Vanadoallanite-(La)  CaLaV$^{3+}$AlFe$^{2+}$(SiO$_4$)(Si$_2$O$_7$)O(OH)

Crystal Data:  Monoclinic.  Point Group: 2/m.  As prismatic crystals to 300 μm elongated along [010].


Optical Class:  n.d.

Cell Data:  Space Group: P2$_1$/m.  a = 8.8985(2)  b = 5.7650(1)  c = 10.1185(2)  β = 114.120(1)°  Z = 2

X-ray Powder Pattern:  Calculated pattern.  2.910 (100), 2.621 (53), 3.521 (49), 2.883 (38), 2.716 (37), 2.715 (36), 7.908 (27)

Chemistry:

| Element | Formula | Mol % | (1) 
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>SiO$_2$</td>
<td>29.97</td>
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<tr>
<td>TiO$_2$</td>
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<tr>
<td>Al$_2$O$_3$</td>
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<tr>
<td>Cr$_2$O$_3$</td>
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<td>V$_2$O$_5$</td>
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<tr>
<td>FeO</td>
<td>[6.94]</td>
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<tr>
<td>Fe$_2$O$_3$</td>
<td>[5.47]</td>
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<tr>
<td>MnO</td>
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<tr>
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<tr>
<td>CaO</td>
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</tbody>
</table>

(1) Shobu area, Ise City, Mie Prefecture, Japan; average of 3 electron microprobe analyses, H$_2$O by difference, Fe$^{2+}$/Fe$^{3+}$ calculated for charge balance; corresponding to (Ca$_{0.75}$Sr$_{0.01}$La$_{0.45}$Ce$_{0.14}$Pr$_{0.07}$Nd$_{0.18}$Mn$^{2+}_{0.38}$Fe$_{1.00}$V$_{3+}_{0.63}$Cr$_{0.01}$Al$_{0.91}$Ti$_{0.08}$Al$_{3-3.00}$Si$_{3.02}$O$_{12}$)(OH)$_{2-3.06}$F$_{0.02}$.

Mineral Group:  Epidote supergroup, allanite subgroup.

Occurrence:  In a vein cutting a stratiform ferromanganese deposit.

Association:  Rhodochrosite, tephroite, magnetite, hematite, caryopilite, monazite-(La), chalcopyrite, pentlandite, heazlewoodite, bementite, iseite.

Distribution:  From the Shobu area, Ise City, Mie Prefecture, Japan.

Name:  For a member of the allanite group with dominant vanadium in the M1 site and suffix for the dominant rare earth element, lanthanum.

Type Material:  National Museum of Nature and Science, Tokyo, Japan (M-43737).