Nanodiamond Technology Promises to Reduce Friction, Lower Costs, and Improve Performance in Motorsports Engines

EPARTRADE Webinar Series, Episode #544 — In a compelling new installment of EPARTRADE's weekly "Race Industry Now" webinar series, Marshall Weingarden, President of **Nano Materials and Processes**, unveiled groundbreaking insights into the power of **nanodiamond technology** and its transformative potential for racing engines. Hosted by Brad Gillie of SiriusXM's *Late Shift*, the session was titled:
"Reducing the Cost of Friction: How Nanodiamond Technology Extends Component Life, Reduces Costs, and Improves Performance."

Weingarden, a lifelong technologist with decades of engineering experience, explained how **detonation-synthesized nanodiamonds**—tiny synthetic diamonds formed by TNT explosions in a vacuum—are revolutionizing industrial lubrication. Originally a byproduct of nuclear weapons research, these microscopic diamonds are now being tailored for high-performance motorsports applications, including engines, transmissions, and differentials.

"We're not changing what you're doing—we're just adding something that makes it all work better," said Weingarden. "The results are transparent, maintenance-free, and proven in independent testing."

Key Highlights from the Webinar:

- **Friction Reduction = Performance Gain**
  Nanodiamond additives have shown measurable horsepower increases. One user reported a **1% power gain on a dyno** by simply adding the additive to their engine oil—translating to 6-8 extra horsepower in high-output engines.
- **Microscopic Precision**
  Friction points in engines, such as crankshafts, bearings, and piston rings, often operate at micron-level gaps. Nanodiamond particles, operating at the **nanometer scale (1,000 times smaller)**, effectively fill those spaces, reducing wear and heat.
- **Real Cost Savings**
  With top-tier NASCAR engines costing upwards of **$250,000 to $300,000**, and rebuilds adding thousands more, Weingarden stressed the value of any solution that extends component life and reliability.
- **Thermal Management and Wear Resistance**
  In addition to lowering friction, nanodiamonds help **remove heat** and **create wear-resistant surfaces**, addressing two critical concerns in racing environments.

- **Broad Application Potential**
  Beyond motorsports, Nano Materials and Processes is also applying this technology to mining, coatings, epoxies, and even electroplating—demonstrating the versatile power of nanodiamonds across industries.

A Technological Turning Point

Weingarden closed the presentation with a simple message: **Innovation at the molecular level is now making its way to the race track.** The nanodiamond solution, developed for extreme environments, is now readily accessible to engine builders, teams, and manufacturers looking for a competitive edge.

“If you're looking to get more life, better performance, and less wear from your components—this is something to look into,” said Gillie.

For more information, **watch the full webinar here.**