

Cell assemblies for reproducible multi-anvil experiments (the COMPRES assemblies)

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ABSTRACT

The multi-anvil high-pressure technique is an important tool in high-pressure mineralogy and petrology, as well as in chemical synthesis, allowing the treatment of large (millimeter-size) samples of minerals, rocks, and other materials at pressures of a few GPa to over 25 GPa and simultaneous uniform temperatures up to 2500 °C and higher. A series of cell assemblies specially designed and implemented for interlaboratory use are described here. In terms of the size of the pressure medium and the anvil truncation size, the five sizes of assemblies developed here are an 8/3, 10/5, 14/8, 18/12, and 25/15 assembly. As of this writing, these assemblies are in widespread use at many laboratories. The details of design, construction, and materials developed or used for the assemblies are presented here.

Keywords: Multi-anvil, high pressure, cell assemblies, Kawai device