Djerfisherite \( K_6(\text{Fe}, \text{Cu}, \text{Ni})_{25}S_{26}\text{Cl} \)

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


Optical Properties: Opaque.  \( \text{Color: } \) 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, 

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

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:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>8.7</td>
<td>9.00</td>
</tr>
<tr>
<td>Na</td>
<td>0.3</td>
<td>0.76</td>
</tr>
<tr>
<td>Fe</td>
<td>50.7</td>
<td>45.4</td>
</tr>
<tr>
<td>Cu</td>
<td>4.2</td>
<td>8.37</td>
</tr>
<tr>
<td>Ni</td>
<td>0.8</td>
<td>1.41</td>
</tr>
<tr>
<td>Mg</td>
<td>&lt; 0.05</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>33.8</td>
<td>33.8</td>
</tr>
<tr>
<td>Cl</td>
<td>1.0</td>
<td>1.26</td>
</tr>
</tbody>
</table>

Total 99.5 100.00

(1) St. Marks meteorite; by electron microprobe, average of 12 grains; corresponds to 
\( (K_{5.49}Na_{0.32})_{3.81}(Fe_{22.39}Cu_{1.63}Ni_{0.34})_{25.36}S_{26.00}Cl_{0.70}. \)  
(2) Coyote Peak, California, USA; by electron microprobe, corresponds to 
\( (K_{5.68}Na_{0.82})_{21}(Fe_{20.05}Cu_{3.25}Ni_{0.59})_{25}S_{26.00}Cl_{0.88}. \)

Occurrence: In meteorites, in hydrothermal Cu–Ni sulfide ores, in skarns, in pegmatites, in 
kimberlites, and alkaline 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??] acondrite, 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 
Iagli complex, Aldan Shield; the Lovozero, Khibiny, and Kovdor massifs, and the Salmagorskii 
ingeous complex, Kola Peninsula. On Dupezeh Mountain, near Hero Town, Qala-Dizeh 
region, northeastern Iraq. From the Ilsmaussaq 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:  
(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, 

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