

Mereheadite

Crystal Data: Monoclinic. *Point Group:* *m*. Crystals, as laths, to 2 mm; typically in polycrystalline aggregates to 30 mm. *Twinning:* On (201).

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Uneven, conchoidal to hackly. *Tenacity:* Brittle. Hardness = 3.5 VHN = 171 (100 g load). D(meas.) = 7.12(10) D(calc.) = 7.236

Optical Properties: Translucent to transparent. *Color:* Pale yellow to reddish orange; gray in reflected light with light yellow internal reflections. *Streak:* White. *Luster:* Vitreous to resinous. *Optical Class:* n.d.

R₁-R₂: (400) 17.20-17.95, (420) 16.50-17.40, (440) 15.90-16.90, (460) 15.50-16.50, (480) 15.10-16.10, (500) 14.90-15.80, (520) 14.50-15.50, (540) 14.30-15.30, (560) 14.10-15.20, (580) 14.00-15.00, (600) 13.90-14.90, (620) 13.80-14.80, (640) 13.80-14.80, (660) 13.70-14.70, (680) 13.60-14.65, (700) 13.60-14.60

Cell Data: *Space Group:* *Cm*. *a* = 17.372(1) *b* = 27.9419(19) *c* = 10.6661(6) *β* = 93.152(5)° *Z* = 2

X-ray Powder Pattern: Merehead Quarry, Somerset, England. 2.930 (100), 3.785 (48), 2.825 (43), 6.581 (37), 2.182 (37), 2.780 (36), 3.267 (35)

Chemistry:	(1)
PbO	90.5
Cl	6.8
B ₂ O ₅	0.6
CO ₂	1.4
H ₂ O	0.7
<u>-O=Cl</u>	<u>1.5</u>
Total	98.5

(1) Merehead Quarry, Somerset, England; wet chemical analysis, CO₂ and H₂O by CHN analyzer, B by colorimetric methods, corresponding to Pb_{48.00}O_{25.14}(OH)_{4.56}Cl_{24.54}(BO₃)_{3.06}(CO₃)_{3.72}.

Occurrence: A secondary low-temperature mineral formed in lenses and cavities, in a Mississippi Valley type lead deposit in limestone, by a hydrothermal event that caused the decomposition of the galena and created the conditions which led to the formation of this rare oxychloride mineral.

Association: Cerussite, blixite, mendipite (typically intergrown with mereheadite); symesite, rickturnerite, hydrocerussite, parkinsonite, calcite, 'wad'.

Distribution: Merehead Quarry (Torr Works), near Cranmore, Somerset, England. Reported from the Clara mine, Oberwolfach, Wolfach, Black Forest, Baden-Württemberg, Germany.

Name: For the first locality, Merehead Quarry, England.

Type Material: Natural History Museum, London, England (BM 1965,285 and E. 1175).

References: (1) Welch, M.D., A.J. Criddle, and R.F. Symes (1998) Mereheadite, Pb₂O(OH)Cl: a new litharge-related oxychloride from Merehead Quarry, Cranmore, Somerset. *Mineral. Mag.*, 62(3), 387-393. (2) Krivovichev, S.V., R. Turner, M. Rumsey, O.I. Siidra, and C.A. Kirk (2009) The crystal structure and chemistry of mereheadite. *Mineral. Mag.*, 73(1), 103-117. (3) (2010) *Amer. Mineral.*, 95, 1361 (abs. ref. 2). (4) Turner, R. (2006) A mechanism for the formation of the mineralized Mn deposits at Merehead Quarry, Cranmore, Somerset, England. *Mineral. Mag.*, 70(6), 629-653.