# IGNEOUS PETROCHEMISTRY OF MINERALIZED SKARN SYSTEMS IN NW NEUQUÉN, ARGENTINA

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There are several mineralized skarn systems in NW Neuquén, Argentina associated with Upper Cretaceous and Paleocene granitoids. These plutons have $SiO_2$ and $Al_2O_3$ contents of 50.1-69.2 wt. % and 15.6-20.9 wt. %, respectively, indicating they are calc-alkaline and metaluminous to slightly peraluminous. Trace elements, normalized to average tholeiitic (N-type) MORB, are typical of calc-alkaline continental arcs but with a significant Nb depletion.Igneous rocks related to Neuquén Cu skarns are characterized by the absence of ilmenite, high $Fe_2O_3/(Fe_2O_3 + FeO)$ (0.41), low $K_2O/Na_2O$ (0.06-0.53), and moderate $K_2O$ (mean 1.5 wt.%). As is typical of Cu skarns, they are low in compatible elements such as Ni (2 to 8 ppm), Sc (4 to 17), and V (25 to 160), but have lower Rb/Sr (0.01 to 0.16) and Ba (102 to 946), indicating a relatively minor degree of differentiation and crustal assimilation in Neuquen rocks.As is typical of most Au skarns, granitoids associated with Neuquén Au-mineralized skarns are significantly more reduced ($Fe_2O_3/Fe_2O_3+FeO=0.13$-0.49) than typical Fe or Cu-skarn plutons and contain more MgO (1.5 to 5.5%), less $K_2O$ (0.3 to 2.3%), and less $Si_2O$ than plutons typically associated with Cu, Mo, Zn, W and Sn skarns. Cr (17 to 51.3) and Sc are similar to Fe-skarn plutons and Ni, V and Y (13.3 to 23.8) are similar to Cu-skarn plutons. Other trace elements such as Sc (10 to 20ppm), V (53 to 222) and Ni (20 to 35) and low Rb/Sr (0.01 to 0.19) are similar to typical Au skarn plutons.