Appendix

## Mineral chemistry

Quantitative chemical data of primary and alteration mineralogy were analyzed *via* SEM-EDS using a JEOL 6400 SEM, with an accelerating voltage of 20 kV, beam current of 1.0 nA, and counting times of 10 s. Standards used were: albite (O*k*α, Na*K*α, Al*K*α, Si*K*α), wadeite (K*K*α, Zr*L*α), chalcopyrite (Fe*K*α), diopside (Ca*K*α, Mg*K*α), synthetic apatite (P*K*α), synthetic perovskite (Ti*K*α), halite (Cl*K*α), and tephroite (Mn*K*α). The chemical data were processed using Aztec software (Oxford Instruments, United Kingdom). Chemical formulae for feldspars were calculated based on Σ*T* (*i.e.*, Si+Al) = 4 *apfu*; those for pyroxene-supergroup minerals (*M*1*M*2Si2O6)were calculated based on Σ(M+*T*) (*i.e.*, Si+Al+Fe2++Mg+Ti+…) = 6 *apfu* (Morimoto *et al*. 1988); those for mica-group minerals and chlorite were calculated based on a total cation charge of 22 and 28 positive charges, respectively; those for amphibole-supergroup minerals (*AB*2*C*5*T*8O22*W*2; Hawthorne *et al.* 2012) were calculated following the recommendations of Holland & Blundy (1994) to determine the proportion of Fe2+ and Fe3+; formulae for aenigmatite were calculated based on 14 cations *pfu*; those for clinozoisite were calculated based on 3 Si *apfu*.

Table A.1. Segmentation methods for image analyses of thin sections

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Ailsa Craig  Blue Hone | Ailsa Craig Common Green | Blue Trefor | Red Trefor |
| PPL greyscale | Quartz\* | Drusy quartz,  alkali feldspar phenocrysts\*† | Plagioclase phenocrysts† | Quartz\* |
| CPL colour saturation | — | — | Pyroxene phenocrysts | — |
| Flatbed greyscale | Arfvedsonite | Arfvedsonite/ clinopyroxene/ aenigmatite | Ilmenite-magnetite | Ilmenite-magnetite, amphibole/ chlorite |
| Manual | Alkali feldspar phenocrysts\* | — | — | — |
| Unassigned | Alkali feldspar groundmass | Groundmass alkali feldspar and quartz | Groundmass minerals | Phenocrysts and groundmass minerals |

PPL = plane-polarized light, CPL = circularly polarized light.

‘,’ indicates that minerals were further distinguished using this method.

‘/’ indicates that minerals were not distinguished using this method.

\* As quartz could not be distinguished from unaltered feldspar phenocrysts by image analysis, the two had to be manually separated from one another.

† Gaussian blur, particle-size filtering and post-processing manual editing were implemented during the digitization process.

Table A.2. Mineral chemistry of feldspars in Ailsa Craig Blue Hone samples (wt.% oxide)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | K2O | CaO | FeOt | Total |
| Afs phenocrysts  (*n* = 7) |  |  |  |  |  |  |  |
| Average | 7.82 | 18.80 | 66.91 | 5.91 | 0.26 | — | 99.48 |
| Median | 7.98 | 18.80 | 66.83 | 5.79 | 0.26 | — | 99.57 |
| Min | 6.85 | 18.59 | 66.15 | 4.51 | 0.26 | — | 98.61 |
| Max | 8.78 | 19.08 | 67.73 | 7.49 | 0.26 | — | 100.09 |
| 2σ | 1.28 | 0.35 | 0.96 | 2.03 | — | — | 0.98 |
| # *adl* |  |  |  |  | 1 |  |  |
|  |  |  |  |  |  |  |  |
| Pitted Afs phenocrysts  (*n* = 6) |  |  |  |  |  |  |  |
| Average | 0.82 | 18.13 | 64.01 | 15.78 | — | — | 98.74 |
| Median | 0.63 | 18.15 | 63.59 | 16.12 | — | — | 98.35 |
| Min | 0.57 | 17.82 | 63.34 | 14.46 | — | — | 97.14 |
| Max | 1.44 | 18.40 | 65.25 | 16.25 | — | — | 100.47 |
| 2σ | 0.72 | 0.47 | 1.64 | 1.40 | — | — | 2.46 |
| # *adl* |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Kfs-rich groundmass  (*n* = 17) |  |  |  |  |  |  |  |
| Average | 1.13 | 17.82 | 64.66 | 15.47 | — | 0.66 | 99.66 |
| Median | 0.71 | 17.74 | 64.63 | 15.96 | — | 0.66 | 99.78 |
| Min | 0.32 | 17.40 | 63.67 | 13.58 | — | 0.23 | 98.39 |
| Max | 2.56 | 18.42 | 65.33 | 16.97 | — | 1.16 | 100.90 |
| 2σ | 1.61 | 0.62 | 0.91 | 2.40 | — | 0.57 | 1.58 |
| # *adl* |  |  |  |  |  | 15 |  |
|  |  |  |  |  |  |  |  |
| Ab-rich groundmass  (*n* = 19) |  |  |  |  |  |  |  |
| Average | 11.27 | 18.46 | 67.92 | 0.65 | — | 0.88 | 99.16 |
| Median | 11.43 | 18.54 | 68.09 | 0.45 | — | 0.89 | 99.42 |
| Min | 10.18 | 16.87 | 64.91 | 0.16 | — | 0.43 | 94.62 |
| Max | 11.77 | 19.18 | 69.70 | 1.99 | — | 1.66 | 101.63 |
| 2σ | 0.88 | 1.12 | 2.09 | 1.09 | — | 0.62 | 3.24 |
| # *adl* |  |  |  | 18 |  |  |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.2 (continued). Mineral chemistry of feldspars in Ailsa Craig Blue Hone samples (*apfu*)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na | K | Ca | Σ*A* | Al | Si | Fe3+ |
| Afs phenocrysts  (*n* = 7) |  |  |  |  |  |  |  |
| Average | 0.68 | 0.34 | 0.00 | 1.02 | 0.99 | 3.01 | — |
| Median | 0.69 | 0.33 | 0.00 | 1.02 | 1.00 | 3.00 | — |
| Min | 0.60 | 0.25 | 0.00 | 1.00 | 0.99 | 3.00 | — |
| Max | 0.75 | 0.43 | 0.01 | 1.06 | 1.00 | 3.01 | — |
| 2σ | 0.11 | 0.12 | 0.01 | 0.04 | 0.01 | 0.01 | — |
|  |  |  |  |  |  |  |  |
| Pitted Afs phenocrysts  (*n* = 6) |  |  |  |  |  |  |  |
| Average | 0.07 | 0.94 | — | 1.02 | 1.00 | 3.00 | — |
| Median | 0.06 | 0.96 | — | 1.02 | 1.00 | 3.00 | — |
| Min | 0.05 | 0.87 | — | 1.01 | 0.99 | 2.98 | — |
| Max | 0.13 | 0.97 | — | 1.03 | 1.02 | 3.01 | — |
| 2σ | 0.07 | 0.07 | — | 0.02 | 0.02 | 0.02 | — |
|  |  |  |  |  |  |  |  |
| Kfs-rich groundmass  (*n* = 17) |  |  |  |  |  |  |  |
| Average | 0.10 | 0.92 | — | 1.02 | 0.97 | 3.00 | 0.02 |
| Median | 0.07 | 0.95 | — | 1.02 | 0.98 | 3.00 | 0.03 |
| Min | 0.03 | 0.80 | — | 0.99 | 0.95 | 2.99 | 0.00 |
| Max | 0.23 | 1.00 | — | 1.05 | 1.00 | 3.02 | 0.04 |
| 2σ | 0.14 | 0.15 | — | 0.04 | 0.03 | 0.02 | 0.03 |
|  |  |  |  |  |  |  |  |
| Ab-rich groundmass  (*n* = 19) |  |  |  |  |  |  |  |
| Average | 0.97 | 0.03 | — | 1.00 | 0.96 | 3.00 | 0.03 |
| Median | 0.97 | 0.03 | — | 1.00 | 0.96 | 3.00 | 0.03 |
| Min | 0.87 | 0.00 | — | 0.98 | 0.92 | 2.99 | 0.02 |
| Max | 1.01 | 0.11 | — | 1.06 | 0.99 | 3.02 | 0.06 |
| 2σ | 0.06 | 0.06 | — | 0.04 | 0.03 | 0.02 | 0.02 |

Table A.3. Mineral chemistry of amphiboles in Ailsa Craig Blue Hone samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | K2O | CaO | TiO2 | MnO | FeOt | ZnO | Total |
| Arf  (*n* = 11) |  |  |  |  |  |  |  |  |  |  |
| Average | 9.10 | 0.66 | 49.84 | 1.33 | 1.04 | 1.55 | 0.77 | 31.61 | 0.52 | 95.99 |
| Median | 9.00 | 0.63 | 49.70 | 1.34 | 0.94 | 1.52 | 0.79 | 31.49 | 0.47 | 96.13 |
| Min | 8.55 | 0.45 | 48.78 | 1.05 | 0.48 | 1.40 | 0.66 | 30.73 | 0.45 | 94.05 |
| Max | 9.60 | 0.96 | 51.17 | 1.57 | 1.74 | 1.77 | 0.89 | 33.02 | 0.63 | 97.35 |
| 2σ | 0.68 | 0.30 | 1.74 | 0.34 | 0.81 | 0.27 | 0.14 | 1.50 | 0.20 | 1.78 |
| # *adl* |  | 10 |  |  |  |  |  |  | 3 |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.3 (continued). Mineral chemistry of amphiboles in Ailsa Craig Blue Hone samples (*apfu*)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na | K | Σ*A* | Na | Ca | Σ*B* | Al | Ti | Mn2+ | Fe2+ | Fe3+ | Zn | Σ*C* | Al | Si | Σ*T* |
| Arf  (*n* = 11) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 1.03 | 0.27 | 1.31 | 1.82 | 0.18 | 2.00 | 0.10 | 0.19 | 0.11 | 3.91 | 0.36 | 0.01 | 4.68 | 0.01 | 8.06 | 8.07 |
| Median | 1.04 | 0.28 | 1.30 | 1.84 | 0.16 | 2.00 | 0.11 | 0.18 | 0.11 | 3.97 | 0.37 | 0.00 | 4.69 | 0.00 | 8.08 | 8.08 |
| Min | 0.94 | 0.22 | 1.20 | 1.70 | 0.08 | 2.00 | 0.00 | 0.17 | 0.09 | 3.60 | 0.18 | 0.00 | 4.47 | 0.00 | 7.92 | 8.00 |
| Max | 1.13 | 0.32 | 1.41 | 1.92 | 0.30 | 2.00 | 0.15 | 0.22 | 0.12 | 4.14 | 0.55 | 0.06 | 4.86 | 0.08 | 8.17 | 8.17 |
| 2σ | 0.13 | 0.07 | 0.14 | 0.14 | 0.14 | 0.00 | 0.08 | 0.03 | 0.02 | 0.33 | 0.22 | 0.05 | 0.25 | 0.06 | 0.16 | 0.12 |

Table A.4. Mineral chemistry of feldspars in Ailsa Craig Common Green samples (wt.% oxide)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | K2O | FeOt | Total |
| Afs phenocrysts  (*n* = 16) |  |  |  |  |  |  |
| Average | 7.50 | 18.58 | 65.75 | 6.04 | 0.19 | 97.90 |
| Median | 7.37 | 18.56 | 66.14 | 6.05 | 0.19 | 98.47 |
| Min | 6.97 | 18.25 | 64.35 | 4.59 | 0.14 | 95.62 |
| Max | 8.25 | 18.86 | 66.81 | 7.13 | 0.23 | 99.59 |
| 2σ | 0.85 | 0.42 | 1.82 | 1.28 | 0.13 | 2.85 |
| # *adl* |  |  |  |  | 2 |  |
|  |  |  |  |  |  |  |
| Afs groundmass  (*n* = 16) |  |  |  |  |  |  |
| Average | 7.88 | 18.33 | 66.30 | 5.58 | 0.92 | 98.96 |
| Median | 7.92 | 18.35 | 66.56 | 5.55 | 0.83 | 99.39 |
| Min | 7.13 | 17.40 | 64.46 | 4.87 | 0.36 | 96.28 |
| Max | 8.47 | 18.93 | 67.82 | 6.72 | 2.07 | 100.90 |
| 2σ | 0.72 | 0.87 | 1.73 | 1.01 | 0.87 | 2.59 |
| # *adl* |  |  |  |  | 15 |  |
|  |  |  |  |  |  |  |
| Pitted Kfs-rich groundmass  (*n* = 11) |  |  |  |  |  |  |
| Average | 0.65 | 17.72 | 63.87 | 16.19 | 0.57 | 98.79 |
| Median | 0.50 | 17.82 | 64.03 | 16.18 | 0.54 | 99.35 |
| Min | 0.30 | 16.74 | 62.38 | 15.14 | 0.26 | 96.48 |
| Max | 1.42 | 18.10 | 65.12 | 16.89 | 1.12 | 100.33 |
| 2σ | 0.77 | 0.72 | 1.80 | 1.23 | 0.61 | 2.65 |
| # *adl* |  |  |  |  | 7 |  |
|  |  |  |  |  |  |  |
| Pitted Ab-rich groundmass  (*n* = 7) |  |  |  |  |  |  |
| Average | 11.63 | 18.80 | 67.87 | 0.41 | 0.49 | 98.96 |
| Median | 11.62 | 18.91 | 68.09 | 0.28 | 0.41 | 99.18 |
| Min | 11.44 | 18.42 | 66.94 | 0.22 | 0.28 | 97.53 |
| Max | 11.81 | 19.12 | 68.41 | 0.88 | 0.90 | 100.29 |
| 2σ | 0.25 | 0.49 | 1.04 | 0.63 | 0.48 | 1.86 |
| # *adl* |  |  |  | 4 | 6 |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.4 (continued). Mineral chemistry of feldspars in Ailsa Craig Common Green samples (*apfu*)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Na | K | Σ*A* | Al | Si | Fe3+ |
| Afs phenocrysts  (*n* = 16) |  |  |  |  |  |  |
| Average | 0.66 | 0.35 | 1.01 | 1.00 | 3.00 | 0.00 |
| Median | 0.66 | 0.36 | 1.02 | 1.00 | 3.00 | 0.00 |
| Min | 0.61 | 0.27 | 0.99 | 0.99 | 2.99 | 0.00 |
| Max | 0.74 | 0.41 | 1.05 | 1.01 | 3.01 | 0.01 |
| 2σ | 0.07 | 0.07 | 0.03 | 0.01 | 0.01 | 0.01 |
|  |  |  |  |  |  |  |
| Afs groundmass  (*n* = 16) |  |  |  |  |  |  |
| Average | 0.69 | 0.32 | 1.01 | 0.98 | 2.99 | 0.03 |
| Median | 0.70 | 0.32 | 1.01 | 0.98 | 3.00 | 0.03 |
| Min | 0.62 | 0.28 | 0.98 | 0.92 | 2.98 | 0.00 |
| Max | 0.74 | 0.38 | 1.04 | 1.00 | 3.01 | 0.07 |
| 2σ | 0.06 | 0.06 | 0.03 | 0.04 | 0.02 | 0.03 |
|  |  |  |  |  |  |  |
| Pitted Kfs-rich groundmass  (*n* = 11) |  |  |  |  |  |  |
| Average | 0.06 | 0.97 | 1.03 | 0.98 | 3.00 | 0.01 |
| Median | 0.05 | 0.98 | 1.04 | 0.98 | 3.00 | 0.01 |
| Min | 0.03 | 0.91 | 1.01 | 0.95 | 2.99 | 0.00 |
| Max | 0.13 | 1.01 | 1.05 | 1.01 | 3.02 | 0.05 |
| 2σ | 0.07 | 0.07 | 0.03 | 0.03 | 0.02 | 0.03 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Pitted Ab-rich groundmass  (*n* = 7) |  |  |  |  |  |  |
| Average | 1.00 | 0.01 | 1.01 | 0.98 | 3.00 | 0.02 |
| Median | 1.00 | 0.01 | 1.01 | 0.98 | 3.01 | 0.01 |
| Min | 0.99 | 0.00 | 1.00 | 0.97 | 2.98 | 0.00 |
| Max | 1.01 | 0.05 | 1.04 | 0.99 | 3.03 | 0.03 |
| 2σ | 0.01 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 |

Table A.5. Mineral chemistry of amphiboles and aenigmatite in Ailsa Craig Common Green samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | K2O | CaO | TiO2 | MnO | FeOt | ZnO | ZrO2 | Total |
| Arf  (*n* = 10) |  |  |  |  |  |  |  |  |  |  |  |
| Average | 7.84 | 0.66 | 48.40 | 1.27 | 2.06 | 0.92 | 0.77 | 32.38 | 0.90 | 0.68 | 94.08 |
| Median | 7.89 | 0.62 | 48.12 | 1.21 | 2.18 | 0.78 | 0.79 | 31.88 | 0.90 | 0.68 | 93.43 |
| Min | 7.12 | 0.57 | 47.64 | 1.08 | 0.25 | 0.28 | 0.59 | 27.27 | 0.90 | 0.68 | 91.02 |
| Max | 8.22 | 0.81 | 49.18 | 1.71 | 3.25 | 2.09 | 0.94 | 35.30 | 0.90 | 0.68 | 97.45 |
| 2σ | 0.71 | 0.21 | 1.11 | 0.37 | 1.70 | 1.20 | 0.25 | 5.52 | — | — | 5.58 |
| # *adl* |  | 7 |  |  |  | 8 |  |  | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Aen  (*n* = 9) |  |  |  |  |  |  |  |  |  |  |  |
| Average | 7.03 | 0.62 | 39.48 | — | 0.47 | 6.54 | 0.77 | 42.09 | — | — | 97.00 |
| Median | 7.06 | 0.59 | 39.49 | — | 0.43 | 6.52 | 0.77 | 41.36 | — | — | 96.28 |
| Min | 6.77 | 0.47 | 38.89 | — | 0.31 | 5.34 | 0.67 | 40.59 | — | — | 94.98 |
| Max | 7.24 | 0.74 | 40.11 | — | 0.77 | 7.34 | 0.85 | 45.21 | — | — | 100.31 |
| 2σ | 0.30 | 0.19 | 0.89 | — | 0.29 | 1.28 | 0.12 | 3.23 | — | — | 3.85 |
| # *adl* |  |  |  |  |  |  |  |  |  |  |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.5 (continued). Mineral chemistry of amphiboles and aenigmatite in Ailsa Craig Common Green samples (*apfu*)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Arf  (*n* = 10) | Na | K | Σ*A* | Na | Ca | Mn | Σ*B* | Al | Ti | Mn | Fe2+ | Fe3+ | Zn | Zr | Σ*C* | Si | Al | Σ*T* |
| Average | 0.90 | 0.27 | 1.17 | 1.62 | 0.37 | 0.01 | 2.00 | 0.05 | 0.09 | 0.10 | 3.96 | 0.52 | 0.01 | 0.01 | 4.73 | 8.02 | 0.04 | 8.07 |
| Median | 0.87 | 0.26 | 1.15 | 1.61 | 0.39 | 0.00 | 2.00 | 0.02 | 0.08 | 0.10 | 4.00 | 0.52 | 0.00 | 0.00 | 4.73 | 8.07 | 0.00 | 8.07 |
| Min | 0.69 | 0.22 | 1.02 | 1.41 | 0.05 | 0.00 | 2.00 | 0.00 | 0.00 | 0.03 | 3.09 | 0.25 | 0.00 | 0.00 | 4.35 | 7.82 | 0.00 | 7.96 |
| Max | 1.12 | 0.36 | 1.37 | 1.95 | 0.59 | 0.09 | 2.00 | 0.16 | 0.26 | 0.13 | 4.54 | 0.78 | 0.09 | 0.06 | 5.00 | 8.22 | 0.16 | 8.22 |
| 2σ | 0.27 | 0.08 | 0.24 | 0.33 | 0.30 | 0.06 | 0.00 | 0.12 | 0.16 | 0.06 | 0.76 | 0.40 | 0.05 | 0.03 | 0.46 | 0.28 | 0.12 | 0.17 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Aen  (*n* = 9) | Na | Ca | Σ*X* | Fe3+ | Ti | Mn | Fe2+ | Ca | Σ*Y* | Si | Al | Fe3+ | Σ*Z* |  |  |  |  |  |
| Average | 2.01 | 0.01 | 2.02 | 0.75 | 0.72 | 0.10 | 4.35 | 0.06 | 5.98 | 5.81 | 0.11 | 0.08 | 6.00 |  |  |  |  |  |
| Median | 2.00 | 0.00 | 2.00 | 0.73 | 0.72 | 0.10 | 4.32 | 0.06 | 6.00 | 5.83 | 0.10 | 0.09 | 6.00 |  |  |  |  |  |
| Min | 1.96 | 0.00 | 2.00 | 0.45 | 0.58 | 0.08 | 4.22 | 0.04 | 5.92 | 5.67 | 0.08 | 0.01 | 6.00 |  |  |  |  |  |
| Max | 2.08 | 0.04 | 2.08 | 1.07 | 0.82 | 0.11 | 4.57 | 0.11 | 6.00 | 5.89 | 0.13 | 0.21 | 6.00 |  |  |  |  |  |
| 2σ | 0.08 | 0.03 | 0.05 | 0.33 | 0.14 | 0.02 | 0.23 | 0.04 | 0.05 | 0.13 | 0.03 | 0.12 | 0.00 |  |  |  |  |  |

Table A.6. Mineral chemistry of pyroxenes in Ailsa Craig Common Green samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | CaO | TiO2 | MnO | FeOt | ZrO2 | Total |
| Hd-Ae-Aug  (*n* = 4) |  |  |  |  |  |  |  |  |  |
| Average | 2.17 | 0.38 | 45.66 | 17.35 | 0.23 | 0.73 | 28.27 | — | 94.52 |
| Median | 2.16 | 0.40 | 46.85 | 17.62 | 0.23 | 0.70 | 28.09 | — | 94.93 |
| Min | 1.51 | 0.26 | 41.91 | 15.92 | 0.23 | 0.66 | 27.52 | — | 92.28 |
| Max | 2.83 | 0.47 | 47.02 | 18.23 | 0.23 | 0.87 | 29.37 | — | 95.94 |
| 2σ | 1.16 | 0.21 | 5.01 | 1.99 | — | 0.20 | 1.74 | — | 3.22 |
| # *adl* |  |  | 3 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Ae-Aug  (*n* = 6) |  |  |  |  |  |  |  |  |  |
| Average | 6.71 | 0.30 | 48.81 | 10.09 | 0.36 | 0.57 | 28.78 | 0.51 | 95.57 |
| Median | 7.02 | 0.32 | 48.87 | 9.80 | 0.38 | 0.57 | 28.59 | 0.51 | 95.59 |
| Min | 5.22 | 0.25 | 47.47 | 8.87 | 0.27 | 0.44 | 27.58 | 0.51 | 93.16 |
| Max | 7.79 | 0.32 | 50.00 | 11.54 | 0.47 | 0.66 | 30.30 | 0.51 | 97.82 |
| 2σ | 1.94 | 0.09 | 2.19 | 2.02 | 0.14 | 0.15 | 2.56 | — | 4.69 |
| # *adl* |  | 3 |  |  |  |  |  | 1 |  |
|  |  |  |  |  |  |  |  |  |  |
| Ae  (*n* = 9) |  |  |  |  |  |  |  |  |  |
| Average | 13.45 | 0.81 | 51.96 | 0.25 | 1.53 | 0.33 | 27.99 | 1.99 | 96.02 |
| Median | 13.28 | 0.85 | 52.33 | 0.24 | 0.48 | 0.33 | 28.26 | 1.99 | 97.03 |
| Min | 12.97 | 0.30 | 50.34 | 0.21 | 0.22 | 0.27 | 25.22 | 1.09 | 93.10 |
| Max | 14.17 | 1.38 | 53.82 | 0.32 | 4.91 | 0.39 | 30.39 | 2.88 | 99.05 |
| 2σ | 0.81 | 0.70 | 2.34 | 0.10 | 4.00 | 0.16 | 3.54 | 2.52 | 4.33 |
| # *adl* |  |  |  | 4 | 7 | 2 |  | 2 |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.6 (continued). Mineral chemistry of pyroxenes in Ailsa Craig Common Green samples (*apfu*)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Al | Ti4+ | Mn2+ | Fe2+ | Fe3+ | Zr | Σ*M*1 | Na | Ca | Mn2+ | Fe2+ | Σ*M*2 | Al | Si | Fe3+ | Σ*T* |
| Hd-Ae-Aug  (*n* = 4) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.01 | 0.00 | 0.00 | 0.81 | 0.17 | 0.00 | 1.00 | 0.18 | 0.79 | 0.02 | 0.01 | 1.00 | 0.00 | 1.99 | 0.01 | 2.00 |
| Median | 0.01 | 0.00 | 0.00 | 0.80 | 0.19 | 0.00 | 1.00 | 0.18 | 0.80 | 0.03 | 0.01 | 1.00 | 0.00 | 1.99 | 0.00 | 2.00 |
| Min | 0.00 | 0.00 | 0.00 | 0.76 | 0.10 | 0.00 | 1.00 | 0.13 | 0.73 | 0.00 | 0.00 | 0.99 | 0.00 | 1.98 | 0.00 | 2.00 |
| Max | 0.02 | 0.01 | 0.02 | 0.88 | 0.21 | 0.00 | 1.00 | 0.23 | 0.81 | 0.03 | 0.04 | 1.00 | 0.02 | 2.01 | 0.02 | 2.01 |
| 2σ | 0.02 | 0.01 | 0.02 | 0.10 | 0.10 | 0.00 | 0.00 | 0.10 | 0.08 | 0.02 | 0.03 | 0.00 | 0.02 | 0.03 | 0.02 | 0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ae-Aug  (*n* = 6) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.00 | 0.01 | 0.00 | 0.48 | 0.50 | 0.00 | 1.00 | 0.53 | 0.44 | 0.02 | 0.01 | 1.00 | 0.00 | 2.00 | 0.00 | 2.00 |
| Median | 0.00 | 0.01 | 0.00 | 0.46 | 0.52 | 0.00 | 1.00 | 0.55 | 0.43 | 0.02 | 0.01 | 1.00 | 0.00 | 2.00 | 0.00 | 2.00 |
| Min | 0.00 | 0.01 | 0.00 | 0.39 | 0.36 | 0.00 | 0.99 | 0.43 | 0.38 | 0.00 | 0.00 | 0.98 | 0.00 | 1.98 | 0.00 | 2.00 |
| Max | 0.02 | 0.01 | 0.02 | 0.61 | 0.58 | 0.01 | 1.00 | 0.60 | 0.52 | 0.02 | 0.02 | 1.01 | 0.01 | 2.02 | 0.01 | 2.02 |
| 2σ | 0.01 | 0.00 | 0.02 | 0.17 | 0.17 | 0.01 | 0.01 | 0.13 | 0.11 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ae  (*n* = 9) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.03 | 0.03 | 0.00 | 0.04 | 0.86 | 0.01 | 0.98 | 1.01 | 0.00 | 0.00 | 0.00 | 1.01 | 0.00 | 2.00 | 0.00 | 2.01 |
| Median | 0.03 | 0.01 | 0.00 | 0.04 | 0.86 | 0.00 | 0.98 | 1.00 | 0.00 | 0.00 | 0.00 | 1.01 | 0.00 | 2.01 | 0.00 | 2.01 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 | 0.95 | 0.99 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.98 | 0.00 | 2.00 |
| Max | 0.06 | 0.14 | 0.01 | 0.11 | 0.96 | 0.05 | 1.00 | 1.04 | 0.01 | 0.00 | 0.00 | 1.04 | 0.02 | 2.04 | 0.00 | 2.04 |
| 2σ | 0.03 | 0.11 | 0.01 | 0.09 | 0.18 | 0.04 | 0.03 | 0.03 | 0.01 | 0.00 | 0.00 | 0.02 | 0.01 | 0.04 | 0.00 | 0.03 |

Table A.7. Mineral chemistry of feldspars in Blue Trefor samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | K2O | CaO | FeOt | BaO | Total |
| Pl phenocrysts  (*n* = 14) |  |  |  |  |  |  |  |  |
| Average | 6.11 | 26.64 | 56.04 | 0.43 | 9.36 | 0.52 | — | 99.10 |
| Median | 6.06 | 27.00 | 55.92 | 0.42 | 9.70 | 0.52 | — | 99.06 |
| Min | 5.54 | 24.26 | 54.38 | 0.18 | 6.94 | 0.30 | — | 98.24 |
| Max | 7.62 | 27.91 | 58.85 | 0.61 | 10.35 | 0.77 | — | 100.30 |
| 2σ | 1.09 | 1.83 | 2.37 | 0.24 | 1.79 | 0.27 | — | 1.46 |
| # *adl* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Pl groundmass  (*n* = 13) |  |  |  |  |  |  |  |  |
| Average | 9.63 | 21.69 | 64.28 | 0.51 | 3.22 | 0.34 | — | 99.56 |
| Median | 9.57 | 21.69 | 64.26 | 0.47 | 3.08 | 0.33 | — | 99.68 |
| Min | 9.26 | 21.09 | 63.26 | 0.28 | 2.62 | 0.24 | — | 98.13 |
| Max | 10.15 | 22.56 | 65.38 | 1.14 | 3.82 | 0.54 | — | 100.64 |
| 2σ | 0.50 | 0.77 | 1.17 | 0.40 | 0.71 | 0.18 | — | 1.34 |
| # *adl* |  |  |  |  |  | 9 |  |  |
|  |  |  |  |  |  |  |  |  |
| Afs groundmass  (*n* = 16) |  |  |  |  |  |  |  |  |
| Average | 1.71 | 18.52 | 64.72 | 14.73 | 0.34 | 0.45 | 0.41 | 99.92 |
| Median | 2.22 | 18.51 | 64.64 | 14.05 | 0.34 | 0.34 | 0.41 | 99.98 |
| Min | 0.43 | 18.08 | 63.88 | 11.53 | 0.25 | 0.27 | 0.41 | 98.65 |
| Max | 3.71 | 19.10 | 65.59 | 16.88 | 0.43 | 1.09 | 0.41 | 101.40 |
| 2σ | 2.09 | 0.49 | 0.96 | 3.39 | 0.26 | 0.63 | — | 1.44 |
| # *adl* |  |  |  |  | 2 | 6 | 1 |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.7 (continued). Mineral chemistry of feldspars in Blue Trefor samples (*apfu*)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na | K | Ca | Ba | Σ*A* | Al | Si | Fe3+ |
| Pl phenocrysts  (*n* = 14) |  |  |  |  |  |  |  |  |
| Average | 0.54 | 0.02 | 0.46 | — | 1.02 | 1.43 | 2.55 | 0.02 |
| Median | 0.53 | 0.02 | 0.47 | — | 1.02 | 1.45 | 2.54 | 0.02 |
| Min | 0.49 | 0.01 | 0.34 | — | 0.99 | 1.30 | 2.49 | 0.01 |
| Max | 0.67 | 0.04 | 0.51 | — | 1.05 | 1.48 | 2.68 | 0.03 |
| 2σ | 0.10 | 0.01 | 0.09 | — | 0.04 | 0.10 | 0.10 | 0.01 |
|  |  |  |  |  |  |  |  |  |
| Pl groundmass  (*n* = 13) |  |  |  |  |  |  |  |  |
| Average | 0.83 | 0.03 | 0.15 | — | 1.01 | 1.14 | 2.86 | 0.01 |
| Median | 0.83 | 0.03 | 0.15 | — | 1.01 | 1.13 | 2.86 | 0.01 |
| Min | 0.80 | 0.02 | 0.12 | — | 0.99 | 1.11 | 2.81 | 0.00 |
| Max | 0.87 | 0.06 | 0.18 | — | 1.06 | 1.18 | 2.89 | 0.02 |
| 2σ | 0.04 | 0.02 | 0.03 | — | 0.03 | 0.04 | 0.04 | 0.01 |
|  |  |  |  |  |  |  |  |  |
| Afs groundmass  (*n* = 16) |  |  |  |  |  |  |  |  |
| Average | 0.15 | 0.87 | 0.00 | 0.00 | 1.02 | 1.01 | 2.99 | 0.01 |
| Median | 0.20 | 0.82 | 0.00 | 0.00 | 1.03 | 1.01 | 2.99 | 0.00 |
| Min | 0.04 | 0.67 | 0.00 | 0.00 | 0.98 | 0.99 | 2.96 | 0.00 |
| Max | 0.33 | 1.00 | 0.02 | 0.01 | 1.04 | 1.02 | 3.00 | 0.04 |
| 2σ | 0.18 | 0.21 | 0.01 | 0.00 | 0.04 | 0.02 | 0.02 | 0.02 |

Table A.8. Mineral chemistry of pyroxenes in Blue Trefor samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | MgO | Al2O3 | SiO2 | CaO | TiO2 | MnO | FeOt | Total |
| Cpx phenocrysts  (*n* = 10) |  |  |  |  |  |  |  |  |  |
| Average | 0.40 | 14.36 | 1.76 | 51.58 | 19.38 | 0.69 | 0.36 | 11.61 | 99.98 |
| Median | 0.37 | 14.45 | 1.79 | 51.52 | 19.38 | 0.68 | 0.36 | 11.20 | 100.08 |
| Min | 0.32 | 12.87 | 0.96 | 51.00 | 18.50 | 0.55 | 0.27 | 10.09 | 98.67 |
| Max | 0.51 | 15.42 | 2.72 | 52.35 | 20.81 | 0.85 | 0.49 | 14.88 | 100.86 |
| 2σ | 0.13 | 1.42 | 0.95 | 0.91 | 1.20 | 0.23 | 0.12 | 2.63 | 1.26 |
| # *adl* | 6 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Opx phenocrysts  (*n* = 13) |  |  |  |  |  |  |  |  |  |
| Average | — | 20.83 | 0.94 | 52.07 | 1.72 | 0.38 | 0.61 | 23.26 | 99.76 |
| Median | — | 21.62 | 0.85 | 52.31 | 1.71 | 0.38 | 0.57 | 22.29 | 99.59 |
| Min | — | 13.95 | 0.38 | 50.94 | 1.47 | 0.25 | 0.45 | 19.98 | 99.21 |
| Max | — | 23.17 | 1.59 | 52.67 | 2.15 | 0.50 | 0.98 | 33.00 | 100.96 |
| 2σ | — | 5.87 | 0.70 | 1.29 | 0.39 | 0.15 | 0.32 | 8.23 | 1.08 |
| # *adl* |  |  |  |  |  | 8 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Cpx groundmass  (*n* = 6) |  |  |  |  |  |  |  |  |  |
| Average | 0.44 | 10.90 | 0.68 | 51.39 | 19.51 | 0.38 | 0.46 | 16.51 | 99.61 |
| Median | 0.44 | 10.98 | 0.72 | 51.37 | 19.50 | 0.38 | 0.46 | 16.64 | 99.65 |
| Min | 0.39 | 10.35 | 0.47 | 50.81 | 18.57 | 0.35 | 0.36 | 15.73 | 98.90 |
| Max | 0.50 | 11.49 | 0.96 | 52.03 | 20.72 | 0.42 | 0.53 | 17.19 | 100.44 |
| 2σ | 0.15 | 0.81 | 0.39 | 0.77 | 1.43 | 0.09 | 0.12 | 1.10 | 1.12 |
| # *adl* | 2 |  | 5 |  |  | 2 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Opx/Pgt groundmass  (*n* = 4) |  |  |  |  |  |  |  |  |  |
| Average | — | 13.49 | 0.30 | 50.28 | 2.74 | 0.25 | 0.93 | 31.82 | 99.39 |
| Median | — | 13.48 | 0.30 | 50.23 | 3.03 | 0.25 | 0.90 | 31.12 | 99.66 |
| Min | — | 13.15 | 0.30 | 50.12 | 1.19 | 0.25 | 0.85 | 30.71 | 98.50 |
| Max | — | 13.85 | 0.30 | 50.53 | 3.69 | 0.25 | 1.05 | 34.34 | 99.74 |
| 2σ | — | 0.60 | — | 0.39 | 2.20 | — | 0.18 | 3.38 | 1.19 |
| # *adl* |  |  | 1 |  |  | 1 |  |  |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.8 (continued). Mineral chemistry of pyroxenes in Blue Trefor samples (*apfu)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mg | Al | Ti4+ | Fe2+ | Fe3+ | Σ*M*1 | Na | Mg | Ca | Mn2+ | Fe2+ | Σ*M*2 | Al | Si | Fe3+ | Σ*T* |
| Cpx phenocrysts  (*n* = 10) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.80 | 0.01 | 0.02 | 0.13 | 0.04 | 1.00 | 0.02 | 0.00 | 0.78 | 0.01 | 0.19 | 1.00 | 0.07 | 1.93 | 0.00 | 2.00 |
| Median | 0.81 | 0.01 | 0.02 | 0.12 | 0.05 | 1.00 | 0.02 | 0.00 | 0.78 | 0.01 | 0.20 | 1.00 | 0.07 | 1.93 | 0.00 | 2.00 |
| Min | 0.72 | 0.00 | 0.02 | 0.09 | 0.00 | 1.00 | 0.00 | 0.00 | 0.74 | 0.01 | 0.14 | 1.00 | 0.04 | 1.90 | 0.00 | 2.00 |
| Max | 0.86 | 0.02 | 0.02 | 0.21 | 0.07 | 1.00 | 0.04 | 0.00 | 0.83 | 0.02 | 0.22 | 1.00 | 0.10 | 1.96 | 0.00 | 2.00 |
| 2σ | 0.08 | 0.02 | 0.01 | 0.07 | 0.05 | 0.00 | 0.03 | 0.00 | 0.04 | 0.00 | 0.05 | 0.00 | 0.03 | 0.03 | 0.00 | 0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Opx phenocrysts  (*n* = 13) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.95 | 0.00 | 0.01 | 0.02 | 0.02 | 1.00 | 0.00 | 0.22 | 0.07 | 0.02 | 0.69 | 1.00 | 0.04 | 1.96 | 0.00 | 2.00 |
| Median | 0.97 | 0.00 | 0.01 | 0.00 | 0.02 | 1.00 | 0.00 | 0.24 | 0.07 | 0.02 | 0.67 | 1.00 | 0.04 | 1.96 | 0.00 | 2.00 |
| Min | 0.81 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.06 | 0.01 | 0.59 | 1.00 | 0.01 | 1.94 | 0.00 | 2.00 |
| Max | 0.97 | 0.01 | 0.01 | 0.17 | 0.03 | 1.00 | 0.00 | 0.32 | 0.08 | 0.03 | 0.91 | 1.00 | 0.06 | 1.99 | 0.01 | 2.00 |
| 2σ | 0.10 | 0.01 | 0.01 | 0.11 | 0.02 | 0.00 | 0.00 | 0.21 | 0.01 | 0.01 | 0.21 | 0.00 | 0.03 | 0.03 | 0.01 | 0.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cpx groundmass  (*n* = 6) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.63 | 0.01 | 0.00 | 0.34 | 0.02 | 1.00 | 0.01 | 0.00 | 0.81 | 0.01 | 0.17 | 1.00 | 0.02 | 1.98 | 0.00 | 2.00 |
| Median | 0.63 | 0.00 | 0.00 | 0.35 | 0.02 | 1.00 | 0.00 | 0.00 | 0.81 | 0.01 | 0.17 | 1.00 | 0.02 | 1.98 | 0.00 | 2.00 |
| Min | 0.60 | 0.00 | 0.00 | 0.28 | 0.00 | 1.00 | 0.00 | 0.00 | 0.76 | 0.01 | 0.13 | 0.99 | 0.00 | 1.96 | 0.00 | 2.00 |
| Max | 0.65 | 0.04 | 0.01 | 0.39 | 0.06 | 1.00 | 0.04 | 0.00 | 0.85 | 0.02 | 0.19 | 1.00 | 0.03 | 2.01 | 0.01 | 2.01 |
| 2σ | 0.04 | 0.03 | 0.01 | 0.08 | 0.05 | 0.00 | 0.03 | 0.00 | 0.06 | 0.00 | 0.04 | 0.01 | 0.03 | 0.04 | 0.01 | 0.01 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Opx/Pgt groundmass  (*n* = 4) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.80 | 0.00 | 0.00 | 0.20 | 0.00 | 1.00 | 0.00 | 0.00 | 0.12 | 0.03 | 0.85 | 1.00 | 0.00 | 1.99 | 0.00 | 2.00 |
| Median | 0.80 | 0.00 | 0.00 | 0.20 | 0.00 | 1.00 | 0.00 | 0.00 | 0.13 | 0.03 | 0.84 | 1.00 | 0.00 | 1.99 | 0.00 | 2.00 |
| Min | 0.78 | 0.00 | 0.00 | 0.18 | 0.00 | 1.00 | 0.00 | 0.00 | 0.05 | 0.03 | 0.82 | 0.99 | 0.00 | 1.98 | 0.00 | 2.00 |
| Max | 0.81 | 0.00 | 0.01 | 0.21 | 0.01 | 1.00 | 0.00 | 0.00 | 0.16 | 0.04 | 0.92 | 1.00 | 0.01 | 2.01 | 0.01 | 2.01 |
| 2σ | 0.03 | 0.00 | 0.01 | 0.03 | 0.01 | 0.00 | 0.00 | 0.00 | 0.09 | 0.01 | 0.09 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 |

Table A.9. Mineral chemistry of amphiboles and biotite in Blue Trefor samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | MgO | Al2O3 | SiO2 | Cl | K2O | CaO | TiO2 | MnO | FeOt | O=Cl2 | Total |
| Am  (*n* = 6) |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 1.11 | 12.21 | 4.06 | 49.09 | 0.15 | 0.53 | 9.31 | 0.82 | 0.50 | 20.58 | -0.04 | 98.13 |
| Median | 1.18 | 12.75 | 4.33 | 48.81 | 0.15 | 0.49 | 10.55 | 0.83 | 0.34 | 18.86 | -0.03 | 98.22 |
| Min | 0.08 | 9.55 | 0.32 | 46.08 | 0.12 | 0.07 | 2.29 | 0.57 | 0.22 | 17.11 | -0.04 | 97.57 |
| Max | 1.70 | 13.60 | 6.24 | 52.58 | 0.17 | 0.86 | 11.39 | 1.17 | 1.14 | 29.00 | -0.03 | 98.70 |
| 2σ | 1.16 | 3.08 | 4.09 | 4.67 | 0.05 | 0.55 | 6.92 | 0.46 | 0.69 | 9.10 | 0.01 | 0.84 |
| # *adl* |  |  |  |  | 4 |  |  | 5 |  |  | 4 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bt  (*n* = 7) |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | — | 10.40 | 12.31 | 36.95 | 0.40 | 9.34 | — | 3.71 | 0.19 | 23.39 | -0.09 | 96.51 |
| Median | — | 10.05 | 12.09 | 36.73 | 0.40 | 9.34 | — | 3.79 | 0.21 | 23.92 | -0.09 | 96.35 |
| Min | — | 9.10 | 11.85 | 36.07 | 0.25 | 9.08 | — | 2.65 | 0.15 | 18.76 | -0.12 | 94.88 |
| Max | — | 14.06 | 12.83 | 38.04 | 0.51 | 9.54 | — | 4.50 | 0.22 | 25.36 | -0.06 | 98.89 |
| 2σ | — | 3.37 | 0.95 | 1.60 | 0.18 | 0.38 | — | 1.30 | 0.07 | 4.23 | 0.04 | 2.71 |
| # *adl* |  |  |  |  |  |  |  |  | 3 |  |  |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.9 (continued). Mineral chemistry of amphiboles and biotite in Blue Trefor samples (*apfu*)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Am  (*n* = 6) | Na | K | Ca | Σ*A* | Na | Ca | Mn2+ | Fe2+ | Σ*B* | Mg | Al | Ti | Fe2+ | Fe3+ | Σ*C* | Al | Si | Σ*T* | Cl |
| Average | 0.25 | 0.10 | 0.01 | 0.35 | 0.07 | 1.47 | 0.06 | 0.39 | 2.00 | 2.71 | 0.03 | 0.08 | 1.94 | 0.24 | 5.00 | 0.68 | 7.32 | 8.00 | 0.02 |
| Median | 0.23 | 0.09 | 0.00 | 0.33 | 0.07 | 1.70 | 0.04 | 0.16 | 2.00 | 2.83 | 0.04 | 0.08 | 1.87 | 0.26 | 5.00 | 0.71 | 7.29 | 8.00 | 0.03 |
| Min | 0.02 | 0.01 | 0.00 | 0.04 | 0.00 | 0.31 | 0.03 | 0.13 | 2.00 | 2.16 | 0.00 | 0.00 | 1.69 | 0.00 | 5.00 | 0.06 | 6.94 | 7.98 | 0.00 |
| Max | 0.43 | 0.16 | 0.06 | 0.57 | 0.18 | 1.78 | 0.15 | 1.54 | 2.00 | 2.96 | 0.07 | 0.13 | 2.41 | 0.39 | 5.00 | 1.06 | 7.92 | 8.00 | 0.04 |
| 2σ | 0.29 | 0.10 | 0.05 | 0.39 | 0.12 | 1.14 | 0.09 | 1.13 | 0.00 | 0.62 | 0.05 | 0.09 | 0.56 | 0.28 | 0.00 | 0.69 | 0.68 | 0.02 | 0.04 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bt  (*n* = 7) | K | Σ*I* | Mg | Al | Ti | Mn2+ | Fe2+ | Σ*M* | Al | Si | Fe3+ | Σ*T* | Cl |  |  |  |  |  |  |
| Average | 0.92 | 0.92 | 1.20 | 0.00 | 0.22 | 0.01 | 1.49 | 2.91 | 1.12 | 2.86 | 0.02 | 4.00 | 0.05 |  |  |  |  |  |  |
| Median | 0.92 | 0.92 | 1.15 | 0.00 | 0.22 | 0.00 | 1.50 | 2.91 | 1.10 | 2.85 | 0.01 | 4.00 | 0.05 |  |  |  |  |  |  |
| Min | 0.89 | 0.89 | 1.05 | 0.00 | 0.15 | 0.00 | 1.20 | 2.87 | 1.08 | 2.82 | 0.00 | 4.00 | 0.03 |  |  |  |  |  |  |
| Max | 0.96 | 0.96 | 1.60 | 0.01 | 0.27 | 0.01 | 1.63 | 2.95 | 1.17 | 2.91 | 0.06 | 4.00 | 0.07 |  |  |  |  |  |  |
| 2σ | 0.04 | 0.04 | 0.37 | 0.01 | 0.08 | 0.01 | 0.28 | 0.07 | 0.08 | 0.06 | 0.05 | 0.00 | 0.02 |  |  |  |  |  |  |

Table A.10. Mineral chemistry of feldspars in Red Trefor samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | Al2O3 | SiO2 | K2O | CaO | FeOt | BaO | Total |
| Pl phenocrysts  (*n* = 11) |  |  |  |  |  |  |  |  |
| Average | 8.08 | 22.98 | 61.48 | 0.88 | 4.95 | 0.31 | — | 98.49 |
| Median | 8.10 | 22.94 | 61.40 | 0.84 | 5.15 | 0.32 | — | 98.54 |
| Min | 7.56 | 22.11 | 60.63 | 0.58 | 4.06 | 0.23 | — | 97.45 |
| Max | 8.71 | 24.05 | 62.72 | 1.34 | 5.81 | 0.37 | — | 99.36 |
| 2σ | 0.69 | 1.10 | 1.23 | 0.46 | 1.21 | 0.12 | — | 1.30 |
| # *adl* |  |  |  |  |  | 4 |  |  |
|  |  |  |  |  |  |  |  |  |
| Pitted Pl phenocrysts  (*n* = 14) |  |  |  |  |  |  |  |  |
| Average | 11.05 | 20.37 | 66.43 | 0.22 | 1.28 | — | — | 99.18 |
| Median | 11.42 | 20.05 | 66.99 | 0.22 | 0.81 | — | — | 99.19 |
| Min | 9.06 | 19.46 | 62.66 | 0.17 | 0.41 | — | — | 96.78 |
| Max | 11.86 | 22.71 | 67.82 | 0.28 | 4.37 | — | — | 100.02 |
| 2σ | 1.56 | 1.76 | 3.25 | 0.11 | 2.21 | — | — | 1.68 |
| # *adl* |  |  |  | 3 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Ab groundmass  (*n* = 15) |  |  |  |  |  |  |  |  |
| Average | 10.71 | 20.24 | 66.38 | 0.36 | 1.35 | 0.24 | — | 99.01 |
| Median | 11.15 | 19.88 | 66.87 | 0.33 | 0.53 | 0.24 | — | 98.86 |
| Min | 8.47 | 19.01 | 62.53 | 0.12 | 0.28 | 0.23 | — | 97.44 |
| Max | 11.77 | 22.35 | 68.84 | 0.60 | 4.25 | 0.24 | — | 101.30 |
| 2σ | 2.07 | 2.17 | 3.78 | 0.35 | 2.91 | 0.02 | — | 2.14 |
| # *adl* |  |  |  | 12 |  | 2 |  |  |
|  |  |  |  |  |  |  |  |  |
| Kfs groundmass  (*n* = 20) |  |  |  |  |  |  |  |  |
| Average | 1.62 | 18.33 | 64.33 | 15.07 | 0.59 | — | 0.52 | 99.11 |
| Median | 0.31 | 18.37 | 64.01 | 16.61 | 0.59 | — | 0.52 | 99.01 |
| Min | 0.20 | 17.80 | 62.83 | 7.75 | 0.59 | — | 0.49 | 97.40 |
| Max | 5.88 | 18.84 | 66.70 | 17.06 | 0.59 | — | 0.55 | 100.74 |
| 2σ | 4.25 | 0.67 | 2.18 | 6.11 | — | — | 0.08 | 1.85 |
| # *adl* | 16 |  |  |  | 1 |  | 2 |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.10 (continued). Mineral chemistry of feldspars in Red Trefor samples (*apfu*)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na | K | Ca | Ba | Σ*A* | Al | Si | Fe3+ |
| Pl phenocrysts  (*n* = 11) |  |  |  |  |  |  |  |  |
| Average | 0.71 | 0.05 | 0.24 | — | 1.00 | 1.22 | 2.77 | 0.00 |
| Median | 0.71 | 0.05 | 0.25 | — | 0.99 | 1.22 | 2.77 | 0.00 |
| Min | 0.66 | 0.03 | 0.20 | — | 0.97 | 1.18 | 2.73 | 0.00 |
| Max | 0.75 | 0.08 | 0.28 | — | 1.03 | 1.27 | 2.82 | 0.01 |
| 2σ | 0.06 | 0.03 | 0.06 | — | 0.04 | 0.06 | 0.05 | 0.01 |
|  |  |  |  |  |  |  |  |  |
| Pitted Pl phenocrysts  (*n* = 14) |  |  |  |  |  |  |  |  |
| Average | 0.95 | 0.00 | 0.06 | — | 1.01 | 1.06 | 2.94 | — |
| Median | 0.98 | 0.00 | 0.04 | — | 1.01 | 1.04 | 2.96 | — |
| Min | 0.79 | 0.00 | 0.02 | — | 0.97 | 1.01 | 2.80 | — |
| Max | 1.01 | 0.02 | 0.21 | — | 1.06 | 1.20 | 2.99 | — |
| 2σ | 0.13 | 0.01 | 0.11 | — | 0.05 | 0.10 | 0.10 | — |
|  |  |  |  |  |  |  |  |  |
| Ab groundmass  (*n* = 15) |  |  |  |  |  |  |  |  |
| Average | 0.92 | 0.02 | 0.06 | — | 1.00 | 1.06 | 2.94 | 0.00 |
| Median | 0.96 | 0.01 | 0.02 | — | 1.01 | 1.03 | 2.97 | 0.00 |
| Min | 0.74 | 0.00 | 0.01 | — | 0.97 | 1.00 | 2.81 | 0.00 |
| Max | 1.00 | 0.03 | 0.21 | — | 1.03 | 1.19 | 3.00 | 0.01 |
| 2σ | 0.17 | 0.02 | 0.14 | — | 0.04 | 0.12 | 0.12 | 0.01 |
|  |  |  |  |  |  |  |  |  |
| Kfs groundmass  (*n* = 20) |  |  |  |  |  |  |  |  |
| Average | 0.11 | 0.90 | 0.00 | 0.00 | 1.01 | 1.01 | 2.99 | — |
| Median | 0.02 | 0.99 | 0.00 | 0.00 | 1.01 | 1.00 | 3.00 | — |
| Min | 0.00 | 0.45 | 0.00 | 0.00 | 0.98 | 0.99 | 2.97 | — |
| Max | 0.52 | 1.02 | 0.03 | 0.01 | 1.05 | 1.03 | 3.01 | — |
| 2σ | 0.35 | 0.38 | 0.02 | 0.01 | 0.03 | 0.02 | 0.02 | — |

Table A.11. Mineral chemistry of minor minerals in Red Trefor samples (wt.% oxide)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Na2O | MgO | Al2O3 | SiO2 | Cl | K2O | CaO | TiO2 | MnO | FeOt | BaO | O=Cl2 | Total |
| Am  (*n* = 9) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 1.55 | 9.87 | 2.78 | 50.34 | 0.22 | 0.46 | 11.39 | 0.95 | 0.42 | 21.83 | — | -0.04 | 97.62 |
| Median | 1.71 | 10.28 | 1.88 | 51.58 | 0.22 | 0.60 | 12.12 | 0.92 | 0.36 | 21.75 | — | -0.04 | 97.62 |
| Min | 0.94 | 8.21 | 0.93 | 45.55 | 0.19 | 0.16 | 9.95 | 0.82 | 0.27 | 20.30 | — | -0.06 | 96.79 |
| Max | 1.82 | 10.80 | 5.29 | 53.35 | 0.25 | 0.66 | 12.66 | 1.10 | 0.70 | 24.24 | — | -0.02 | 98.59 |
| 2σ | 0.82 | 1.85 | 3.97 | 6.13 | 0.08 | 0.47 | 2.49 | 0.29 | 0.31 | 2.44 | — | 0.06 | 1.12 |
| # *adl* | 4 |  | 8 |  | 2 | 5 |  | 3 |  |  |  | 2 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Chl  (*n* = 5) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | — | 9.99 | 17.54 | 26.07 | — | — | 0.26 | — | 0.33 | 33.83 | — | — | 87.80 |
| Median | — | 9.85 | 17.40 | 25.52 | — | — | 0.26 | — | 0.32 | 34.25 | — | — | 88.38 |
| Min | — | 8.92 | 16.99 | 25.01 | — | — | 0.18 | — | 0.31 | 31.83 | — | — | 84.81 |
| Max | — | 11.06 | 18.52 | 28.02 | — | — | 0.34 | — | 0.35 | 35.49 | — | — | 89.50 |
| 2σ | — | 1.75 | 1.28 | 2.56 | — | — | 0.22 | — | 0.04 | 2.97 | — | — | 3.54 |
| # *adl* |  |  |  |  |  |  | 2 |  | 4 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mus  (*n* = 7) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 0.82 | 0.50 | 34.90 | 46.97 | — | 10.82 | 1.23 | 0.27 | — | 1.47 | 0.59 | — | 95.39 |
| Median | 0.80 | 0.50 | 35.24 | 46.49 | — | 10.72 | 1.23 | 0.27 | — | 0.68 | 0.59 | — | 95.61 |
| Min | 0.30 | 0.28 | 31.25 | 45.14 | — | 9.87 | 1.23 | 0.27 | — | 0.26 | 0.52 | — | 94.33 |
| Max | 1.42 | 0.71 | 36.75 | 48.75 | — | 11.76 | 1.23 | 0.27 | — | 6.48 | 0.65 | — | 96.70 |
| 2σ | 1.00 | 0.61 | 3.79 | 2.93 | — | 1.58 | — | — | — | 4.45 | 0.17 | — | 1.91 |
| # *adl* | 6 | 2 |  |  |  |  | 1 | 1 |  |  | 2 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Czo  (*n* = 4) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | — | — | 28.64 | 38.24 | — | — | 23.70 | — | — | 5.30 | — | — | 95.88 |
| Median | — | — | 30.29 | 38.44 | — | — | 23.98 | — | — | 3.37 | — | — | 96.08 |
| Min | — | — | 21.10 | 36.28 | — | — | 22.68 | — | — | 0.48 | — | — | 94.04 |
| Max | — | — | 32.89 | 39.79 | — | — | 24.15 | — | — | 13.97 | — | — | 97.31 |
| 2σ | — | — | 10.62 | 3.09 | — | — | 1.37 | — | — | 12.15 | — | — | 2.82 |
| # *adl* |  |  |  |  |  |  |  |  |  |  |  |  |  |

t = total Fe calculated as wt.% FeO

# *adl* = number of analyses above detection limit (omitted where all analyses were above detection limit)

Table A.11 (continued). Mineral chemistry of minor minerals in Red Trefor samples (*apfu*)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Am  (*n* = 9) | Na | K | Ca | Σ*A* | Na | Ca | Mn2+ | Fe2+ | Σ*B* | Mg | Al | Ti | Mn2+ | Fe2+ | Fe3+ | Σ*C* | Al | Si | Σ*T* | Cl |
| Average | 0.16 | 0.05 | 0.01 | 0.21 | 0.05 | 1.83 | 0.04 | 0.08 | 2.00 | 2.22 | 0.04 | 0.04 | 0.01 | 2.51 | 0.17 | 4.99 | 0.40 | 7.59 | 8.00 | 0.01 |
| Median | 0.00 | 0.03 | 0.00 | 0.03 | 0.00 | 1.95 | 0.03 | 0.02 | 2.00 | 2.29 | 0.04 | 0.00 | 0.00 | 2.48 | 0.20 | 5.00 | 0.18 | 7.80 | 8.00 | 0.00 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.00 | 2.00 | 1.85 | 0.00 | 0.00 | 0.00 | 2.27 | 0.00 | 4.96 | 0.00 | 7.06 | 7.98 | 0.00 |
| Max | 0.44 | 0.13 | 0.05 | 0.57 | 0.13 | 2.00 | 0.09 | 0.19 | 2.00 | 2.40 | 0.08 | 0.13 | 0.05 | 2.84 | 0.34 | 5.00 | 0.94 | 7.98 | 8.00 | 0.07 |
| 2σ | 0.41 | 0.11 | 0.03 | 0.52 | 0.12 | 0.36 | 0.07 | 0.18 | 0.00 | 0.38 | 0.06 | 0.11 | 0.04 | 0.44 | 0.24 | 0.03 | 0.76 | 0.75 | 0.02 | 0.05 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Chl  (*n* = 5) | Mg | Al | Ca | Mn | Fe2+ | Σ*M* | Al | Si | Σ*T* |  |  |  |  |  |  |  |  |  |  |  |
| Average | 1.65 | 1.17 | 0.03 | 0.03 | 3.13 | 5.98 | 1.12 | 2.88 | 4.00 |  |  |  |  |  |  |  |  |  |  |  |
| Median | 1.61 | 1.17 | 0.00 | 0.03 | 3.15 | 6.00 | 1.15 | 2.85 | 4.00 |  |  |  |  |  |  |  |  |  |  |  |
| Min | 1.47 | 1.13 | 0.00 | 0.00 | 2.94 | 5.91 | 1.00 | 2.79 | 4.00 |  |  |  |  |  |  |  |  |  |  |  |
| Max | 1.81 | 1.21 | 0.04 | 0.03 | 3.29 | 6.01 | 1.21 | 3.00 | 4.00 |  |  |  |  |  |  |  |  |  |  |  |
| 2σ | 0.28 | 0.07 | 0.04 | 0.03 | 0.29 | 0.08 | 0.17 | 0.17 | 0.00 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mus  (*n* = 7) | Na | K | Ca | Ba | Σ*I* | Mg | Al | Ti | Fe2+ | Σ*M* | Al | Si | Σ*T* |  |  |  |  |  |  |  |
| Average | 0.09 | 0.92 | 0.01 | 0.00 | 1.03 | 0.01 | 1.88 | 0.00 | 0.08 | 1.98 | 0.87 | 3.13 | 4.00 |  |  |  |  |  |  |  |
| Median | 0.06 | 0.95 | 0.00 | 0.00 | 1.02 | 0.00 | 1.89 | 0.00 | 0.04 | 1.99 | 0.87 | 3.13 | 4.00 |  |  |  |  |  |  |  |
| Min | 0.00 | 0.83 | 0.00 | 0.00 | 0.99 | 0.00 | 1.68 | 0.00 | 0.01 | 1.90 | 0.76 | 3.06 | 4.00 |  |  |  |  |  |  |  |
| Max | 0.18 | 0.99 | 0.09 | 0.02 | 1.11 | 0.07 | 1.95 | 0.01 | 0.38 | 2.07 | 0.94 | 3.24 | 4.00 |  |  |  |  |  |  |  |
| 2σ | 0.14 | 0.14 | 0.06 | 0.02 | 0.08 | 0.05 | 0.18 | 0.01 | 0.26 | 0.12 | 0.14 | 0.14 | 0.00 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Czo  (*n* = 4) | Ca | Σ*A* | Al | Fe3+ | Σ*M* | Si | Σ*T* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 1.99 | 1.99 | 2.64 | 0.36 | 3.00 | 3.00 | 3.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Median | 1.99 | 1.99 | 2.78 | 0.22 | 3.01 | 3.00 | 3.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Min | 1.95 | 1.95 | 2.06 | 0.03 | 2.95 | 3.00 | 3.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Max | 2.05 | 2.05 | 2.92 | 0.97 | 3.02 | 3.00 | 3.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2σ | 0.09 | 0.09 | 0.80 | 0.85 | 0.07 | 0.00 | 0.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table A.12A. Rietveld results for Ailsa Craig Blue Hone (sample AC-01)

|  |  |  |  |
| --- | --- | --- | --- |
| Agreement indices | |  |  |
| *Rexp* | 5.30 |  |  |
| *Rp* | 9.90 |  |  |
| *wRp* | 13.53 |  |  |
| *GOOF* | 6.52 |  |  |
|  |  |  |  |
| Mineral | *R*Bragg | Abundance (mod.%) | \*.CIF file reference |
| Albite | 4.12 | 53 | Prewitt *et al*. (1976) |
| Microcline | 4.73 | 31 | Blasi *et al.* (1987) |
| Quartz | 3.76 | 14 | LePage & Donnay (1976) |
| Potassicarfvedsonite | 10.04 | 1 | Pekov *et al.* (2004) |
| Aegirine | 7.38 | <1 | Redhammer *et al.* (2006) |
| Fluorite | 2.62 | <1 | Cheetham *et al.* (1971) |
| Normalized total |  | 100 |  |

Table A.12B. Rietveld results for Ailsa Craig Common Green (sample AC-02)

|  |  |  |  |
| --- | --- | --- | --- |
| Agreement indices | |  |  |
| *Rexp* | 5.27 |  |  |
| *Rp* | 11.60 |  |  |
| *wRp* | 14.89 |  |  |
| *GOOF* | 7.99 |  |  |
|  |  |  |  |
| Mineral | *R*Bragg | Abundance (mod.%) | \*.CIF file reference |
| Albite | 4.54 | 58 | Prewitt *et al*. (1976) |
| Microcline | 5.11 | 25 | Blasi *et al.* (1987) |
| Quartz | 3.33 | 15 | Le Page & Donnay (1976) |
| Potassicarfvedsonite | 9.53 | 2 | Pekov *et al.* (2004) |
| Aenigmatite | 11.49 | <1 | Cannillo *et al.* (1971) |
| Augite | 15.1 | <1 | Pasqual *et al.* (1998) |
| Fluorite | 7.09 | <1 | Cheetham *et al.* (1971) |
| Normalized total |  | 100 |  |

Table A.12C. Rietveld results for Blue Trefor (sample TF-01)

|  |  |  |  |
| --- | --- | --- | --- |
| Agreement indices | |  |  |
| *Rexp* | 5.72 |  |  |
| *Rp* | 7.89 |  |  |
| *wRp* | 10.44 |  |  |
| *GOOF* | 3.33 |  |  |
|  |  |  |  |
| Mineral | *R*Bragg | Abundance (mod.%) | \*.CIF file reference |
| Labradorite (An16)\* | 3.29 | 45 | Wenk *et al.* (1980) |
| Quartz | 3.93 | 16 | Le Page & Donnay (1976) |
| Labradorite (An44)\* | 4.49 | 18 | Wenk *et al.* (1980) |
| Orthoclase | 3.91 | 14 | Prince *et al.* (1973) |
| Augite | 4.01 | 2 | Pasqual *et al.* (1998) |
| Actinolite | 6.39 | 2 | Urusov *et al.* (1987) |
| Magnetite | 3.47 | 1 | Fleet (1986) |
| Biotite | 2.89 | <1 | Bohlen *et al.* (1980) |
| Ilmenite | 4.81 | <1 | Yamanaka (2005) |
| Apatite | 8.9 | <1 | Andreev (1994) |
| Normalized total |  | 100 |  |

\*Composition was fixed based on results from mineral chemistry analysis.

Table A.12D. Rietveld results for Red Trefor (sample TF-02)

|  |  |  |  |
| --- | --- | --- | --- |
| Agreement indices | |  |  |
| *Rexp* | 5.34 |  |  |
| *Rp* | 9.33 |  |  |
| *wRp* | 12.62 |  |  |
| *GOOF* | 5.58 |  |  |
|  |  |  |  |
| Mineral | *R*Bragg | Abundance (mod.%) | \*.CIF file reference |
| Albite | 4.05 | 45 | Wenk *et al.* (1980) |
| Quartz | 2.59 | 24 | Le Page & Donnay (1976) |
| Microcline | 4.73 | 14 | Blasi *et al.* (1987) |
| Labradorite (An24)\* | 6.14 | 8 | Wenk *et al.* (1980) |
| Epidote | 5.61 | 4 | Dollase (1968) |
| Actinolite | 8.75 | 2 | Urusov *et al.* (1987) |
| Chlorite | 3.25 | 1 | Zanazzi *et al.* (2007) |
| Titanite | 7.64 | <1 | Oberti *et al.* (1981) |
| Muscovite | 4.75 | <1 | Brigatti *et al.* (1998) |
| Calcite | 3.59 | <1 | Effenberger *et al.* (1981) |
| Ilmenite | 8.58 | <1 | Yamanaka (2005) |
| Biedellite (?)† | — | <<1 | — |
| Normalized total |  | 100 |  |

\*Composition was fixed based on results from mineral chemistry analysis.

†Based on a weak, unidentified peak at 12.4 Å.