

Motivation

Large face centered cubic (FCC) and hexagonal close packed (HCP) structures are the most common crystal structures for metals. The atomic packing factor (APF) for FCC is 0.74, for HCP is 0.74, and for BCC is 0.68. The atomic packing factor (APF) for FCC is 0.74, for HCP is 0.74, and for BCC is 0.68. The atomic packing factor (APF) for FCC is 0.74, for HCP is 0.74, and for BCC is 0.68.

Materials and Methods

Mechanical Alloying (MA)

MA is a solid-state process that involves the repeated welding and fracture of particles in a high-energy ball mill. This process leads to the formation of a nanocrystalline structure and the dissolution of interstitial atoms.

Spark Plasma Sintering (SPS)

SPS is a sintering process that uses a pulsed electric current to heat the material. This process leads to the formation of a nanocrystalline structure and the dissolution of interstitial atoms.

- Carbon and graphite
- MA and SPS
- Temperature, time, and pressure

- Titanium (Ti) and Zirconium (Zr) are FCC metals.
- Titanium (Ti) and Zirconium (Zr) are FCC metals.
- COF is 0.74 for FCC and 0.68 for BCC.
- BCC and FCC are the most common crystal structures for metals.