

Table 2. Powder data for BPO<sub>4</sub> and BAsO<sub>4</sub> (Quartz forms)

Index	BPO <sub>4</sub>						BAsO <sub>4</sub>					
	Mackenzie <i>et al.</i>			Present work			Mackenzie <i>et al.</i>			Present work		
	<i>d</i> <sub>o</sub>	<i>I</i>	<i>d</i> <sub>o</sub>	<i>I</i>	<i>d</i> <sub>c</sub>	<i>d</i> <sub>o</sub>	<i>I</i>	<i>d</i> <sub>o</sub>	<i>I</i>	<i>d</i> <sub>c</sub>		
10-0	3.895 Å	<i>s</i>	3.878 Å	50	3.871 Å	3.964 Å	<i>m</i>	3.960 Å	25	3.951 Å		
10-1	3.626	<i>m</i>	*		3.607	3.699	<i>s</i>	3.694	55	3.690		
	3.363	<i>vw</i>										
00-3	3.318	<i>w</i>	*		3.309	3.452	<i>w</i>	3.440	40	3.443		
	3.204	<i>vw</i>										
10-2	3.060	<i>vs</i>	3.051	100	3.052	3.145	<i>vs</i>	3.143	100	3.138		
10-3	2.519	<i>vw</i>	2.515	5	2.515	2.598	<i>vw</i>	2.600	5	2.596		
11-0	2.230	<i>m</i>	2.244	30	2.235	2.281	<i>w</i>	2.281	20	2.281		
11-1	2.183	<i>vw</i>	2.180	7	2.181	2.228	<i>w</i>	2.228	10	2.227		
10-4	2.092	<i>m</i>	2.088	15	2.089	2.162	<i>m</i>	2.161	20	2.162		
11-2	2.040	<i>w</i>	2.037	15	2.038	2.087	<i>vw</i>	2.088	10	2.087		
20-0	1.936	<i>vw</i>	1.938	10	1.935	1.976	<i>w</i>	1.975	20	1.975		
20-1						1.941	<i>vw</i>	1.941	3	1.940		
11-3	1.852	<i>vw</i>			1.852	1.901	<i>vw</i>	1.903	7	1.902		
20-2	1.805	<i>vw</i>	1.800 <sub>6</sub>	20	1.803							
10-5	1.768	<i>vw</i>	1.764	10	1.766	1.831	<i>w</i>	1.831	8	1.831		
00-6								1.722	13	1.722		
20-3	1.671	<i>w</i>			1.671			1.713	20	1.713		
11-4	1.662	<i>m</i>	1.659 <sub>3</sub>	30	1.661	1.710	<i>m</i>	1.710	25	1.710		
10-6								1.578	8	1.579		
20-4	1.527	<i>w</i>	1.526 <sub>6</sub>	10	1.526	1.568	<i>vw</i>	1.570	5	1.569		
11-5	1.485	<i>vw</i>			1.484	1.530	<i>vw</i>	1.530	5	1.531		
21-1	1.448	<i>vw</i>			1.447	1.476	<i>vw</i>	1.477	13	1.478		
21-2	1.403	<i>w</i>	1.402 <sub>4</sub>	50	1.403	1.433	<i>w</i>	1.434	15	1.434		

\* Obscured in our patterns by presence of some cristobalite form, which gives peaks in this region.

guished. The two extra lines included by Mackenzie *et al.* (1959) appear to be due to such causes; their inclusion necessitated the adoption of the larger unit cell by Mackenzie *et al.* (1959), and obscured the relationship to quartz.

Refractive indices and density have also been determined directly. Except for the indices of BAsO<sub>4</sub> they differ only slightly from those obtained by Mackenzie *et al.* (1959), and very kindly communicated to us personally. Both sets of results are given in Table 1.

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#### References

- DACHILLE, F. & ROY, R. (1957). Work reported at Amer. Mineralogical Soc. Meeting, Atlantic City, N. J. (Nov. 4, 1957). *Z. Kristallogr.* (In press).
- HUTTENLOCHER, H. F. (1935). *Z. Kristallogr.* **90**, 508.
- MACHATSCHKI, F. (1935). *Z. Kristallogr.* **90**, 314.
- MACHATSCHKI, F. (1936). *Z. Kristallogr.* **94**, 222.
- MACKENZIE, J. D., ROTH, W. L. & WENTORF, R. H. (1959). *Acta Cryst.* **12**, 79.
- SCHULZE, G. E. (1934). *Z. phys. Chem. B*, **24**, 215.
- SHAFFER, E. C., SHAFFER, M. W. & ROY, R. (1956). *Z. Kristallogr.* **108**, 263.