

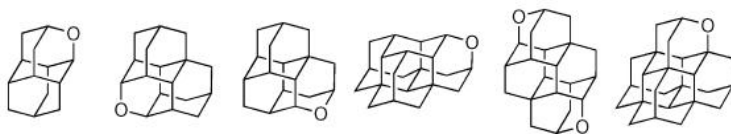
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Oxygen-Doped Nanodiamonds

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The potential use of *n*-doped nanodiamonds in the construction of nanoelectronic devices is determined by the ability to deliver the electric charge to the molecule through proper functional groups (OH, SH, COOH, etc.).



Oxadiazonane cages representing a new class of carbon nanoparticles were prepared from the respective diamondoid ketones via an effective two-step procedure involving addition of methyl magnesium iodide and oxidation with trifluoroperacetic acid in trifluoroacetic acid. See [1].

The reactivities of the oxacages are determined by the position of the dopant and are in good agreement with computational predictions.

The selectivities of their C-H functionalizations are determined by the position of the oxygen in the cage and may be in some cases even higher than that of the parent hydrocarbon. Studying of the electronic properties of *n*-doped nanodiamonds are currently underway.

- [1] A.A. Fokin, T.S. Zhuk, A.E. Pashenko, P.O. Dral, P.A. Gunchenko, J. Dahl, R. Carlson, T.V. Koso, M. Serafin and P.R. Schreiner *Org. Lett.* **11**, 14, (2009), p. 3068-3071..