

Djerfisherite



©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Cubic. *Point Group:* $4/m \bar{3} 2/m$. As rounded grains, to 0.4 mm in diameter.

Physical Properties: Hardness = < 3.5 VHN = 172 D(meas.) = n.d. D(calc.) = n.d.

Optical Properties: Opaque. *Color:* Greenish yellow, close to khaki, to olive-drab.

Luster: Submetallic.

R: (400) 17.5, (420) 18.3, (440) 19.1, (460) 20.0, (480) 20.8, (500) 21.6, (520) 22.3, (540) 22.9, (560) 23.5, (580) 24.0, (600) 24.5, (620) 24.9, (640) 25.2, (660) 25.5, (680) 25.8, (700) 25.9

Cell Data: *Space Group:* $Pm\bar{3}m$. $a = 10.465(1)$ $Z = 2$

X-ray Powder Pattern: Kota Kota meteorite.

1.828 (100), 2.985 (70), 2.372 (60), 10.34 (50), 5.97 (50), 3.118 (50), 3.269 (40)

Chemistry:

	(1)	(2)
K	8.7	9.00
Na	0.3	0.76
Fe	50.7	45.4
Cu	4.2	8.37
Ni	0.8	1.41
Mg		< 0.05
S	33.8	33.8
Cl	1.0	1.26
Total	99.5	100.00

(1) St. Marks meteorite; by electron microprobe, average of 12 grains; corresponds to $(\text{K}_{5.49}\text{Na}_{0.32})_{\Sigma=5.81}(\text{Fe}_{22.39}\text{Cu}_{1.63}\text{Ni}_{0.34})_{\Sigma=24.36}\text{S}_{26.00}\text{Cl}_{0.70}$. (2) Coyote Peak, California, USA; by electron microprobe, corresponds to $(\text{K}_{5.68}\text{Na}_{0.82})_{\Sigma=6.50}(\text{Fe}_{20.05}\text{Cu}_{3.25}\text{Ni}_{0.59})_{\Sigma=23.89}\text{S}_{26.00}\text{Cl}_{0.88}$.

Occurrence: In meteorites, in hydrothermal Cu–Ni sulfide ores, in skarns, in pegmatites, in kimberlites, and alkalic mafics.

Association: “Nickel-iron” (kamacite), troilite, schreibersite, clinoenstatite, tridymite, cristobalite, daubréelite, graphite, roedderite, alabandite (Kota Kota meteorite); talnakhite, pentlandite, chalcopyrite, magnetite, valleriite, sphalerite, platinum minerals (Talnakh area, Russia).

Distribution: Found in the Kota Kota [TL] and St. Marks [TL] enstatite chondrites, the Pena Blanca Spring [ck Springs??] achondrite, also the Toluca and Cape York octahedrite iron meteorites. In the USA, at Coyote Peak, near Orick, Humboldt Co., California. In Russia, in the Talnakh area, Noril’sk region, western Siberia; Udachnaya and other kimberlite pipes, Sakhan; the Inagli complex, Aldan Shield; the Lovozero, Khibiny, and Kovdor massifs, and the Salmagorskii ring igneous complex, Kola Peninsula. On Dupezeh Mountain, near Hero Town, Qala-Dizeh region, northeastern Iraq. From the Ilímaussaq intrusion, southern Greenland. At Kushiro, Hiroshima Prefecture, Japan.

Name: To honor Professor Daniel Jerome Fisher (1896–1988), American mineralogist, University of Chicago, Chicago, USA.

Type Material: n.d. [??where are Kota Kota and St. Marks meteorites??]

References: (1) Fuchs, L.H. (1966) Djerfisherite, alkali copper–iron sulfide: a new mineral from enstatite chondrites. *Science*, 153, 166–167. (2) (1966) *Amer. Mineral.*, 51, 1815 (abs. ref. 1). (3) Dmitrieva, M.T., V.V. Ilyukhin, and G.B. Bokii (1979) Close packing and cation arrangement in the jerfisherite [sic] structure. *Kristallografiya (Sov. Phys. Crystal.)*, 24, 1193–1197 (in Russian). (4) Clarke, D.B., R.H. Mitchell, C.A.T. Chapman, and R.M. MacKay (1994) Occurrence and origin of djerfisherite from the Elwin Bay kimberlite, Somerset Island, Northwest territories. *Can. Mineral.*, 32, 815–823.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.