

## Fabrication of High Density $Y_2O_3$ Ceramics by Magnetic Pulsed Compaction

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Highly dense  $Y_2O_3$  ceramics have been fabricated by a magnetic pulsed compaction (MPC) that is capable of reaching sufficiently high pressure ( $\sim 1\text{GPa}$ ) in a very short duration (a few microseconds), and a subsequent pressureless sintering at  $1600\text{C}^\circ$ . The  $Y_2O_3$  green bodies with a relative density of about 68% were achieved by the application of MPC process due to the effect of enhanced rearrangement and high speed movement of the particles, without the help of ceramic binder. Those compacts showed densities greater than 95%, which is very close to the theoretical density, after the subsequent pressureless sintering process at  $1600\text{ }^\circ\text{C}$ . The shrinkage rates of diameter for the samples compacted by MPC process were markedly reduced, compared to those for the ones by the conventional compaction (CC) process.

### References

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