**Bixbyite**

\((\text{Mn}^{3+}, \text{Fe}^{3+})_2\text{O}_3\)

**Crystal Data:** Cubic. *Point Group:* \(2/m \bar{3}\). As cubes, rarely modified by \{112\} or \{111\}, commonly striated, to 6 cm; massive. *Twining:* On \{111\}, as penetration twins.

**Physical Properties:** *Cleavage:* \{111\}, in traces. *Fracture:* Irregular. *Hardness:* 6–6.5 *VHN* = 946–1402 (100 g load). *D*(meas.) = 4.945 *D*(calc.) = 5.031


**Cell Data:** *Space Group:* \(Ia\bar{3}\). *a* = 9.411 *Z* = 16

**X-ray Powder Pattern:** Synthetic \(\text{Mn}_2\text{O}_3\).

\[
\begin{align*}
\text{SiO}_2 & \quad 1.21 & \quad 0.00 \\
\text{TiO}_2 & \quad 1.70 \\
\text{Al}_2\text{O}_3 & \quad 2.53 & \quad 2.02 \\
\text{Fe}_2\text{O}_3 & \quad 47.98 & \quad 14.86 & \quad 50.29 \\
\text{Mn}_2\text{O}_3 & \quad 82.56 & \quad 49.71 \\
\text{MnO} & \quad 42.05 \\
\text{MgO} & \quad 0.10 & \quad 0.07 \\
\text{O} & \quad 4.38 \\
\text{Total} & \quad 99.95 & \quad 99.51 & \quad 100.00
\end{align*}
\]

(1) Thomas Range, Utah, USA; average of two analyses. (2) Postmasburg, South Africa; by electron microprobe. (3) \((\text{Mn,Fe})_2\text{O}_3\) with Mn:Fe = 1:1.

**Occurrence:** In lithophysal cavities in rhyolite; in metamorphosed manganese ores.

**Association:** Topaz, spessartine, beryl, quartz, sanidine, pseudobrookite, hematite (rhyolites); braunite (manganese ores).

**Distribution:** In the USA, from the Thomas Range, Juab Co., Utah; at a number of places in the Black Range, Sierra and Catron Cos., New Mexico; and near Saddle Mountain, Pinal Co., Arizona. In Mexico, at Cerro de Mercado, Durango; the Barranca del Cobre, Chihuahua; and Tepetate, San Luis Potosi. From Ribes, Gerona Province, Spain. At the Bellerberg volcano, two km north of Mayen, Eifel district, Germany. At Längban, Värmland, near Murjek, and at Sörhäräs, Ulevis, Sweden. From Sitapár, Chhindwara district, Central Provinces, and the Kajlidongri mine, Jhabua district, Madhya Pradesh, India. At Cobatla, near Postmasburg, Transvaal; a major ore in the Kuruman district, Cape Province, South Africa. In the Lomagundi district, Zimbabwe. Large crystals from the Otjiwarango district, Namibia. A few additional localities are known.

**Name:** For Maynard Bixby, mineral dealer of Salt Lake City, Utah, USA, who provided the first specimens.

**Type Material:** Yale University, New Haven, Connecticut, USA, 1.6369.


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