



**FB-06-SMM – Provisional name: NWA 4677**

(Sahara)

Purchased : June 2006

Achondrite (Eucrite, anomalous)

**History:** The meteorite was purchased by F. Bérout in June 2006 at the Ste Marie-aux-Mines (France) show. According to the Moroccan seller, the meteorite was found in Sahara and other pieces had been previously sold to other collectors. **Physical characteristics:** A single, complete, partially crusted stone weighing 156.4 g. **Petrography:** (A. Seddiki, *Université d'Oran, Es-Senia, Algeria, and Université Jean Monnet, Saint-Etienne, France*; B. Moine, J.Y. Cottin, *Université Jean Monnet, Saint-Etienne, France*; B. Devouard, *Université Blaise Pascal Clermont-Ferrand (UBP), France*; M. Denise, *MNHNP, France*). The rock is brecciated and transected by impact melt veins. Undeformed clasts mostly consist of pyroxene and plagioclase grains (1-4 mm) with a cumulative texture. The pyroxenes are pigeonites with very fine (<1µm) exsolution lamellae. These clasts are embedded in a finer grained clastic matrix of the same nature. Accessory phases include spinel and teanite-kamacite-troilite assemblages and silica. **Geochemistry: Mineral compositions (EPM):** Spinel (Fe,Ti-rich chromite, Cr<sub>2</sub>O<sub>3</sub>% = 45); plagioclase An<sub>91</sub>; pigeonite Fs<sub>41.20-42.40</sub>Wo<sub>7-10</sub>; pyroxene Fe/Mn (atomic) = 27-32. Kamacite 4.9 wt% Ni and taenite 38.5-44.6 wt% Ni. **Classification:** Achondrite (eucrite, cumulate, monomict). Minor weathering, S3. This eucrite has an anomalous abundance of Ni-rich taenite grains. This, as well as the unusually small size of exsolution lamellae in pigeonite, is similar to what is reported for Dhofar 007 and EET 92023. **Specimens:** A type specimen of 20.2 g is on deposit at *MNHNP* and two sections are kept at *UBP*. Main Mass with F. Bérout.

