Tychite  

\[
Na_6Mg_2(SO_4)(CO_3)_4
\]

Crystal Data: Cubic. Point Group: \(2/m\). Crystals, to 8 mm, \(\{111\}\), perhaps modified by small \(\{100\}\).

D(meas.) = 2.367–2.743  D(calc.) = 2.586

Optical Class: Isotropic. \(n = 1.508–1.510\)

Cell Data: Space Group: \(Fd\bar{3}\). \(a = 13.880–13.942\)  \(Z = 8\)

X-ray Powder Pattern: Searles Lake, California, USA.  
2.674 (100), 4.18 (76), 2.459 (40), 3.190 (24), 1.605 (24), 2.006 (17), 1.736 (17)

Chemistry:

\[
\begin{array}{ccc}
& (1) & (2) \\
SO_3 & 15.07 & 15.32 \\
CO_2 & 33.50 & 33.68 \\
MgO & 15.80 & 15.42 \\
Na_2O & 35.57 & 35.58 \\
\hline
Total & 99.94 & 100.00
\end{array}
\]

(1) Searles Lake, California, USA; average of two analyses. (2) \(Na_6Mg_2(SO_4)(CO_3)_4\).

Polymorphism & Series: Forms a series with ferrotychite.

Occurrence: Uncommon in lake-bed evaporite deposits.

Association: Northupite, gaylussite, thénardite, schairerite, pirssonite (Searles Lake, California, USA); northupite (Katwe Lake, Uganda).

Distribution: In the USA, from Searles Lake, San Bernardino Co., California; and in the Green River Formation, Northern Piceance Creek Basin, Colorado. At Lake Katwe, western Uganda.

Name: From the Greek for good fortune, as the first and one of the last ten crystals examined were of this species, from a lot of about 5000 examined.

Type Material: Yale University, New Haven, Connecticut, USA, 3.1634.