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## New microlite-group minerals from Volta Grande Pegmatite, Minas Gerais, Brazil

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Hydrokenomicrolite, fluorcalciomicrolite and hydroxycalciomicrolite are new microlite-group minerals from the pyrochlore supergroup ( $A_{2-m}B_2X_{6-w}Y_{1-n}$ ) [1] occurring as accessory phases in the rare-element granitic Volta Grande pegmatites, Nazareno, Minas Gerais state, Brazil [2].

Hydrokenomicrolite,  $(\square, \text{H}_2\text{O})_2\text{Ta}_2(\text{O}, \text{OH})_6(\text{H}_2\text{O})$ , is cubic,  $Fd-3m$ ,  $a = 10.454(1) \text{ \AA}$ ,  $V = 1142.5(2) \text{ \AA}^3$ ,  $Z = 8$  [3]. Hydrokenomicrolite is  $\text{H}_2\text{O}$ -dominant in  $Y$ -site and vacancy-dominant in  $A$ -site. The presence of  $\text{H}_2\text{O}$  was investigated using crystal structure refinements and infrared spectroscopy.

Fluorcalciomicrolite,  $(\text{Ca}, \text{Na}, \square)_2\text{Ta}_2\text{O}_6\text{F}$ , is the second mineral species with F-dominant on the  $Y$ -site described in the microlite-group [4]. The first one was fluornatromicrolite  $(\text{Na}, \text{Ca}, \text{Bi})_2\text{Ta}_2\text{O}_6\text{F}$  [5]. The crystal structure parameters are  $Fd-3m$ ,  $a = 10.4191(6) \text{ \AA}$ ,  $V = 1131.07 \text{ \AA}^3$  and  $Z = 8$ .

Hydroxycalciomicrolite is the first described microlite group-mineral which crystallizes in space group  $P4_332$ , instead of  $Fd-3m$  [6]. The simplified formula is  $\text{Ca}_{15}\text{Ta}_2\text{O}_6(\text{OH})$ . The unit cell parameters are  $a = 10.4205(1) \text{ \AA}$ ,  $V = 1131.53 \text{ \AA}^3$  and  $Z = 8$ . The ordering of Ca cations and vacancies at the  $A$ -site are related to the lowering of symmetry from the  $F$ - to  $P$ -lattice.

### References:

[1] Atencio D et al. (2010) *Can Min* 48: 673-698

[2] Lagache M and Quéméneur J (1997) *Can Min* 35: 153-165

[3] Andrade MB et al. (2013) *Am Min* 98: 292-296

[4] Andrade MB et al. (2013) Min Mag 77: 2989-2996

[5] Witzke T et al. (2011) Can Min 49: 1105-1110

[6] Andrade MB et al. (2013) CNMNC Newsletter 18:3252; Min Mag 77:3249-3258

