(Ni, Mg)CO₃

Gaspéite

Crystal Data: Hexagonal. Point Group: 3 2/m. As aggregates of rhombic crystals, to 0.6 mm; in nodular concretions, commonly compact massive.


Optical Class: Uniaxial (−). ω = 1.83(1) ε = 1.61(1)


X-ray Powder Pattern: Gaspé Peninsula, Canada. 2.741 (100), 1.692 (45), 3.543 (36), 2.098 (36), 1.932 (25), 2.317 (20), 1.337 (11)

Chemistry: (1) (2) (3) (1) (2) (3)

<table>
<thead>
<tr>
<th>Element</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂</td>
<td>42.0</td>
<td>35.9</td>
<td>43.36</td>
<td>MgO</td>
<td>17.3</td>
<td>2.6</td>
</tr>
<tr>
<td>SiO₂</td>
<td>0.9</td>
<td>0.9</td>
<td>0.9</td>
<td>CaO</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>FeO</td>
<td>5.7</td>
<td>0.1</td>
<td>0.1</td>
<td>insol.</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>NiO</td>
<td>35.0</td>
<td>55.5</td>
<td>36.79</td>
<td>Total</td>
<td>102.7</td>
<td>100.0</td>
</tr>
</tbody>
</table>

(1) Gaspé Peninsula, Canada; CO₂ by ignition and absorption; after removal of MgO and SiO₂ from serpentine, corresponds to (Ni₆₄,Mg₆₄,F₉₀₈)Σ=1₂CO₂. (2) Otway prospect, Western Australia; by electron microprobe, here converted to oxides from an original elemental analysis totalling 94.8%, CO₂ calculated for charge balance. (3) (Ni,Mg)CO₃ with Ni:Mg = 1:1.

Polymorphism & Series: Forms a series with magnesite.

Mineral Group: Calcite group.

Occurrence: An uncommon secondary mineral in a Ni-sulfide-bearing vein in metamorphosed siliceous dolostone (Gaspé Peninsula, Canada); possibly from alteration of a nickel-rich meteorite (Bon Accord, South Africa).

Association: Millerite, nickeline, annabergite, gersdorffite, polydymite, heazlewoodite, magnesite, spinel, dolomite (Gaspé Peninsula, Canada); pectorite, magnesite, siderite, chrysotile, antigorite, magnetite, millerite, polydymite (Otway prospect, Western Australia); glaukospaerite, mcguinnessite, jamborite (Shinshiro, Japan); liebenbergite, trevorite, nickelao ludwigite, bunsenite, violarite, millerite, ninite (Bon Accord, South Africa).

Distribution: Found in a prospect pit near Mount Albert, Gaspé Peninsula, Quebec, Canada. In Western Australia, from the Otway nickel prospect, near Spinnaway, Nullagine district; in the Otter Shoot gossan, Kambalda, 56 km south of Kalgoorlie; at the Rocky’s Reward pit, near Agnew; from the 132 North nickel mine, Widgiemooltha district. Found at Shinshiro, Aichi Prefecture, Japan. In South Africa, on Mabilikwe Hill, Pafuri; from three km west of the Scotia Talc mine, Bon Accord, Barberton district, Transvaal. In the San Benedetto mine, Iglesias district, Sardinia, Italy.

Name: For the original locality on the Gaspé Peninsula, Canada.

Type Material: University of British Columbia, Vancouver, Canada, S-75-4222; National Museum of Natural History, Washington, D.C., USA, 119544.