Flinteite

Crystal Data: Orthorhombic.  \textit{Point Group: mm2}.  As prismatic crystals, to 1.2 mm, and as granular aggregates or crusts, to 5 mm.

\textit{Hardness = \sim 2}  \textit{D(meas.) = n.d.}  \textit{D(calc.) = 2.49}

\textit{Optical Class:} Biaxial (+).  \textit{\(\alpha = 1.573(1)\)  \(\beta = 1.574(1)\)  \(\gamma = 1.576(1)\)  \(2V(meas.) = 40(25)^\circ\)  \(2V(calc.) = 71^\circ\)}

Cell Data:  \textit{Space Group: Pna21}.  \textit{\(a = 26.8090(10)\)  \(b = 12.4085(6)\)  \(c = 7.2512(3)\)  \(Z = 12\)}

X-ray Powder Pattern: Tolbachik volcano, Kamchatka, Russia.  
3.599 (100), 3.629 (98), 5.123 (88), 2.688 (46), 3.133 (35), 2.897 (35), 6.23 (27)

Chemistry: 
\begin{align*}
\text{K} & \quad 24.97 \quad 27.40 \\
\text{Tl} & \quad 5.82 \\
\text{Co} & \quad 0.07 \\
\text{Zn} & \quad 22.23 \quad 22.91 \\
\text{Cl} & \quad 46.95 \quad 49.69 \\
\text{Total} & \quad 100.04 \quad 100.00
\end{align*}

(1) First Scoria cone, Tolbachik volcano, Kamchatka, Russia; average of 4 electron microprobe analyses supplemented by Raman spectroscopy; corresponding to \((\text{K}_{1.91}\text{Tl}_{0.09})\text{Zn}_{1.04}\text{Cl}_{3.96}\).

(2) \(\text{K}_2\text{ZnCl}_4\).

Occurrence: Formed as sublimates on basaltic scoria around active volcanic fumaroles, probably as the result of a phase transition when cooling after the extraction of crystals of its protophase.

Association: Langbeinite, calciolangbeinite, aphthitalite, fluoborite, sylvite, halite, arcanite, tenorite, zincite, chubarovite, krasheninnikovite, vanhoffite, wulfmite, johillerite, usurovite (Arsenatnaya fumarole, Second scoria cone); belloite, avdoninite, eriochalcite, mellizinkalite, sylvite, halite, carnallite, mitscherlichite, sanguite, chrysothallite, romanorlovite, gypsum, chlorothionite, kainite (Glavnaya Tenoritovaya fumarole, Second scoria cone); and halite, sellaite, fluorite, saltonseaite, chubarovite, hollandite (First Scoria cone).

Distribution: From the First scoria cone and the Arsenatnaya and Glavnaya Tenoritovaya fumaroles, Second scoria cone, Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka, Russia.

Name: Honors the Russian crystallographer Evgeniy Evgenievich Flint (1887-1975), Professor of Crystallography, Moscow State University (1925-1930), Professor of Mineralogy and Crystallography, Moscow Geological Prospecting Institute (1930-1962) and Senior Researcher, Institute of Crystallography, USSR Academy of Sciences (1938-1962). He was a specialist in goniometry, X-ray crystallography and compiled a catalogue of pyroelectric and piezoelectric crystals including almost 1000 species.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (94374).