Perpetuus Launches Environmental Graphene Masterbatch for Tire Industry

Perpetuus Advanced Materials Launch Revolutionary Environmental Graphene Natural Rubber Masterbatch for Commercial and Industrial Tire Manufacturers

UNITED KINGDOM, January 28, 2025 /EINPresswire.com/ -- Perpetuus Advanced Materials introduces the first in its range of proprietary nano engineered graphene-enhanced masterbatch compounds, initially formulated specifically for the field of commercial, passenger and industrial tire manufacturing sectors. The initial offering will be broadened to include other polymer/elastomer masterbatches suitable for industries such as hoses, seals, gaskets, V-belts, conveyor belts, etc.

Using its environmentally friendly, plasma treatment process, Perpetuus graphenes are integrated into the masterbatch. The resultant masterbatch is now available in industrial quantities, allowing tire manufacturers to integrate this breakthrough material into their existing production processes.

Perpetuus's unique graphene manufacturing process is environmentally safe by avoiding traditional wet acid, solvent, or surfactant treatments, eliminating the need for energy-intensive drying steps and the associated disposal of post-production toxic waste. Instead, the dry plasma process conserves energy, supports sustainable industrial scale production and aligns with the company's commitment to environmentally responsible manufacturing.

Perpetuus's graphene masterbatch formulation combines its surface-engineered, plasma-treated graphenes with natural rubber carbon black and other industry known functional fillers, creating an innovative base material for tire and other rubber product manufacturing.

John Buckland, CEO of Perpetuus Advanced Materials said: "In the 20 years since graphene was discovered, almost every use for the material has been developed in laboratories around the world, however the lack of affordable high quality graphenes has prevented known commercial applications coming to market. Our plasma treated surface engineered graphenes solve this problem which are now available in commercial quantities to all sectors of industry."

Integrating Perpetuus's graphene masterbatch into tire tread formulations yields significant performance gains, with road testing showing up to a 40% reduction in tire tread wear, together with improved overall handling and braking, particularly in the wet. The enhanced dispersion and bonding of ingredients in the masterbatch also reduces PM2.5 tire wear particles released during road abrasion. A major step forward in reducing harmful particulates that contribute to air pollution.

This innovation aligns with key regulatory goals, including the UK's Clean Air Act 2022 and the EU Clean Air Policy, which secure citizens' rights to clean air. Moreover, reducing tire-derived particles and chemicals in roadway runoff has potential benefits for aquatic ecosystems and improving water quality of urban drainage systems.

This graphene masterbatch comprises over 90% of the core 'dry mix' ingredients used in tire production and is supplied in convenient pre-mixed 25 kg blocks. The masterbatch negates the need for components such as plasticizers, process oil (aromatic and aliphatic oils), compatibilizers, resins etc., which are currently used by tire manufacturers. Many of these chemicals are known to be toxic, carrying significant health risks and have already been banned in many EU countries. Perpetuus's masterbatch supports improved factory air quality, reducing the release of airborne 'fly material' commonly produced in current tire manufacturing processes. This shift not only boosts the overall effectiveness of tire formulations, but also improves occupational safety.

Building on this success, in 2026 Perpetuus Advanced Materials is planning to launch its GRAPHENE C6 range of motorcycle and PCT tires. Further graphene masterbatch formulations including Styrene Butadiene Rubber will be launched in 2026 for use in passenger car tires. The adaptable nature of the masterbatch production process enables its extension to various other rubbers used within the elastomer industry, paving the way for sustainable advancements across multiple sectors.

PerpetuusAM.com

Mr John Buckland
Perpetuus Advanced Materials
info@perpetuusam.com
Visit us on social media:
LinkedIn