How Does a Hammer Mill Work?

Hammer mills work on the principle that most materials will crush, shatter or pulverize upon impact:

The Process:

- Material is fed into the mill’s chamber through the feed chute, typically by gravity.
- The material is struck by ganged hammers (generally rectangular pieces of hardened steel) which are attached to a shaft that rotates at high speed inside the mill’s grinding chamber.
- The material is crushed or shattered by a combination of repeated hammer impacts, collisions with the walls of the grinding chamber, and particle on particle impacts.
- Perforated metal screens or bar grates covering the discharge opening of the mill retain coarse material for further grinding, while allowing properly sized materials to pass as finished product.

Mill Evacuation:

Hard, heavy materials such as glass, stone, coarse wood or metals can exit the mill via gravity. Lighter materials such as finely ground wood, paper and other low density materials require pneumatic suction to assist in the discharge.

Finished Particle Size:

Varying the screen size, shaft speed or hammer configuration can dramatically alter the finished particle size of the material being processed.

Generally speaking:

- Fast shaft speed + small screen + large number of hammers = a fine end product
- Slower shaft speed + larger screen + fewer hammers + = a coarse product.

Each of these components can be changed either individually or in combination to produce the exact desired finished particle size.