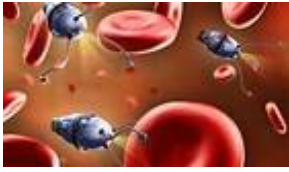


Nanotechnology Is Helping Business Meet the Needs of the Future

Ivana Popovic January 11, 2019



Nano-materials are revolutionising industry, benefiting the health and well being of human beings, and advancing science in new ways.

In recent years there has been a boom in the use and development of nanomaterials across a wide range of sectors.

([Newsire.net](#) -- January 11, 2019) -- In recent years there has been a boom in the use and development of nanomaterials across a wide range of sectors. Produced through a process known as electrospinning, the micro-sized particles are being used in everything from clothing, to pharmaceuticals and medicine. You see it used in filters and other industrial materials too.

With relatively little space and small investments in [electrospinning equipment](#), manufacturers are revolutionising their processes and materials with great success and growth. It can be applied to a wide range of materials, each with a different application, which makes it incredibly versatile.

How are nano-materials being used across the different industries?

The application of nano-materials is only limited to how creative and innovative the producer can be.

Perhaps one of the most groundbreaking and impactful developments is in the field of medicine. For example growing artificial materials using electrospinning, that act as a skin graft and can mould with actual living materials, or as a protective barrier around a damaged organ.

This is not the only medical application, it is quite common now for nano-materials to be used in implants that slowly release drugs into the body.

One of the earlier applications was in the production of fabric. It can make a piece of fabric lightweight and breathable - for example in sportswear. It can also be used to produce protective clothing for those working with toxic materials. It is easy to produce seamless, non-woven materials.

It is also widely used in the production of filters, where, for example air or water needs to be able to pass through the material, but certain substances need to be removed.

Another application is in the coating of materials, for example furniture, or around pharmaceutical drugs to help maintain the quality of the substance within and protect it from the environment.

With such a wide range of applications, using the right equipment suited to the intended purpose is very important. Only in this way can you be sure to achieve the virtually defect free finish that makes nanomaterials such a good choice of material.

How does the machine use electrospinning to produce nanofibers?

The concept behind how electrospinning works is fairly simple to understand . It involves using an electrical force to pull charged threads of polymer melts or solutions at a molecular level to weave into the required material.

First the solution of polymers and other components is prepared and molecular entanglement happens. Then the solution is passed through the capillaries and a high voltage is applied. This creates a jet which is stretched into fibers. This is electrospinning and ultimately the solvents used evaporate.

At the last stage the dry fiber is formed into a membrane or material.

What benefits do nanomaterials really have?

One key property of electrospinning processes is that the surface area to volume ratio is very high due to the nanodimension of the fibers. This can be applied to a range of raw materials- metals, polymers and ceramics can all be spun together to give excellent results.

Additionally the costs of setting up a lab or clean room with electrospinning equipment is far cheaper than other industrial processes - despite being technologically advanced. It is even possible to scale up to mass production of nano-fibrous membrane.

Staff can be trained to work with the materials and equipment very quickly. Meaning that it does not take long to get up and running, and ultimately turning a profit.

Nano-materials are revolutionising industry, benefiting the health and well being of human beings, and advancing science in new ways. What is exciting is waiting to see how this technology will be applied next and in what sector .

Source: <http://newswire.net/newsroom/blog-post/00106931-nanotechnology-is-helping-business-meet-the-needs-of-the-future.html>