# Manganaxinite, $Ca_2Mn^{2+}Al_2BSi_4O_{15}(OH)$

Manganaxinite
Andreozzi G B, Lucchesi S, Graziani G, Russo U
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Site distribution of Fe2+ and Fe3+ in axinite mineral group: New crystal-chemical formula
7.1849 9.2152 8.9765 91.761 98.153 77.150 P-1

| atom | x | y | z | Wyckoff |
|---|---|---|---|---|
| SiT1 | 0.21431 | 0.45019 | 0.23727 | 2i |
| SiT2 | 0.21933 | 0.27500 | 0.52453 | 2i |
| SiT3 | 0.70072 | 0.25369 | 0.01152 | 2i |
| SiT4 | 0.64055 | 0.01901 | 0.23013 | 2i |
| BT5 | 0.46165 | 0.63523 | 0.28647 | 2i |
| CaX1 | 0.74611 | 0.34774 | 0.39587 | 2i |
| CaX2 | 0.18328 | 0.10062 | 0.08379 | 2i |
| MnY | 0.76934 | 0.58917 | 0.11157 | 2i |
| AlZ1 | 0.05275 | 0.80181 | 0.25422 | 2i |
| AlZ2 | 0.35213 | 0.93654 | 0.42153 | 2i |
| O1 | 0.05970 | 0.60338 | 0.18974 | 2i |
| O2 | 0.23487 | 0.33740 | 0.10084 | 2i |
| O3 | 0.42142 | 0.48736 | 0.31412 | 2i |
| O4 | 0.13711 | 0.37590 | 0.37345 | 2i |
| O5 | 0.02186 | 0.24271 | 0.56344 | 2i |
| O6 | 0.32635 | 0.37826 | 0.64732 | 2i |
| O7 | 0.38006 | 0.12749 | 0.49598 | 2i |
| O8 | 0.54054 | 0.34368 | 0.87721 | 2i |
| O9 | 0.87760 | 0.15216 | 0.93434 | 2i |
| O10 | 0.77047 | 0.36264 | 0.13966 | 2i |
| O11 | 0.60365 | 0.13357 | 0.08602 | 2i |
| O12 | 0.43632 | 0.98193 | 0.24413 | 2i |
| O13 | 0.71944 | 0.09975 | 0.38340 | 2i |
| O14 | 0.79302 | 0.87344 | 0.17787 | 2i |
| O15 | 0.32625 | 0.74656 | 0.35564 | 2i |
| O16 | 0.09696 | 0.99702 | 0.32332 | 2i |
| H | 0.001 | 0.951 | 0.627 | 2i |

(27 × 2i)

**Raman Active Modes**

| WP | $A_g$ | $A_u$ |
|---|---|---|
| 2i | 3 | · |

Total number of modes:
$81A_g = 81$