**Table S3.** *Results of thermocalc average P-T and average T calculations*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Conditions\*** | **Reactions** | **P** | **s.d.(P)** | **T** | **s.d.(T)** | **sigfit** | **cor** |
|  |  |  |  |  |  |  |  |  |
| ME151 | a(H2O) = 1 | 6 | 6.08 | 0.97 | 678 | 29 | 0.50 | 0.764 |
|  | a(H2O) = 0.7 | 6 | 5.74 | 0.92 | 635 | 26 | 0.56 | 0.759 |
|  | py gr alm |  |  |  |  |  |  |  |
|  | phl ann east |  |  |  |  |  |  |  |
|  | mu cel fcel |  |  |  |  |  |  |  |
|  | san an q H2O |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| ME131 | X(H2O) = 1 | 2 | 3 | - | 560 | 34 | 1.3 | - |
|  | tr ts parg |  | 3.5 | - | 586 | 28 | 1.1 | - |
|  | an ab |  | 4 | - | 611 | 26 | 0.8 | - |
|  | cz q H2O |  | 4.5 | - | 637 | 26 | 0.6 | - |
|  |  |  | 5 | - | 662 | 26 | 0.4 | - |
|  |  |  | 5.5 | - | 687 | 26 | 0.1 | - |
|  |  |  | 6 | - | 712 | 26 | 0.1 | - |
|  |  |  |  |  |  |  |  |  |
| ME131 | X(H2O) = 0.5 | 2 | 3 | - | 538 | 36 | 1.5 | - |
|  | tr ts parg |  | 3.5 | - | 563 | 31 | 1.2 | - |
|  | an ab |  | 4 | - | 587 | 25 | 1.0 | - |
|  | cz q H2O |  | 4.5 | - | 612 | 25 | 0.8 | - |
|  |  |  | 5 | - | 636 | 25 | 0.6 | - |
|  |  |  | 5.5 | - | 661 | 25 | 0.3 | - |
|  |  |  | 6 | - | 685 | 25 | 0.1 | - |
|  |  |  |  |  |  |  |  |  |
| ME126 | X(CO2) = 0.3 | 6 | 2 | - | 422 | 17 | 2.0 | - |
|  | cc mag sid |  | 2.5 | - | 441 | 17 | 1.9 | - |
|  | phl ann east |  | 3 | - | 462 | 17 | 1.9 | - |
|  | mu cel fcel pa |  | 3.5 | - | 476 | 16 | 1.8 | - |
|  | an ab |  | 4 | - | 491 | 15 | 1.8 | - |
|  | q H2O CO2 |  | 4.5 | - | 506 | 15 | 1.7 | - |
|  |  |  | 5 | - | 520 | 14 | 1.7 | - |
|  |  |  |  |  |  |  |  |  |
| ME126 | X(CO2) = 0.3 | 5 | 2 | - | 432 | 7 | 1.4 | - |
|  | cc mag sid |  | 2.5 | - | 444 | 5 | 1.2 | - |
|  | ann east |  | 3 | - | 460 | 5 | 1.1 | - |
|  | mu cel fcel pa |  | 3.5 | - | 477 | 5 | 1.1 | - |
|  | an ab |  | 4 | - | 492 | 5 | 1.0 | - |
|  | q H2O CO2 |  | 4.5 | - | 506 | 5 | 0.9 | - |
|  |  |  | 5 | - | 520 | 5 | 0.9 | - |
|  |  |  |  |  |  |  |  |  |
| \* End-member abbreviations are those used in the thermocalcsoftware | | | | | | | |  |