Twinnite Pb(Sb, As)₂S₄

Crystal Data: Triclinic, probable; pseudo-orthorhombic.  
Point Group: 2/m 2/m 2/m, apparent.  
As grains, to 1.5 mm.  
Twinning: Polysynthetic, the trace of the composition plane parallel to {100}.

Physical Properties:  
Cleavage: Perfect on {100}.  
Tenacity: Brittle.  
Hardness = n.d.  
VHN = 147 (50 g load).  
D(meas.) = n.d.  
D(calc.) = 5.323 (for Sb:As=3:2).

Optical Properties:  
Opaque.  
Color: Black; white in polished section.  
Streak: Black, with a slightly brownish tint.  
Luster: Metallic.  
Pleochroism: Strong, displaying twin lamellae.

Chemistry:  
(1) Madoc, Canada; by electron microprobe, corresponding to Pb₁₁₀(Sb₁₂₈As₀₈₂)Σ=2.₁₀S₄₀₀.  
(2) Do.; by electron microprobe, corresponding to Pb₁₁₀₁(Sb₁₁₃As₀₈₆)Σ=1.₉₉S₄₀₀.  
(3) Novoye, Kyrgyzstan; by electron microprobe, corresponding to Pb₁₁₀₉(Sb₁₁₉As₀₈₆)Σ=1.₉₅S₄₀₀.

Polymorphism & Series: Dimorphous with guettardite.

Occurrence: In marble with other lead sulfantimonides (Madoc, Canada).

Association: Chabournéite, pierrotite, parapierrrotite, stibnite, pyrite, sphalerite, zinkenite, madocite, andorite, smithite, laffittite, routhierite, aktashite, wakabayashilite, realgar, orpiment (Jas Roux, France); sphalerite, pyrite, galena, playfairite, sorbyte, guettardite, baumhauerite, realgar, orpiment, cinnabar, fluorite, quartz (Novoye, Kyrgyzstan).


Name: In honor of Robert Mitchell Thompson (1918–1967), Canadian mineralogist, University of British Columbia, Vancouver, Canada. Thompson is “son of Thomas”; the latter is Aramaic for “a twin”. The name is doubly appropriate in alluding to the polysynthetic twinning present in the mineral.

Type Material: Canadian Geological Survey, Ottawa, 12175; Canadian Museum of Nature, Ottawa, Canada.

(2) (1968) Amer. Mineral., 53, 1424 (abs. ref. 1).  

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