

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3} 2/m$ . Crystals very rare, showing  $\{11\bar{2}0\}$  and  $\{01\bar{1}2\}$ ; commonly granular, massive.

**Physical Properties:** *Cleavage:*  $\{11\bar{2}0\}$ , good. *Fracture:* Splintery or conchoidal. Hardness = 3 *D*(meas.) = 2.347 *D*(calc.) = [2.37] Astringent taste.

**Optical Properties:** Semitransparent. *Color:* Colorless, rose-red, violet, yellow, becoming brown on exposure; colorless to yellowish in transmitted light. *Luster:* Adamantine, commonly silky.

*Optical Class:* Uniaxial (+).  $\omega = 1.5886$   $\epsilon = 1.5894$

**Cell Data:** *Space Group:*  $R\bar{3}c$ .  $a = 11.98$   $c = 13.84$   $Z = 6$

**X-ray Powder Pattern:** Vesuvius, Italy. (ICDD 20-925). 2.509 (100), 6.0 (55), 2.593 (45), 5.75 (40), 2.811 (35), 2.653 (35), 3.46 (30)

Chemistry:	(1)	(2)
Na	5.61	5.62
K	28.90	28.69
Fe	13.94	13.66
Cl	51.87	52.03
Br	0.04	
Total	100.36	100.00

(1) Wolframshausen, Germany; average of two analyses. (2)  $\text{K}_3\text{NaFeCl}_6$ .

**Occurrence:** A secondary mineral in marine saline evaporite deposits; as a volcanic sublimate.

**Association:** Halite, sylvite, kieserite, carnallite, langbeinite, anhydrite.

**Distribution:** In Germany, in Lower Saxony, at Wolframshausen, near Nordhausen; from mines around Diekholzen and Salzdetfurth, near Hildesheim; at Wathlingen-Hänigsen, near Celle; and other mines around Hamelyn and Hannover. On Vesuvius, Campania, Italy. From Aislaby, Eskdale, Yorkshire, England. In the Gaudark salt deposit, Gissar Mountains, Uzbekistan. In salt beds under the Kansk-Taseev depression, Siberia, Russia.

**Name:** To honor Friedrich Wilhelm Berthold Rinne (1863–1933), German crystallographer and petrographer, University of Kiel, Kiel, Germany.

**Type Material:** n.d.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 107–108. (2) Beattie, J.K. and C.J. Moore (1982) Crystal and molecular structures of rinneite, sodium tripotassium hexachloroferrate(II), and hexaamminecobalt(III) hexachloroferrate(III). Comparison of iron-chloride distances in hexachloroferrates(II) and -(III). *Inorg. Chem.*, 21, 1292–1295.