Short Communications

Contributions intended for publication under this heading should be expressly so marked; they should not exceed about 1000 words; they should be forwarded in the usual way to the appropriate Co-editor; they will be published as speedily as possible. Publication will be quicker if the contributions are without illustrations.

Acta Cryst. (1963). **16**, 834

The neutron coherent scattering length for magnesium.

By T. M. Sabine and J. D. Browne, *Australian Atomic Energy Commission, Research Establishment, Lucas Heights, N.S.W., Australia*

(*Received* 12 *February* 1963)

The coherent scattering length of magnesium was given as $0{\cdot}52 \pm 0{\cdot}01 \times 10^{-12}$ cm by Bacon (1952) from measurements with $MgAl_2O_4$ and MgO. However, the value given in *International Tables for X-ray Crystallography* (1962) is $0{\cdot}54 \times 10^{-12}$ cm. This figure was a compromise (Bacon, private communication), taking account also of measurements of the total and incoherent cross-section of magnesium. In connection with work in progress in this laboratory neutron powder intensities have been measured for MgO. The coherent scattering length for Mg deduced from these data, using the accepted value of $0{\cdot}577 \times 10^{-12}$ cm for oxygen, is $0{\cdot}516 \pm 0{\cdot}006 \times 10^{-12}$ cm, which confirms Bacon's original lower figure.

References

Bacon, G. E. (1952). *Acta Cryst.* **5**, 684.
International Tables for X-ray Crystallography. (1962). Vol. III, p. 229. Birmingham: Kynoch Press.

Acta Cryst. (1963). **16**, 834

X-ray evidence of plutonium(III) oxalate decahydrate.

By D. M. Chackraburtty, *Radiochemistry and Isotope Division, Atomic Energy Establishment, Trombay, Bombay-73, India*

(*Received* 15 *February* 1963)

A bluish-white precipitate has been obtained by adding excess of 0·06*M* oxalic acid in plutonium(III) solution, prepared by adding 1 ml of 10% hydroxylamine hydrochloride solution to 30 mg of plutonium(IV) in 0·5*M* nitric acid. This precipitate has been studied by means of the thermogravimetric balance in air and in an argon atmosphere and it has been suggested that the first peak in the thermogravimetric curve has a molecular formula corresponding to $Pu_2(C_2O_4)_3 \cdot 10H_2O$ (Dawson, 1952, Regnaut, Faugeras, Brut, Helou & Redon, 1958; Rao, Subramaniam & Welch, 1962).

Table 1. *X-ray diffraction data of* $Pu_2(C_2O_4)_3 \cdot 10H_2O$

d	*I*	*hkl*
6·669 Å	*s*+	011, 11$\bar{1}$
5·132	*mw*	200, 10$\bar{2}$
4·974	*mw*+	21$\bar{1}$
4·681	*m*+	020, 111
4·567	*vw*	002, 210
3·523	*w*	20$\bar{3}$, 102
3·090	*vw*	003
2·966	*w*+	40$\bar{2}$, 031
2·918	*vw*	01$\bar{3}$
2·778	*vw*	12$\bar{3}$, 320, 202
2·720	*vw*	41$\bar{1}$, 131
2·617	*vw*	103, 23$\bar{2}$
2·340	*vw*	040, 23$\bar{3}$
2·271	*vw*	330
2·242	*vw*	014, 420
2·171	*vw*	141
2·107	*vw*	52$\bar{2}$, 43$\bar{1}$, 24$\bar{2}$
2·044	*vw*	104
1·957	*vw*	24$\bar{3}$
1·903	*vww*	34$\bar{3}$

Rest too weak

X-ray diffraction data of the compound, given in Table 1, were obtained from patterns taken in a 19 cm Unicam camera of Bradley–Jay type with Cu $K\alpha$ radiation. The crystal system is monoclinic and unit-cell dimensions are:

$$a = 11{\cdot}84 \pm 0{\cdot}005,\ b = 9{\cdot}40 \pm 0{\cdot}004,$$
$$c = 10{\cdot}66 \pm 0{\cdot}005\ \text{Å};\ \beta = 120°\ 13';$$

these are similar to the unit-cell dimensions of lanthanum oxalate decahydrate obtained from single-crystal studies by Victor & McCrone (1952). It therefore appears that $Pu_2(C_2O_4)_3 \cdot 10H_2O$ is isostructural with $La_2(C_2O_4)_3 \cdot 10H_2O$. The probable space group is $P2_1/m$. Only PuO_2 lines were detected when plutonium oxalate was heated to 900 °C.

The author expresses thanks to Dr G. A. Welch and Dr H. D. Sharma for their keen interest in the work.

References

Dawson, J. K. & Elliot, R. M. Atomic Energy Research Establishment, C/R 1207.
Rao, G. S., Subramaniam, M. S. & Welch, G. A. (1962). AEET/Radiochem./26.
Regnaut, P., Faugeras, P., Brut, A., Helou, R. & Redon, A. (1958). Proc. 2nd Int. Conf. on the Peaceful Uses of Atomic Energy, **17**, 93.
Victor, G. & McCrone, W. C. (1952). *Anal. Chem.* **24**, 225.