Determining Efficient Conditions in the Superconductor

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Maglev Trains are Faster Due to Superconductors
Diamagnetism Causes Superconductors to Levitate
YBCO’s Copper Oxide Planes Give No Electrical Resistance
YBCO’s Copper Oxide Planes Give No Electrical Resistance

Yttrium Barium Copper Oxide

electrons
YBCO Superconducting Properties Are More Efficient In the Ideal Range
YBCO Superconducting Properties Are More Efficient In the Ideal Range
YBCO Has Different Magnetic Strengths at Varying Temperatures and Fields

Voltage Measurement
Volume Percentage at Different Temperatures Conveys Superconductivity
Increasing Magnetic Field Decreases Superconductive Properties
Low Temperature and Magnetism Leads to Ideal Superconductors

![Graph showing the relationship between temperature and external magnetic field. The graph indicates that below certain temperatures, the material becomes superconducting, and above those temperatures, it is not superconducting. The ideal range for superconductivity is marked by a curve that drops significantly as the temperature increases.](image-url)
Low Temperature and Magnetism Leads to Ideal Superconductors
Low Temperature and Magnetism Leads to Ideal Superconductors

![Graph showing the transition from superconducting to not superconducting states at different temperatures and magnetic fields. The graph indicates that below 77 K and below a certain magnetic field, the material behaves as an ideal superconductor.]

<table>
<thead>
<tr>
<th>Temperature (K)</th>
<th>External Magnetic Field (Oe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>65500</td>
</tr>
<tr>
<td>77</td>
<td>2850</td>
</tr>
<tr>
<td>94.5</td>
<td>520</td>
</tr>
</tbody>
</table>

Ideal Range: Low Temperature and Magnetism Leads to Ideal Superconductors
Low Temperature and Magnetism Leads to Ideal Superconductors

External Magnetic Field (Oe) vs. Temperature (K)

- **Superconductor**
- **Ideal Range**
- **Not Superconducting**

Temperature (K): 2, 77, 94.5

Magnetic Field (Oe): 65500, 2850, 520
Low Temperature and Magnetism Leads to Ideal Superconductors

The diagram illustrates the relationship between temperature (K) and external magnetic field (Oe) for superconductors. The graph shows three key regions:

1. **Ideal Range**: The region where superconductors operate efficiently under specific temperature and magnetic field conditions.
2. **Superconductor**: The area where materials exhibit superconducting properties.
3. **Not Superconducting**: The region outside the ideal range where materials do not exhibit superconducting properties.

The graph highlights the critical temperature and magnetic field values that define these regions.
Liquid Nitrogen Is More Accessible And Can Be Used with YBCO
Room Temperature Superconductors Have Possible Advancements
We’d Like to Thank...
References


