

Dissolution Dynamic Nuclear Polarization of Non-Self-Glassing Agents: Spectroscopy and Relaxation of Hyperpolarized [1-13C]Acetate - DTU Orbit (08/11/2017)

Dissolution Dynamic Nuclear Polarization of Non-Self-Glassing Agents: Spectroscopy and Relaxation of Hyperpolarized [1-13C]Acetate

The intrinsic physicochemical properties of the sample formulation are the key factors for efficient hyperpolarization through dissolution dynamic nuclear polarization (dissolution-DNP). We provide a comprehensive characterization of the DNP process for Na-[1-13C]acetate selected as a model for non-self-glassing agents: the solid-state polarization dynamics of different formulations and the effect of the paramagnetic agent (trityl radical) on the pattern of polarization and the relaxation profile were extensively analyzed. We quantified the effects of the glassing agent and Gd³⁺-chelate on DNP performance. The results reported here describe the constraints of the acetate formulation useful for future studies in this field with non-self-glassing enriched molecules.

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