

Investigation of crystal structure and nonlinear optical properties of 2-methoxyanilinium nitrate

Authors

K Bouchouit, Z Sofiani, B Derkowska, S Abed, N Benali-Cherif, M Bakasse, B Sahraoui

Publication date

2007/10/1

Journal

Optics communications

Volume

278

Issue

1

Pages

180-186

Publisher

North-Holland

Description

Single crystals of a new hybrid compound salt: 2-methoxyanilinium nitrate were prepared by slow evaporation at room temperature of diluted aqueous solutions containing 2-methoxyaniline with nitric acids. The compound crystallizes in a space group $Pcab$ of orthorhombic system with cell parameters $a = 8.8784(6) \text{ \AA}$, $b = 10.6348(7) \text{ \AA}$, $c = 18.3045(7) \text{ \AA}$, $V = 1728.31(17) \text{ \AA}^3$ at $T = 100 \text{ K}$ and $Z = 8$. The structure has been refined to an R -value of 0.044 for 1956 observed reflections using three-dimensional X-ray diffraction data. Third-order nonlinear optical susceptibility ($\chi^{(3)}$) was measured by degenerate four wave mixing (DFWM) method at 532 nm. Third harmonic generation (THG) measurements at the 1064 nm were carried out for the 2-methoxyanilinium nitrate crystal with the following dimensions: $4 \times 9 \times 0.5 \text{ mm}$.