

**Crystal Data:** Cubic. *Point Group:*  $4/m\bar{3}2/m$ . As crusts, intergranular fillings, replacements of other minerals, massive; a component of microspherules, which may be hollow; may contain exsolved iron or magnetite.

**Physical Properties:** *Tenacity:* Brittle. Hardness = 5 D(meas.) = 5.88 D(calc.) = 5.97 Highly magnetic.

**Optical Properties:** Opaque. *Color:* Black to brown; gray in reflected light.

*Luster:* Metallic.

*Optical Class:* Isotropic.

R: n.d.

**Cell Data:** *Space Group:*  $Fm\bar{3}m$ .  $a = 4.296$   $Z = 4$

**X-ray Powder Pattern:** Scharnhausen, Germany.

2.146 (10), 1.518 (8), 2.476 (7), 1.297 (4), 1.243 (4), 1.074 (1), 0.985 (1)

**Chemistry:**

	(1)
SiO <sub>2</sub>	0.14
TiO <sub>2</sub>	0.01
Al <sub>2</sub> O <sub>3</sub>	0.01
Cr <sub>2</sub> O <sub>3</sub>	0.03
FeO	99.57
MnO	0.09
MgO	0.02
Total	[99.87]

(1) Pampa del Infierno meteorite; by electron microprobe; original total given as 99.82%.

**Mineral Group:** Periclase group.

**Occurrence:** Formed as an alteration product of other iron-bearing minerals at high temperatures in a highly reducing environment; in highly-reduced iron-bearing basalts; as inclusions in diamonds in kimberlites; in precipitates from deep-sea hot brines and in Fe–Mn nodules; in microspherules of likely extraterrestrial origin found in a variety of geological environments; in some meteorites.

**Association:** Iron, hematite, magnetite, goethite, akaganéite, lepidocrocite, ilmenite, maghemite, troilite, pyrrhotite, pyrite.

**Distribution:** At Scharnhausen, near Stuttgart, Baden-Württemberg, and at Bühl, near Weimar, Hesse, Germany. In Greenland, on Disko Island, near Uivfaq and Kitdlit. From the Pathardih colliery, Jharia coalfield, Bihar, India. In a number of diamond-bearing kimberlite pipes.

**Name:** The artificial compound was named for Friedrich Wüst (1860–1938), German metallurgist and Director for Iron Research of the Kaiser Wilhelm Institute, Düsseldorf, Germany; the name was then later transferred to the naturally-occurring equivalent.

**Type Material:** n.d.

**References:** (1) Walenta, K. (1960) Natürliches Eisen(II)-Oxyd (Wüstit) aus der vulkanischen Tuffbreccie von Scharnhausen bei Stuttgart. Neues Jahrb. Mineral., Monatsh., 150–159 (in German with English abs.). (2) Yamamoto, A. (1982) Modulated structure of wüstite (Fe<sub>1-x</sub>O) (three-dimensional modulation). Acta Cryst., 38, 1451–1456. (3) Boctor, N.Z., P.M. Bell, H.K. Mao, and G. Kullerud (1982) Petrology and shock metamorphism of Pampa del Infierno chondrite. Geochim. Cosmochim. Acta, 46, 1903–1911. (4) Hazen, R.M. and R. Jeanloz (1984) Wüstite (Fe<sub>1-x</sub>O): a review of its defect structure and physical properties. Reviews of Geophysics and Space Physics, 22, 37–46.

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