Product Data Sheet — Coating D-3R

Description

The D-3R coating is a suspension of few-layer graphene in a dispersion medium composed of non-flammable, mechanically robust polymers, enriched with a filler based on complex compounds of high-refractory materials.

The coating is produced using a patented graphite exfoliation process in liquid media and poses no hazard to human health or the environment.

The material is designed for reducing the detectability of UAVs, ground mobile platforms, navigation equipment and specialized military and civilian vehicles. It provides a 5 to 15-fold reduction in detection range compared to conventional RAM solutions.
The anti-radar effect is achieved through decoherent scattering at the air–coating interface followed by intense internal attenuation and dissipation of electromagnetic energy within the conductive multiscale structure of the material.

The coating provides protection against electromagnetic radiation through the absorption and attenuation of electromagnetic waves in the 0.1 – 100 GHz frequency range.

Properties and Characteristics

Thickness (recommended)	1.5 mm
Frequency range	0.1 – 100 GHz
Radar deception	yes (decoherence)
Shielding Effectiveness (SE)	> 60 dB
EW protection	10^6-fold attenuation (at 1.0 mm coating thickness)
Operating temperature range	–50 °C to +150 °C
Operating conditions	Resistant to UV radiation, saltwater exposure, high humidity, vibration and dynamic loads
Weight	0.9 – 1.1 g/cm³
Service Life	Up to 24 months (without significant mechanical damage)
Shelf life	Up to 12 months
Storage conditions	–5 °C to +30 °C

Comparison with Existing Solutions

	D-3R	Metal	RAM
Thickness	~ 1.5 mm	2 – 5 mm	2 – 5 mm
Frequency range	0.1 – 100 GHz	up to ~ 40 GHz	Δ ~ 10 GHz
Radar deception	yes (decoherence)	no	yes (absorption)
Shielding Effectiveness	> 60 dB	60 – 100 dB	25 – 35 dB
Weight	0.9 – 1.1 g/cm³	> 3.5 g/cm³	2 – 2.5 g/cm³

Applications

Sector	Applications	Effects
UAVs / Drones	• Fuselages and wings • Electronic compartments • Antennas and communication modules	• Reduced radar signature • Protection against electromagnetic interference and EW • Reduced mutual system interference
Naval and Ground Vehicles	• Hulls and superstructures • Armored vehicles • Electronic modules	• Reduced electromagnetic signature • Electronics protection • Resistance to marine and aggressive environments
Radio-Electronic Systems	• Electronic enclosures • RF modules • Cable systems	• EMI shielding • Reduced parasitic emissions • Protection of sensitive electronics
Satellites and Aerospace	• External panels • Electronic compartments • Satellite platforms	• Electronics protection • Reduced parasitic reflections • Broadband shielding