

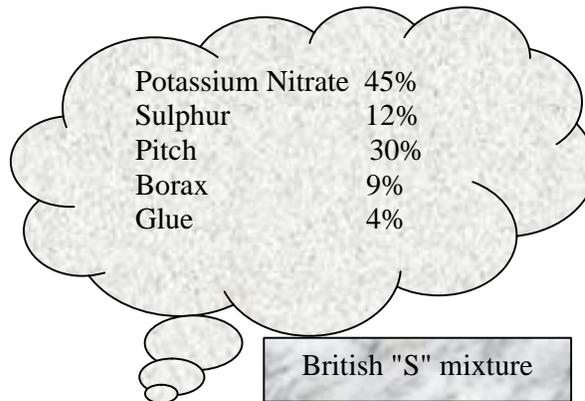
CARBON SMOKE

The following smoke compositions using carbon as a base will be found:

The naval people have the simplest method of producing smoke. This is by pumping extra crude oil into the boiler system of the engines, which results in incomplete combustion. The phenomena may be seen any day on the roads when big diesel trucks change down a gear you will see a cloud of unburnt fuel particles belch into the air from the exhaust stack. The driver giving the engine a rev thus increasing the amount of fuel going into the engine causes this. So it is with a ship making smoke. It is cheap, efficient and requires no additional machinery. It can also produce a screen very rapidly. The best mixture is an overdose of fuel accompanied by an evaporation of the fuel oil as well. In that case you get carbon particles surrounded by an oil sheath.

"S" MIXTURES

The difficulty for soldiers is that they don't carry around with them a steam driven engine compartment so they developed a pyrotechnic mixture called the British "S" mix and it consisted of

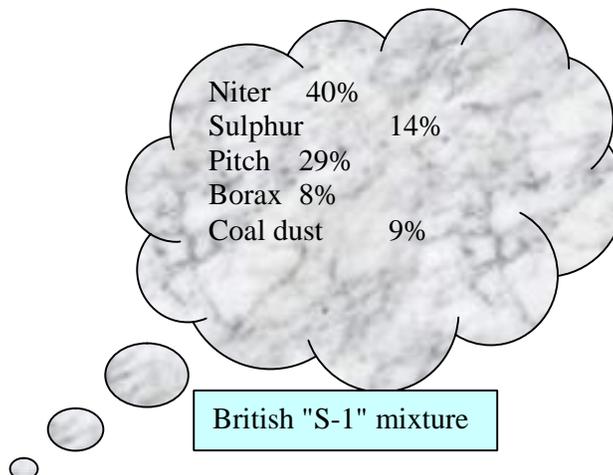


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|-------------------|-----|
| Potassium Nitrate | 45% |
| Sulphur | 12% |
| Pitch | 30% |
| Borax | 9% |
| Glue | 4% |

British "S" mixture

These mixtures were pressed into 3lb tins while still in a plastic state and an igniter fitted at the top of the tin. They were called "Smoke torch Mk 1 type S". They burned for about 3 minutes and gave off a yellowish/brown smoke. The smoke was a result of the incomplete combustion of the solid carbon in the pitch. Generally speaking they weren't very efficient but they were cheap, easily produced and they stored quite well.

As more experience was gained with these new pyrotechnic mixtures the engineers began to experiment with the percentages and ingredients thus they came up with "Smoke candle, Mk II, type S-1", which consisted of



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|-----------|-----|
| Niter | 40% |
| Sulphur | 14% |
| Pitch | 29% |
| Borax | 8% |
| Coal dust | 9% |

British "S-1" mixture