

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

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TABLE 6a. Drop-in parts list, 8/3 assembly

LaCrO₃ sleeve^a: OD = 3.60 mm, ID = 1.85 mm, L = 6.53 mm, Groove width = 1.0 mm, Groove depth = 1.5 mm, Groove angle = 148.0°.
Rhenium heater^a: L = 8.0 mm, W = 5.4 mm, t = .0635 mm, with two 0.64 mm wide notches 2.2 mm apart and 2.0 mm deep, and ten slits 0.75 mm deep.
Alumina plug^a: OD = 1.55 mm, L = 2.1 mm.
Graphite^d/BN^b/MgO^c cup: OD = 1.57 mm, ID = 1.19 mm, Hole depth = 0.84 mm, L = 1.14 mm.
(Sample)
Graphite^d/BN^b/MgO^c cap: OD = 1.57 mm, L = 0.38 mm.
Alumina thermocouple cover^a: OD = 1.57 mm, L = 0.22 mm.
Thermocouple wire^a: Type C, OD = 0.18 mm.
Alumina thermocouple insulator^a: OD = 1.55 mm, ID = 0.41 mm (4 holes), L = 1.9 mm.
Mullite thermocouple sleeves^a: OD = 0.8 mm, ID = 0.4 mm, L = 10 mm, ends cut at 45 degree angles.
ZrO₂-based cement^a: Cotronics 940 with activator.

TABLE 6b. Drop-in parts list, 10/5 assembly

LaCrO₃ sleeve^a: OD = 4.32 mm, ID = 2.705 mm, L = 8.18 mm, Groove width = 1.0 mm, Groove angle = 141.8°.
Rhenium heater^a: L = 9.75 mm, W = 8.25 mm, t = .0635 mm, with two 0.64 mm wide notches
ZrO₂ base plug^a: OD = 2.56 mm, L = 0.99 mm.
MgO plug^a: OD = 2.54 mm, L = 2.21 mm.
MgO sample sleeve^a: OD = 2.54 mm, ID = 1.85 mm, L = 1.78 mm.
(sample/capsule)
Alumina thermocouple cover^a: OD = 1.57 mm, L = 0.22 mm.
MgO thermocouple sleeve^a: OD = 2.54 mm, ID = 1.61 mm, L = 2.21 mm.
Alumina thermocouple insulator^a: OD = 1.55 mm, ID = 0.41 mm (4 holes), L = 1.9 mm.
Thermocouple wire^a: Type C, OD = 0.18 mm.
Mullite thermocouple sleeves^a: OD = 0.8 mm, ID = 0.4 mm, L = 10 mm, ends cut at 45 degree angles.
ZrO₂-based cement^a: Cotronics 940 with activator.

TABLE 6c. Drop-in parts list, 14/8 step heater assembly (BGI style)

MgO end sleeve (bottom)^a: OD = 5.6 mm, ID = 3.8 mm, L = 2.0 mm.
ZrO₂ insulating sleeve (middle)^a: OD = 5.6 mm, ID = 3.8 mm, L = 7.6 mm.
MgO end sleeve (top)^a: OD = 5.6 mm, ID = 3.8 mm, L = 2.0 mm.
Mo plate (bottom)^a: OD = 3.8 mm, L = 1.0 mm.
LaCrO₃ furnace sleeve (thin, bottom)^a: OD = 3.8 mm, ID = 2.9 mm, L = 3.1 mm.
MgO plug (bottom)^a: OD = 2.9 mm, L = 3.1 mm.
LaCrO₃ furnace sleeve (thick, middle)^a: OD = 3.8 mm, ID = 2.6 mm, L = 2.7 mm.
MgO central sleeve^a: OD = 2.6 mm, ID = 1.6 mm, L = 2.7 mm.
MgO spacer: OD = 1.6 mm, L = 0.35 mm.
Sample + capsule: OD = 1.6 mm, L = 2.0 mm.
Alumina thermocouple cover^a: OD = 1.57 mm, L = 0.36 mm.
LaCrO₃ furnace sleeve (thin, top)^a: OD = 3.8 mm, ID = 2.9 mm, L = 3.1 mm.
MgO thermocouple sleeve^a: OD = 2.9 mm, ID = 1.8 mm, L = 3.1 mm.
Mo ring^a: OD = 3.8 mm, ID = 1.8 mm, L = 1.5 mm.
Alumina thermocouple insulator^a: OD = 1.55 mm, ID = 0.41 mm (4 holes), L = 1.9 mm.
Mullite thermocouple sleeves^a: OD = 0.8 mm, ID = 0.4 mm, L = 10 mm, ends cut at 45 degree angles.
ZrO₂-based cement^a: Cotronics 940 with activator.

TABLE 6d. Drop-in parts list, 14/8 "G2" box heater assembly

ZrO₂ End sleeve^a: OD = 6.32 mm, ID = 2.44 mm, L = 2.56 mm.
Molybdenum ring^a: OD = 2.40 mm, ID = 1.70 mm, L = 3.40 mm.
Stuffing^{a,2}: OD = 1.68 mm, L = 3.40 mm
ZrO₂ Middle sleeve^a: OD = 6.32 mm, ID = 5.18 mm, L = 6.35 mm.
Graphite furnace sleeve^a: OD = 5.16 mm, ID = 4.62 mm, L = 6.35 mm.
Graphite furnace end-sleeve^a: OD = 4.60 mm, ID = 2.38 mm, L = 0.76 mm
MgO cap^a: OD = 4.60 mm, L = 0.85 mm.
MgO sleeve^a: OD = 4.60 mm, ID = 3.57 mm, L = 3.2 mm.
Capsule + sample: OD = 3.5 mm, L = 3.2 mm.
MgO end-sleeve^a: OD = 4.60 mm, ID = 1.59 mm, L = 0.85 mm.
Alumina thermocouple cover^a: OD = 1.57 mm, L = 0.36 mm.
Grooved ZrO₂ end-sleeve^a: OD = 6.32 mm, ID = 2.44 mm, L = 2.67 mm, Groove width = 1 mm, Groove depth = 1.5 mm, Groove angle = 135.0°.
Grooved moly ring^a: OD = 2.40 mm, ID = 1.70 mm, L = 3.40 mm, Groove width = 1 mm, Groove depth = 1.5 mm, Groove angle = 135.0°.
Alumina thermocouple insulator^a: OD = 1.6 mm, ID = 0.41 mm (4 holes), L = 2.21 mm.
Mullite thermocouple sleeves^a: OD = 0.8 mm, ID = 0.4 mm, L = 10 mm, ends cut at 45 degree angles.
ZrO₂-based cement^a: Cotronics 940 with activator.

Note: The parts are listed in order of assembly. The superscript letters refer to the materials listed in Table 1.