartridges for the systems. SDN technology possesses immense potential for an extremely diverse scope of uses, including but not limited to the production of energy-efficient, low-emission architectural glass, solar batteries, displays, advanced process equipment for the semiconductor and microelectronic industry, and packaging and antibacterial materials.

This new technology, akin to ink-jet printing in its simplicity, improves and revolutionizes existing sol-gel methods. Units in the new line are capable of depositing various coatings that imbue surfaces with durability, resistance to corrosion, barrier properties, optical properties, electrode properties, low-emissivity, and antibacterial properties, among many other characteristics. The coatings are applied quickly, inexpensively, and at high quality to items and substrates of any material, any form, and any size.

"SDN units aim to replace unreasonably expensive and ecologically destructive vacuum methods — PVD and CVD— and will undoubtedly pave the way for the variety of vitally important commercial pursuits such as renewable energy, energy-conserving technologies, biomedical implants and sensors, among others," says RUSNANO Managing Director Alexander Kondrashov.

Key competitive advantages of SDN technology feature immense cost-reduction in the production of the equipment (three to five times less costly than existing technologies) and even more staggering cost-reduction of coating per square meter (up to ten times less costly), all due to high productivity, efficiency, and very low energy-consumption. Likewise, as compared to other deposition methods, the ultimate advantage appears in vastly perfected coating characteristics, including, but not limited to, greater transparency, more comprehensive barrier properties, greater resistance to erosion.

RUSNANO's experts put the 2012 market for thin film coating deposition equipment at more than 3,000 units, or \$10 billion. From 2012 through 2018, the use of these units will grow at an average annual rate of 20 percent. Even according to the most conservative forecasts, in 2018 SDN units will make up 7.5 percent of units depositing thin film coatings. Many experts predict that SDNs will almost completely replace vacuum methods in rapidly growing target segments: low emissivity glass, solar panels, and displays. The size of the market for precursors for SDN units in 2018 is estimated at 2.5 million liters.

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Project entails the establishment of a research center in Russia where scientists will continue developing SDN technology further. They plan to perfect construction of the equipment and cartridges, develop new types of coatings and materials with uniquely varying characteristics that would extend the technology into other areas, and devise new measures to protect consumables against copying.

Technical information

At present, several standard approaches for applying functional nanocomposite films are in use: physical vapor deposition (PVD), chemical vapor deposition (CVD), as well as several methods for a limited number of liquids, particularly the sol-gel process with its unique advantages but narrow application, due chiefly to the limited life of the precursor solutions. Solution derived nanocomposite (SDN) is a modification of the sol-gel process; SDN technology has overcome its limitations by implementing design concepts that maintain the precursor solution in its initial state.

Advenira Enterprises, Inc. was founded in 2010 in Silicon Valley by a group of Russian specialists led by Dr. Elmira Ryabova, patent holder for all nanocomposite coating deposition units that are key to the project. They are appropriate for coating deposition to:

- Flat glass, wood, plastic, and metal surfaces
- Rolls of flexible materials—plastic film, metal foil, bandages, and textiles
- Machine components and parts for mechanisms, architectural landmarks, and various consumer products

The business model for the project company calls for simultaneous production and sale of two complementary products—equipment for depositing coatings and proprietary precursors (chemicals and solutions) that are protected against copying. The consumable materials are to make up more than 60 percent of income from the sale of goods. Income in 2018 is forecasted to exceed 12 billion rubles.

Advenira Enterprises, Inc. won first prize from RUSNANO for Best Business Plan in the SVOD-2009 competition.

[Original Russian Press Release](#)

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About Advenira Enterprises, Inc.

Advenira Enterprises, Inc. is a California-based company located in the heart of Silicon Valley known for its novel Solution Derived Nanocomposite (SDN™) technology that allows for low-cost/high-throughput multifunctional coatings deposition on practically any type/shape/material substrate. Advenira commercializes its patented coatings technology in the Glass, Corrosion and Semiconductor markets – spanning the world’s most important industries - with dramatic advantages over traditional techniques. For more information, please visit <http://www.advenira.com>.