Kamacite

\(\alpha-(\text{Fe, Ni})\)

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**Crystal Data:** Cubic. \textit{Point Group:} \(4/m \ 32/m\). As plates and lamellar masses and in regular intergrowth with taenite. May occur in crystals, to \(30\ \text{cm}\); in extended plates and ribbons in Widmanstätten bands.

**Physical Properties:** Hardness = n.d. \(\text{VHN} = 145-165\) (100 g load). \(D(\text{meas.}) = \text{n.d.}\). \(D(\text{calc.}) = [7.90]\). Magnetic.

**Optical Properties:** Opaque. \textit{Color:} Steel-gray to iron-black. \textit{Luster:} Metallic. 
R: n.d.

**Cell Data:** \textit{Space Group:} \(Fm\bar{3}m\) (disordered phase). \(a = \sim 8.60\) \(Z = 54\)

**X-ray Powder Pattern:** Linville nickel-rich ataxite.
\(2.031\ (100), 1.170\ (70), 1.967\ (60), 1.435\ (30), 3.032\ (10), 2.953\ (10), 1.481\ (10)\)

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe</td>
<td>93.75</td>
<td>93.09</td>
</tr>
<tr>
<td>Ni</td>
<td>5.43</td>
<td>6.69</td>
</tr>
<tr>
<td>Co</td>
<td>0.58</td>
<td>0.25</td>
</tr>
<tr>
<td>C</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>0.08</td>
<td></td>
</tr>
</tbody>
</table>

Total 100.03 100.05

(1) North Chile hexahedrite. (2) Welland octahedrite.

**Occurrence:** A major constituent of iron meteorites (siderites) and present in varying amounts in most other meteorites except certain of the stony meteorites (aerolites).

**Association:** Taenite, graphite, cohenite, moissanite, schreibersite, troilite, daubréelite, oldhamite, other meteorite minerals.

**Distribution:** Terrestrial occurrences at Blaafjeld, near Ovifak, Disko Island, Greenland. In Germany, from Bühl, near Weimar, Hesse. On the Putorana Plateau, Taimyr Peninsula, Russia. Otherwise from meteorites.

**Name:** From the Greek for \textit{shaft} or \textit{lath}.

**Type Material:** n.d.