Transjordanite  

Crystal Data: Hexagonal.  Point Group: 6 m2.  As irregular grains to 0.2 mm.


Non-ferromagnetic.


Optical Class: Weakly bireflectant, non-pleochroic and weakly anisotropic.

R liberalism: (400) 41.0-40.2, (420) 42.2-41.1, (440) 43.2-42.4, (460) 44.5-43.5, (470) 45.1-44.2, (480) 45.7-44.8, (500) 47.1-46.2, (520) 48.3-47.3, (540) 49.6-48.3, (560) 49.9-48.5, (580) 51.6-49.9, (589) 52.1-50.3, (600) 52.6-50.8, (620) 53.4-51.4, (640) 54.0-51.9, (650) 54.3-52.1, (660) 54.5-52.3, (680) 55.0-52.6, (700) 55.5-53.0

Cell Data: Space Group: P 6 2m.  a = 5.8897(3)  c = 3.3547(2)  Z = 3


2.211 (100), 2.028 (42), 1.926 (37), 1.697 (21), 1.1035 (20), 1.676 (18), 1.672 (18)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ni</td>
<td>67.80</td>
<td>60.55</td>
<td>79.12</td>
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<tr>
<td>Fe</td>
<td>10.20</td>
<td>18.16</td>
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</tr>
<tr>
<td>Co</td>
<td></td>
<td>0.26</td>
<td></td>
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<tr>
<td>S</td>
<td></td>
<td>0.27</td>
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<tr>
<td>P</td>
<td>21.50</td>
<td>20.53</td>
<td>20.88</td>
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<tr>
<td>Total</td>
<td>99.50</td>
<td>99.77</td>
<td>100.00</td>
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</tbody>
</table>

(1) Transjordan Plateau, Jordan; average electron microprobe analysis, corresponds to (Ni1.72Fe0.27)2+1.99P1.02.  (2) Cambria meteorite; average electron microprobe analysis; corresponds to (Ni1.52Fe0.48Co0.01)2+2.01(P0.98S0.01)2=0.99.  (3) Ni2P.

Polymorphism & Series: Complete solid solution with barringerite.

Occurrence: In a pyrometamorphic phosphide assemblage commonly confined to the interstices between calcined, unmelted sediments and paralavas (Daba-Siwaqa complex).  Paralavas are sediments (chalks and marls) melted at the temperature beyond 1100 °C, yielding different types of remelted basic silicate rocks.  In a meteorite (iron ungrouped, fine octahedrite), and likely in CM2 carbonaceous chondrites (Mighei group).

Association: Murashkoite, zuktamrurite, negevite, halamishite, pyrrhotite, troilite, hematite, magnetite, Cu-bearing trevorite, molybdenite (exsolution?) lamellae (Transjordan); troilite, chreibersite (Cambria meteorite).

Distribution: From the Daba-Siwaqa complex, Transjordan Plateau, Jordan.  In the Cambria meteorite (iron ungrouped, fine octahedrite)

Name: After the Transjordan Plateau, Jordan, where the new mineral was discovered.

Type Material: Mineralogical Museum, Department of Mineralogy, St. Petersburg State University, Russia (19605).