

STANDARDIZATION OF POLYTYPIC SUFFIXES

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The Commission on New Minerals and Mineral Names (CNMMN) of the International Mineralogical Association has published guidelines on a number of matters dealing with mineralogical nomenclature, including the nomenclature of polytypes (*e.g.*, Nickel & Mandarino 1987). In essence, polytypes are distinguished by alphanumerical symbols appended to the root name and joined to it by a hyphen. The numerical part of the symbol represents the layering periodicity, and the alphabetical part, rendered in italic print, represents the crystallographic system. For example, wurtzite-*4H* is a hexagonal polytype of wurtzite with a periodicity of 4 times the *c* dimension of the wurtzite parent.

Prior to the publication of these guidelines, various other symbols of polytypes had been used in the mineralogical literature. In an effort to standardize the nomenclature of polytypes, members of the CNMMN decided that previous usage should be brought into conformity with current practice, which follows the recommendations of the International Union of Crystallography (Guinier *et al.* 1984). Polytype names in the literature that require changing are as follows:

Original Name	Present Name	Reference
Anandite- <i>2Or</i>	Anandite- <i>2O</i>	Filut <i>et al.</i> (1958)
Gageite- <i>1Tc</i>	Gageite- <i>1A</i>	Ferraris <i>et al.</i> (1987)
Hilgardite- <i>1Tc</i>	Hilgardite- <i>1A</i>	Ghose (1985)
Hilgardite- <i>3Tc</i>	Hilgardite- <i>3A</i>	Ghose (1985)
Pyrophyllite- <i>1Tc</i>	Pyrophyllite- <i>1A</i>	Wardle & Brindley (1972)
Sapphirine- <i>1Tc</i>	Sapphirine- <i>1A</i>	Merlino (1973)
Tyretskite- <i>1Tc</i>	Tyretskite- <i>1A</i>	Ghose (1985)
Wollastonite- <i>1T</i>	Wollastonite- <i>1A</i>	Hemmi <i>et al.</i> (1978)
Wollastonite- <i>3T</i>	Wollastonite- <i>3A</i>	Hemmi <i>et al.</i> (1983)
Wollastonite- <i>4T</i>	Wollastonite- <i>4A</i>	Hemmi <i>et al.</i> (1983)
Wollastonite- <i>5T</i>	Wollastonite- <i>5A</i>	Hemmi <i>et al.</i> (1983)
Wollastonite- <i>7T</i>	Wollastonite- <i>7A</i>	Hemmi <i>et al.</i> (1978)

It is quite likely that the mineralogical literature contains additional examples of polytype symbols that do not conform to the recommended usage. Such names also should be revised to bring them in conformity. The recommended alphabetical symbols are as follows: cubic, *C*; hexagonal, *H*; rhombohedral, *R*; trigonal, *T*; tetragonal, *Q* (for quadratic); orthorhombic, *O*; monoclinic, *M*; and triclinic, *A* (for anorthic).

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REFERENCES

- FERRARIS, G., MELLINI, M. & MERLINO, S. (1987): Electron-diffraction and electron-microscopy study of balangerite and gageite: crystal structures, polytypism, and fiber texture. *Am. Mineral.* **72**, 382-391.
- FILUT, M.A., RULE, A.C. & BAILEY, S.W. (1985): Crystal structure refinement of anandite- $2Or$, a barium- and sulfur-bearing trictahedral mica. *Am. Mineral.* **70**, 1298-1308.
- GHOSE, S. (1985): A new nomenclature for the borate minerals in the hilgardite ($\text{Ca}_2\text{B}_5\text{O}_9\text{Cl}\bullet\text{H}_2\text{O}$) - tyretskite ($\text{Ca}_2\text{B}_5\text{O}_9\text{OH}\bullet\text{H}_2\text{O}$) group. *Am. Mineral.* **70**, 636-637.
- GUINIER, A. *et al.* (1984): Nomenclature of polytype structures. Report of the International Union of Crystallography Ad-Hoc Committee on the Nomenclature of Disordered, Modulated and Polytype Structures. *Acta Crystallogr. A* **40**, 399-404.
- HENMI, C., KAWAHARA, A., HENMI, K., KUSACHI, I. & TAKEUCHI, Y. (1983): The 3T, 4T and 5T polytypes of wollastonite from Kushiro, Hiroshima Prefecture, Japan. *Am. Mineral.* **68**, 156-163.
- , KUSACHI, I., KAWAHARA, A. & HENMI, K. (1978): 7T wollastonite from Fuka, Okayama Prefecture. *Mineral. J.* **9**, 169-181.
- MERLINO, S. (1973): Polymorphism in sapphirine. *Contrib. Mineral. Petrol.* **41**, 23-29.
- NICKEL, E.H. & MANDARINO, J.A. (1987): Procedures involving the IMA Commission on New Minerals and Mineral Names and guidelines on mineral nomenclature. *Can. Mineral.* **25**, 353-377.
- WARDLE, R. & BRINDLEY, G.W. (1972): The crystal structures of pyrophyllite-17c and of its dehydroxylate. *Am. Mineral.* **57**, 732-750.

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