



Cell Phones, Sporting Goods, and Soon, Cars: Ford Innovates with “Miracle” Material, Powerful Graphene for Vehicle Parts

- Graphene is a material used in coating, cell phones and even some sporting goods – and soon, will be used under the hood in Ford vehicles, a first in automotive
- Ford, along with Eagle Industries and XG Sciences, has found a way to use a very small amount of graphene while achieving major property improvements – more lightweight, better heat conductivity and noise reduction – a breakthrough application
- In vehicles, graphene – which is lightweight *and* incredibly strong – will act like a pair of super-powered, noise cancelling headphones, reducing sound inside the cabin and creating a quieter ride

DEARBORN, Mich., Oct. 9, 2018 – It’s in cell phones and even some sporting goods – and soon, for the first time in automotive, it will be under the hood in Ford vehicles. Ford Motor Company is announcing the use of graphene – a two-dimensional nanomaterial – in vehicle parts, timely with National Nanotechnology Day.

Graphene has recently generated the enthusiasm and excitement in the automotive industry for paint, polymer and battery applications.

Dubbed a “miracle material” by some engineers, graphene is 200 times stronger than steel and one of the most conductive materials in the world. It is a great sound barrier and is extremely thin and flexible. Graphene is not economically viable for all applications, but Ford, in collaboration with Eagle Industries and XG Sciences, has found a way to use small amounts in fuel rail covers, pump covers and front engine covers to maximize its benefits.

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“The breakthrough here is not in the material, but in how we are using it,” said Debbie Mielewski, Ford senior technical leader, sustainability and emerging materials. “We are able to use a very small amount, less than a half percent, to help us achieve significant enhancements in durability, sound resistance and weight reduction – applications that others have not focused on.”

Graphene was first isolated in 2004, but application breakthroughs are relatively new. The first experiment to isolate graphene was done by using pencil lead, which contains graphite, and a piece of tape, using the tape to pull off layers of graphite to create a material that is a single layer thick – graphene. This experiment won a Nobel Prize in 2010.

In 2014, Ford began working with suppliers to study the material and how to use it in running trials with auto parts such as fuel rail covers, pump covers and front engine covers. Generally, attempting to reduce noise inside vehicle cabins means adding more material and weight, but with graphene, it’s the opposite.

“A small amount of graphene goes a long way, and in this case, it has a significant effect on sound absorption qualities,” said John Bull, president of Eagle Industries.

The graphene is mixed with foam constituents, and tests done by Ford and suppliers has shown about a 17 percent reduction in noise, a 20 percent improvement in mechanical properties and a 30 percent improvement in heat endurance properties, compared with that of the foam used without graphene.

“We are excited about the performance benefits our products are able to provide to Ford and Eagle Industries,” said Philip Rose, XG Sciences’ chief executive officer. “Working with early adopters such as Ford Motor Company demonstrates the potential for graphene in multiple applications, and we look forward to extending our collaboration into other materials, and enabling further performance improvements.”

Graphene is expected to go into production by year end on over ten under hood components on the Ford F-150 and Mustang and eventually, other Ford vehicles.

About Ford Motor Company

Ford Motor Company is a global company based in Dearborn, Michigan. The company designs, manufactures, markets and services a full line of Ford cars, trucks, SUVs, electrified vehicles and Lincoln luxury vehicles, provides financial services through Ford Motor Credit Company and is pursuing leadership positions in electrification, autonomous vehicles and mobility solutions. Ford employs approximately 201,000 people worldwide. For more information regarding Ford, its products and Ford Motor Credit Company, please visit www.corporate.ford.com.

About Eagle Industries

Headquartered in Wixom, Michigan with global manufacturing capabilities, Eagle Industries is a leading supplier that designs and manufactures NVH components to the automotive OEM and Tier 1 community. For further information, please visit www.eagleindinc.com.

About XG Sciences, Inc.

Headquartered in Lansing, Michigan, XG Sciences, Inc. is a leading supplier of graphene nanoplatelets and custom advanced formulations to global OEMs serving composites, electronics, energy and industrial markets. XG has provided its distinct high-performance products to over 1,000 customers in 47 countries. For more information about XG Sciences’ materials and technical support, please visit www.xgsciences.com or contact info@xgsciences.com