Northwest Africa 6704

Basic information	**Name:** Northwest Africa 6704 This is an OFFICIAL meteorite name. **Abbreviation:** NWA 6704 **Observed fall:** No **Year found:** unknown **Country:** Algeria **Mass:** 6.6 kg
Classification history:	**Recommended: Achondrite-ung** [explanation] This is 1 of 37 approved meteorites classified as Achondrite-ung. [show all] Search for other: Achondrites, Ungrouped achondrites
Comments:	Approved 17 May 2011
Writeup	Writeup from MB 99:

Northwest Africa 6704 (NWA 6704)
Algeria
Purchased: 2011 Feb-Apr
Classification: Ungrouped achondrite

History: A single, dense, yellowish-green stone was found in pieces in Algeria, and was purchased in February 2011 at the Tucson Gem and Mineral Show and over subsequent weeks from Moroccan dealers by Greg Hupé.

Physical characteristics: Twenty six pieces fit together as a single ovoid mass (6595 g) with rounded, shiny exterior and small patches of remnant black fusion crust. The interior is mostly pale yellowish green with rare darker brownish grains and sparsely distributed small grains of opaque oxide and metal.

Petrography: (A. Irving and S. Kuehner, *UWS*): Overall medium grained with an igneous cumulate texture. Small grains of olivine (0.5-0.8 mm) and chromite (0.1-0.6 mm) enclosed within large (to 4 mm) orthopyroxene oikocrysts, which are in turn surrounded by large optically continuous, intercumulus grains of untwinned albite and <0.1 mm awaruite. The silicates contain curvilinear trains of tiny rounded inclusions (2-20 μm), which appear on polished surfaces to be empty bubbles with smooth rounded walls.

Geochemistry: Olivine ($Fa_{51.6-53.2}$; FeO/MnO=120-140; NiO=0.9-1.0 wt.%), orthopyroxene ($Fs_{41.6-42.4}Wo_{2.8-3.6}$, FeO/MnO=81-82; Cr_2O_3=0.3 wt.%), plagioclase

	($Ab_{92-93}An_{4-3}Or_4$). Oxygen isotopes (R. Tanaka, *OkaU*): replicate analyses of acid-washed material by laser fluorination gave: $\delta^{17}O$ 1.015, 0.880; $\delta^{18}O$ 3.922, 3.613; $\Delta^{17}O$ -1.048, -1.020 per mil. **Classification**: Achondrite (ungrouped). This specimen is unlike other achondrites in its combined features: relatively ferroan mafic silicate minerals with elevated FeO/MnO ratios and anomalous Ni contents, extremely sodic plagioclase, very Ni-rich metal, and oxygen isotopic composition that plots within the field for acapulcoites-lodranites. Weathering is low and limited to minor coatings of pale orange desert dust on broken surfaces. Unshocked. **Specimens**: A total of 20.5 g of type material and two polished thin sections are on deposit at *UWS*. The remaining material is held by *GHupé*.
Data from: MB99 Table 0 Line 0:	**Place of purchase:** Tucson & Morocco **Date:** P 2011 Feb-Apr **Mass (g):** 6595 **Pieces:** 26 **Class:** Achondrite-ung **Shock stage:** low **Weathering grade:** low **Fayalite (mol%):** 51.6-53.2 **Ferrosilite (mol%):** 41.6-42.4 **Wollastonite (mol%):** 2.8-3.6 **Classifier:** A. Irving & S. Kuehner **Type spec mass (g):** 20.5 **Type spec location:** UWS **Main mass:** G. Hupe **Comments:** Submitted by A. Irving
Institutions and collections	*Hupe*: (old address—now see GHupé or AHupé) G. and A. Hupe, 2616 Lake Youngs Court SE, Renton, WA 98058., USA (private address) *OkaU*: Institute for Study of the Earth's Interior, Okayama University, Misasa Tottori 682-0193, Japan (institutional address) *UWS*: University of Washington, Department of Earth and Space Sciences, Box 351310, Seattle, WA 98195, USA (institutional address) *GHup*: Gregory M. Hupé, 9003 Placid Lakes Blvd., Lake Placid, FL 33852, USA; Website (private address)
Catalogs:	
References:	Published in Meteoritical Bulletin, no. 99, MAPS 46, in preparation (2011) Find references in NASA ADS: Find references in Google Scholar:
Geography: 	**Coordinates:** Unknown. **Statistics:** This is 1 of 686 approved meteorites from Algeria (plus 30 unapproved names) (plus 4 impact craters)
Also see:	See what others liked This lists the most popular meteorites among people who looked up this meteorite.
Revision history:	Revision history This lists important revisions made to data for this record.

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