Nickellotharmeyerite

Crystal Data: Monoclinic.  Point Group: 2/m.  As crusts and as 0.5 mm aggregates of tabular crystals to 100 µm, elongated along [010].

D(meas.) = n.d.  D(calc.) = 4.45 Soluble in warm dilute HCl.

Optical Class: Biaxial (+).  α(calc.) = 1.80  β = 1.81(1)  γ = 1.87(2)  2V(meas.) = 40(5)°
Pleochroism: Strong, X = yellow, Y = brown, Z = pale yellow. Orientation: Y = b, X ≈ c.

Cell Data: Space Group: C2/m.  a = 9.005(1) b = 6.205(1) c = 7.411(1) β = 115.31(1)°  Z = 2

X-ray Powder Pattern: Pucher shaft, Saxony, Germany.
2.962 (100), 3.182 (76), 2.538 (75), 2.816 (66), 2.703 (66), 3.393 (55), 1.697 (53)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaO</td>
<td>9.29</td>
<td>12.51</td>
<td>Fe₂O₃</td>
<td>12.88</td>
</tr>
<tr>
<td>NiO</td>
<td>12.86</td>
<td>16.98</td>
<td>Bi₂O₃</td>
<td>8.56</td>
</tr>
<tr>
<td>CoO</td>
<td>3.83</td>
<td>4.68</td>
<td>P₂O₅</td>
<td>0.23</td>
</tr>
<tr>
<td>CuO</td>
<td>0.11</td>
<td>&lt;0.05</td>
<td>As₂O₅</td>
<td>45.32</td>
</tr>
<tr>
<td>ZnO</td>
<td>0.62</td>
<td>0.36</td>
<td>SO₃</td>
<td>0.12</td>
</tr>
<tr>
<td>PbO</td>
<td>0.90</td>
<td>0.14</td>
<td>H₂O</td>
<td>[5.35]</td>
</tr>
<tr>
<td>Total</td>
<td>100.07</td>
<td>101.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Pucher shaft, Saxony, Germany; average electron microprobe analysis, H₂O calculated;
corresponds to (Ca₀.₈₃Bi₀.₁₈Pb₀.₀₂)Z₂₋₁₀,(Ni₀.₃₆Fe₀.₈₁Co₀.₂₆Zn₀.₀₄)Z₂₋₀.₉₇[(AsO₄)₁.₉₈(PO₄)₀.₀₂]Z₋₂₀.₀₀
[(OH)₁.₀₁(H₂O)₀.₉₈]Z₋₁.₉₇.  (2) Do., average electron microprobe analysis, H₂O calculated;
corresponds to Ca₁₀,(Ni₁₀Fe₅⁺₀.₅₀Co₀.₂₆Zn₀.₀₂)Z₋₁.₉₇[(AsO₄)₂.₀₁(PO₄)₀.₀₁]Z₋₂.₀₂[(H₂O)₁.₄₀(OH)₀.₅₈]Z₋₁.₉₆.

Mineral Group: Tsumcorite group.

Occurrence: In the oxidation zone of polymetallic ore deposits.

Association: Quartz, mawbryite, cobaltlotharmeyerite, galena, arseniosiderite, plumbogummite
(Pucher shaft); nickeltsumcorite, annabergite, nickellotharmeyerite, nickelaustinite, gaspèite,
calcite, dolomite, aragonite, quartz, goethite, cerussite, arseniosiderite, mimitite, oxypseudomalomèite,
Mn oxides/ hydroxides (old Km-3 mine).

Distribution: In dump material from the Pucher shaft, near Scheeberg, Saxony, Germany [TL].
From dumps of the old Km-3 mine, Lavrion mining district, Attiki Prefecture, Greece. From the Bou Azzer As-Co-Ni-Ag-Au deposit, Anti-Atlas, Morocco.

Name: The prefix, nickel, indicates the nickel analog of lotharmeyerite.

Type Material: Museum for Mineralogy and Geology, Dresden, Germany.

References: (1) Krause, W., H. Effeningher, H.-J. Bernhardt, and M. Martin (2001)
Cobalttsuminumcorite and nickellotharmeyerite, two new minerals from Schneeberg, Germany;
87, 997 (abs. ref. 1).  (3) Pekov, I.V., N.V. Chukanov, D.A. Varlamov, D.I. Belakovskiy,
A.G. Turchkova, P. Voudouris, A. Katerinopoulos, and A. Magganas (2016) Nickeltsumcorite,
Pb(Ni,Fe⁺₃)₃[(AsO₄)₂(H₂O,OH)₃], a new tsunogorite-group mineral from Lavrion, Greece. Mineral.
Mag., 80(2), 337-346 [locality].