



Iran Nano
2023 show
of proud
progress



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Iranian nanotech firms eye foreign markets



By Mahdiyeh Qazvinian
Staff writer

In 2003, the Iran Nanotechnology Innovation Council (INIC) was established. The council developed a strategic document on nanotechnology within two years and submitted it to the cabinet. Since then, nanotechnology has definitely created wealth for Iran and improved the quality of manufactured materials as well as the lives of Iranians. The Iran Nano 2023 exhibition, held from November 4-7, launched with the participation of various companies and stakeholders that are active in this field. During the event, these nanotechnology companies showcase their achievements in various sectors, including textiles, medicine, polymer, agriculture, and construction.



IRAN DAILY

Future
brighter
than present

Milad Mohammadi, the sales manager of Yas Nano Polymer Company, claims that the company is the first Iranian manufacturer of PVC pipes and fittings using nanotechnology. The company started following this path in 2006 but introduced its first nano products to the market in 2013. "We have improved the mechanical properties of polymers using nanotechnology

and enhanced the strength of our pipes and fittings. The PVC products that were previously prone to the accumulation of dirt and sediment can now resist them with our nanotechnology-produced polymer pipes. Even after five years, they will remain free from dirt and sediment." Mohammadi believes that in recent years, the nanotechnology industry has signifi-

cantly contributed to various other industries in Iran, especially the polymer sector; by improving the quality of products and making them more appealing to consumers. Nevertheless, he pointed out that Iranians recognize traces of nanotechnology in some industries like fashion and healthcare better than others. He maintained that while Iran's Nano poly-

mer industry has not had a substantial impact on the country's economic conditions, it has made significant progress and will undoubtedly find its place. For one thing, Mohammadi added, Iran is already exporting its nanotechnology-produced products to countries like Iraq and Tajikistan, which gives him hope for a brighter future for the industry in Iran.

Time to
make waves
abroad

We asked Reza Bahrami, the commercial director of the knowledge-based Karan Nanoelectronics Technology Development company, to describe the role of nanotechnology in their products. According to him, the company manufactures flexible thermal heaters using nanotechnology "for various industries including medicine (for special belts and waist trainers that improve blood

circulation), sports (for vests, mountaineering shoes, socks, and gloves), poultry farming, and military (for border guards' vests). Since these heaters can be incorporated into work attires, they have applications in various industries. "The heaters used in our clothing products are capable of functioning at below 30 degrees Celsius," Bahrami said. Considering that "all knowl-

edge-based companies are inventors", he added, these products, with their distinctive features, are "the first of their kind in Iran". Bahrami expressed a strong desire by the company to mass produce their products and export them to countries such as Russia and Turkey that have colder climates and naturally, a stronger market demand

for these products. However, he noted that due to the lack of substantial financial support, they don't have enough raw materials for such an expansion, and their production is currently limited. Bahrami emphasizes that financial support from the Iranian government and private organizations can significantly boost the country's economy.

Old
businesses,
new
directions

In a relatively larger and more eye-catching booth, we sat to talk with Rahim Hojati, the owner of the brand and one of the exemplary entrepreneurs in this field. He said, "The fact that we produce smart textiles in Iran today is the result of nearly 50 years of hard work by his grandfather and father in the textile industry, especially sock weaving." Since 2007 when his family-owned business established a research and develop-

ment unit, they have obtained patents for several products. "Thereafter continued our work purely in a scientific manner," he said, expressing his goal to introduce nanotechnologies to the public through positive advertising. "We have a significant share in exports to countries such as Iraq, Turkey, Oman, Qatar, and Kuwait, but our target market is Azerbaijan, which puts in large orders. Our

company is export-oriented. In the Iranian market, we don't have a strong presence because copyright laws are not adhered to. So, we neither advertise nor supply our products in Iran out of fear. However, we have a very good reputation in foreign countries, and they make significant purchases from us." Hojati stresses that the future of the Nano industry in Iran depends on proper man-

agement of it. If we are to get our heads out of the statistics and face reality, he states, at least 40% of the Iran Nano 2023 exhibition should have showcased nanotechnology-produced textiles, not the current 0.3% that comes just from the participation of his own company. He said that people have a more tangible view of the effects of nanotechnology in the clothing industry, echoing Mohammadi's words.

Students
with
practical
mind

In the neighboring booths, bright scholars from the Sharif University of Technology had a strong presence. They introduced interesting changes to the glass industry in Iran using nanotechnology. Vahid Niksefat, a PhD student in Materials Engineering and the founder of Nanopad Sharif Company,

explained that using nanotechnology, they have created waterproof glass products for the automotive industry, construction of glass buildings, and some textiles with a shelf life of 10 to 12 months. Considering the changes that occurred in the nano industry in Iran since 2013, he said,

the country's scientific understanding of the field has grown exponentially. However, he expressed his disbelief that the same amount of progress can be witnessed in manufacturing and marketing nano products in Iran as "there is much work to be done." "People tend to associate nanotechnology

with the textile industry, but in the near future, it will prove itself better in medical and healthcare products. We have not yet entered international markets, but with the support of the INIC, the production and supply of nano products will improve day by day."

For children,
adults alike

At the far end of the exhibition, colorful play sands and vibrant paintings catch the eye, hinting that nanotechnology may have made its way into the world of children. Marziyeh Khalilzadeh, the executive deputy of Panter, a company that makes finger paints, pencils, and play sands among others, paints a better picture of how far nanotechnology has entered the children's world. "We have participated in the exhibition both as an affiliate in the stationary sector and as an affiliate in the field of chemical materials," she noted. "We were allowed to participate in the stationary sector since we have used

nanotechnology to manufacture pens that have an antibacterial body as well as various antibacterial play sands, finger paints, and liquid glues with high adhesion properties." According to Khalilzadeh, Panter has found a good market in Iran, even though it entered the market only six months ago, and even provided quality services in kindergartens and schools. She described the progress of the nano industry in Iran as "positive", underlining that it should move towards producing more practical products and increasing exports. "But first, people need

to understand what Nano is and the role it can play in their lives." We humans seem not to be the only living beings that have benefited from the incorporation of nanotechnology. Banafsheh Taheri, an expert from the Atlas Group, said, "In 2015, we entered the livestock and poultry feed industry as the sole holder of veterinary licenses by supplying calcium carbonate compounds. Later, we moved to produce a variety of other products such as bentonite and zeolite in various sizes as well, effectively entering a healthy competitive market." Taheri pointed out that nanotechnology

has helped the company improve the quality of its final products for consumers and the overall health of society. "Currently, we haven't made a significant impact on the export market, but in the near future, we will undoubtedly have a market in neighboring countries," she expressed. Iran is blossoming in the field of nanotechnology because of policies that have put trust in its own talented youth. Despite being under sanctions, not only has the country witnessed significant progress in this industry, but various other countries have also become interested in its products.