**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 formationABS-X | Kennedy, 2005 | No assigned age | 878±16, 954±17 | Early Neoproterozoic | Detrital grains from multiple sources. Xenocrysts are rounded detrital grains |
| Abt formationABS-22 | Kennedy , 2005 | No assigned age | 942±14, 2427±41 | Early Neoproterozoic, Paleoproterozoic | Contains both rounded (detrital) and euhedral (juvenile volcanic) zircons |
| Abt formationS090-127 | 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 formationDY-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 graniteR1 | 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 group1/1 | Kennedy, 2004 | 612±4 | 850±13 | Early Neoproterozoic | Dominant zircons have igneous morphologies. Specific morphology of the xenocryst unknown |
| Jurdhawiyah group1/6 | Kennedy, 2004 | No assigned age | 1869±30 | Paleoproterozoic | Dominant zircons have igneous morphologies. Specific morphology of the xenocryst unknown  |
| Murdama group dike2/5 | 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 gneiss2/16 | 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 group7/3 | 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 group8/5 | 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 group10/2 | 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 group10/3 | 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 formation11/4 | 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 groupSA03-174 | 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 granodioriteSA03-246 | Hargrove, 2006 |  | 1260±12, 1102±12, 1033±13, 1030±14, | Mesoproterozoic |  |
| Ramram granite SA03-267 | Hargrove 2006 |  | 1377±102, 1010±94 | Mesoproterozoic |  |
| Tharwah ophioliteSA03-149 | Hargrove 2006 |  | 1137±13, 1103±9, 1059±4, 1021±5, 992±5, | Early Neoproterozoic, Mesoproterozoic |  |
| Samran groupSA01-074B | Hargrove, 2006 |  | 1989±21, 1153±11 | Mesoproterozoic, Paleoproterozoic |  |
| Kamil suite dioriteSA04-318 | Hargrove, 2006 |  | 1021±6 | Mesoproterozoic |  |
| Birak group microgabbroSA04-366 | Kennedy and others, in prep. |  | 1406±13, 3150±37 | Mesoproterozoic, Archean |  |
| Birak group microgabbroSA04-367 | 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 clastNCC | 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 matrixNM | Ali, 2006 |  | 2429-2482, 1706, 1017, 903 | Early Neoproterozoic, Mesoproterozoic, Paleoproterzoic | Matrix from diamictite deposited about 750 Ma, containing inherited detrital zircons |