

Monodispersed nanodiamond powder obtained by laser synthesis

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Innovative scalable technology of laser synthesis for producing ultrananocrystalline nanodiamond (ND) was developed by Ray Techniques Ltd, Israeli company located at the campus of the Hebrew University of Jerusalem.

ND is usually obtained by detonating TNT and RDX mixture in metal chambers, with subsequent separation and purification. ND is widely used in a wide range of application, among them fine polishing, galvanic and electroless coatings, and manufacturing of various nano-composites. In recent years ND has rapidly entered fields like electronics, energy and biotechnology. However, advanced applications of ND are currently limited since detonation ND does not meet the modern requirements for homogeneity due to the difference in the synthesis conditions inside a detonation chamber and the inconstancy of explosive raw materials. The second problem is insufficient purity, present of metals and graphite in the ND powder.

RayTechniques' novel technology of ND laser synthesis enables to obtain monodispersed ND (RayND) from pure carbon materials. RayND, compared with detonation ND, has a better diamond structure, is more homogeneous (both geometrically and chemically) and pure. The environment-friendly and non-hazardous manufacturing process does not require additional expenses for safety, security and environment protection.