



Lightweight but strong materials for high performance composite applications.

ULTRALIGHT NANOCOMPOSITE MATERIALS

HS+™ Silica additive reduces the weight of epoxy and other composites without affecting their strength.

Next generation applications require high performance composites. Materials that are tough yet lightweight. Nanosferix uses its patent protected HS+™ technology to produce ultra-lightweight nanomaterials that can be used in a variety of high performance applications.

Our HS+™ Silica additive works with industrial grade epoxy, polyurethane and other commonly used resins and polymers. By using our patented surface functionalization approach, we can reduce the weight

Up to
100x
lower weight-loading
of silica additive

loading of silica additives by as much as 100 times. A lower weight loading of silica additive significantly improves the strength-weight ratio without affecting the intrinsic properties of the materials.

Nanosferix HS+™ Silica nanoparticles also work with a wide variety of toughening agents for an optimum mix of strength and weight, resulting in tough yet lightweight materials.

We work with manufacturers to reduce weight loading in composite materials.

Contact us today to discuss how we can help!



Nanosferix
Lightweight Nanomaterials

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HS+™ SILICA TECHNOLOGY

Nanosferix offers a drop-in replacement for existing silica additives (interphase agents) in epoxy, carbon fiber and similar composites. Materials prepared with HS+™ Silica can be up to 20% lighter than materials currently available in the market. Better dispersibility of our HS+™ Silica nanoparticles allows easier curing procedures, and simplifies manufacturing of more complex parts and objects.

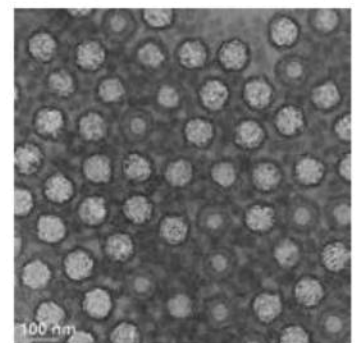
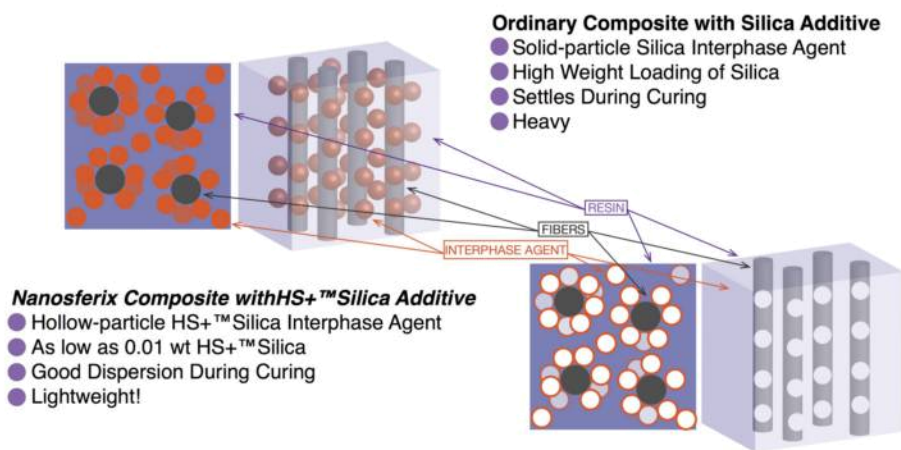


A variety of substances have been used as interphase agents between reinforcing fibers and resins in composites. Silica additives (more than 10% wt.) are commonly used to improve the compressive properties and stability of composite. This high weight loading leads to an undesirable increase in the weight of the composites due to the high density of silica.

Our patent protected HS+™ Silica Nanoparticles fulfill the need for lightweight additives by acting as interphase agents that improve the mechanical properties of the

resin and prevent fiber delamination without penalizing the weight of the composite. These particles are remarkably light, yet they have many of the same beneficial properties as the traditional silica based interphase agents. Using as little as 0.1 wt % of our HS+™ Silica nanoparticles has increased the strength of commonly used aerospace resins (such as epoxy) by up to 100%.

The technology has been developed at KAUST and validated by experts from National Physical Laboratory, NPL, UK.



TEM Image of ultra-thin section of epoxy composite embedded with HS+™ Silica nanoparticle additives.