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Microstructure Analysis of Syntectonic Dykes in NW of Alvand Pluton, Sanandaj Sirjan Zone, Iran

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The study area is located at the northwestern Alvand pluton in northwest of the Sanandaj-Sirjan zone. The Sanandaj- Sirjan zone is metamorphic belt which is related to the Zagros orogenic belt. Granitic rocks in this area is surrounded by dominant gabbroic rocks. At the northwest of Alvand pluton, granites are intruded in the hornfels and schists. Many enclaves from hornfels rocks shown in the granite that these enclaves are elliptical. Abundant granitic dykes are intruded. Granite rock minerals include quartz, feldspar, mica and some minerals of tourmaline and garnet. Granitic dykes completely deformed and are mylonitic. Quartz are highly dynamics recrystallized and fine grained in thin section and stretched of quartz construct of ribbons.

Plagioclases have deformation twining and some are broken and sheared. Pertite, microcline and Myrmkite also be seen in microscopic sections. Hornfels rocks are generally undeformed and shear deformation is found only close to the contact areas with deformed dykes. Most deformation can be seen at the contact of granitic dykes and hornfels rocks and within the granite sections are relatively healthy and are without deformation. Mylonitic foliation in these rocks is vertical with north-south trend and dips of dykes have swing between east and west. Magmatic and solid-state foliation foliation in this area, are parallel together And in some other parts of this area these foliation have angle with each. In outcrops scales can be over printed evidences of solid-state foliation on the magmatic foliation. K-feldspars are placed in a regular arrangement is evidence of magmatic flow structure. K-feldspars regular arrangement are placed is magmatic flow structure evidence and large porphyroclasts of K-feldspars show solid state structure. S/C fabric, porphyroclasts and C-axes of quartz are shear sence indicator in microscopic sections. Kinematic indicators in mylonitic dykes show reverse displacement in the thin section and outcrops. Quartz C-axes fabric confirm the reverse movement. The shearing fabric evidence confirms that that dykes formed synchronous with Alvand plutonism.

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