DRAFT

NWA2975 (shower)

Basaltic Shergottite

1.6 Kg (estimate)

Figure 1: Photograph of NWA2975 taken by Mike Farmer. Cube is 1 cm.

Introduction

Abstracts by Wittke et al. (2006) amd Bunch et al. (2008) describe a shower of small (~ 100g each) bits and pieces of basalitc shergottite (there may be over a hunderd pieces). Many have a fresh fusion crust (partial), a basaltic texture and the characteristic glass pockets and thin black glass veins such as are seen in Zagami etc. These glass pockets will prove important (see sections on EETA79001 and Zagami).

The first specimen, NWA 2975, was orginally purchased by Mike Farmer in Erfoud, Morocco, but the suspected strewnfield is thoguht to be in Algeria (Bunch et al.).

Petrography

According to Wittke et al. (2006), NWA2975 is a fresh, medium-grained, subophitic to granular hypsbyssal basalt with intergrown prismatic pyroxene and plagioclase grains up to 3 mm long (figure 2). The hand specimen also exhibits vesicular black glass veins

Mineralogical Mode for NWA2975

	Wittke et al. 2006
Pyroxene	57.3 vol. %
Plagioclase	38.3 (maskelynite)
Opaques	2.7
Phosphate	1.7

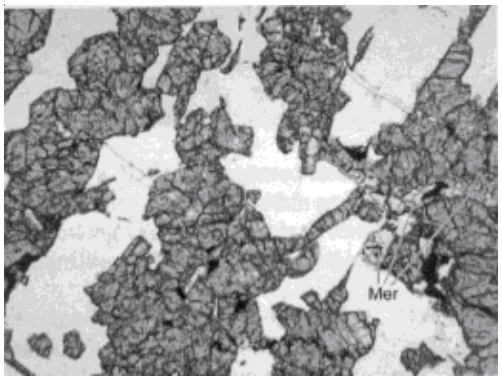

Figure 2: Thin section photomicrograph of NWA2975 (from Wittke et al. 2006). Field of view 2.3 mm. White area is maskelynite, dark is pyroxene.

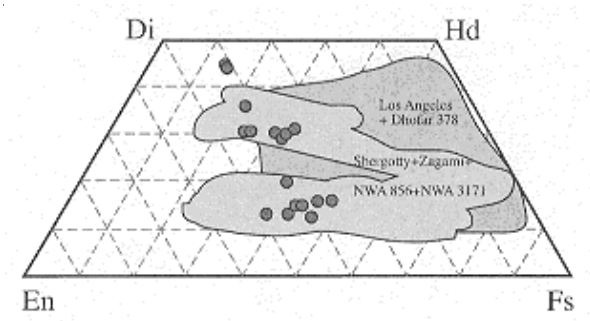

Figure 3: Pyroxene composition of NWA2975 compared with that of some other Martian shergottites (from Wittke et al. 2006).

up to 3 mm wide and glass pockets up to 6 mm (figure 4). Accessory phases include ulvospinel, ilmenite, chlorapatite, merrillite, pyrrhotite, Si-Al-K-Na-rich glass and baddeleyite. Large ulvospinel grains contain melt inclusions.

Mineral Chemistry

Pyroxenes: The pyroxenes in NWA2975 are relatively iron rich with exsolution features (figure 3). Both augite and pigeonite are present. The Mn/Fe ratio proves samples ar Martian.

Maskelynite: Plagioclase in NWA2975 has entirely been converted to maskelynite An_{55} (Wittke et al.).

Glass: Glass pockets are vesicular.

Chromite: Ulvospinel.

Sulfide: Pyrrhotite.

Phosphate: Merrillite.

Ilmenite: Attached to ulvospinel.

Whole-rock Composition

Not reported yet (2008).

Radiogenic Isotopes

Not yet.

Cosmogenic Isotopes

Not yet.

Other Isotopes

Not yet.

Suspected paired samples, with indiviual names: NWA 2986, 4766, 4783, 4857, 4864, 4878, 4880, 4930 etc.

References for NWA 2975

Connolly et al. (2006) The Meteoritical Bulletin, No. 90, 2006 September. *Meteortics & Planet. Sci*. **41**, 1383-1418.

Bunch T.E., Irving A.J., Wittke J.H. and Kuehner S.M. (2008) Highly evolved basaltic shergottite Northwest Africa 2800: A clone of Los Angeles (abs#1953). *Lunar Planet. Sci.* **XXXIX**. Lunar Planetary Institute, Houston. (CD-ROM)

Wittke J.H., Bunch T.E., Irving A.J., Farmer M. and Strope J. (2006) Northwest Africa 2975: An evolved basaltic shergottite with vesicular glass pockets and trapped melt inclusions. (abs#1368) *Lunar Planet. Sci. Conf.* **XXXVII** Lunar Planetary Institute, Houston. (CD-ROM)

Figure 4: Interior of NWA 2975 showing vesicular glass pockets and veins. Photo by Mike Farmer.


AH6
NWA 4880
32.3g