**Table A4:** Mineralogy of selected silicate pebbles (“rutile” may be, in fact, other TiO2 phase as well)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Structure** | **Sample** | **Primary minerals preserved** (partly or completely) | **Primary minerals probably melted / dissolved / decomposed** | **Minerals crystallized from melt** |
| Crater 4 | 407 | quartz | biotite, feldspars | diopside/plagioclase? |
| 420 | zircon (possibly corroded), quartz | feldspars, biotite | diopside, plagioclase, Mg-Al-Fe oxides, rutile, possibly Mg-Al silicate |
| 421 | quartz\*, zircon, monazite, xenotime, fluorapatite, (rutile) | albite, biotite/chlorite | magnetite, tridymite, hedenbergite, rutile, fayalite, Ca-phosphate (without F and Cl) |
| 422 | quartz, albite, apatite, ilmenite, zircon | chlorite? | possibly submicroscopic Fe-oxides only |
| 15240 | quartz, biotite, ?graphite | not observed | not observed |
| 16129 | quartz, xenotime, rutile, ?tourmaline, ilmenite | albite, chlorite, ?tourmaline | Fe-oxide |
| 16131 | quartz | plagioclase, micas | magnetite (with Al) |
| 16132 –interior | quartz, zircon, rutile, monazite | albite, some dissolution of quartz | rutile |
| 16132 – dark crust | Fe-Ti-Mg oxide (Mg-rich titanomagnetite?) | silicates rich in Mg, Fe, Ca | diopside, magnetite, ortho-pyroxene/olivine?, rutile |
| 16133 | quartz, monazite, zircon, rutile, xenotime | muscovite?, K-feldspar, albite (microperthite) | not observed |
| Crater 5 | 5/1/0a | quartz, zircon | chlorite, tourmaline? | Fe-Al and (Fe-)Ti oxides |
| Kaltenbach | 123 | quartz\* | alkali feldspar (probably perthitic), biotite/chlorite? | Fe oxide, Al oxide |
| 124 | quartz, calcite (vein.) | mafic silicates | ? |

\* very limited dissolution of quartz and crystallization of cristobalite from the SiO2-rich melt