Sanguite $KCuCl_3$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As prismatic crystals elongated along [100] to 1 mm, that display {011}, {100}, and {010} and typically occur in groups, dense clusters or crusts.

Physical Properties: *Cleavage*: Perfect on {010}, distinct on $\{10\bar{2}\}$. *Fracture*: Stepped. *Tenacity*: Brittle. Hardness = ~ 3 D(meas.) = 2.96(1) D(calc.) = 2.88

Optical Properties: Transparent. *Color*: Bright red, dark to brownish red with alteration. *Streak*: Reddish orange. *Luster*: Vitreous.
Optical Class: Biaxial (-). α = 1.653(3) β = 1.780(6) γ = 1.900(8) 2V(meas.) = 85(5)° 2V(calc.) = 82° *Orientation*: $Y = b$, $Z \wedge a = 48°$. *Dispersion*: Very strong, $r > v$.
Pleochroism: Strong; Z = brownish red; Y = gray to pinkish gray; X = yellowish gray to colorless.
Absorption: $Z > Y > X$.

Cell Data: *Space Group*: $P2_1/c$. a = 4.0281(2) b = 13.7906(6) c = 8.7335(4) β = 97.137(4)° Z = 4

X-ray Powder Pattern: Glavnaya Tenoritovaya fumarole, Tolbachik volcano, Kamchatka, Russia. 6.92 (100), 2.709 (82), 7.36 (78), 2.857 (73), 3.684 (69), 3.146 (64), 3.068 (63)

Chemistry:	(1)	(2)
K	18.57	18.71
Cu	29.79	30.41
Cl	50.66	50.88
Total	99.02	100.00

(1) Glavnaya Tenoritovaya fumarole, Tolbachik volcano, Kamchatka, Russia; average of 7 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $K_{1.00}Cu_{0.99}Cl_{3.01}$.
(2) $KCuCl_3$.

Occurrence: As sublimates on scoria around an active fumarole.

Association: Belloite, avdoninite, eriochalcite, sylvite, halite, carnallite, mitscherlichite, chrysothallite, romanorlovite, mellizinkalite, gypsum, chlorothionite, kainite, sellaite, hematite, tenorite, chalcocyanite.

Distribution: From the Glavnaya Tenoritovaya ("Major Tenorite") fumarole, Second scoria cone, Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka, Russia.

Name: Derived from the Latin *sanguis* (blood), referring to its bright red, blood-like color.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (94128 and 94139).

References: (1) Pekov, I.V., N.V. Zubkova, D. I. Belakovskiy, I.S. Lykova, V.O. Yapaskurt, M.F. Vigasina, E.G. Sidorov, and D.Y. Pushcharovsky (2015) Sanguite, $KCuCl_3$, a new mineral from the Tolbachik Volcano, Kamchatka, Russia. Can. Mineral., 53(4), 633-641. (2) (2016) Amer. Mineral., 101, 2782 (abs. ref. 1).