Oreillyite Cr_2N

Crystal Data: Hexagonal. *Point Group*: $\bar{3}$ 2/*m*. As a subhedral volume sandwiched between corundum and native chromium.

Physical Properties: *Cleavage*: n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = n.d.
D(meas.) = n.d. D(calc.) = 6.64

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

Cell Data: *Space Group: P*$\bar{3}$ 1*m*. *a* = 4.7853(5) *c* = 4.4630(6) Z = 3

X-Ray Diffraction Pattern: Calculated pattern.
2.119 (100), 2.119 (82), 2.239 (38), 1.389 (29), 2.405 (25), 1.180 (20), 1.639 (18)

Chemistry:

	(1)	(2)
Cr	86.9	88.13
N	13.1	11.87
Total	100.0	100.00

(1) Kishon Mid Reach zone 1, Kishon river, Haifa district, Israel; average TEM-EDS analysis.
(2) Cr_2N.

Occurrence: In xenoliths in pyroclastic ejecta from basaltic volcanoes. This ultra-reduced mineral assemblage may reflect the interaction of deep-seated basaltic magmas with mantle derived CH_4 + H_2 at high fluid/melt ratios.

Association: Inside a 1.7 mm crystal of corundum with a hollow center and raised rims, indicating hopper growth.

Distribution: From bulk alluvial samples in the Kishon Mid Reach zone 1, Kishon river, Haifa district, Israel. Near Mount Carmel, Northern Israel.

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Type Material: Natural History Museum, University of Florence, Italy (3364/I) and the Center for Microscopy, Characterization and Analysis, The University of Western Australia, Perth, Australia (1174-C_FF).

References: (1) Bindi L, F. Cámara, S.E.M. Gain, W.L. Griffin, J.-X. Huang, M. Saunders, and V. Toledo (2020) Kishonite, VH_2, and oreillyite, Cr_2N, two new minerals from the corundum xenocrysts of Mt Carmel, Northern Israel. Minerals, 10, 1118, 1-10.