Crystal Data: Monoclinic.  
Point Group: 2/m or m.  
Dipyramidal crystals, to 1.5 mm; may be in etched anhedral blebs.

Physical Properties: Cleavage: Poor on {001}.  
Tenacity: Brittle.  
Hardness = 3.5
D(meas.) = 2.63(2)  
D(calc.) = 2.64

Optical Properties: Transparent.  
Color: Yellow, greenish yellow, pink or pale lavender.  
Streak: White.  
Luster: Dull.

Optical Class: Biaxial (+).  
Pleochroism: Slight; X = mauve; Y = light mauve; Z = colorless.  
Orientation: Y = b; Z ∧ c = 15°.  
Absorption: X > Y > Z.  
α = 1.580(1)  
β = 1.584(1)
γ = 1.591(1)  
2V(meas.) = 81(5)°  
2V(calc.) = 74°

Cell Data: Space Group: P2/a or Pa.  
a = 14.842(9)  
b = 6.976(1)  
c = 10.109(4)
β = 112.59(5)°  
Z = 2

X-ray Powder Pattern: Tip Top mine, South Dakota, USA; close to other whiteites.  

Chemistry:  

<table>
<thead>
<tr>
<th>Compound</th>
<th>Formula</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₂O₅</td>
<td>38.2</td>
<td></td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>12.9</td>
<td></td>
</tr>
<tr>
<td>FeO</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>MnO</td>
<td>12.0</td>
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</tr>
<tr>
<td>MgO</td>
<td>9.4</td>
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</tr>
<tr>
<td>CaO</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>H₂O</td>
<td>20.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.5</td>
<td></td>
</tr>
</tbody>
</table>

(1) Tip Top mine, South Dakota, USA; by electron microprobe, total Fe as FeO, total Mn as MnO; H₂O by TGA-EGA; corresponds to (Ca₀.76Mn₀.24)Σ=1.00Mn₀.2⁺(Mg₀.78Fe₀.2⁺Mn₀.05)Σ=2.00Al₁.₉₃(PO₄)₄.₁₁(OH)₁.₄₆•8.₂H₂O.

Mineral Group: Whiteite group; Al > Fe³⁺ in the M(3) structural site.

Occurrence: Along fracture surfaces in beryl and quartz in a zoned complex granite pegmatite.

Association: Montgomeryite, tiptopite, roscherite, englishite, beryl.

Distribution: From the Tip Top mine, 8.5 km southwest of Custer, Custer Co., South Dakota, USA.

Name: For its relation to sl whiteite-(CaFeMg); the suffix indicates sequentially the dominant atom in the X, M(1), and M(2) structural positions.


References:  
(2) (1990) Amer. Mineral., 75, 933 (abs. ref. 1).