

**Crystal Data:** Hexagonal. *Point Group:* 6/m 2/m 2/m. As globules to  $\sim 0.5\ \mu\text{m}$  and one oval grain  $\sim 1\ \mu\text{m}$ . *Twinning:* Observed in the synthetic equivalent.

**Physical Properties:** Cleavage: n.d. *Tenacity:* Brittle (synthetic). *Fracture:* n.d. Hardness = n.d.  $D(\text{meas.}) = \text{n.d.}$   $D(\text{calc.}) = 4.233$

**Optical Properties:** Opaque. *Color:* Gray to black (synthetic). *Streak:* n.d. *Luster:* Metallic (synthetic). *Optical Class:* n.d.

**Cell Data:** *Space Group:*  $P6_3/mmc$ .  $a = 3.49(7)$   $c = 11.7(2)$   $Z = 4$

**X-ray Powder Pattern:** Calculated pattern.

2.394 (100), 1.745 (44), 2.107 (33), 2.688 (31), 2.927 (26), 1.856 (26), 3.022 (14)

Chemistry:	(1)	(2)
P	39.44	39.29
Ti	60.56	60.71
Total	100.00	100.00

(1) Cr-11 orebody, Luobusha ophiolite, near Kangjinla, Tibet, China; energy dispersive X-ray spectroscopic analysis; corresponds to  $\text{Ti}_{1.020}\text{P}_{0.980}$ . (2) TiP.

**Occurrence:** In podiform ophiolite. In a polymineralic spheroid  $20\ \mu\text{m}$  across inferred to have crystallized from a droplet of Ti-Si-P intermetallic melt.

**Association:** Corundum, zhiqinite.

**Distribution:** In laboratory-concentrated separates from the Cr-11 orebody, Luobusha ophiolite, near Kangjinla,  $\sim 200\ \text{km}$  east southeast of Lhasa, Tibet, China.

**Name:** Honors Tibetan geologist *Badengzhu* (b. 1939) of the Tibet Ore Industry Co., Ltd., Lhasa, who discovered the chromite ore deposits in the Luobusa ophiolite.

**Type Material:** Chinese Geological Museum, Beijing, People's Republic of China (M13817).

**References:** (1) Xiong, F., X. Xu, E. Mugnaioli, M. Gemmi, R. Wirth, E.S. Grew, P.T. Robinson, and J. Yang (2020) Two new minerals, badengzhuite, TiP, and zhiqinite,  $\text{TiSi}_2$ , from the Cr-11 chromitite orebody, Luobusa ophiolite, Tibet, China: Is this evidence for super-reduced mantle-derived fluids? *Eur. J. Mineral.*, 32, 557-574.