Gunpowder Manufacture Diagram

Charcoal (approx. 15%) made from dogwood, willow or alder which has been debarked, and sorted into similar lengths and thicknesses and left to season for 2 or 3 years is cooked without air for about 6 hours at 800°+C. After cooling it is ground to a very fine powder and well sieved to remove any foreign matter.

Sulphur (approx. 10%), which was also known as brimstone, is distilled and then melted down. After cooling it is ground to a very fine powder and well sieved to remove any foreign matter.

Saltpetre (Potassium nitrate) (approx. 75%) is purified by being dissolved in boiling water, filtered and then rapidly cooled to create fine crystals. If not of the right size the crystals are then ground to a fine powder and well sieved to remove any foreign matter.

The Mixing House is where the ingredients were weighed out in the required proportions then mixed together often by rolling in wooden drums and sieved again.

The Powder Mill is where the prepared and weighed ingredients were ground together. The ingredients are crushed for up to 8 hours between two vertical mill wheels running in a circular trough. This stage is called incorporation. To help reduce fire risk the ingredients are dampened with water during the milling process. To reduce possibility of the ingredients separating when dried or shaken the milled mix was then turned into a paste by the addition of more water and then then lightly pressed to form what is known as *mill cake*.

The Pressing House is where the *mill cake* is subjected to immense pressure to reduce the physical size and the result is called *press cake*. This compression alters the burning rate of the gunpowder and makes it more powerful but as a solid cake it would not burn evenly the *pressed cake* needs to be turned into grain sized particles.

The Corning House is where the *press cake* is broken down (or granulated) into ‘corn powder’. This is either done by forcing the cake through a parchment sieve or by rapidly revolving toothed mechanical rollers and the result sieved into various grades.

The Glazing House is where the grains of gunpowder are coated by rolling them in drums with black lead to make them more water resistant. Graphite can also added to make the grains more free flowing. The glazing process dried the gunpowder to some extent but it often needed additional drying by sprinkling the powder on to large flat trays and either letting them air dry or by drying them in a heated room.

The Packing House is where the finished powder is weighed and packaged ready for dispatch. Historically gunpowder was packed in oak barrels often weighing 100lbs (44kg) and most gunpowder mills employed large numbers of coopers (barrel makers) who made up a large proportion of the total workforce.