

Rickturnerite**Pb₇O₄[Mg(OH)₄](OH)Cl₃**

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As mats, to 16 mm, of flattened fibrous crystals.

Physical Properties: *Cleavage:* Indistinct. *Fracture:* Splintery. *Tenacity:* Brittle. Hardness = ~ 3 VHN = 140 (100 g load). D(meas.) = n.d. D(calc.) = 6.886

Optical Properties: Translucent. *Color:* Pale emerald green, gray in reflected light with abundant greenish gray internal reflections. *Streak:* White. *Luster:* Vitreous.

Optical Class: n.d. $n = 1.38$ [calculated]

R₁-R₂: (470) 14.9-15.7, (546) 13.8-14.4, (589) 13.6-14.2, (650) 13.4-14

Cell Data: *Space Group:* Pnma. $a = 5.8034(5)$ $b = 11.3574(9)$ $c = 12.9393(16)$ $Z = 8$

X-ray Powder Pattern: Torr Works (Merehead) quarry, England.

6.474 (100), 3.233 (73), 2.867 (57), 5.636 (44), 3.112 (31), 2.635 (25), 4.287 (20)

Chemistry:	(1)	(2)
PbO	87.70	90.31
MgO	1.79	2.33
CuO	0.14	
Cl	6.62	6.15
H ₂ O	[2.27]	2.60
-O=Cl ₂	1.50	1.39
Total	97.02	100.00

(1) Torr Works (Merehead) quarry, England; electron microprobe analyses, H₂O calculated from structure analysis; corresponding to Pb_{7.16}Mg_{0.81}Cu_{0.03}Cl_{3.40}H_{4.60}O_{8.60}•1.15H₂O.

(2) Pb₇O₄[Mg(OH)₄](OH)Cl₃.

Occurrence: Part of an assemblage of lead oxychloride minerals that occur in cavities in manganese oxide pods in limestone.

Association: Mereheadite, cerussite, calcite, aragonite, mimetite, hydrocerussite, "plumbonacrite," manganite, pyrolusite, and an uncharacterized lead oxychloride.

Distribution: From the Torr Works (Merehead) quarry, near the village of Cranmore, England.

Name: Honors Rick Turner, geologist and mineral collector, who collected the first specimens.

Type Material: Natural History Museum, London, England (BM 2008,100).

References: (1) Rumsey, M.S., S.V. Krivovichev, O.I. Siidra, C.A. Kirk, C.J. Stanley, and J. Spratt (2012) Rickturnerite, Pb₇O₄[Mg(OH)₄](OH)Cl₃, a complex new lead oxychloride mineral. *Mineral. Mag.*, 76(1), 59-73. (2) (2015) *Amer. Mineral.*, 100, 661-662 (abs. ref. 1).