

## Supporting information

**Table S1.** Atomic distances (Å) and angles (°) in  $\text{Li}_2\text{FeSiO}_4$  synthesised at 900°C. The M-O distances are highlighted, the O-O distances are given below the diagonal, the O-M-O angles above.

| $\text{FeO}_4$     | O1     | O2      | O3      | O4      |
|--------------------|--------|---------|---------|---------|
| O1                 | 2.1473 | 110.084 | 89.462  | 90.332  |
| O2                 | 3.4195 | 2.0242  | 111.864 | 114.695 |
| O3                 | 2.8507 | 3.2477  | 1.8953  | 130.304 |
| O4                 | 2.9794 | 3.4328  | 3.5835  | 2.053   |
| $\text{SiO}_4$     | O1     | O2      | O3      | O4      |
| O1                 | 1.6558 | 107.189 | 108.499 | 115.92  |
| O2                 | 2.6821 | 1.6766  | 107.351 | 108.203 |
| O3                 | 2.7082 | 2.7053  | 1.6815  | 109.348 |
| O4                 | 2.8008 | 2.6935  | 2.7165  | 1.6481  |
| $\text{LiO}_4$ (1) | O1     | O2      | O3      | O4      |
| O1                 | 1.8448 | 122.778 | 112.444 | 97.378  |
| O2                 | 3.2695 | 1.88    | 109.126 | 110.79  |
| O3                 | 3.3426 | 3.3043  | 2.1707  | 101.708 |
| O4                 | 2.9794 | 3.2903  | 3.3237  | 2.1145  |
| $\text{LiO}_4$ (2) | O1     | O2      | O3      | O4      |
| O1                 | 1.9092 | 112.13  | 92.122  | 121.379 |
| O2                 | 3.4195 | 1.9559  | 101.431 | 114.805 |
| O3                 | 2.8507 | 3.2477  | 2.0476  | 110.469 |
| O4                 | 2.9794 | 3.4328  | 3.5835  | 1.7467  |