

BALLISTITE

This is the father to Cordite, invented by Nobel in 1888 as a shotgun propellant. It is a mixture of Nitroglycerine and soluble Nitrocellulose. It is a very powerful propellant because of the high proportion of NG but unfortunately its keeping properties are poor. Due to the energetic ingredients it is a very hot and erosive propellant. Its service life was very short, as its erosive properties soon became apparent. It will still be found in the occasional shotgun setting where the rapid burning properties are not so destructive. Its military use was limited to small guns and mortars where rapid burning is not a problem.

The Italians adopted it under the name of "Filite"

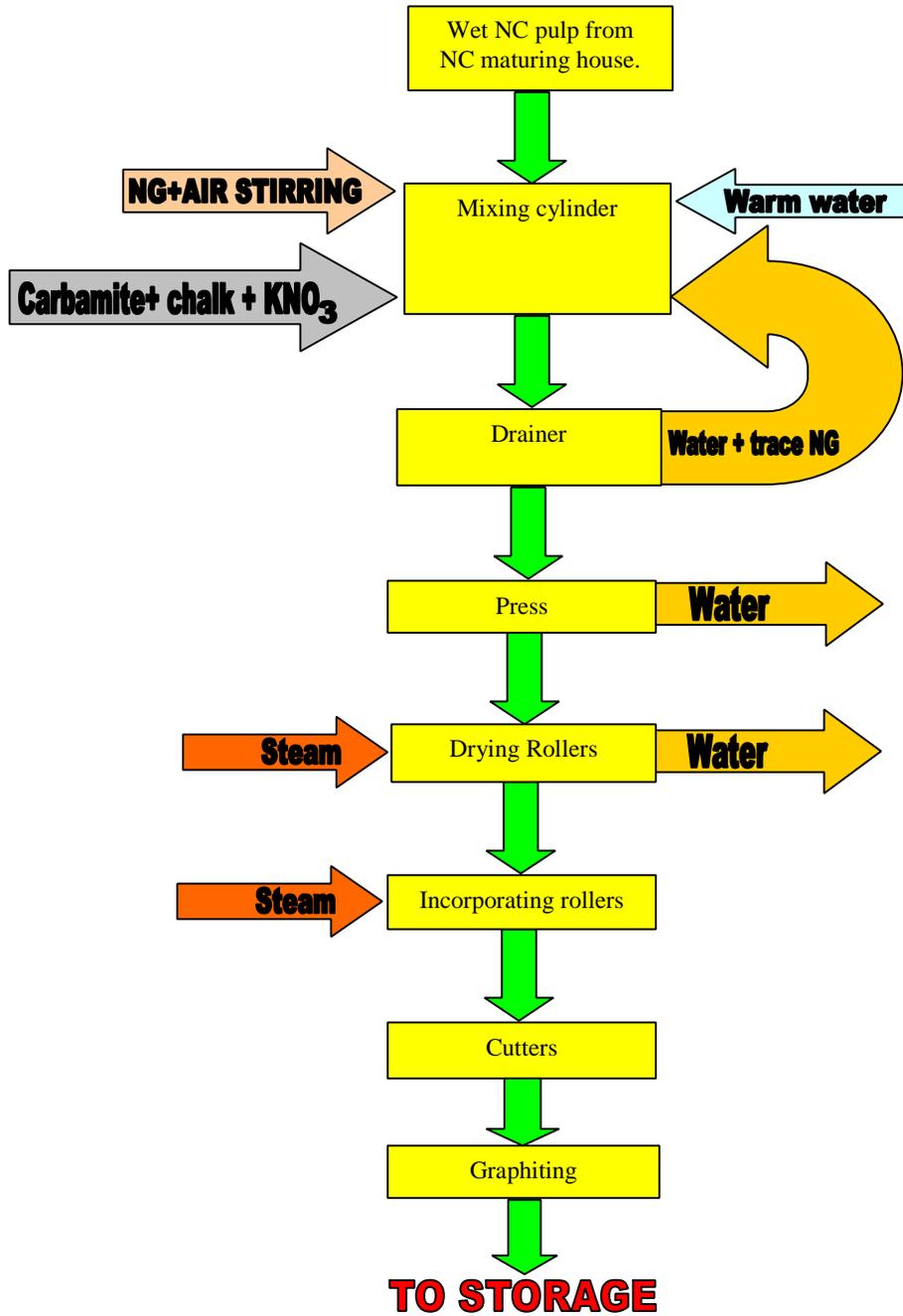
The Germans used in cube and flake form

Ballistite gives 1250 cal per gm.

Physical properties of Ballistite.

NITROCELLULOSE	60 PARTS BY WEIGHT
NITROGLYCERINE	38 " " "
CARBAMITE	.05 " " "
POTASSIUM NITRATE	1.5 " " "
CHALK	.15 " " "

THE MANUFACTURE OF BALLISTITE



Summary of the manufacturing process.

The wet Nitrocellulose arrives from the maturing house where it has been allowed a week to "mature". It has a nitrogen content between 12.6 and 13.2% and it is loaded into the mixing cylinder where it is agitated with Nitroglycerine, water and compressed air to ensure that the NC is gelatinised thoroughly. Added at this time are the other ingredients. After the process is completed any remaining water and any left over NG is drained and passed back to the mixing cylinder.

The mixture of NG and NC is given a pressing to remove as much water as possible. The mixture is then passed to the hot drying rolls in which the moisture content is reduced to about 2%.

The dry, ungelatinised mixture is then passed to the incorporator where it is forced through rollers heated by steam to about 60⁰C. The material emerges as a thin sheet of gelatinised propellant. The sheet is folded and passed through the rollers again and again until a uniform gelatinous propellant is produced.

The propellant is then passed through cutters to cut the material into flakes 4mm square and .71mm thick.

The flakes are passed through a blending process as for any other propellant.

During WWI the process was modified by partially gelatinising the material with a mixture of 70/30 Acetone/Alcohol to speed up the production