

Kryachkoite**(Al,Cu)₆(Fe,Cu)**

Crystal Data: Orthorhombic. *Point Group:* *mm*2. As subhedral crystals to 1.2 μ m.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d.
Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.79

Optical Properties: Opaque. *Color:* n.d. *Streak:* n.d. *Luster:* n.d.
Optical Class: n.d.

Cell Data: *Space Group:* *Cmc*2₁. *a* = 7.460 *b* = 6.434 *c* = 8.777 *Z* = 4

X-ray Powder Pattern: Calculated pattern.

2.051 (100), 2.130 (87), 2.001 (62), 2.243 (61), 2.061 (46), 2.164 (35), 2.007(32)

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|-------------------|------|
| Chemistry: | (1) |
| Al | 61.0 |
| Fe | 12.6 |
| Cu | 25.5 |
| Si | 0.17 |
| Cr | 0.40 |
| Total | 99.7 |

(1) Khatyrka CV3 carbonaceous chondrite meteorite; average of 8 electron microprobe analyses; corresponds to Al_{5.45}Cu_{0.97}Fe_{0.55}Cr_{0.02}Si_{0.01}; the species definition requires the presence of all three metals (Al, Cu and Fe).

Occurrence: In metal assemblages in a carbonaceous chondrite meteorite.

Association: Khatyrkite, aluminum (Al_{0.97}Cu_{0.03}), spinel, hercynite, forsterite, silicate glass.

Distribution: From the Khatyrka CV3 carbonaceous chondrite meteorite, Koryak Mountains, Far Eastern region, Russia.

Name: Honors Valery Kryachko who found the first samples of the Khatyrka meteorite in the Koryak Mountains in 1979 and later played a leading role in the expedition to recover more fragments in 2011.

Type Material: National Museum of Natural History, Washington, D.C., USA (in section 126A of USNM 7908).

References: (1) Ma, C., C. Lin, L. Bindi, and P.J. Steinhardt (2017) Hollisterite (Al₃Fe), kryachkoite (Al,Cu)₆(Fe,Cu), and stolperite (AlCu): Three new minerals from the Khatyrka CV3 carbonaceous chondrite. *Amer. Mineral.*, 102, 690-693.