
The Shergottites, Nakhlites and Chassigney are well known as SNC martian meteorites for long time. Recently Mittlefehldt (1994) reported that ALH84001 originally classified as a diogenite, has been properly classified as a unique orthopyroxenite martian meteorite. ALH84001 is the newly discovered martian meteorite differ from all SNC meteorites for its petrography, geochemistry and petrogenesis, therefore the new martian meteorite will give important information on petrologic evolution of martian crust.

Here I reported on re-searching of all diogenites collections in Japan for possibilities of new martian meteorite. Over 90 sepcimens have originally been identified and classified as diogenite in most 8,000 meteorites of Japanese collections. Diogenites in Japanese collections were divided to tentatively 4 types for mostly of their mineral assemblages and compositions.

**Type A**: Over 60 diogenites in this group consist almost entirely of Mg-rich orthopyroxene with relatively large chromite grains. Most of them are not brecciated and show a coarse-grained typical granoblastic texture as Yamato-74013. Others are monomict orthopyroxenite breccia up to few cm of cataclastic orthopyroxene grains as Johnstown diogenite. Orthopyroxene of Yamato-74013 ranges in composition En71.7-74.9 Fs23.1-25.6 Wol.8-3.1. A silica mineral and Ca-plagioclase were traced without any olivine.

**Type B**: Over 20 diogenites belong to this group. This type is typical monomict breccia consisting mostly of slightly Fe-rich (Mg-poor than type A) orthopyroxenes set in very dark glassy matrix (most of maskelynite), with clinopyroxene as Yamato-75032. Compositions of orthopyroxene ranged from En65Fs25 to En71Fs29. Some diogenites are dominant in plagioclase (An85-92) as Yamato-791200. No olivine was traced.

**Type C**: Several sepcimens belong to this group. This type C is an orthopyroxenite breccia consisting mostly of Mg-rich orthopyroxene with Mg-rich olivine and traced tiny-grains (up to 20μm) of Ca-plagioclase (maskelynite). Mineral compositions are orthopyroxene(En72.7Fs23.8Wo3.5-En75.4Fs22.0Wo2.6), olivine(Fo72-73) and plagioclase(An86-92).

**Type D**: Some achondrite might be belonged to this group. This type is breccia but originally cumulate rock showing poikilitic texture, consisting mostly of corse-grained pyroxene, granular olivine and interstitial plagioclase in grain boundaries. Pyroxene compositions are Mg-rich orthopyroxene (-En76Fs22) and clinopyroxene(-En15Fs50Wo35). Olivine is Mg-rich(-Fo70) in composition with little variation. Interstitial plagioclase are complete maskelymite and intermediate composition (almost An50). Orthopyroxenes in this type are Mg-rich more than those of all eucrites, and plagioclase is Ca-poor lesser than those of eucrites. Therefore the type D differs from all known eucrites.

**Relationship to "Martian Meteorites"**: The mineralogic and petrologic features of the type A and B meteorites are in common with diogenite group, but differ from those of the typical martian meteorites; the Nakhlites and Chassigny. Therefore the type A and B should be separated distinctly from those of the martian meteorites. Olivine compositions of the type C meteorite has similar to those of Shergottite ALH-77005, but they are quite different in plagioclase compositions. Plagioclase of the type C meteorites are Ca-rich (-An90) and are almost similar to those of the type B. Therefore the type C might be
Re-Searching for Martian Rocks: Yanai

classified one of diogenite group as the type A and B. However, the type C has several features in common with the ALH84001 and ALH-77005, especially orthopyroxene and olivine compositions as Figures. The type D also distinct clearly from the type A, B and C, therefore type D should be classified to some other type. There are high possibilities that type D meteorite might be originated from Mars, in its mineralogic and petrologic features, and chemical compositions.