

Supplementary Table OM9. Bond-valence calculations for bennesherite (valence units).

| Site | Occupation | O1 | O2 | O3 | Sum |
|------------|-------------------------------------|----------------------------|--|---|---------------|
| Ba1 | $\text{Ba}_{0.85}+\text{Ca}_{0.15}$ | $0.222^{\uparrow 2\times}$ | $0.245^{\times 2\rightarrow}$ 0.379 | $0.170^{\times 2\rightarrow}$ 0.281 $^{\times 2\rightarrow}$ | 1.99×2 |
| Fe1 | $\text{Fe}_{0.81}+\text{Mg}_{0.19}$ | | | $0.536^{\times 2\rightarrow}$ | 2.14 |
| Si1 | Si | $0.952^{\uparrow 2\times}$ | 1.123 | $0.927^{\times 2\rightarrow}$ | 3.93×2 |
| | | | | | 13.98 |
| Sum | | 2.35 | 1.99×2 | 1.91×4 | 13.97 |