**Strain partitioning in host rock controls light rare earth element release from allanite-(Ce) in subduction zones**

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Supplementary Table S1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **C1 - #3.10** | **C1 - #3.11** | **C1 - #1.10** | **T1 - #5.3** | **T1 - #5.5**  | **M2 - #8.1** |
| Space Group | *P*21/*m* | *P*21/*m* | *P*21/*m* | *P*21/*m* | *P*21/*m* | *P*21/*m* |
| *a*  (Å) | 8.9240(5) | 8.8954(3) | 8.8967(4) | 8.8965(5) | 8.9144(5) | 8.9185(10) |
| *b*  (Å) | 5.7334(3) | 5.7239(2) | 5.7120(3) | 5.7267(3) | 5.72360(10) | 5.7452(3) |
| *c* (Å) | 10.1489(6) | 10.1294(4) | 10.1272(4) | 10.1242(7) | 10.1400(6) | 10.1472(9) |
| *β* (°) | 114.979(7) | 115.054(4) | 114.920(6) | 114.899(8) | 114.968(7) | 114.910(10) |
| *V* (Å3) | 470.70(5) | 467.22(3) | 466.73(4) | 467.86(5) | 469.02(4) | 471.56(7) |
| Refined chemical formula (based on 8 x 2 cations p.f.u.) | Ca2.59Ce1.41 Al4.28Fe1.72 Si6O26H2 | Ca2.64Ce1.36 Al4.34Fe1.66 Si6O26H2 | Ca2.51Ce1.49 Al4.66Fe1.34  Si6O26H2 | Ca2.63Ce1.37 Al4.33Fe1.67 Si6O26H2 | Ca2.55Ce1.45 Al4.36Fe1.64 Si6O26H2 | Ca2.47Ce1.53  Al4.07Fe1.93 Si6O26H2 |
| Maximum *θ* (°) | 36.28 | 29.28 | 35.91 | 29.26 | 36.11 | 36.18 |
| Measured reflections | 13079 | 7094 | 13126 | 7548 | 12967 | 13265 |
| Unique reflections  | 1800 | 1247 | 1872 | 1271 | 1599 | 1695 |
| Unique reflections with *F*o>4σ(*F*o)  | 1362 | 1195 | 1530 | 1223 | 1415 | 1291 |
| *R*int  | 0.0593 | 0.0267 | 0.0427 | 0.0294 | 0.0353 | 0.0568 |
| No. of refined parameters/restrains  | 124/1 | 123/1 | 123/1 | 123/1 | 124/1 | 124/1 |
| *R*1, *F*o > 4σ (*F*o)  | 0.0390 | 0.0272 | 0.0320 | 0.0277 | 0.0271 | 0.0299 |
| *wR*2 | 0.0469 | 0.0558 | 0.0465 | 0.0584 | 0.0446 | 0.0549 |
| GooF | 1.417 | 2.607 | 1.575 | 2.693 | 1.807 | 1.277 |
| Residuals (*e*-/ Å3) | +1.3/-1.0 | +1.1/-0.9 | +1.3/-0.9 | +1.2/-0.9 | +1.1/-0.7 | +1.2/-1.0 |
| *Note: R*int = Σ | *F*obs2 - Fobs2(mean) | / Σ [ *F*obs2 ]; *R*1 = Σ(|*F*obs| - |*F*calc|)/Σ|*F*obs|;  *wR*2 = [Σ[*w*(*F*2obs-*F*2calc)2]/Σ[*w*(*F*2obs)2]]0.5; GooF={Σ[*w*(*F*obs2–*F*calc2)2]/(*n–p*) }1/2;  *w*= 1/ [σ2(*Fobs*2) + (0.01\**P*)2 ], *P* = (Max (*Fobs*2, 0) +2\**Fcalc*2)/3. All the experiments were peformed using a Mo-*K*alpha radiation source. The crystals #3.10, #1.10, #5.5 and #8.1 were larger than the #3.11 and #5.3 ones, allowing the collection of ‘observed’ reflections up to higher theta value. |