Bokite  
\((\text{Al}, \text{Fe}^{3+})_{1.3} (\text{V}^{5+}, \text{V}^{4+}, \text{Fe}^{3+})_8 \text{O}_{20} \cdot 7.4\text{H}_2\text{O})\)

\(^{(c)2001-2005}\) Mineral Data Publishing, version 1

Crystal Data: Monoclinic, probable.  
Point Group: n.d.  
Platy to columnar or wedge-shaped grains, to 0.3 mm long, in reniform crusts with radiating structure; in veinlets.

Physical Properties:  
Cleavage: One direction, perfect || elongation, another fair ⊥ to first.  
Hardness = \(~3\)  
D(meas.) = 2.97–3.10  
D(calc.) = [3.41]

Optical Properties:  
Opaque, translucent in thinnest fragments.  
Color: Black; pale gray in reflected light.  
Streak: Black, may be brownish black.  
Luster: Semimetallic to dull.  
Optical Class: Biaxial.  
Pleochroism: Strong; dirty olive-green to deep reddish brown.  
Absorption: X > Z.  
\(\alpha = 2.01(5)\ (\alpha')\  \beta = \text{n.d.}\  \gamma = 2.06(5)\ (\gamma')\  2\text{V}(\text{meas.}) = \text{n.d.}\)

Anisotropism: Strong; brownish yellow to gray-blue.

Cell Data:  
Space Group: n.d.  
\(a = 11.838(5)\  b = 3.643(1)\  c = 11.142(5)\)  
\(\beta = 110.58(4)^\circ\  Z = [1]\)

X-ray Powder Pattern: Kurumsak area, Kazakhstan.  
10.47 (100), 3.452 (30), 2.907 (12), 2.592 (12), 1.8208 (11), 3.177 (9), 2.760 (9)

Chemistry:  
<table>
<thead>
<tr>
<th>Compound</th>
<th>(1)</th>
<th>(2)</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{V}_2\text{O}_5)</td>
<td>50.30</td>
<td>49.70</td>
<td>BaO</td>
<td>trace</td>
</tr>
<tr>
<td>(\text{V}_2\text{O}_4)</td>
<td>14.10</td>
<td>14.00</td>
<td>Na$_2$O</td>
<td>trace</td>
</tr>
<tr>
<td>(\text{SiO}_2)</td>
<td>trace</td>
<td>trace</td>
<td>K$_2$O</td>
<td>0.00</td>
</tr>
<tr>
<td>(\text{Al}_2\text{O}_4)</td>
<td>3.90</td>
<td>4.40</td>
<td>(\text{H}_2\text{O}^+)</td>
<td>7.70</td>
</tr>
<tr>
<td>(\text{Fe}_2\text{O}_3)</td>
<td>15.30</td>
<td>15.40</td>
<td>(\text{H}_2\text{O}^-)</td>
<td>6.60</td>
</tr>
<tr>
<td>(\text{MgO})</td>
<td>trace</td>
<td>trace</td>
<td>(\text{SO}_3)</td>
<td>0.00</td>
</tr>
<tr>
<td>(\text{CaO})</td>
<td>trace</td>
<td>trace</td>
<td>Total</td>
<td>[97.90]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| (1) Kurumsak area, Kazakhstan; original total given as 98.20%; corresponds to \((\text{Al}_{0.72}\text{Fe}_{0.60})_{\Sigma=1.32}(\text{V}_{6.80}\text{Fe}_{1.20})_{\Sigma=8.00}\text{O}_{20} \cdot 7.4\text{H}_2\text{O})\).  (2) Do.; with jarosite impurity, corresponds to \(\text{K}_{0.26}(\text{Al}_{0.86}\text{Fe}_{0.14})_{\Sigma=1.26}(\text{V}_{6.74}\text{Fe}_{1.26})_{\Sigma=8.00}\text{O}_{20} \cdot 7.4\text{H}_2\text{O})\).
| Occurrence: In carbonaceous vanadiferous shales (Kurumsak area, Kazakhstan); in rich U–V ore in Triassic stream channels and impregnating sandstone (Monument No. 2 mine, Arizona, USA).
| Association: Jarosite, kazakhstanite (Kurumsak area, Kazakhstan); navajoite (Monument No. 2 mine, Arizona, USA).
| Distribution: From the Balasauskandyk and nearby Kurumsak and Ran districts, northwestern Kara-Tau Mountains, and in the Dzhebagly Mountains, Talass Alatau Range, Kazakhstan. In the USA, in the Monument No. 2 mine, Apache Co., Arizona; at The Fish, Eureka Co., and near Cockalorum Wash, Nye Co., Nevada; and from the Wilson Springs (Potash Sulphur Springs) mine, Garland Co., Arkansas.
| Name: For Ivan Ivanovich Bok (1898–1983), Kazakh geologist, Institute of Geosciences, Alma-Ata, Kazakhstan.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.