

**TOURMALINE (SCHORL-DRAVITE) FROM GRANITIC PEGMATITES
IN VLASTĚJOVICE, CZECH REPUBLIC:
AN INDICATOR OF FRACTIONATION AND IN-SITU CONTAMINATION**

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Tourmaline is a valuable indicator of geochemical processes and it is widely used to monitor degree of fractionation or external contamination of pegmatite melts. Tourmaline-bearing granitic pegmatites cutting various rocks in Vlastějovice exhibit similar size and mostly simple internal structure and mineral assemblages (Tab. 1). The parental granite of the pegmatites cutting Fe-skarn (Footwall granite-pegmatite) is located along the footwall contact of Fe-skarn and underlying orthogneiss body and the relevant pegmatite melts passed several decameters solely through Fe-skarn. Hence, they represent a unique case to study degree of contamination in pegmatites with distinct host rocks and degree of fractionation.

| Pegmatite/degree of fractionation | Host rock/ reaction rim | Fe, Mg, Mn-minerals |
|-----------------------------------|---------------------------|---------------------|
| Březina/low | migmatized gneiss/none | Tur~Grt>Bt |
| Nosatá skála/low | pyroxene gneiss/none | Tur>Bt>Grt |
| Footwall granite-pegmatite/low | orthogneiss/Fe-skarn/thin | Bt>>Tur>Amp |
| Pegmatite No.4/ low | Fe-skarn/moderate | Bt>>Tur>Amp |
| Pegmatite No.12/ low | Fe-skarn/thick | Bt>>Tur~Amp |
| Spessartine pegmatite/moderate | Fe-skarn/none | Bt>Tur>Grt |
| Elbaite pegmatite/high | Fe-skarn/none | Tur>>Bt |

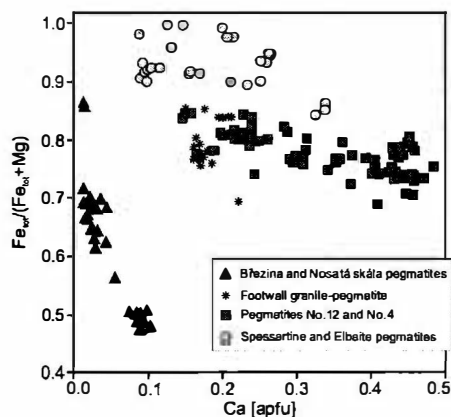


Table 1. Brief review of the pegmatites examined.

Figure 1. Plot $Fe_{oct}/(Fe_{oct}+Mg)$ vs. Ca in tourmalines.

Evident Ca,Fe-contamination is seen in tourmaline from all pegmatites cutting Fe-skarn, whereas contamination in the pegmatites from gneisses is negligible. The overall positive correlation Ca-Fe is evident but the individual dikes show rather negative correlation with distinct slopes (Fig. 1). In the pegmatites from gneisses this evolution reflects fractionation of the melt to Ca-poor and Fe-enriched; however, in the contaminated pegmatites this process is more or less overprinted by the Ca, Fe-contamination from host Fe-skarn and fractionation of Mg from Fe is enhanced by contamination. The Footwall granite-pegmatite located between Fe-skarn and orthogneiss exhibits transitional features and corroborate these results. The tourmaline evolution in Vlastějovice also confirms tourmaline as a useful geochemical indicator.

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