

Quadridavyne



©2001 Mineral Data Publishing, version 1.2

Crystal Data: Hexagonal. *Point Group:* $6/m$. Crystals hexagonal, prismatic, elongated along $[0001]$, to 2 mm, showing dominant $\{10\bar{1}0\}$ and $\{0001\}$. *Twinning:* On $\{10\bar{1}0\}$, commonly observed.

Physical Properties: *Cleavage:* $\{0001\}$, perfect; $\{11\bar{2}0\}$, distinct. *Tenacity:* Brittle. Hardness = ~ 5 D(meas.) = 2.335(5) D(calc.) = 2.354

Optical Properties: Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial (+). $\omega = 1.529(1)$ $\epsilon = 1.532(1)$

Cell Data: *Space Group:* $P6_3/m$. $a = 25.771(6)$ $c = 5.371(1)$ $Z = 4$

X-ray Powder Pattern: Ottaviano, Italy; can be distinguished from davyne only by single-crystal diffraction.

3.71 (vs), 3.31 (vs), 4.80 (s), 2.788 (s), 2.677 (m), 2.474 (m), 2.147 (m)

Chemistry:

| | (1) |
|--------------------------------|-------|
| SiO ₂ | 33.09 |
| Al ₂ O ₃ | 27.62 |
| CaO | 11.35 |
| Na ₂ O | 11.21 |
| K ₂ O | 5.93 |
| Cl | 12.13 |
| SO ₃ | 1.08 |
| -O = Cl ₂ | 2.74 |
| Total | 99.67 |

(1) Ottaviano, Italy; by electron microprobe, average of five analyses; corresponding to $(\text{Na}_{3.97}\text{K}_{1.38})_{\Sigma=5.35}\text{Ca}_{2.22}(\text{Si}_{6.05}\text{Al}_{5.95})_{\Sigma=12.00}\text{O}_{23.90}[\text{Cl}_{3.76}(\text{SO}_4)_{0.15}]_{\Sigma=3.91}$.

Mineral Group: Cancrinite group.

Occurrence: In volcanic ash containing metasomatized and hydrothermally altered lavas and scoriae, from the 1906 eruption of Vesuvius.

Association: n.d.

Distribution: From Ottaviano, near Naples, Campania, Italy.

Name: From the Latin *quad*, for *four*, as the mineral has four times the unit cell volume of the related mineral species *davyne*.

Type Material: University of Pisa, Pisa, Italy, 10014.

References: (1) Bonaccorsi, E., S. Merlino, P. Orlandi, M. Pasero, and G. Vezzalini (1994) Quadridavyne, $[(\text{Na, K})_6\text{Cl}_2][\text{Ca}_2\text{Cl}_2][\text{Si}_6\text{Al}_6\text{O}_{24}]$, a new feldspathoid mineral from Vesuvius area. Eur. J. Mineral., 6, 481–487.