**Supplemental Material**

New data on minerals with the **GIS** framework-type structure: gismondine-Sr from the Bellerberg volcano, Germany, and amicite and Ba-rich gismondine from the Hatrurim Complex, Israel

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**Table S1.** Comparison of NaP synthetic phases (compound with **GIS** structure-type)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| References | | (Albert *et al.*, 1998) | (Håkansson *et al.*, 1990) | (Hansen *et al.*, 1990) |
| Synthetic symbol | | NaP | Na-P | Na-P2 |
| Chemical composition | | Na8(Al8Si8O32) ⸱ 15H2O | Na4(Al4Si12O32) ⸱ 14H2O | Na4(Al4Si12O32) ⸱ 14H2O |
| Space group | | *C*2/*c* | *I*41/*amd* | *Pnma* |
| Unit cell parameters  [Å, °] | *a* | 14.24 | 9.99 | 9.87 |
| *b* | 9.98 | 9.99 | 10.08 |
| *c* | 10.01 | 10.07 | 10.10 |
| *β* | 134.217 | 90 | 90 |
|  |  | Garronite-Na is an intermediate phase between these two synthetic phases. | | A counterpart of gobbinsite (Gatta et al. 2010) |

**Table S2.** Refined T-O distances of gismondine-Sr

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Site1-Site2 | Distance [Å] | Site1-Site2 | Distance [Å] | Site1-Site2 | Distance [Å] |
| Si1-O3 | 1.601(5) | Si2-O1 | 1.595(5) | Si3-O2 | 1.602(5) |
| Si1-O3 | 1.601(5) | Si2-O4 | 1.599(5) | Si3-O2 | 1.602(5) |
| Si1-O8 | 1.612(5) | Si2-O5 | 1.615(5) | Si3-O7 | 1.614(5) |
| Si1-O8 | 1.612(5) | Si2-O6 | 1.617(5) | Si3-O7 | 1.614(5) |
| <T-O> | 1.607 |  | 1.607 |  | 1.608 |
| Al11-O1 | 1.730(5) | Al12-O4 | 1.731(5) | Al13-O3 | 1.717(6) |
| Al11-O1 | 1.730(5) | Al12-O4 | 1.731(5) | Al13-O6 | 1.732(5) |
| Al11-O7 | 1.734(5) | Al12-O8 | 1.735(5) | Al13-O2 | 1.733(5) |
| Al11-O7 | 1.734(5) | Al12-O8 | 1.735(5) | Al13-O5 | 1.740(5) |
| <T-O> | 1.732 |  | 1.733 |  | 1.731 |

**Table S3**. Unpublished data of the chemical composition of gismondine-Sr from the Hatrurim Complex, Isreal.

|  |  |  |  |
| --- | --- | --- | --- |
| **wt%** | **Gis-Sr** | | |
| **mean n=35** | **s.d.** | **range** |
| SiO2 | 35.25 | 0.48 | 33.96-37.22 |
| Al2O3 | 28.00 | 0.70 | 27.17-29.40 |
| Fe2O3 | 0.04 | 0.05 | 0.00-0.27 |
| CaO | 4.05 | 1.15 | 3.65-8.76 |
| SrO | 15.97 | 1.35 | 10.68-20.17 |
| BaO | 0.25 | 0.24 | 0.00-1.17 |
| Na2O | 1.25 | 0.48 | 0.67-2.36 |
| K2O | 2.61 | 0.56 | 2.05-3.18 |
| H2O | 12.58 |  |  |
| **Total** | 100.00 |  |  |
| Si | 8.26 |  |  |
| Al | 7.73 |  |  |
| Fe3+ | 0.01 |  |  |
| ***T*** | 16.00 |  |  |
| Sr | 2.17 |  |  |
| Ca | 1.02 |  |  |
| Ba | 0.02 |  |  |
| K | 0.78 |  |  |
| Na | 0.57 |  |  |
| ***Extraframework cations*** | 4.56 |  |  |
| **H2O** | 9.83 |  |  |
| **R** | **0.52** |  |  |
| **E %** | **-0.32** |  |  |
| \*s.d. – standard deviaation; n – number of analyses | | | |

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