**Table 4-1:** Examples of Arabian shield plutonic and volcanic rock samples that contain inherited zircon xenocrysts and Abt formation sandstone that contains detrital grains.

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| --- | --- | --- | --- | --- | --- |
| **Sample name and number** | **Source** | **Assigned age** | **Age(s) of xenocryst zircons** | **Periods represented** | **Comment** |
| Abt formation  ABS-X | Kennedy, 2005 | No assigned age | 878±16, 954±17 | Early Neoproterozoic | Detrital grains from multiple sources. Xenocrysts are rounded detrital grains |
| Abt formation  ABS-22 | Kennedy , 2005 | No assigned age | 942±14, 2427±41 | Early Neoproterozoic, Paleoproterozoic | Contains both rounded (detrital) and euhedral (juvenile volcanic) zircons |
| Abt formation  S090-127 | Cox, 2009 | Maximum deposition age ~600 Ma | 2114±20, 2103±21, 2102±23, 2021±26, 1919±20, 1891±22, 1890±20, 1861±23, 1856±20, 1842±21 1827±20, 1812±17, 1805±26 1824±20, 1897±23, 1831±26, 1733±20, 1676±20, 1516±17, 1431±16, 1148±13, 1129±17, 1008±16, 946±10 | Early Neoproterozoic, Mesoproterozoic, Paleoproterozoic | Contains Paleoproterozoic, Mesoproterozoic, and pre-Arabian shield Neoproterozoic grains |
| Abt formation ABT-OZ1 | Lewis, 2009 | Maximum deposition age ~616-613 Ma | 1396±17 | Mesoproterozoic | Detrital grain |
| ,m Abt formation Abt-057 | Lewis, 2009 | Maximum deposition age ~616-613 Ma | 2543±28, 1012±13, 959±14 | Early Neoproterozoic, Mesoproterozoic, Archean | Detrital grains |
| Dhaiqa formation  DY-1 | Kennedy, 2007 | ~599 | 837±6, 903±9 (12% discordant), | Early Neoproterozoic | Varied zircons from igneous sources. Xenocryst is a well rounded detrital grain. |
| Rahwah alkali-feldspar granite  R1 | Kennedy, 2005 | ~628 | 896±17 | Early Neoproterozoic | Mainly zircons of juvenile igneous origin, but some are rounded detrital grains from both plutonic and metamorphic sources. Some old grains are detrital, but the morphology of the xenocryst listed here is unknown. |
| Jurdhawiyah group  1/1 | Kennedy, 2004 | 612±4 | 850±13 | Early Neoproterozoic | Dominant zircons have igneous morphologies. Specific morphology of the xenocryst unknown |
| Jurdhawiyah group  1/6 | Kennedy, 2004 | No assigned age | 1869±30 | Paleoproterozoic | Dominant zircons have igneous morphologies. Specific morphology of the xenocryst unknown |
| Murdama group dike  2/5 | Kennedy, 2005 | 623=26 | 940±2789 | Early Neoproterozoic | Zircons predominantly juvenile igneous origin; older grains, including the xenocryst, are rounded, representing detritus from igneous sources |
| Kirsh granite gneiss  2/16 | Kennedy, 2005 | No assigned age | 1085±38, 1122±27, 1101±22, 952±20 | Early Neoproterozoic, Mesoproterozoic | Most zircons have morphology of typical igneous zircons. The xenocryst grain is slightly rounded suggesting a detrital origin from an igneous source |
| Fashghah formation, Al Ays group  7/3 | Kennedy, 2005 | No assigned age | 971±22, 965±22 (same grain) | Early Neoproterozoic | Only 5 zircons obtained; they have igneous morphologies. Some are euhedral and presumably of juvenile volcanic origin; others are fragments from older igneous sources. The xenocryst is a fragment of typical igneous, oscillatory zoned zircon |
| Siqam formation, Al Ays group  8/5 | Kennedy, 2004 | 697±7 | 1051±17, 1089±17, 1854±29 | Mesoproterozoic, Paleoproterozoic | Mixed zircon population of euhedral juvenile grains and slightly rounded detrital grains from igneous sources. Specific morphologies of the xenocrysts unknown – possibly detrital |
| Shammar group  10/2 | Kennedy, 2004 | No assigned age | 2595±37, 2648±42 | Archean | Dominant zircons have igneous morphologies; a few are rounded, and are probably detrital from igneous sources. Specific morphologies of the xenocrysts unknown |
| Shammar group  10/3 | Kennedy, 2007 in prep | No assigned age | 1614±8 | Paleoproterozoic | Mixture of euhedral (juvenile volcanic) and rounded (detrital from igneous sources) gains. Specific morphology of the xenocryst unknown |
| Hadn formation  11/4 | Kennedy, 2007 in prep | No assigned age | 2270±15 (11% discordant), 2423±12 | Paleoproterozoic | Mixed zircon populations comprising juvenile igneous grains, and rounded, detrital grains derived from both Paleoproterozoic and Neoproterozoic igneous sources. Specific morphologies of the xenocrysts unknown |
| Mahd group  SA03-174 | Hargrove, 2006 |  | 1179±11, 1582±17, 1554±19, 1033±11, 1015±15, 1123±17, 1002±12, 953±9, 946±10 | Early Neoproterozoic, Mesoproterozoic |  |
| Mahd group SA03-215A | Hargrove, 2006 |  | 2709±35, 1922±21, 1855±16, 1678±14, 1167±10, 1660±15, 1366±11, 1365±14, 1167±10, 1117±9, 1102±13 | Mesoproterozoic, Paleoproterozoic, Archean |  |
| Raghiyah granodiorite  SA03-246 | Hargrove, 2006 |  | 1260±12, 1102±12, 1033±13, 1030±14, | Mesoproterozoic |  |
| Ramram granite SA03-267 | Hargrove 2006 |  | 1377±102, 1010±94 | Mesoproterozoic |  |
| Tharwah ophiolite  SA03-149 | Hargrove 2006 |  | 1137±13, 1103±9, 1059±4, 1021±5, 992±5, | Early Neoproterozoic, Mesoproterozoic |  |
| Samran group  SA01-074B | Hargrove, 2006 |  | 1989±21, 1153±11 | Mesoproterozoic, Paleoproterozoic |  |
| Kamil suite diorite  SA04-318 | Hargrove, 2006 |  | 1021±6 | Mesoproterozoic |  |
| Birak group microgabbro  SA04-366 | Kennedy and others, in prep. |  | 1406±13, 3150±37 | Mesoproterozoic, Archean |  |
| Birak group microgabbro  SA04-367 | Kennedy and others, in prep |  | 1981±11, 1727±10, 1561±17, 1417±12, 1286±12, 1110±12, 1038±9, 1023±6, 1022±8, | Mesoproterozoic, Paleoproterozoic |  |
| Nuwaybah fm., Zaam gp, glacial(?) diamictite granitoid clast  NCC | Ali, 2006 |  | 2883±14, 2747±27, 2704±30, 2084±39, 1753±25, | Paleoproterozoic, Archean | A Neoproterozoic granitoid containing Paleoproterozoic and Archean inherited zircons |
| Nuwaybah fm., Zaam gp, diamictite matrix  NM | Ali, 2006 |  | 2429-2482, 1706, 1017, 903 | Early Neoproterozoic, Mesoproterozoic, Paleoproterzoic | Matrix from diamictite deposited about 750 Ma, containing inherited detrital zircons |