crystal $0.26 \times 0.241 \times 0.26 \mathrm{~mm}$ using unfiltered $\mathrm{Ag} K \alpha$ radiation. The experimental and processing details are identical to those previously described by Brunton (1971). Because of the identity of the $\mathrm{K}_{7} \mathrm{Th}_{6} \mathrm{~F}_{31}$ and $\mathrm{Na}_{7} \mathrm{Zr}_{6} \mathrm{~F}_{31}$ structures, the description of the structure by Burns et al. (1968) need not be repeated here. The lattice and atomic parameters are listed in Table 1, interatomic distances in Table 2, and the 1853 observed and calculated structure factors in Table 3. An isotropic extinction correction was applied to $F_{o}$, and the reflections with an extinction correction different from 1.0 are also listed in Table 3 (Coppens \& Hamilton, 1970). Tables 1, 2 \& 3.

The Th-F distances range from 2.24 (1) to 2.41 (1) $\AA$ and the $K-F$ distances range from $2 \cdot 63$ (2) to 3.36 (2) $\AA$. The

Th-F and K-F distances average respectively 0.21 and $0.30 \AA$ longer than corresponding $\mathrm{Zr}-\mathrm{F}$ and $\mathrm{Na}-\mathrm{F}$ distances, and the corresponding $\mathrm{F}-\mathrm{F}$ distances average $0 \cdot 30 \AA$ longer for $\mathrm{K}_{7} \mathrm{Th}_{6} \mathrm{~F}_{31}$. The discrepancy indices $R\left(F_{o}\right)$ and weighted $R\left(F_{o}\right)$ are 0.0660 and 0.1188 respectively for all reflections less than $\sigma\left(F_{o}^{2}\right)$.

## References

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Bond lengths and angles in the molecule of palladium n-propyl mercaptide. By N. R. Kunchur, Chemistry Department, University of Tabriz, Tabriz, Iran
(Received 6 May 1971)
Revised values are given which supersede those in Acta Cryst. (1968) B24, 1623.

The structure of palladium n-propyl mercaptide was solved by Kunchur (1968) and the values for the various bond lengths and angles within the molecule were reported. Owing to a fault in the program which was used in these calculations on a computer, errors were introduced in the values of bond lengths and angles reported. The author wishes to thank Dr R. O. Gould of the University of Edinburgh for pointing out this error. In Table 1 the corrected values of bond lengths and angles are given. The labelling scheme is the same as reported in the earlier work. However, a correction should be made in the labelling of two carbon atoms. The carbon atoms $C(17)$ and $C(18)$ in Table 1 of the previous work (Kunchur, 1968) should be read as $\mathrm{C}\left(18^{\prime}\right)$ and $\mathrm{C}\left(17^{\prime}\right)$ respectively.

Table 1. Dimensions of the molecule; corrected values

| Bond lengths $(\AA)$ |  |
| :--- | :--- |
| $\mathrm{Pd}(1)-\mathrm{S}(2)$ | 2.311 |
| $\mathrm{Pd}(1)-\mathrm{S}(3)$ | 2.332 |
| $\mathrm{Pd}(1)-\mathrm{S}(4)$ | 2.334 |
| $\mathrm{Pd}(1)-\mathrm{S}(5)$ | 2.336 |
| $\mathrm{Pd}(2)-\mathrm{S}(1)$ | 2.332 |
| $\mathrm{Pd}(2)-\mathrm{S}(4)$ | 2.338 |
| $\mathrm{Pd}(2)-\mathrm{S}(5)$ | 2.332 |
| $\mathrm{Pd}(2)-\mathrm{S}(6)$ | 2.318 |
| $\mathrm{Pd}(3)-\mathrm{S}(1)$ | 2.320 |
| $\mathrm{Pd}(3)-\mathrm{S}(2)$ | 2.326 |
| $\mathrm{Pd}(3)-\mathrm{S}(3)$ | 2.338 |
| $\mathrm{Pd}(3)-\mathrm{S}(6)$ | 2.327 |
| $\mathrm{~S}(1)-\mathrm{C}(1)$ | 1.83 |


| Angles ( ${ }^{\circ}$ ) |  |
| :---: | :---: |
| $\mathrm{S}(5)-\mathrm{Pd}(1)-\mathrm{S}(4)$ | $82 \cdot 2$ |
| $\mathrm{S}(5)-\mathrm{Pd}(1)-\mathrm{S}(3)$ | 98.2 |
| $\mathrm{S}(5)-\mathrm{Pd}(1)-\mathrm{S}(2)$ | $177 \cdot 8$ |
| $\mathrm{S}(4)-\mathrm{Pd}(1)-\mathrm{S}(3)$ | $176 \cdot 6$ |
| $\mathrm{S}(4)-\mathrm{Pd}(1)-\mathrm{S}(2)$ | $97 \cdot 6$ |
| $\mathrm{S}(3)-\mathrm{Pd}(1)-\mathrm{S}(2)$ | $81 \cdot 9$ |
| $\mathrm{S}(6)-\mathrm{Pd}(2)-\mathrm{S}(5)$ | $97 \cdot 1$ |
| $\mathrm{S}(6)-\mathrm{Pd}(2)-\mathrm{S}(4)$ | $174 \cdot 6$ |
| S (6)-Pd(2)-S(1) | $81 \cdot 8$ |
| $\mathrm{S}(5)-\mathrm{Pd}(2)-\mathrm{S}(4)$ | 82.2 |
| $\mathrm{S}(5)-\mathrm{Pd}(2)-\mathrm{S}(1)$ | $177 \cdot 7$ |
| $\mathrm{S}(4)-\mathrm{Pd}(2)-\mathrm{S}(1)$ | 98.7 |
| $\mathrm{S}(6)-\mathrm{Pd}(3)-\mathrm{S}(3)$ | $174 \cdot 3$ |

Table 1 (cont.)

| Bond lengths ( $\AA$ ) |  | Angles ( ${ }^{\circ}$ ) |  |
| :---: | :---: | :---: | :---: |
| $\mathrm{C}(1)-\mathrm{C}(2)$ | 1.52 | $\mathrm{S}(6)-\mathrm{Pd}(3)-\mathrm{S}(2)$ | $97 \cdot 5$ |
| $\mathrm{C}(2)-\mathrm{C}(3)$ | 1.48 | $\mathrm{S}(6)-\mathrm{Pd}(3)-\mathrm{S}(1)$ | 81.9 |
| $\mathrm{S}(2)-\mathrm{C}(4)$ | 1.84 | $\mathrm{S}(3)-\mathrm{Pd}(3)-\mathrm{S}(2)$ | $81 \cdot 9$ |
| $\mathrm{C}(4)-\mathrm{C}(5)$ | 1.62 | $\mathrm{S}(2)-\mathrm{Pd}(3)-\mathrm{S}(1)$ | $177 \cdot 6$ |
| $\mathrm{C}(5)-\mathrm{C}(6)$ | 1.47 | $\mathrm{S}(3)-\mathrm{Pd}(3)-\mathrm{S}(1)$ | 98.5 |
| S(3)-C(7) | 1.82 | $\mathrm{C}(1)-\mathrm{S}(1)-\mathrm{Pd}(3)$ | $109 \cdot 2$ |
| $\mathrm{C}(7)-\mathrm{C}(8)$ | 1.50 | $\mathrm{C}(1)-\mathrm{S}(1)-\mathrm{Pd}(2)$ | $111 \cdot 1$ |
| $\mathrm{C}(8)-\mathrm{C}(9)$ | 1.54 | $\mathrm{C}(4)-\mathrm{S}(2)-\mathrm{Pd}(1)$ | $107 \cdot 5$ |
| $\mathrm{S}(4)-\mathrm{C}(10)$ | $1 \cdot 87$ | $\mathrm{C}(4)-\mathrm{S}(2)-\mathrm{Pd}(3)$ | $109 \cdot 4$ |
| $\mathrm{C}(10)-\mathrm{C}(11)$ | 1.52 | $\mathrm{C}(7)-\mathrm{S}(3)-\mathrm{Pd}(3)$ | $103 \cdot 8$ |
| $\mathrm{C}(11)-\mathrm{C}(12)$ | 1.47 | $\mathrm{C}(7)-\mathrm{S}(3)-\mathrm{Pd}(1)$ | $104 \cdot 5$ |
| S(5)-C(13) | $1 \cdot 85$ | $\mathrm{Pd}(3)-\mathrm{S}(1)-\mathrm{Pd}(2)$ | $85 \cdot 1$ |
| $\mathrm{C}(13)-\mathrm{C}(14)$ | 1.45 | $\operatorname{Pd}(3)-\mathrm{S}(2)-\operatorname{Pd}(1)$ | $83 \cdot 8$ |
| $\mathrm{C}(14)-\mathrm{C}(15)$ | 1.51 | $\mathrm{Pd}(3)-\mathrm{S}(3)-\mathrm{Pd}(1)$ | $83 \cdot 5$ |
| S (6)-C(16) | 1.86 |  |  |
| C(16)-C(17) | 1.44 |  |  |
| $\mathrm{C}(17)-\mathrm{C}(18)$ | 1.55 |  |  |
| $\mathrm{Pd}(1)-\mathrm{Pd}(3)$ | $3 \cdot 111$ |  |  |
| $\mathrm{Pd}(1)-\mathrm{Pd}(2)$ | 3.088 |  |  |
| $\mathrm{Pd}(2)-\mathrm{Pd}(3)$ | $3 \cdot 147$ |  |  |
| The estimated standard deviations in the values of bond lengths and angles are not given here since they are not affected and are the same as reported previously. |  |  |  |
|  |  |  |  |
| Reference |  |  |  |
| Kunchur, | . (1968) | Cryst. B24, 1623. |  |

