

## High-pressure Crystal Phase of 1,2-ethylenediamine

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1,2-Ethylenediamine ( $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{NH}_2$ ) is the simplest of  $\alpha,\omega$ -alkanediamines. Its m.p. is 284.29 K [1], and it was crystallized at low temperature and its structure determined at 213 K [2] and 130 K [3]. The crystals are monoclinic, space group  $P2_1/c$ ,  $a = 5.047(2)$ ,  $b = 7.14(2)$ ,  $c = 5.475(2)$  and  $\beta = 115.36(3)$  [3] (hereafter phase **II**).

In our study we have crystallized  $\text{C}_2\text{H}_8\text{N}_2$  by pressure-freezing in Merrill-Bassett diamond-anvil cell. In this way three distinct phases of  $\text{C}_2\text{H}_8\text{N}_2$  have been obtained and their structures determined: phase **II** with the unit cell parameters similar to those listed above for the low-temperature phase; phase **I** (which is stable at lower pressure and higher temperature, than for phase **II**) – monoclinic, space group  $P2_1/c$   $a = 5.031(10)$ ,  $b = 5.132(3)$ ,  $c = 7.167(5)$ ,  $\beta = 110.60(12)^\circ$  at 0.3 GPa and 293(2) K; at 1.5 GPa the crystal is transformed to phase **III** with the unit-cell doubled.

The structures have been solved by direct methods and refined by full matrix least squares.

[1] Messerly J.F., Finke H.L., Osborn A.G., Douslin D.R., *J. Chem. Thermodyn.*, 1975, **7**, 1029. [2] Jamet-Delcroix P.S., *Acta Cryst.*, 1973, **B29**, 977. [3] Thalladi V.R., Boese R., Weiss H.-C., *Angew. Chem. Int. Ed.*, 2000, **39**, 918.

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