

Unique Property	What It Means	Why It Matters
<b>Active Surface</b>	Detonation nanodiamonds carry things called functional groups on their surface. They also carry an electrical charge which is typically -30 to -70 millivolts.	The human nervous system operates through bioelectricity. Specifically, cells use bioelectricity to communicate system status - - healthy or damaged. The voltage on the active surface of a detonation nanodiamond disrupts the electric pain signals delivered by the brain via the spinal cord while simultaneously boosting the response/repair signals of the cells surrounding the damaged area resulting in shorter recovery period.
<b>Large Surface Area to Volume Ratio</b>	Small objects, particularly nanomaterials, have large surface area compared to their volume. Detonation diamonds are so tiny that 1.5 million will fit on the head of a pin.	A large surface area-to-volume ratio is important for two reasons: 1. Improved reactivity (quicker cellular response time) in the surrounding area that our nanodiamonds are applied. 2. Allows us to use a minute quantity of our nanodiamonds in each of our therapeutics with bigger results than larger-scale materials.
<b>Adsorption</b>	Adsorption means the nanodiamonds attract and hold other materials on their surface (the same way a charcoal filter works)	The nanodiamonds adsorb more of the active ingredient than your skin would absorb on its own, and as the nanodiamonds in turn penetrate the deeper layers of the skin, the active ingredient is carried with it.