Stevensite  
\((\text{Ca}_{0.5}, \text{Na})_{0.3}\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2\)

Crystal Data:  [Monoclinic] (by analogy to the smectite group).  Point Group:  n.d.  Aggregates of plates, to 1 \(\mu\)m; massive.

Physical Properties:  Hardness = 2.5  \(D(\text{meas.}) = 2.15-2.56\)  \(D(\text{calc.}) = \text{n.d.}\).  Positive identification of minerals in the smectite group may need data from DTA curves, dehydration curves, and X-ray powder patterns before and after treatment by heating and with organic liquids.


Cell Data:  Space Group:  n.d.  \(Z = \text{n.d.}\).

X-ray Powder Pattern:  Springfield, New Jersey, USA; very close to saponite.  
12.5–13.0 (10), 2.55 (10), 4.54 (6), 1.520 (4), 3.17–3.20 (3), 26.5 (2)

Chemistry:  
\[
\begin{array}{cccc}
\text{SiO}_2 & 57.30 & 51.38 & 61.99 \\
\text{TiO}_2 & 0.02 & & \\
\text{Al}_2\text{O}_3 & 0.00 & 0.04 & \\
\text{Fe}_2\text{O}_3 & 0.32 & 1.29 & \\
\text{FeO} & 0.00 & & \\
\text{MnO} & 0.21 & & \\
\text{MgO} & 27.47 & 23.92 & 31.19 \\
\text{CaO} & 0.97 & 0.73 & 2.17 \\
\text{Na}_2\text{O} & 0.03 & 0.59 & \\
\text{K}_2\text{O} & 0.03 & 0.18 & \\
\text{F} & 0.00 & & \\
\text{H}_2\text{O}^+ & 7.17 & [21.85] & 4.65 \\
\text{H}_2\text{O}^- & 6.69 & & \\
\end{array}
\]

Total 100.19 [100.00] 100.00

(1) Springfield, New Jersey, USA.  (2) Prócidia Island, Italy; by electron microprobe, \(\text{H}_2\text{O}\) by difference; corresponds to \((\text{Na}_{0.09}\text{Ca}_{0.06}\text{K}_{0.02})\Sigma=0.17(\text{Mg}_{0.27}\text{Fe}^{3+}_{0.08})\Sigma=2.85\text{Si}_4\text{O}_{10}(\text{OH})_2^2\).  
(3) \((\text{Ca/2})_{0.3}\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2^2\).

Mineral Group:  Smectite group.

Occurrence:  In cavities in basalt, formed by late-stage hydrothermal replacement of pectolite.  A hydrothermal alteration product of igneous rocks, as dunite and tuff.  May form authigenically, interstratified with other species.

Association:  Quartz, talc, pectolite.


Name:  For E.A. Stevens, founder, Stevens Institute of Technology, Hoboken, New Jersey, USA.


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.