Crystal Data: Cubic. Point Group: 4/m 32/m. Crystals uncommon, typically cubes modified by the octahedron and dodecahedron, to 11 cm; botryoidal to reniform, colloform banded, columnar, dense massive; may be dendritic. Twinning: On \{111\}, rare.


Optical Properties: Opaque, transparent in thinnest fragments. Color: Steel-black to velvet-black, brownish black, pale gray, pale green; in transmitted light, pale green, pale yellow, deep brown; pale gray with brownish tint in reflected light, may show dark brown internal reflections. Streak: Brownish black, gray, olive-green, shining. Luster: Submetallic to greasy, dull. Optical Class: Isotropic.

Optical Data: R: (400) 17.6, (420) 17.3, (440) 17.0, (460) 16.8, (480) 16.5, (500) 16.3, (520) 16.2, (540) 16.0, (560) 15.9, (580) 15.8, (600) 15.9, (620) 15.9, (640) 16.0, (660) 16.0, (680) 16.1, (700) 16.2

Cell Data: Space Group: Fm3m (synthetic UO₂₀.₃). a = 5.4682 Z = 4

X-ray Powder Pattern: Synthetic UO₂₀.₃; may be confused with thorianite or cerianite. 3.157 (100), 1.934 (49), 2.735 (48), 1.649 (47), 1.255 (18), 1.223 (15), 1.0523 (15)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(1)</th>
<th>(2)</th>
</tr>
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<tbody>
<tr>
<td>UO₃</td>
<td>22.69</td>
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<td>0.71</td>
<td>Fe₂O₃</td>
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<tr>
<td>ThO₂</td>
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<td>14.3</td>
<td>FeO</td>
<td>PbO</td>
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<td>CeO₂</td>
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<td>0.10</td>
<td>PbO</td>
<td>H₂O</td>
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<tr>
<td>(Y,Er)₂O₃</td>
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<td>0.0</td>
<td>CaO</td>
<td>[0.41]</td>
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<td>La₂O₃</td>
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<td>0.1</td>
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<tr>
<td>Ce₂O₃</td>
<td>0.8</td>
<td>rem.</td>
<td>0.12</td>
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</table>

Total [99.70] [99.4]

(1) Placer de Guadalupe, Chihuahua, Mexico; average of two analyses, H₂O calculated from gain in weight on ignition. (2) Locality not stated; by electron microprobe; U⁴⁺:U⁶⁺ from stoichiometry, original total given as 100.4%; corresponding to (U⁴⁺)₀.₄₈(U⁶⁺)₀.₁₈Pb₀.₁₆Th₀.₁₅Ca₀.₀₁Ce₀.₀₁/Σ=0.₉₉O₂₀.₃

Mineral Group: Forms a series with thorianite.

Occurrence: In granite and syenite pegmatites; in hydrothermal high-temperature tin and moderate-temperature Co–Ni–Bi–Ag–As and other sulfide veins; in Colorado Plateau-type sandstone-hosted U–V deposits; in uraniferous conglomerates; a detrital mineral.

Association: Zircon, monazite, tourmaline, mica, feldspar (pegmatitic); pyrite, chalcopyrite, galena, bismuth, silver, nickeline, barite, fluorite, carbonates (Co–Bi–Ag hydrothermal veins).

Distribution: Widespread; may form an important ore. At Jáchymov (Joachimsthal) and Horní Slavkov (Schlaggenwald), Czech Republic. In Germany, from Johanngeorgenstadt, Schneeberg, and Annaberg, Saxony; in Bavaria, from Wölsendorf and Hagendorf. From many mines in Cornwall, England. Large crystals from the Sierra Albarrana, Córdoba Province, Spain. At Wilberforce, Ontario, and Great Bear Lake, Northwest Territories, Canada. In the USA, from Branchville, Fairfield Co., Connecticut; Grafton, Grafton Co., New Hampshire; fine crystals from Standpipe Hill, Topsham, Sagadahoc Co., Maine; around Spruce Pine, Mitchell Co., North Carolina; in the Ingersoll mine, near Keystone, Pennington Co., South Dakota. From Shinkolobwe
and Kalongwe, Katanga Province, Congo (Shaba Province, Zaire). At Morogoro, Uruguru
Mountains, Tanzania.

**Name:** For URANium in the composition.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana’s system of mineralogy,