

AM-93-530

Bernalite, $\text{Fe}(\text{OH})_3$, a new mineral from Broken Hill, New South Wales: Description and structure

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For deposit: Table 5

American Mineralogist, 78, 7-8, 827-834.

Table 5 List of observed and calculated structure factors for bernalite. Space group *Immm*

| H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC |
|----|---|---|------|-------|----|----|---|------|------|----|----|---|------|-------|----|---|---|------|-------|----|----|---|------|------|
| 4 | 0 | 0 | 2106 | 1785 | 0 | 6 | 0 | 472 | -463 | 11 | 2 | 1 | 115 | 37 | 2 | 2 | 2 | 973 | -915 | 0 | 8 | 2 | 850 | -894 |
| 6 | 0 | 0 | 599 | -532 | 2 | 6 | 0 | 903 | 892 | 13 | 2 | 1 | 107 | -77 | 4 | 2 | 2 | 1473 | 1469 | 2 | 8 | 2 | 906 | 934 |
| 8 | 0 | 0 | 810 | 765 | 4 | 6 | 0 | 803 | -806 | 0 | 3 | 1 | 598 | 519 | 6 | 2 | 2 | 1240 | -1106 | 4 | 8 | 2 | 583 | -598 |
| 10 | 0 | 0 | 459 | -486 | 6 | 6 | 0 | 1103 | 1082 | 2 | 3 | 1 | 372 | -397 | 8 | 2 | 2 | 1078 | 1051 | 6 | 8 | 2 | 535 | 535 |
| 12 | 0 | 0 | 752 | 734 | 8 | 6 | 0 | 754 | -757 | 6 | 3 | 1 | 216 | 169 | 10 | 2 | 2 | 664 | -701 | 8 | 8 | 2 | 371 | -356 |
| 3 | 1 | 0 | 633 | -448 | 10 | 6 | 0 | 724 | 726 | 8 | 3 | 1 | 194 | -180 | 12 | 2 | 2 | 546 | 608 | 10 | 8 | 2 | 479 | 456 |
| 5 | 1 | 0 | 146 | 198 | 12 | 6 | 0 | 375 | -398 | 10 | 3 | 1 | 92 | 54 | 1 | 3 | 2 | 334 | -201 | 1 | 9 | 2 | 105 | -52 |
| 7 | 1 | 0 | 129 | -108 | 3 | 7 | 0 | 98 | -109 | 3 | 4 | 1 | 99 | -118 | 3 | 3 | 2 | 196 | 58 | 0 | 10 | 2 | 511 | 521 |
| 9 | 1 | 0 | 137 | -78 | 0 | 8 | 0 | 665 | 703 | 0 | 5 | 1 | 117 | -39 | 5 | 3 | 2 | 281 | -247 | 2 | 10 | 2 | 546 | -531 |
| 13 | 1 | 0 | 101 | -105 | 2 | 8 | 0 | 899 | -831 | 2 | 5 | 1 | 110 | 129 | 7 | 3 | 2 | 136 | 45 | 4 | 10 | 2 | 525 | 552 |
| 0 | 2 | 0 | 1804 | -1857 | 4 | 8 | 0 | 595 | 586 | 6 | 5 | 1 | 94 | 16 | 11 | 3 | 2 | 148 | -102 | 6 | 10 | 2 | 536 | -538 |
| 2 | 2 | 0 | 1201 | 1316 | 6 | 8 | 0 | 721 | -653 | 8 | 5 | 1 | 109 | 60 | 0 | 4 | 2 | 1401 | -1522 | 8 | 10 | 2 | 467 | 473 |
| 4 | 2 | 0 | 1765 | -1548 | 8 | 8 | 0 | 478 | 455 | 3 | 6 | 1 | 175 | -102 | 2 | 4 | 2 | 1301 | 1444 | 3 | 11 | 2 | 126 | 68 |
| 6 | 2 | 0 | 1090 | 1052 | 10 | 8 | 0 | 547 | -578 | 9 | 6 | 1 | 109 | -74 | 4 | 4 | 2 | 1036 | -995 | 5 | 11 | 2 | 124 | 9 |
| 8 | 2 | 0 | 1039 | -992 | 1 | 9 | 0 | 140 | 108 | 0 | 7 | 1 | 114 | 70 | 6 | 4 | 2 | 835 | 795 | 0 | 12 | 2 | 515 | -496 |
| 10 | 2 | 0 | 625 | 637 | 3 | 9 | 0 | 129 | -130 | 2 | 7 | 1 | 85 | -80 | 8 | 4 | 2 | 644 | -623 | 2 | 12 | 2 | 459 | 423 |
| 12 | 2 | 0 | 628 | -598 | 5 | 9 | 0 | 151 | 139 | 3 | 8 | 1 | 139 | -113 | 10 | 4 | 2 | 610 | 623 | 4 | 12 | 2 | 441 | -456 |
| 1 | 3 | 0 | 563 | 352 | 0 | 10 | 0 | 410 | -391 | 5 | 8 | 1 | 97 | 74 | 12 | 4 | 2 | 513 | -576 | 6 | 12 | 2 | 369 | 350 |
| 3 | 3 | 0 | 292 | -251 | 2 | 10 | 0 | 531 | 472 | 6 | 9 | 1 | 95 | 91 | 1 | 5 | 2 | 114 | -9 | 3 | 0 | 3 | 282 | 206 |
| 5 | 3 | 0 | 443 | 221 | 4 | 10 | 0 | 547 | -507 | 9 | 10 | 1 | 115 | -24 | 3 | 5 | 2 | 246 | 153 | 5 | 0 | 3 | 444 | -297 |
| 9 | 3 | 0 | 151 | -111 | 6 | 10 | 0 | 636 | 606 | 4 | 11 | 1 | 140 | 13 | 5 | 5 | 2 | 130 | 2 | 7 | 0 | 3 | 106 | 86 |
| 11 | 3 | 0 | 200 | 144 | 8 | 10 | 0 | 537 | -564 | 0 | 0 | 2 | 1898 | -1834 | 7 | 5 | 2 | 100 | -28 | 9 | 0 | 3 | 140 | -23 |
| 0 | 4 | 0 | 1610 | 1758 | 3 | 11 | 0 | 184 | -142 | 2 | 0 | 2 | 1261 | 1351 | 9 | 5 | 2 | 127 | 113 | 11 | 0 | 3 | 166 | -120 |
| 2 | 4 | 0 | 1520 | -1436 | 0 | 12 | 0 | 636 | 625 | 4 | 0 | 2 | 1744 | -1482 | 11 | 5 | 2 | 102 | -30 | 0 | 1 | 3 | 601 | -628 |
| 4 | 4 | 0 | 1131 | 1154 | 2 | 12 | 0 | 524 | -461 | 6 | 0 | 2 | 1099 | 1000 | 0 | 6 | 2 | 861 | 977 | 2 | 1 | 3 | 377 | 304 |
| 6 | 4 | 0 | 885 | -808 | 4 | 12 | 0 | 456 | 443 | 8 | 0 | 2 | 1034 | -944 | 2 | 6 | 2 | 1024 | -1018 | 6 | 1 | 3 | 218 | -224 |
| 8 | 4 | 0 | 653 | 643 | 6 | 12 | 0 | 301 | -251 | 10 | 0 | 2 | 631 | 654 | 4 | 6 | 2 | 764 | 807 | 8 | 1 | 3 | 196 | 167 |
| 10 | 4 | 0 | 644 | -595 | 5 | 0 | 1 | 147 | 0 | 12 | 0 | 2 | 629 | -678 | 6 | 6 | 2 | 798 | -782 | 1 | 2 | 3 | 343 | -250 |
| 12 | 4 | 0 | 555 | 563 | 9 | 0 | 1 | 174 | -108 | 1 | 1 | 2 | 133 | -96 | 8 | 6 | 2 | 570 | 596 | 3 | 2 | 3 | 202 | 188 |
| 1 | 5 | 0 | 124 | 47 | 2 | 1 | 1 | 113 | 43 | 3 | 1 | 2 | 384 | 319 | 10 | 6 | 2 | 589 | -605 | 5 | 2 | 3 | 278 | -156 |
| 3 | 5 | 0 | 414 | -321 | 6 | 1 | 1 | 95 | 29 | 5 | 1 | 2 | 139 | -97 | 12 | 6 | 2 | 406 | 443 | 7 | 2 | 3 | 119 | -52 |
| 5 | 5 | 0 | 141 | 171 | 1 | 2 | 1 | 137 | -26 | 7 | 1 | 2 | 106 | -4 | 1 | 7 | 2 | 87 | -80 | 11 | 2 | 3 | 146 | -88 |
| 7 | 5 | 0 | 110 | -132 | 3 | 2 | 1 | 378 | -237 | 9 | 1 | 2 | 83 | 105 | 3 | 7 | 2 | 134 | 161 | 0 | 3 | 3 | 205 | 116 |
| 9 | 5 | 0 | 191 | -62 | 5 | 2 | 1 | 132 | 104 | 0 | 2 | 2 | 1074 | 1327 | 5 | 7 | 2 | 123 | -127 | 2 | 3 | 3 | 175 | 92 |

| H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC | H | K | L | 10FD | 10FC |
|----|----|---|------|-------|----|---|---|------|-------|----|----|---|------|------|----|----|---|------|-------|----|----|---|------|------|
| 4 | 3 | 3 | 194 | 88 | 10 | 0 | 4 | 638 | -614 | 8 | 8 | 4 | 585 | 616 | 9 | 6 | 5 | 120 | -91 | 8 | 4 | 6 | 675 | -681 |
| 6 | 3 | 3 | 101 | 34 | 12 | 0 | 4 | 549 | 540 | 10 | 8 | 4 | 484 | -509 | 11 | 6 | 5 | 119 | 84 | 10 | 4 | 6 | 554 | 573 |
| 8 | 3 | 3 | 93 | 64 | 3 | 1 | 4 | 85 | 15 | 0 | 10 | 4 | 535 | -507 | 0 | 7 | 5 | 108 | 103 | 1 | 5 | 6 | 92 | 37 |
| 10 | 3 | 3 | 128 | 34 | 0 | 2 | 4 | 1430 | -1452 | 2 | 10 | 4 | 502 | 480 | 3 | 8 | 5 | 168 | -128 | 3 | 5 | 6 | 206 | -158 |
| 1 | 4 | 3 | 89 | -116 | 2 | 2 | 4 | 1307 | 1479 | 4 | 10 | 4 | 528 | -478 | 0 | 9 | 5 | 186 | 185 | 5 | 5 | 6 | 114 | 123 |
| 3 | 4 | 3 | 233 | 285 | 4 | 2 | 4 | 994 | -1017 | 6 | 10 | 4 | 479 | 445 | 2 | 9 | 5 | 105 | -83 | 7 | 5 | 6 | 106 | -89 |
| 5 | 4 | 3 | 110 | -156 | 6 | 2 | 4 | 841 | 853 | 8 | 10 | 4 | 455 | -459 | 6 | 11 | 5 | 109 | 27 | 9 | 5 | 6 | 128 | -28 |
| 9 | 4 | 3 | 105 | 103 | 8 | 2 | 4 | 650 | -634 | 0 | 12 | 4 | 454 | 428 | 3 | 12 | 5 | 119 | -92 | 11 | 5 | 6 | 105 | 72 |
| 0 | 5 | 3 | 412 | -485 | 10 | 2 | 4 | 614 | 601 | 2 | 12 | 4 | 437 | -407 | 0 | 0 | 6 | 480 | -459 | 0 | 6 | 6 | 939 | 1033 |
| 2 | 5 | 3 | 244 | 181 | 12 | 2 | 4 | 519 | -533 | 4 | 12 | 4 | 422 | 383 | 2 | 0 | 6 | 899 | 932 | 2 | 6 | 6 | 726 | -779 |
| 4 | 5 | 3 | 97 | -41 | 1 | 3 | 4 | 83 | 59 | 1 | 0 | 5 | 122 | 41 | 4 | 0 | 6 | 756 | -792 | 4 | 6 | 6 | 677 | 699 |
| 6 | 5 | 3 | 231 | -233 | 3 | 3 | 4 | 227 | 47 | 3 | 0 | 5 | 398 | -249 | 6 | 0 | 6 | 1096 | 1083 | 6 | 6 | 6 | 414 | -391 |
| 8 | 5 | 3 | 192 | 151 | 5 | 3 | 4 | 116 | -27 | 5 | 0 | 5 | 116 | 47 | 8 | 0 | 6 | 756 | -770 | 8 | 6 | 6 | 450 | 451 |
| 1 | 6 | 3 | 175 | -140 | 7 | 3 | 4 | 75 | 109 | 7 | 0 | 5 | 111 | 53 | 10 | 0 | 6 | 765 | 741 | 10 | 6 | 6 | 368 | -376 |
| 3 | 6 | 3 | 97 | 54 | 9 | 3 | 4 | 92 | -31 | 9 | 0 | 5 | 168 | -130 | 12 | 0 | 6 | 369 | -438 | 5 | 7 | 6 | 95 | 25 |
| 5 | 6 | 3 | 199 | -190 | 11 | 3 | 4 | 107 | 8 | 0 | 1 | 5 | 117 | 120 | 3 | 1 | 6 | 178 | -153 | 0 | 8 | 6 | 642 | -643 |
| 11 | 6 | 3 | 128 | -104 | 0 | 4 | 4 | 945 | 1060 | 2 | 1 | 5 | 111 | -57 | 7 | 1 | 6 | 93 | -63 | 2 | 8 | 6 | 507 | 529 |
| 0 | 7 | 3 | 100 | -92 | 2 | 4 | 4 | 924 | -988 | 6 | 1 | 5 | 89 | 67 | 0 | 2 | 6 | 888 | 957 | 4 | 8 | 6 | 602 | -611 |
| 2 | 7 | 3 | 127 | 132 | 4 | 4 | 4 | 890 | 976 | 1 | 2 | 5 | 119 | 83 | 2 | 2 | 6 | 1020 | -1046 | 6 | 8 | 6 | 444 | 473 |
| 8 | 7 | 3 | 113 | 114 | 6 | 4 | 4 | 797 | -834 | 3 | 2 | 5 | 248 | -192 | 4 | 2 | 6 | 746 | 790 | 8 | 8 | 6 | 503 | -523 |
| 1 | 8 | 3 | 143 | -32 | 8 | 4 | 4 | 692 | 716 | 5 | 2 | 5 | 110 | 163 | 6 | 2 | 6 | 788 | -770 | 1 | 9 | 6 | 95 | 64 |
| 3 | 8 | 3 | 99 | 111 | 10 | 4 | 4 | 625 | -585 | 7 | 2 | 5 | 85 | -74 | 8 | 2 | 6 | 570 | 577 | 3 | 9 | 6 | 101 | -99 |
| 5 | 8 | 3 | 182 | -30 | 12 | 4 | 4 | 478 | 502 | 0 | 3 | 5 | 432 | 417 | 10 | 2 | 6 | 621 | -613 | 5 | 9 | 6 | 114 | 88 |
| 9 | 8 | 3 | 115 | 106 | 3 | 5 | 4 | 109 | -48 | 2 | 3 | 5 | 254 | -263 | 12 | 2 | 6 | 416 | 514 | 0 | 10 | 6 | 623 | 606 |
| 0 | 9 | 3 | 119 | -38 | 0 | 6 | 4 | 709 | -736 | 4 | 3 | 5 | 110 | -35 | 1 | 3 | 6 | 178 | 97 | 2 | 10 | 6 | 509 | -528 |
| 3 | 10 | 3 | 135 | 159 | 2 | 6 | 4 | 708 | 761 | 6 | 3 | 5 | 228 | 199 | 3 | 3 | 6 | 110 | -120 | 4 | 10 | 6 | 475 | 473 |
| 0 | 11 | 3 | 153 | -215 | 4 | 6 | 4 | 763 | -781 | 8 | 3 | 5 | 197 | -185 | 5 | 3 | 6 | 199 | 79 | 6 | 10 | 6 | 333 | -340 |
| 2 | 11 | 3 | 130 | 93 | 6 | 6 | 4 | 700 | 737 | 10 | 3 | 5 | 136 | 82 | 7 | 3 | 6 | 83 | 69 | 3 | 11 | 6 | 131 | -101 |
| 4 | 11 | 3 | 112 | -21 | 8 | 6 | 4 | 665 | -657 | 3 | 4 | 5 | 122 | -160 | 9 | 3 | 6 | 114 | -96 | 0 | 12 | 6 | 301 | -250 |
| 0 | 0 | 4 | 1694 | 1733 | 10 | 6 | 4 | 548 | 546 | 9 | 4 | 5 | 91 | -56 | 11 | 3 | 6 | 138 | 91 | 2 | 12 | 6 | 328 | 346 |
| 2 | 0 | 4 | 1515 | -1516 | 0 | 8 | 4 | 556 | 566 | 0 | 5 | 5 | 110 | 41 | 0 | 4 | 6 | 727 | -749 | 1 | 0 | 7 | 96 | 5 |
| 4 | 0 | 4 | 1108 | 1123 | 2 | 8 | 4 | 550 | -529 | 1 | 6 | 5 | 83 | 83 | 2 | 4 | 6 | 720 | 789 | 3 | 0 | 7 | 96 | 35 |
| 6 | 0 | 4 | 885 | -843 | 4 | 8 | 4 | 623 | 638 | 3 | 6 | 5 | 197 | -127 | 4 | 4 | 6 | 744 | -767 | 5 | 0 | 7 | 87 | -50 |
| 8 | 0 | 4 | 666 | 666 | 6 | 8 | 4 | 626 | -607 | 5 | 6 | 5 | 104 | 85 | 6 | 4 | 6 | 703 | 749 | 2 | 1 | 7 | 99 | 98 |

