Crystal structures and related to noncentrosymmetricity properties of 4-aminomorpholinium salts.

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The performed analysis of crystal structures deposited in Cambridge Structural Database shows that simple salts of amines with N-attached six-membered aliphatic ring favor an acentric arrangement of molecules in a solid state and, therefore, might be suitable candidates for applications that require piezoelectric, ferroelectric, or second-order nonlinear optical properties. Herein we report that hydrochloride and hydrobromide of 4-aminomorpholine indeed crystallize in polar ($Pca2_1$) and non-centrosymmetric ($C222_1$) space groups, respectively—the feature that gives rise to their nonlinear properties. While dielectric spectroscopy confirms piezoelectric nature of the hydrochloride salt, second harmonic generation measurements unequivocally prove nonlinear optical properties of both analyzed compounds.

Słowa kluczowe

4-Aminomorpholin, 4-Aminomorpholinium, NLO, Nonlinear optical properties, Second harmonic generation, Nonlinear electrical properties, Piezoelectric properties, Piezoelectricity

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