Magnesiochromite

Crystal Data: Cubic. Point Group: $4/m 3 2/m$. Rarely as poorly formed octahedra, to 1.5 mm; commonly granular, massive. Twinning: On $\{111\}$ as both twin and composition plane, the spinel law, as contact twins.


Optical Class: Isotropic. $n = 1.96$

Cell Data: Space Group: $Fd\bar{3}m$ (synthetic). $a = 8.3341(2)$ Z = 8

X-ray Powder Pattern: Synthetic.

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\text{TiO}_2$</td>
<td>0.17</td>
<td>0.11</td>
<td>FeO 11.90</td>
</tr>
<tr>
<td>$\text{Al}_2\text{O}_3$</td>
<td>10.30</td>
<td>11.93</td>
<td>MnO 0.93</td>
</tr>
<tr>
<td>$\text{V}_2\text{O}_5$</td>
<td>0.09</td>
<td>NiO 0.04</td>
<td></td>
</tr>
<tr>
<td>$\text{Cr}_2\text{O}_3$</td>
<td>59.10</td>
<td>57.52</td>
<td>MgO 19.30</td>
</tr>
</tbody>
</table>

Total 100.90 99.59 100.00

(1) Kalarangi mines, Orissa, India; by electron microprobe, total Fe as FeO; Fe$^{2+}$:Fe$^{3+}$ recalculated for charge balance, then corresponding to $(\text{Mg}_{0.88}\text{Fe}_{0.12})_{\Sigma=1.00}(\text{Cr}_{1.43}\text{Al}_{0.37}\text{Fe}_{0.19})_{\Sigma=1.99}\text{O}_4$. (2) Leucite Hills, Wyoming, USA; by electron microprobe, total Fe as FeO. (3) MgCr$_2$O$_4$.

Polymorphism & Series: Forms two series, with chromite, and with spinel.

Mineral Group: Spinel group.

Occurrence: An accessory mineral in ultramafic rocks, as dunites, serpentinites, kimberlites, lamproites, and komatiites. More rarely as xenocrysts in lamprophyres and mid-ocean basalts. May be detrital.

Association: Olivine, augite, magnetite, plagioclase, pigeonite.

Distribution: Widespread. A few localities for analyzed material include: from near Tampadel and Groschau, Lower Silesia, Poland. From Dobřiš, and at Hamry, near Křemž, Czech Republic. At Ferdinandovo, Bulgaria. On Mt. Djeti, Togo. From Dun Mountain, New Zealand. In the Sukinda ultramafics, between Kansa to Manabil, Orissa, India. In Canada, on Scottie Creek, about 32 km north of Ashcroft, British Columbia; from Black Lake and in the Caribou pit, Coleraine township, Quebec. In the Line Pit, Lancaster Co., Pennsylvania; from the Leucite Hills, Sweetwater Co., Wyoming, USA.

Name: For a MAGNESIum-rich chromite.


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