

Information about the Environment and for travellers in Crete:

Mirsini (Northeast Crete) offers a lot geological: Garnet containing mica schist and amphibolites (Myrsini-Variscicum)

In regards to our info-leaflet [http://www.kreta-umweltforum.de/Merkblaetter_en/369-12E.pdf] and the work of U. KULL we visited the area of Mirsini and its geological places of interest:

“Approx a half mile south of Mirsini grey mica schist’s are developed which show retrograde metamorphism (N 35°0963; E 25°5672; N and S of the branch of the old road Mirsini Mesa Mouliana).” Thereby plagioclases were converted to sericite and biotite to chlorite minerals.



At the local exit of Mirsini, direction towards Sitia (E75), (past at a bus stop on the right side) after 100 m in a right curve on the left side, an old road cut forms a good outcrop for garnet containing mica schist as well as quartzite and Meta dolomite (see fig.: position of the Pick Up: N 35°168809; E 25°947132; KULL: N 35°1010; E 25°5679). The mica schist’s are folded strongly, the fold axes run SW-NE to W-E; see the following two pictures. The contained garnets within the mica schist show transformation and decomposition processes and is from brown-red colorings (see pictures at continuation page). This schistosity slightly breaks towards E.



The group of garnets is an important group of rock-forming minerals from the mineral class „of the silicates and germanite“ and the section of the island silicates (nesosilicates). The garnet minerals crystallize usually in the cubic crystal system and form predominantly isometric crystals with the characteristic forms of the rhombic dodecahedron, icositetrahedron as well as their combinations.

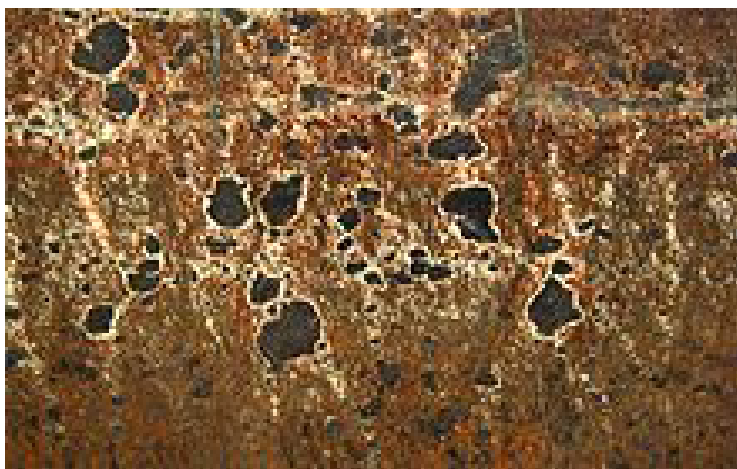


Garnets are generally transparent to translucently, with many foreign admixtures and in crude mineral aggregates also untransparent. Intact resp. un-weathered crystal faces exhibit a glass to fat-similar gloss. The colour of the garnet is very variable, even if reddish colour varieties outweighs. The palette reaches from a bright green over yellowish green to dark green, light yellow over yellow orange and orange as well as from a bright pink to a nearly black acting dark red. Colourless and brown varieties are rare.

Their relatively high density (3.5 to 4.5 g/cm³), Mohs scale (6.5 to 7.5) and refraction of light ($n = 1.61$ (katoite) to $n = 1.96$ (calderite) make them interesting both gem stone and for industrial applications. Detailed information to the group of garnets can also be found at: [<http://en.wikipedia.org/wiki/Garnet>].

The term garnet was only shaped in the Middle Ages, however its origin is in the Latin word “granum” for grain or core or “granatus” for granular or core-rich and refers on the one hand to the occurrence of the mineral in grains, which have similarity with the cores of the pomegranate (*Punica granatum*, see in addition also at: [http://www.kreta-umweltforum.de/Merkblaetter_en/44-04E.pdf, Page 2]) on the other hand in addition, on the orange to red-violet color of bloom, fruit and cores of the pomegranate.

Garnets as gem stones were used already in the antique. In the middle Ages they were together with rubies (rubies e.g. are good indicators for the geological past of the earth; they developed only at certain plate margins and are the result of the processes with a continent collision) and spinel also known as carbuncle.



Garnets suffer under certain circumstances within metamorphic rocks a transformation or decomposition. The result of these processes is called kelyphite, see in addition under:

[<http://en.wiktionary.org/wiki/kelyphite>] and the picture. Thereby numerous new minerals develop.

About 2 miles east of Mirsini one reaches the branch of a road towards Kalavros. At the curve of the main street, directly east of the branch with parking possibility, is an green slate-like amphibolites of the Myrsini Variscums,

become by metamorphose open (N 35°1035; E25°5853). The amphibolites shows an irregular lengthening in North-south direction according to tectonic transport in the alpidic phase.