

On the New Howardite Showing Unbrecciated-holocrystalline Texture

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The meteorite specimen 1152 is an unbrecciated-holocrystalline achondrite showing quite unique texture (Fig. 1). The lithology of this specimen is quite different from all known achondrite meteorites, however it might be classified to one of the howardite group for its chemical compositions and mineral assemblages. The specimen is as same as mineral assemblage of the most howardites, and it consists mainly of pyroxene (En_{47.4-82.5} Fs_{17.4-34.8} Wo_{0.9-35.2}) and plagioclase (Ab_{5.8-10.4} An_{89.2-94.2} Or_{0.0-0.3}) with some olivine (Fo_{58.6-63.0} Fa_{37.0-41.4}). It is also almost the same bulk chemistry of howardite, such as typical howardite Yamato-791157 polymict breccia.

The quite unique texture of the specimen might be indicated that this specimen is impactite with howardite compositions. However, the author expected that the meteorite specimen is the first howardite with unbrecciated-holocrystalline texture originated by the magma process on the HED (Howardite-Eucrite-Diogenite) parent body, possibly asteroid 4 Vesta. The bulk chemical compositions of the specimen 1152 meteorite are 49.50SiO₂, 0.09TiO₂, 7.34Al₂O₃, 6.28Fe₂O₃, 9.73FeO, 0.37MnO, 19.02MgO, 5.58CaO, 0.19Na₂O, under 0.02K₂O, 0.1H₂O(+), 0.10H₂O(-), 0.21P₂O₅, 0.52Cr₂O₃, 1.42FeS, under 0.1Fe, and total 100.57 in weight percent (%).

Fig. 1 Photomicrograph of the thin section of crystalline howardite 1152 meteorite specimen, field view is 11mm.

