Azide und Cyanamide – ähnlich und doch anders

Azides and Cyanamides – Similar and Yet Different

Olaf Reckeweg and Arndt Simon

Max -Planck-Institut für Festkörperforschung, Heisenbergstraße 1, D-70569 Stuttgart, Germany

Sonderdruckanforderungen an Dr. O. Reckeweg. Tel.: +49(0)711 689-1640.
Fax: +49(0)711 689-1091. E-mail: olaf.reykjavik@gmx.de

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The crystal structures of $LiN_{3*}H_2O$ ($P6_3/mcm$ (No. 193), $Z = 6$; 924.01(13); 560.06(7) pm); NH_4N_3 ($Pmna$ (No. 53), $Z = 4$; $a = 889.78(18)$, $b = 380,67(8)$, $c = 867.35(17)$ pm); $Ca(N_3)_2$ ($Fddd$ (No. 70), $Z = 8$; $a = 595.4(2)$, $b = 1103.6(5)$, $c = 1133.1(6)$ pm), $Sr(N_3)_2$ ($Fddd$ (No. 70), $Z = 8$; $a = 612.02(9)$, $b = 1154.60(18)$, $c = 1182.62(15)$ pm); $Ba(N_3)_2$ ($P2_1/m$ (No. 11), $Z = 2$; $a = 544.8(1)$, $b = 439.9(1)$, $c = 961.3(2)$ pm, $\beta = 99.64(3)^\circ$) and TlN_3 ($I4/mcm$ (No. 140), $Z = 2$; 618.96(9); 732.71(15) pm) have been either determined for the first time or redetermined by X-ray diffraction on single crystals. The afore mentioned compounds, AN_3 (A = Na, K, Rb, Cs), $M(N_3)_2 \cdot 2.5\ H_2O$ (M = Mg, Zn) and the cyanamides Li_2CN_2, $CdCN_2$ and $CuCN_2$ were investigated by Raman and IR spectroscopy (KBr technique). Structural features and spectroscopic data of azides and cyanamides from this work and from literature are listed and compared.

Key words: Azide, Carbodiimide, Cyanamide, Nitridocarbonate, Raman Spectroscopy