

Letters to the Editor

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CRYSTALLOGRAPHIC DATA FOR AMMONIUM NITRATE-SULPHATE

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This laboratory has been investigating the possibilities of the formation of different types of double salts of ammonium nitrate—sulphate under various physical conditions. The possibility of the formation of double salt of 1 : 1 molar ratio of nitrate—sulphate was indicated by Ito (1960) in his studies on the phase-diagram of the system $(\text{NH}_4)_2\text{SO}_4$ — NH_4NO_3 — H_2O . In our earlier investigation Srinivasa *et al.*, (1964) on this system, we have confirmed its existence as a stable solid phase by preliminary X-ray powder diffraction data. The present investigation was undertaken with a view to obtain more information and clarification of its crystallographic properties.

The sample of the double salt used in this determination has been prepared according to the method already described (Srinivasa *et al.*, 1964). The crystals of double salt of 1 : 1 molar ratio were grown from aq. alcoholic solution. The crystals grown were plate shaped with well formed (010) and (100) faces. The size of a typical crystal was $2 \times 1 \times 0.2$ mm. Oscillation and Weissenberg photographs were taken around the 'b' axis and 'a' axis with nickel filtered CuK_α radiation. From the zero layer Weissenberg photograph the value of β was calculated by the method of Omega separations (Buerger 1942). The values for the unit cell dimensions are :

$$a = 5.91 \text{ \AA} \quad b = 7.95 \text{ \AA} \quad c = 11.05 \text{ \AA} \quad \beta = 112^\circ 54'$$

The crystal belongs to the monoclinic system. After indexing the Weissenberg photograph (around the 'b' and 'a' axes), the following systematic extinctions were observed :

$0k0$ absent when k is odd.

$h00$ absent when h is odd.

$h0l$ absent when h is odd.

Accordingly, the space group is determined as $P2_1/a-C^5_{2h}$.

There are two molecules per unit cell. Density : calculated 1.46 g.cm^{-3} ; observed 1.48 g.cm^{-3} .

A C K N O W L E D G M E N T

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R E F E R E N C E S

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