Simple discussions of hardness of minerals assume that any mineral has one value of hardness, and that hardness varies across only a few units of the Mohs scale. Significant variation also exists within quartz, apatite, and calcite, three index minerals of the Mohs scale. Thus defining integer values of Mohs hardness by the hardness of a particular mineral is problematic, because at least some of those minerals, and probably all of them, have hardnesses that vary.

One of the most striking examples of this effect is kyanite, where hardness varies across several units of the Mohs scale. Significant variation also exists within quartz, apatite, and calcite, three index minerals of the Mohs scale. Thus defining integer values of Mohs hardness by the hardness of a particular mineral is problematic, because at least some of those minerals, and probably all of them, have hardnesses that vary.

Depiction of von Tertsch's data here is best considered qualitative, because the quantitative data reported defy simple transfer to this diagram.

Sources:
von Tertsch, H., 1950, Beobachtungen über Vickers-microhärte am Kalkspat: Mikroskopie: Zentralblatt für Mikroskopische Forschung und Methodik, v. 5, p. 172-183. Depiction of von Tertsch's data here is best considered qualitative, because the quantitative data reported defy simple transfer to this diagram.