

Crystal Data: Monoclinic. *Point Group:* 2/m. As irregular grains to a few hundred μm .

Physical Properties: *Cleavage:* Fair on {100} and {001}. *Tenacity:* n.d. *Fracture:* n.d.
Hardness = ~6 D(meas.) = n.d. D(calc.) = 3.88

Optical Properties: Translucent. *Color:* Shiny black, intensely orange-red in transmitted light.
Streak: Brown. *Luster:* Vitreous.
Optical Class: Biaxial (+). $\alpha(\text{calc}) = 1.795$ $\beta = 1.805(5)$ $\gamma = 1.820(5)$ $2V(\text{meas.}) = 80(1)^\circ$
Pleochroism: Strong, $X =$ very dark brown, $Y =$ yellow brown, $Z =$ dark brown. *Orientation:* $Z = b$,
 $X \perp$ cleavage plates, $Y \perp$ longitudinal cleavage. *Absorption:* $X > Y \gg Z$.

Cell Data: Space Group: $P2_1/a$. $a = 13.0981(1)$ $b = 8.8897(2)$ $c = 5.9029(5)$ $\beta = 91.697(2)^\circ$
 $Z = 4$

X-ray Powder Pattern: Amamoor mine, southeastern Queensland, Australia.
2.893 (100), 7.349 (76), 2.699 (66), 2.754 (50), 2.725 (50), 2.827 (48), 2.100 (35)

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|--------------------------------|--------------|
| Chemistry: | (1) |
| SiO ₂ | 30.3 |
| Al ₂ O ₃ | 0.10 |
| FeO | 0.35 |
| MgO | 0.46 |
| MnO | [33.0] |
| Mn ₂ O ₃ | [18.4] |
| CaO | 14.04 |
| <u>H₂O</u> | <u>[2.2]</u> |
| Total | 98.85 |

(1) Amamoor mine, southeastern Queensland, Australia; average of 6 electron microprobe analyses, H₂O calculated from structure, total Mn (MnO = 49.5) distributed to MnO and Mn₂O₃ from structure analysis; corresponds to $\text{Ca}_{1.02}\text{Mn}^{2+}_{1.89}\text{Mg}_{0.05}\text{Fe}^{2+}_{0.02}\text{Mn}^{3+}_{0.95}\text{Al}_{0.01}\text{Si}_{2.05}\text{O}_9\text{H}_{0.99}$.

Occurrence: In a metamorphosed manganese ore deposit.

Association: Braunite, hausmannite.

Distribution: From drill core samples from the Amamoor mine, Mary Valley manganese deposits, ~15 km southwest of Gympie, southeastern Queensland, Australia.

Name: For the locality of the first specimens, the *Amamoor* mine.

Type Material: Western Australian Museum, Perth (M8.2018) and the Natural History Museum of Los Angeles County, Los Angeles, California, USA (66937).

References: (1) Townend, R., I.E. Grey, W.G. Mumme, A.R. Kampf, M.P. Roberts, R.W. Gable, and R. Dale (2019) Amamoorite, $\text{CaMn}^{2+}_2\text{Mn}^{3+}(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$, a new ilvaite-related mineral from the Mary Valley, southeastern Queensland. *Australian J. Mineral.*, 20(2), 7-14. (2) (2021) *Amer. Mineral.*, 106, 157 (abs. ref. 1).