**Falgarite**

**K₄(VO)₃(SO₄)₅**

**Crystal Data**: Monoclinic. *Point Group*: 2/m. As isometric or pseudo-octahedral individual crystals to 60 μm in spherical aggregates to 0.5 mm.


D(meas.) = 2.87(2) D(calc.) = 2.89

**Optical Properties**: Transparent. *Color*: Turquoise, green in thin section. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial. \( \alpha = 1.588(3) \) \( \beta \) (calc.) = 1.600(3) \( \gamma = 1.609(2) \)  

*Pleochroism*: Weak, 


**Cell Data**: *Space Group*: C2/c. \( a = 8.709(1) \) \( b = 16.146(2) \) \( c = 14.450(2) \) \( \beta = 106.785(4)^\circ \) \( Z = 4 \)

**X-Ray Diffraction Pattern**: Kuhi-Malik gorge near Ravat kishlak, Yagnob River, ~100 km north of Dushanbe, Tajikistan. 

2.881 (100), 3.17 (80), 3.20 (70), 3.14 (70), 3.01 (50), 4.26 (40), 3.52 (40)

**Chemistry**: (1)

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<table>
<thead>
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<tbody>
<tr>
<td>Na₂O</td>
<td>0.55</td>
</tr>
<tr>
<td>K₂O</td>
<td>20.76</td>
</tr>
<tr>
<td>Tl₂O</td>
<td>1.83</td>
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<tr>
<td>VO₂</td>
<td>29.38</td>
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<tr>
<td>SO₄</td>
<td>46.78</td>
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<tr>
<td>Total</td>
<td>99.29</td>
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</tbody>
</table>

(1) Kuhi-Malik gorge near Ravat kishlak, Yagnob River, ~100 km north of Dushanbe, Tajikistan; average electron microprobe and IR spectroscopic analyses; corresponds to \((K_{3.76}Na_{0.15}Tl_{0.07})V_{3.02}S_{4.99}O_{23.0}\).

**Occurrence**: Fumarolic, formed directly from gas emitted by a natural underground coal fire.

**Association**: Anhydrite, baryte, molybdate, a Tl-vanadyl sulfate, K-Mg sulfate, an anhydrous Mg-sulfate.

**Distribution**: At Kuhi-Malik gorge near Ravat kishlak, right bank of the Yagnob River, Fan-Yagnob coal deposit, ~100 km north of Dushanbe, Tajikistan.

**Name**: After the *Falgar*, an ancient Sogdian name for an area around the Zeravshan riverhead.

**Type Material**: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5234/1).