

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As rounded grains to 20 μm included in magnetite.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Conchoidal. Hardness = ~4
D(meas.) = n.d. D(calc.) = 2.98 Fluoresces pale orange under SW UV.

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.
Optical Class: Biaxial (-). $\alpha = 1.650$ $\beta = 1.663$ $\gamma = 1.670$ $2V(\text{meas.}) = 75^\circ$
Orientation: $X = b$, $Y = a$, $Z = c$.

Cell Data: *Space Group:* Pbcm. $a = 6.215(2)$ $b = 7.011(2)$ $c = 10.788(3)$ $Z = 4$

X-ray Powder Pattern: Stora Sahavaara iron ore deposit, Norrbotten county, Sweden.
2.746 (100), 2.845 (90), 1.957 (30), 2.333 (25), 1.837 (20), 2.028 (15), 1.756 (15)

Chemistry:	(1)
P ₂ O ₅	33.19
Cl	16.96
CaO	53.25
- O = Cl ₂	3.83
Total	99.57

(1) Stora Sahavaara iron ore deposit, Norrbotten county, Sweden; average electron microprobe analysis supplemented by Raman spectroscopy; corresponds to Ca_{2.01}(P_{0.99}O_{3.98})Cl_{1.01}.

Occurrence: In diopside-amphibole skarn in metamorphosed greenstone, metavolcanic and metasedimentary rocks.

Association: Magnetite, serpentine, spinel, anhydrite, thorianite, dolomite, magnesite.

Distribution: At the Stora Sahavaara iron ore deposit, Norrbotten county, Sweden.

Name: Honors Pavel Mikhailovich *Goryainov* (b. 1937) of the Geological Institute of the Kola Centre of the Russian Academy of Sciences for his contribution to the knowledge of the geology and petrology of banded iron formation of the Fennoscandian Shield.

Type Material: Mineralogical Museum, St. Petersburg State University, Russia (19650).

References: (1) Ivanyuk, G.Y., V.N. Yakovenchuk, Y.A. Pakhomovsky, T.L. Panikorovskii, N.G. Konoplyova, A.V. Bazai, V.N. Bocharov, A.A. Antonov, and E.A. Selivanova (2017) Goryainovite, Ca₂PO₄Cl, a new mineral from the Stora Sahavaara iron ore deposit (Norrbotten, Sweden). GFF (Geologiska Föreningens Förhandlingar), 139(1), 75-82. (2) (2021) Amer. Mineral., 106, 161-162 (abs. ref. 1).