

Do-it-yourself superconductors

It is extremely easy to make high-temperature superconductors. Schools in the United States and Britain have already produced their own samples. Here is the recipe

Paul Grant



“Shake ‘n’ bake” recipe for 1-2-3 ($\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$)

Mix 1.13 grams yttrium
oxide, 3.95 grams barium
carbonate, 2.39 grams
copper oxide

Compact

Grind in mortar and pestle

Bake in air at 950 °C
(1650 °F)

Regrind in mortar and
pestle

Press into pellets

Rebake pellets in flowing
oxygen at 950 °C (1650 °F)

Allow to cool very slowly

Recipe by Heidi Grant

*Left: Heidi Grant
demonstrates superconductivity
at the US National Science
Foundation*

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Shake and Bake Recipe

for "1-2-3" ($Y_1Ba_2Cu_3O_x$)

1. Mix ingredients:
 - 1.13 grams Y_2O_3 (Yttrium Oxide)
 - 3.95 grams $BaCO_3$ (Barium Carbonate)
 - 2.39 grams CuO (Copper Oxide)
2. Grind in mortar and pestle
3. Bake in air at $1652^\circ F$
4. Regrind in mortar and pestle
5. Press into pellets
6. Rebake pellets in flowing oxygen at $1652^\circ F$
7. Let cool down very slowly

A Superconductor is
a Mirror
for a Magnet

