

Lanthanite-(La)

(La, Nd)₂(CO₃)₃·8H₂O

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Crystal Data: [Orthorhombic.] [by analogy to lanthanite-(Nd).] *Point Group:* [2/*m* 2/*m* 2/*m*.] [Crystals are platy, flattened on {010}, with a rhombic outline; may be a powdery crust.] *Twining:* [On {101}, twin and composition plane.]

Physical Properties: *Cleavage:* [{010}, perfect, micaceous.] *Fracture:* [Uneven.] *Tenacity:* [Sectile.] *Hardness* = [~2.5] *D*(meas.) = n.d. *D*(calc.) = n.d.

Optical Properties: Semitransparent. *Color:* [Bright pink, violet; colorless in transmitted light.] *Streak:* [White.] *Luster:* [Vitreous to pearly.] *Optical Class:* [Biaxial (–).] *Orientation:* [*X* = *b*; *Y* = *c*; *Z* = *a*.] *Dispersion:* [*r* < *v*, weak.] *α* = n.d. *β* = n.d. *γ* = n.d. *2V*(meas.) = n.d.

Cell Data: *Space Group:* [*Pbn*b.] *a* = n.d. *b* = n.d. *c* = n.d. *Z* = [4]

X-ray Powder Pattern: Curitiba, Brazil; here made identical to lanthanite-(Nd). 8.50 (100), 3.252 (63), 3.038 (58), 4.473 (56), 4.741 (52), 4.139 (34), 3.953 (32)

Chemistry: (1) Curitiba, Brazil; by electron microprobe, partial analysis of rare-earth elements only: La 41.8%, Ce 0.1%, Pr 9.1%, Nd 38.3%, Sm 6.6%, Eu 1.2%, Gd 1.8%, Tb 1.2%, Dy 0.7%, Ho 0.1%, Yb 0.1%.

Occurrence: A rare secondary mineral typically formed by alteration or weathering from earlier rare-earth-element-bearing minerals.

Association: Allanite-(Ce) (Saucon Township, Pennsylvania, USA).

Distribution: In Sweden, originally described from the Bastnäs mine, near Riddarhyttan, Västmanland; thought to be lanthanum-rich but a recent analysis, not on type material, shows Ce > La. From Curitiba, Paraná, and at Santa Isabel, São Paulo, Brazil. In the USA, found in lower Saucon Township, Northampton Co., Pennsylvania, and at the Scovill iron mine, Salisbury, Litchfield Co., Connecticut. From Niikoba, Saga Prefecture, Japan.

Name: For dominant *lanthanum* in its composition.

Type Material: Natural History Museum, Vienna, Austria, A.x.564.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 241–243. (2) Atencio, D., R.E. Bevins, M. Fleischer, C.T. Williams, and P.A. Williams (1989) Revision of the lanthanite group and new data for specimens from Bastnäs, Sweden and Bethlehem, USA. *Mineral. Mag.*, 53, 639–642. (3) Dal Negro, A., G. Rossi, and V. Tazzoli (1977) The crystal structure of lanthanite. *Amer. Mineral.*, 62, 142–146.