

Cont 45761

NAVAL PROVING GROUND,
INDIAN HEAD, MD.

2908-26
Refer to No. _____
And address all communications to
Inspector of Ordnance in Charge.

HKL/m

March 19, 1919.

To: Bureau of Ordnance.

Subject: Test of flashless powderm BGAC lot 1.

Enclosure: (A) N.P.G. photos Nos. 6700 to 6714, inclusive. and 6742

1. On February 25, 1919, BGAC lot 1 was fired, at 47°, in 4"/50 Mark IX gun #1353, the first round fired being below target and working toward service on the curve.

2. The results obtained were very irregular, the mean variation being ± 30 fs for eight rounds fired.

3. The sixth round fired was a charge of 16.78 pounds (all the powder that could possibly be crammed into the standard 4"/50 case). The velocity obtained from this charge was 2831 fs, and the pressure 14.75 tons.

4. BGAC lot 1 was given 268 hours' heating and was fired, at 90°, on March 11, 1919, in 4"/50 Mark IX gun #2215, the first round being below target and working toward service on the curve.

5. The results obtained were irregular, the mean variation being ± 15 fs for five rounds fired. This variation is just one-half of the variation obtained by firing this powder at 47°.

6. A maximum charge of 16 pounds of powder at 90° (as large a charge as could be put into a 4"/50 service case without tamping too long and reducing the temperature) gave a velocity of 2697 fs and 13.19 tons.

7. In neither case of hot or cold powder was it possible to put sufficient powder in a service case to obtain service velocity and pressure.

8. Results obtained by firing proved the powder much too slow for the 4"/50 Mark IX gun.

9. Naval Proving Ground photo # 6742 shows that in the plotting of the two curves of hot and cold powder, the usual condition is reversed and that the cold powder is the quicker of the two. The curves show that in a given charge of hot and cold powder the cold powder gives the higher velocity.

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10. Naval Proving Ground photos Nos. 6700 to 6703 and 6709 and 6710 show that the smoke from the flashless powder is two or three times greater than the smoke of the service smokeless powder.

11. The powder was fired at night in comparison with smokeless powder, charges used as follows, the smokeless being a standard service charge of 14.8 pounds of SPD 1589 for each round:

16.5 lbs.	BGAC	lot 1	-	photo #6704
12.0	"	"	"	6705
16.5	"	"	"	6706
11.0	"	"	"	6707
13.0	"	"	"	6708

12. Naval Proving Ground photos Nos. 6704 to 6708 show that there was absolutely no flash recorded on the camera plate from the flashless powder while Naval Proving Ground photos Nos. 6711 to 6713 show the typical white, blinding flash of the service smokeless powder.

13. As observed by the eye, the flashless powder had a full cherry-red cone that could be seen from behind and at the sides of the gun, but apparently could not be seen from the various angles in front of the gun. There apparently was no difference in the flash between the smallest and largest charge fired. The flash from the smokeless powder (all service rounds) was the typical white, blinding flash which could be clearly seen by an observer some 7500 yards in front of the gun.

14. The report and the vibration of the firing of the flashless powder was noticeably less than that of the service smokeless powder.

(2)

6701



P. 6731
2



6798

No. 9, S.P.

