

X-ray study of the orthorhombic modification of the  
para-acetotoluidide crystals

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Crystals of para-acetotoluidide ( $\text{CH}_3$ ,  $\text{CONH}$ ,  $\text{C}_6\text{H}_4$ ,  $\text{CH}_3$ ) (Beilstein 1929) are grown out of saturated solution of alcohol by rapid evaporation. These crystals appear as thin prisms with  $a$  (100),  $b$  (010) and  $m$  (110) faces bounded by  $r$  (101) and  $c$  (001) faces. They are examined with the help of a Fuess horizontal circle goniometer and the interfacial angles thus measured are found in good agreement with those recorded in Groth (1917). The crystals belong to the orthorhombic system.

The crystals are first studied by the rotation method in a camera of 10 cm. diameter as well as by the powder method in a Unicam camera of 19 cm. diameter, with  $\text{Cu-K}\alpha$  radiation.

The axial lengths are thus obtained as :

$$a=12.98\text{\AA}, b=9.82\text{\AA} \text{ and } c=6.52\text{\AA}.$$

The specific gravity of the crystals is found by the floatation method in a solution of  $\text{ZnSO}_4$  in water, as 1.19. The number of molecules in the unit cell of the crystal comes out to be four only.

The axial ratio of  $a : b : c$  is thus found to be 1.322 : 1 : 0.6639 as against 0.6515 : 1 : 0.3289 given by Groth (1917).

Several zero layer-line and first layer line Weissenberg photographs are taken about the  $a$ ,  $b$  and  $c$  axes respectively and the reflexions are analysed. From the reflexions in the photographs as analysed, it is concluded that :

For $h00$ reflexions $h = 2n$		For $h0l$ reflexions-no condition.
For $0k0$ „ $k = 2n$	and	For $0kl$ „ „ „
For $00l$ „ $l = 2n$		For $hkl$ „ „ „
		For $hkl$ „ „ „

The orthorhombic crystals of the para-aceto-toluidide are thus assigned the space-group  $P2_12_12_1$

Structural analysis is in progress.

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REFERENCES

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Groth, P. 1917 *Chemische Kristallographie*, 4, 400.