

Complex nuclear relaxation processes in guanidinium compounds $[C(NH_2)_3]_3Sb_2X_9$ (X= Br, Cl): effects of quadrupolar interactions.

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Temperature dependences of proton spin–lattice relaxation times for twoguanidinium compounds, $[C(NH_2)_3]_3Sb_2Br_9$ and $[C(NH_2)_3]_3Sb_2Cl_9$, are reanalyzed by taking into account all relaxation pathways available for protons. It turns out that the experimental data reflect two relaxation processes, which have to be described separately. The bi-exponentiality of relaxation results from the structure of these compounds, which contain two structurally and dynamically distinct guanidinium cations. Complete relaxation formulas accounting for effects of the quadrupolar interactions on the energy level structure of the entire system, as well as of the quadrupolar relaxation, are applied. This advanced description allows for a consistent interpretation of the relaxation data assuming the simplest motional model (one thermally activated correlation time for every guanidinium cation) while former attempts based on very simple relaxation formulas but including sophisticated motional models failed. The presented relaxation description and the analysis of the relaxation data can serve as an example of a complete treatment of relaxation

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<http://link.springer.com>