

## **Black Powder Loading for**



## **Cowboy Action Shooting**

**A Primer**

***Joel “Doc” Shapiro***  
***SASS #31526***

## **Acknowledgements**

I wish to thank the members of the *SASS Wire* for helping me learn to load Black Powder, and the Baltimore Kid for sparking my interest in the first place. In addition, I would like to thank my wife, Single Malt Sal, for putting up with me; Lee Stone, SASS # 36036; and John Geary, SASS #3168, for providing editorial assistance and content. In addition, I'd like to thank Mike Venturino for allowing me to use load data that he developed for his series of books.

## **Disclaimer**

**MAKE SURE TO FOLLOW ALL FEDERAL, STATE, AND LOCAL LAWS REGARDING THE PROPER STORAGE OF BLACK POWDER.**

**ALTHOUGH THE INFORMATION CONTAINED HEREIN HAS BEEN ASSEMBLED BY THE AUTHOR FROM PERSONAL EXPERIENCE AND FROM SOURCES BELIEVED TO BE RELIABLE, NO REPRESENTATION OR WARRANTY WHATSOEVER IS MADE AS TO ITS ACCURACY OR COMPLETENESS OR AS TO THE RESULTS WHICH MAY BE OBTAINED FROM ANY APPLICATION OR OTHER USE OF SUCH INFORMATION. MOREOVER, THE INHERENT NATURE OF MATTERS DISCUSSED IN THIS BOOK INVOLVES A HIGH DEGREE OF RISK AND UNCERTAINTY, AND THE READER MUST MAKE HIS/HER OWN DECISION AS TO LOADING AND FIRING BLACKPOWDER AMMUNITION. CONSEQUENTLY, THE AUTHOR AND PUBLISHER WILL NOT BE LIABLE FOR ANY LOSS OF LIABILITY WHATSOEVER TO ANY PARTY ATTRIBUTABLE TO THE USE OF ANY INFORMATION CONTAINED HEREIN.**

## **Copyright**

© 2001 Joel Shapiro

All rights reserved. No part of this book may be reproduced in any form without written permission from the publisher.

## **Preface**

Shooting Black Powder is fun! I have more time on my hands than I am used to, so I decided to write a book about something I am passionate about – loading black powder for Cowboy Action Shooting. I currently shoot CAS, IPSC, bowling pins, and BPCR silhouette.

I really started shooting in November of 1999. Before then, my wife had bought a .357 S&W revolver and a Winchester model 94 Trapper, and we went out now and again to shoot at paper targets at the indoor range. The problem was that the range was an hour ride away, so we only went out once or twice a year.

In November 1999 I got the bug to really shoot more frequently. We had moved into a house and there was a range only 20 minutes away. We joined the range and I picked up a .45 ACP. After shooting 500 rounds those first two months, I found I couldn't afford to buy ammo! So, like many active shooters, I started reloading. Not long after, I decided to try a game defined by the International Practical Shooting Competition (IPSC). One of the guys at the range had been talking about it (I think he was trying to sell me a 1911), and it sounded like fun. I eventually bought that 1911 and had it worked over for IPSC Limited class. I really enjoyed competitive shooting!

In the meantime, my next door neighbor, Reb Win (SASS #29459), started talking about Cowboy Action Shooting. At first I scoffed at the idea of playing dress up, but then went along to a local shoot in April anyway. I met a shooter there who had a pair of Uberti revolvers for sale and they were just what I would have wanted for CAS. So, I bought them. I really enjoyed the people at that match and decided to get a shotgun and give this sport a try too. That week, I joined SASS and bought a shotgun. I had no idea then what I was in for!

During the course of my first season, I loved watching the black powder shooters. There was something about the smoke and the loud boom that called to me. The Baltimore Kid traded me some black powder loads for an old belt that I had picked up. After shooting black powder that first time, I was hooked! I bought a bunch of commercially produced loads because I didn't know anything about loading black powder and didn't have a shot shell press. Buying the commercially produced loads was even more expensive than buying ammo for IPSC! I realized that if I were going to continue shooting black powder, I would have to load my own.

Soon I was researching what I would need and slowly getting supplies together. Christmas came and under the tree was a MEC 600 jr. shot shell press from my wife! That was the final piece of equipment that I needed. I got my first batch loaded up and had a chance to try them out in January. I have been shooting black powder ever since!

Over the course of this season, I have received many comments and many people asked about loading black powder and cleaning it up. Someone suggested I run a class, so I did just that. I wrote up a document with instructions and advertised among the local shooters. A few interested people showed up and they all said that it was worth the time and they enjoyed it. I can't wait to see one of them at a match with their first batch of loads!

Since then, I have had several requests for the information that I presented in the class, and I sent it out. Others have requested a video (that's coming). This book is focused on loading for CAS. The procedures outlined within can be applied to other shooting disciplines, but may have to be refined for better performance in your guns (BPCR is an example). I have really enjoyed writing this book and the feedback has been wonderful. I hope that you find it useful and helpful. If you do, or don't, I'd love to hear it, as that will help improve future editions.



Joel "Doc" Shapiro

## **Table of Contents**

## **Introduction:**

The *Frontier Cartridge* category is currently defined in the SASS handbook as:  
Traditional style percussion or cartridge single action revolvers of original manufacture prior to 1896 or reproductions thereof.

- .32 caliber or larger.
- Must use blackpowder in all loads (rifle, six-guns, and shotgun).
- Must use a side-by-side or lever action shotgun in the main match stages.
- Any SASS legal pistol caliber rifle is acceptable

The powders used may be any blackpowder, or substitute. Substitutes include Pyrodex, Clean Shot, and Clear Shot. This book is going to focus on true blackpowder. There are some differences in loading with the substitutes. Check with the powder manufacturer for further information.

This book is an introduction to practical blackpowder cartridge, long-range rifle, and shot shell loading for the sport of Cowboy Action Shooting. My hope is to provide enough information to get you started. More in-depth information can be gathered from other sources. Loading blackpowder is more time consuming than smokeless, but much more rewarding, much more fun to shoot, and arguably easier to clean!

Topics covered in this book include:

- History of Black Powder
- Powder granulation.
- Wads for shot shells and cartridges.
- Lube wads.
- Bullet lube and pan lubing bullets.
- 12 ga shot shell loading, and loading brass hulls.
- Pistol loading.
- 45/70 rifle loading.
- Percussion Revolver Loading.
- Cleanup of firearms and preparation for shooting blackpowder.
- Match maintenance.

# **History of Black Powder<sup>1</sup>**

## **About Black Powder**

Black powder is a mixture of three compounds. These are: Potassium Nitrate (Salt Petre), Sulfur, and Carbon. The combination of these ingredients in specific proportions is explosive. When ignited, the ensuing chemical reaction produces other solids, gasses, and heat. The formation of the gasses and heat is the source of the explosive power.

## **Beginnings**

The first writings of the properties of saltpetre appear in the written works of an Arabian, Abd Allah, early in the 13<sup>th</sup> century. Black powder may have been first discovered in the Middle East or China. Active trading existed between the Mongol and Chinese empires during this period.

Word of this explosive reached England, probably during the Crusades. Writings, by Marcus Graecus, appear as early as 1250 describing the use of black powder to propel rockets and for explosive uses. By the mid 14<sup>th</sup> century, the English had settled on a proportion of 6 parts potassium nitrate, 1 part sulfur, and 2 parts charcoal. Black powder was used to power firearms in the battles of Crecy and Agincourt, during this time period.

The main design problem in producing and using black powder was that there were fairly large variances in the propulsive force from batch to batch. What might be suitable in one type of arm would produce substandard performance or a dangerous explosion in the next batch. This was solved in the 15<sup>th</sup> century by a process called “corning”. The black powder particles were mixed as evenly as possible and wetted into clumps. These clumps were broken apart into kernels. These were sorted to size. The result was a powder that generated higher average breech pressures. New small arms were developed to take advantage of this, cannon and larger guns came shortly after.

## **Production**

Until now black powder had been made by hand. By 1675, the first powder mills came into existence in Milton, Massachusetts. At the time, Milton was on the frontier and the settlers needed a local, reliable source of powder for their fight with the Indians and for hunting, and could not import it from England.

Over the next 100 years, the British limited the importation of powder and restricted the amount of powder the colonists were allowed to have to the minimum that the British government thought they needed for survival. This was an attempt to control the rising hostilities in the colonies, giving the colonists further need for local mills.

## **Change in Composition**

The Prussians controlled greater Germany by the late 1700's. They had settled on a different proportion of materials in an effort to improve the performance of the powder: 8 parts potassium nitrate, 1 part sulfur, 1 part charcoal. This was driven, in part, by improvements in the strength of the metals used for making guns. Larger charges, and more consistent powder lead to this change. Accuracy had improved to the point where aimed fire was effective at 60 to 100 yards.

By the 1800's, experiments were under way to really understand the ballistics and functioning of firearms. The result of these experiments was to change the proportion of ingredients again to: 15 parts potassium nitrate, 2 parts sulfur, 3 parts charcoal. This formulation lead to reduced fouling, more reliable ignition, and consistent pressures. Graduated sights are now found on rifles so that they may shoot accurately out to different distances.

## **Development of Granulations**

As testing methods improved, it was found that different sized granulations resulted in different pressures, leading to the current F and g scale that is currently used. The F is the grade of mesh that the powder passed through and g stands for granulation.

The smallest granulation, FFFFg (or 4F), is used primarily for priming flintlocks and in strong .22 and .32 caliber revolvers.

FFFg, or 3F, is commonly used for rifles up to .50 caliber and cap and ball revolvers.

FFg, or 2F, is commonly used in larger cartridge guns (.44 and up), and target cartridge rifles.

Fg, or 1F, is used in canons and 10 gauge and up (10, 8, 6, and 4 bore) guns. Some shooters like it in 12 ga shot shell loads.

## Preparation:

Before going down to the loading room to load blackpowder for the first time, a lot of time can be saved by making sure that all the correct materials are on hand for the loading application. Do you have the right powder, primers, wads, bullets, lube, etc.?

## Primers:

Blackpowder doesn't ignite quite as easily as smokeless. It is inefficient and leaves a lot of residue behind. In order to ensure the most complete burn and more consistent velocities, magnum primers should be used for pistol and rifle cartridges. The hotter primer does a better job of ignition than regular primers.

Mike Venturino proved this and published his results in his books "*Shooting Six-Guns of the Old West*" and "*Shooting Colt Single Actions*".

## Powder Granulation:

Blackpowder is available in several different grades. Each grade is of a different size and has a different use. Each granulation size has different burn characteristics. **Smaller granulations burn hotter, faster, and at higher pressure than the coarser granulations. As a result, using the wrong granulation for the application could result in destruction of the firearm or worse.** Granulations, sizes, and application are listed in the chart below.

Granulation	Size <sup>2</sup>	Application
Fg	.0689 - .0582 inch	12 ga and larger bores.
FFg	.0582 - .0376 inch	44 Caliber to 12 ga.
FFFg	.0376 - .0170 inch	Calibers smaller than .44
FFFFg	.0170 - .0111 inch	Priming flash pans

## Wads for Shot Shells and Cartridges:

Wads are placed between powder the bullet or shot. Wads are made out of cardboard, wax, grease, paper, plastic, and other materials. The different types of wads all serve different purposes, depending on their composition and application.

### *Shot Shells:*

Shot shells are constructed of primer, powder, wad column, and shot. The wad column acts as a cushion for the shot, and takes up space in the hull. The wad column can also be used to tighten or loosen the shot pattern. With blackpowder, it is generally advisable to use card and fiber wads to fill the wad column. Modern

plastic wads leave plastic fouling in the bore and can be difficult to clean out, although some people prefer them as they are easier to load.

For 12 gauge, the wad column starts with a .125" (1/8") nitro card wad over the powder (over powder card). This provides a good gas seal and can be used to compress the powder **so that there is no airspace between the powder and the projectile** (more on this later). Top this with a 1/2" fiber wad to take up space in the hull and act as a cushion for the shot. Some people use wads made of newspaper. Shot goes over this wad column. The wad column needs to be tall enough so that when shot is added, the hull can be firmly crimped.

There are a few different methods for finishing a shot shell. It can be fold crimped (standard crimp found on plastic shells) or roll crimped (found most often on paper shells and used for shotguns with a 2 1/2" chamber). If the shell is going to be roll crimped, then the shot must be topped with a wad. A card wad cut of heavy paper stock is the common method. This is called an "over shot card". Brass shells are not crimped at all. They are finished by gluing the over shot card right into the hull.

#### *Cartridges:*

Cartridges are constructed of brass, primer, powder, wad(s), and bullet. Wads can be placed between the powder and the bullet in order to reduce the powder charge, provide additional lube, to protect the powder from lube contamination, or to protect the base of the bullet from the heat generated by the burning powder. Wads can be made from wax paper, card stock, empty milk cartons, bullet lube, natural fibers, felt, and other material.

In order to reduce the powder charge of a cartridge, a wad must be used. ***An air gap between the powder and the bullet can result in very high pressures and cause the barrel or cylinder to blow. In this case, the bullet acts as an obstruction to the release of gasses from the burning powder. The pressures generated can rise very quickly and cause catastrophic failure of the gun.*** The wad will fill that gap. These wads are generally made from cardboard or fiber. They can be cut with a punch or bought from most gun stores or sporting goods stores.

In longer barreled guns, the lube on the bullet is often not sufficient to keep the fouling in the bore soft. Without enough lube, accuracy goes downhill fast, and cleanup is much more difficult.

In order to tell if there is enough lube, look around the muzzle of the rifle. If there is lube residue, then there is enough carried on the bullet. If not, and the lube at the end of the muzzle is hard and crusty, more lube is needed. In order to add more lube, a lube wad can be placed between the powder and the bullet. This can present a problem with lube contamination of the powder. In order to reduce the

possibility, a wax paper or card wad could be placed on the powder, and below the lube wad. With rifle cartridges (45/70, 38/55, etc), there is also the risk of the lube wad sticking to the base of the bullet and affecting trajectory. A good solution to this is to place a wax paper or card wad above the lube wad and under the bullet.

### **Lube Wads:**

Accuracy can be affected by excess black powder residue or fouling that remains after a round is fired. If the powder residue towards the end of the barrel is hard and crusty, accuracy will likely be very bad. One solution is to put a lube wad under the bullet. There are some commercially available lube wads, and many recipes for homemade lube wads. The recipe that I like is easy to make and does a very good job of keeping the fouling soft and accuracy good. In addition, it helps make cleanup easier.

In a small pot, melt equal volumes of beeswax (unscented, pure, available at hobby and craft shops for candle making), Crisco, and some vegetable oil. A few tablespoons is usually more than enough (the wax serves as a carrier for the Crisco and vegetable oil). A word to the wise: don't use your wife's pot! Go out and get your own pot and only use it for this. Remember that this lubricant is flammable. Keep the heat down and melt it slowly.

Once the lube is melted, pour freshly boiled water into an 8" round pan, to about half full. Again, go buy one for this! Make sure the water is very hot. Pour the melted lube into the pan very slowly. It will float to the surface. Use just enough lube so that it just covers the surface of the water.

Once the lube cools and congeals (I find it helpful to put the pan into the refrigerator), the lube will pull away from the edge of the pan and the sheet can be removed and dried. The edges of the sheet will be much thicker than the rest of the sheet. Cut those off and put them back into the pot with the lube.

For making wads for 45 Colt or 45/70, the wads can be punched out with a sized .45 ACP case (or use a .45 Colt or .45 S&W case). Make sure to put a nail through the primer hole so that the wad can be punched out of the case. Store the wads in wax paper in a cool, dry location.



An alternative is to buy fiber wads or punch them out of felt. Soak these in the lube mixture, remove and dry on wax paper.

## **Bullet Lube and Pan Lubing Bullets:**

An appropriate bullet lube is important in maintaining accuracy. Lube in black powder shooting helps prevent leading and also helps to keep fouling soft. The standard red and blue wax lubes combine with blackpowder fouling and create a tar like substance that is very difficult to clean and ruins accuracy. The best bullet lubes are natural (non-petroleum based). SPG is a commercially available lube, or homemade lubes can be used. If you don't cast, then there are commercially available bullets that are lubed with SPG. Alternatively, the red and blue wax lubes can be melted off and the bullets can be relubed in a pan.

### *Removing Wax Lubes:*

There are two common methods of removing the red and blue wax lubes. One method is to heat the oven to 300 degrees. Put a sheet of foil on one of the racks and spread out some paper towel over that. Lay the bullets down on the paper towel and leave them in the oven until the wax lube is melted off, about 10 to 20 minutes. Time will vary depending on the size of the oven and the temperature used. This works better than boiling.



The other method is to boil the bullets in a pot of water and the old lube will float to the top and can be skimmed off. Again, a dedicated pot is probably a better idea than your wife's stew pot!

### *Pan Lubing:*

To pan lube your now 'lube free' bullets, get another pan or pot, or make one out of foil. Stand the bullets pointing up in the bottom. Pour the melted lube mixture (same lube as used for lube wads) into the pan until the lube covers the lube groove(s) in the bullets.



As it cools, but before it hardens completely, there is a point at which the bullets can be plucked out with pliers or forceps. It may take some experimentation in order to find the right time.

If you wish to avoid this timing challenge, a larger case can be used to cut the bullets out. If lube comes out of the grooves, it is often possible to warm some up by rolling it between your fingers and rubbing it into the grooves. Any lube left

can be put back into the lube pot and reused again next time, or keep the pan as it is and put the next batch of bullets back in the holes left in the lube and re-melt.

Courtesy of the BPCR board at [www.shooters.com](http://www.shooters.com), comes the best method (that I have found so far) for getting the bullets out is to put the pan into the fridge after it has cooled some. As it cools, the lube sheet will pull away from the edges of the pan. Once it has cooled enough, knock the sheet out onto wax paper and then gently push the bullets out from the bottom. They come out clean with lube filling the grooves.

## Loading

Now that you have the right hulls or cases, primers, powder, wads, and bullets, it's time to put the components together. There are a couple of useful hints for loading blackpowder. First off, the plastic powder hopper and measure that you have been using with smokeless is a hazard with blackpowder. The powder granules moving through the plastic generate static electricity and this increases the chance of accidental ignition. Pour small amounts of powder into a coffee mug or glass bowl and measure powder charges from this.

Since the powder charge has to fill the case, blackpowder should **ONLY** be measured by volume instead of by weight. Lee sells a set of dippers (little scoops) that are calibrated in cubic centimeters for measuring powder. These work very well. There are many other measures that can be used. Dippers can be made at home out of an empty case. Bend a metal coat hanger into a handle and spot solder it onto the case. Be sure that you've checked the volume of the case before starting and that the case has a *spent* primer still seated. The Dixie Gun Works catalog has the capacity of most cases in the index. For reference, a few are included here:

45-70	75 gr.
30-06	70 gr.
44 S&W	39 gr.
44 Colt	35 gr.
45 Auto	28 gr.
25-20	20 gr.
41 CF Short	15 gr.

A funnel of some sort will be needed to get the powder into the case or hull. The funnel should **NOT** be plastic. Brass or paper work well. **ONCE AGAIN, THE MOVEMENT OF POWDER THROUGH PLASTIC RESULTS IN THE BUILD UP OF STATIC ELECTRICITY, POSSIBLY LEADING TO UNINTENTIONAL IGNITION OF THE POWDER. THIS IS A VERY REAL HAZARD AND CANNOT BE STRESSED ENOUGH.**

A brass "drop tube" should be used for dropping powder charges into long-range rifle cases. Dropping the powder causes the powder to settle more evenly in the case, improving accuracy and consistency. The drop tube is generally a brass or copper tube, 24 inches or more in length, with a funnel at the top.

Note: Several of the pistol and rifle caliber loads that are presented were originally published by Mike Venturino in his books *Shooting Colt Single Actions*, *Shooting Sixguns of the Old West*, and *Shooting Lever Guns of the Old West*. More information on these books can be requested by writing to:

MLV Enterprises  
P.O. Box 914  
Livingston, MT 59047

## 12 Gauge Shot Shell Loading

### *Equipment and Supplies:*

While it isn't necessary to have a shot shell loading press, it certainly makes loading much easier. MEC, Dillon, Lee, and other manufacturers all make loading presses. **AGAIN, IT IS IMPORTANT TO REMEMBER THAT WITH WHATEVER PRESS SELECTED, THE PLASTIC POWDER HOPPER SHOULD NOT BE USED WITH BLACK POWDER AS THE MOVEMENT OF POWDER THROUGH THE PLASTIC POWDER HOPPER CAN CAUSE A BUILD UP OF STATIC ELECTRICITY, WHICH MAY RESULT IN UNINTENTIONAL IGNITION OF THE POWDER.**

Make sure to read, follow, and understand the directions that come with the loading press. Follow these instructions for proper setup and configuration of the press and each station.

When getting ready to load, make sure to have the following supplies on hand:

- Powder, measures, and a glass or porcelain container to hold the powder.
- Over powder, fiber, and over shot wads.
- Appropriately sized lead shot.
- Primers that fit the selected hull.
- Crisco or another lube if one is going to be used.

### *Recipe:*

There is a lot of experimentation that can be done with black powder shot shell loading. In general, the same volume of powder and shot is a good rule of thumb for experimenting with the recipe. Make sure that the hull is filled so that a good crimp can be applied to the hull. Listed below is just one possibility for 12 gauge loads..

- Standard shot shell primer.
- 4.4 cc's of FFg powder.
- .125 inch over powder card.
- .5 inch fiber wad.
- 1 1/8 oz. of shot.
- A dollop of Crisco on top of the shot.
- .030 over shot card and crimp (the over shot card is used to keep the Crisco from running out of the shell in hot weather).

Basic recipes for 10, 16, and 20 gauge shot shells are listed below:

10 Ga:

- 109 gr of FFg.
- .125 inch over powder card.

- .5 inch fiber wad (some hulls may require slightly more or slightly less wadding).
- 1 ½ oz of size 7 ½ shot.
- Over shot card, and crimp.

16 Ga:

- 68 gr. of FFg.
- .125 inch over powder card
- .5 inch fiber wad (some hulls may require slightly more or slightly less wadding).
- 1 oz of size 7 ½ shot.
- Over shot card and crimp.

20 Ga:

- 65 gr. of FFg.
- .125 inch over powder card
- .5 inch fiber wad (some hulls may require slightly more or slightly less wadding).
- 7/8 oz of size 7 ½ shot.
- Over shot card and crimp.

*Loading Procedure:*

Each loading press has five different loading stages, but there are seven steps.

1. The first will size the shell and punch out the primer.



2. Set a primer, and seat it into the hull.



3. Remove the hull from the press. Using a paper or brass funnel, pour the powder into the hull.



4. Place the hull at station 3 and seat the over powder card, seat the fiber wad, and then add the shot.



5. Pull the hull out of the press and use the over shot card to scoop out a little Crisco. Place the card into the hull, on top of the shot, Crisco side directly on the shot.
6. Place the hull at station 4 and start the crimp.
7. Move the hull to station 5 and finish.



### *Brass Shot Shell Loading:*

Brass hulls can be bought from Ballard Rifle and Cartridge Company. You may also look for them on the Internet at eBay.com, auctionarms.com, or on the SASS Wire Classifieds ([www.sassnet.com](http://www.sassnet.com)).

Loading brass hulls can be done without a loading press. Here is a procedure supplied by John Geary, SASS #3168.

It is important that the right length hull is used with brass hulls. Most Cowboy Action 12 gauge shotguns will accept a hull of 2 5/8 inches in length. There are a few other tools required to load brass hulls. A dowel that just fits inside the mouth of the hull, a center punch to knock out the primer, hammer, and a block of hardwood will be very helpful.

In the block of hardwood, drill a hole slightly larger than the primer size. This will be used as a decapper. It may also be helpful to countersink a hole around it that is the right size to hold the hull.

1. Set the hull on the board so that the primer is directly over the hole that was drilled into it.
2. Use a center punch and a hammer to lightly punch out the old primer from the inside of the hull.
3. Set a new primer on the board (make sure there is not a burr or anything on the board that could set off the primer). Set the hull on the primer and put the dowel into the hull. Gently tap on the dowel with a hammer to seat the new primer.

4. Pour the powder charge into the hull and tap the case gently to settle the charge.
5. Press in the .125-inch over-powder card.
6. Press in the .5-inch fiber wad.
7. Use the dowel to compress the load about  $\frac{1}{4}$  of an inch.
8. Pour in the shot.
9. Place a .030-inch over shot card on top.
10. Run a small bead of Elmer's glue around the edge of the card to glue it into the hull (no crimping required).

## **Pistol Caliber Loading**

Loading pistol cartridges can be as easy as priming, powder (make sure to put in enough case to allow room for the bullet and a little powder compression), seating a bullet, and crimping. However, there are some things that can be done that will make cleanup after shooting easier, and ways to lighten the load. And some of these same things can be used to improve performance. There is room for experimentation in loading black powder pistol cartridges. For example, some people use corn meal or grits as filler so they can use less powder. This trades power for less powder and less recoil.

Make sure to read, follow, and understand the directions that come with the loading press. Follow these instructions for proper setup and configuration of the press and each of the dies.

### *Equipment and Supplies:*

Whatever press you use can be adapted for black powder loading. It is important to not use the plastic powder hopper that comes with a progressive press. The movement of the powder through the plastic may result in a static electricity discharge causing unanticipated ignition of the powder.

When getting ready to load, make sure to have the following supplies on hand:

- Empty, clean cases.
- Appropriately sized magnum primers.
- Appropriately lubed bullets in the correct size for the load and bore. Bullets should be lubed with SPG or another natural (non petroleum based) lube. See the earlier section on Pan Lubing bullets. Bullets should be sized so that they do not drop through pistol chambers, or are .001 of an inch larger than the bore size of the rifle.
- Lube wads and other wads, if desired.
- Powder, measures, and a glass or porcelain container to hold the powder.

### *Recipe:*

Listed below is a basic recipe for .45 Colt loads. This load should provide enough lube for a 24" barrel rifle. Black powder burns cleaner if magnum primers are used.

- 2.2 cc's of FFg.
- Magnum large pistol primer.
- Wax paper wad.
- Lube wad.
- 200 gr. bullet (a 250 gr. bullet with 2 lube rings may provide enough lube that this same recipe can be used without the lube wad).

*Some Other Calibers:*

Several other black powder shooters provided these loads and I have not had a chance to test them. They are provided for reference only. **THE SHOOTER SHOULD TAKE THE TIME TO CHECK THESE LOADS AND MAKE SURE THAT THERE IS NO AIRSPACE BETWEEN THE POWDER AND THE BULLET.**

<b>Caliber</b>	<b>Amount of Powder</b>	<b>Bullet Weight</b>
45 S&W (Schofield)	27 gr. FFg	220 gr.
44 WCF (44-40)	35 gr. FFg	240 gr.
44 Special	30 gr. FFg	200 gr.
44 Russian	20 gr. FFFg	250 gr.
38 WCF (38-40)	32 gr. FFg	180 gr.
38 Long Colt	17 gr. FFFg	158 gr.
38 Spl	19 gr. FFFg	158 gr.
357 Magnum	21 gr. FFFg	158 gr.
32 WCF (32-30)	20 gr. FFFg	100 gr.

*Loading Procedure:*

There are four different stages (dies) and five steps:

1. Size and deprime the brass.
2. Seat the primer, bell the case mouth, pour in the powder.
3. Seat a wax paper wad over the powder (prevents lube contamination of the powder), seat the lube wad over that (the eraser end of a pencil can be used to push the wads into the case).
4. Seat the bullet to the appropriate depth.
5. Crimp (a very tight crimp is recommended to help provide a better powder burn). The tight crimp is needed to delay the initial movement of the bullet. This increases the amount of case mouth obturation (expansion) resulting in a better seal of the brass to the chamber, decreasing the amount of blowback. Softer brass will facilitate this.

**IT IS VERY IMPORTANT THAT THERE IS NO AIRSPACE BETWEEN THE POWDER AND THE BULLET. AIRSPACE WILL CAUSE EXTREME PRESSURES AND MAY RESULT IN CATASTROPHIC FIREARM FAILURE.**

## Rifle Caliber Loading

Loading rifle cartridges can be as easy as priming, powder (make sure to put in enough case to allow room for the bullet, a wad, and a little powder compression), seating a bullet, and crimping. However, there are some things that can be done that will make cleanup after shooting easier, and ways to lighten the load. And some of these same things can be used to improve performance. There is a lot of room for experimentation in loading rifle cartridges. For example, some people use corn meal or grits as filler so they can use less powder.

An entire chapter could be dedicated to the use of wads in rifle cartridges. However, the prime use is to prevent deformation of the base of the bullet by the heat of the powder burn. This wad is usually made cut from a paper milk carton, and is generally referred to as a card wad. However, if a lube wad is used (as in the below example), then the lube wad should be between two wax paper or card wads.

A drop tube should be used for putting powder into the case. The use of the drop tube enables the powder particles to settle into the case evenly. The benefit to this is a cleaner burn, and a more consistent burn. Consistent velocity and a cleaner bore enable the rifle bullets to “reach out and touch” targets that are 500 yards or further away.

Make sure to read, follow, and understand the directions that come with the loading press. Follow these instructions for proper setup and configuration of the press and each of the dies.

### 45-70 Loading

There is a significant amount of information available regarding long-range cartridge loading. The load listed below may not work well in every 45-70 rifle. However, it will provide sub-2 inch groups at 200 yards in the Pedersoli Creedmore Rolling Block in which it was tested.

Black Powder Cartridge Rifle Silhouette and Long Range shooters will use a different method of loading. Each powder charge will be weighed on a scale; no lube wad will be used. Instead, a card wad will be inserted between the powder and bullet to protect the base of the bullet from the heat of the powder burn. With this discipline, every load must be exactly the same. Otherwise, it is impossible to know if you will hit the 500 meter Ram or not.

#### *Equipment and Supplies:*

As with .45 Colt loading, whatever press you use can be adapted for black powder loading. **IT IS IMPORTANT TO NOT USE THE PLASTIC POWDER HOPPER THAT COMES WITH A PROGRESSIVE PRESS. THE**

**MOVEMENT OF THE POWDER THROUGH THE PLASTIC MAY RESULT IN A STATIC ELECTRICITY DISCHARGE CAUSING UNANTICIPATED IGNITION OF THE POWDER.**

When getting ready to load, make sure to have the following supplies on hand:

- Empty, clean cases.
- Magnum primers.
- Appropriately lubed bullets in the correct size. Bullets should be sized so that they are .001 of an inch larger than the bore size of the rifle. Bullets should be lubed with SPG or another natural (non petroleum based) lube.
- Lube wads and other wads, if desired.
- Powder, measures, and a glass or porcelain container to hold the powder.

*Recipe:*

Listed below is a basic recipe for 45-70 loads. This load should provide enough lube for a 30” barrel rifle. Black powder burns cleaner if magnum primers are used.

- 4.1 cc’s of FFg.
- Magnum large rifle primer.
- Wax paper wad.
- Lube wad.
- Brass drop tube of at least 24 inches.
- 405 gr. bullet with 3 lube rings filled with SPG or other BP lube.

*Some Other Calibers:*

Several other black powder shooters provided these loads and I have not had a chance to test them. They are provided for reference only, and are included (with permission) from Mike Venturino’s book *Shooting Lever Guns of the Old West*. More information on this book can be requested by writing: MLV Enterprises/P.O. Box 914/Livingston, MT 59047. **THE SHOOTER SHOULD TAKE THE TIME TO CHECK THESE LOADS AND MAKE SURE THAT THERE IS NO AIRSPACE BETWEEN THE POWDER AND THE BULLET.**

<b>Caliber</b>	<b>Amount of Powder</b>	<b>Bullet Weight</b>
45-70	68gr. FFg	500 gr.
40-60 WCF	55gr. FFg	215 gr.
45-75 WCF	70gr. FFg	324 gr.
38-56 WCF	56gr. FFg	275 gr.
40-65 WCF	60gr. FFg	246 gr.
45-90	82gr. FFg	324 gr.
38-55	40gr. FFg	270 gr.

*Loading Procedure:*

There are five different stages (dies) and eight steps:

1. Size and deprime the brass.



2. Seat the primer.
3. Bell the case mouth.
4. Pour in the powder through the drop tube.



5. Compress the powder about  $\frac{1}{4}$  inch with a Compression Die or wooden dowel. A compression die can be purchased from Cabelas or Buffalo Arms.
6. Seat a wax paper wad over the powder (prevents lube contamination of the powder), seat the lube wad over that, seat another wax paper wad over the lube wad.
7. Seat the bullet to the appropriate depth.



8. Crimp.



**IT IS VERY IMPORTANT THAT THERE IS NO AIRSPACE BETWEEN THE POWDER AND THE BULLET. AIRSPACE WILL CAUSE EXTREME PRESSURES AND MAY RESULT IN CATASTROPHIC FIREARM FAILURE.**

There should be a cardboard wad just under the bullet. This will protect the base of the bullet from the lube and the heat of the powder burn.

## Percussion Revolver Loading

Loading a Cap and Ball revolver is simpler than loading cartridges and carries the advantage of not having to load ahead of time. The process is: charge a cylinder with an appropriate amount of powder for the revolver, seat a ball or conical enough to slightly compress the powder, cover the chamber with lube, and repeat for the other 4 chambers. Fit a percussion cap on the nipples of the cylinder. At a Cowboy Action Shooting match, it is appropriate to charge the cylinder ahead of time, but the percussion caps don't get fitted until the shooter is at the loading table. Make sure to check the documentation that came with your revolver for the correct amount and granulation of powder.

There are many different brands of lube that can be used to seal the top of the chamber. Crisco works well when it isn't too hot. Ox Yoke and a few other companies also make other lubes that work very well.

To charge a chamber: use a Lee powder scoop of the appropriate volume to scoop powder from a glass bowl, place a funnel in the chamber and pour the powder from the scoop into the chamber. This is the same method used to add powder to shot shells and to cartridge cases. Some shooters prefer to use a flask with a sized spout. There is a safety concern with this method of charging the chamber. If there is still a glowing cinder in the chamber, there is a risk that the powder will ignite. The ignition of the powder could cause the powder in the flask to ignite.

<b>Gun and Caliber</b>	<b>Powder Charge</b>	<b>Projectile</b>
Colt 51 Navy, .36	20gr. FFFg	Round Ball
Colt 1860 Army, .44	30gr. FFg	Round Ball
Colt Dragoon, .44	50gr. FFg	Round Ball
Colt Walker, .44	60gr. FFg	Round Ball

*Charge Data for Common C&B Guns. Data (with Permission) from "Shooting Colt Single Actions," Mike Venturino, MLV Enterprises, PO Box 914, Livingston, MT 59047.*

There is another concern with cap and ball revolvers, chainfire. This is a phenomenon that can happen under two conditions. The first is that the ball or conical does not fit tightly enough in the chamber and the blast from the firing cylinder sets off the powder in the next one. The second is that the hammer spring isn't strong enough to hold the cap on the firing chamber and the cap on the next chamber doesn't fit tightly, some of the blast coming back from the firing chamber can then set off the explosive in the next cap or run down the nipple and set off that charge. Prevent chain fire by sealing the chamber with grease and/or seating a conical or ball that is sized so that a ring of lead is shaved off as it is seated. Also, make sure that percussion caps fit very tightly. The most common occurrence of chainfire comes from the nipple side of the cylinder.

Some shooters prefer to put a Wonder Wad over the powder and below the ball. This is a lube wad that provides enough for the revolver to continue to function correctly, and also provides a seal in case the ball or conical doesn't fit tightly enough. The other advantage to using this wad is that it is much less messy than covering the chamber with grease. These wads can be homemade by punching out felt wads and soaking them in the same beeswax/Crisco lube used for the cartridge guns. The powder charge may have to be reduced slightly to accommodate the wad.

## **Preparation of Firearms for Black Powder**

Black powder fouling reacts with petro-chemicals to produce a tar like substance that is very difficult to clean out of firearms. Therefore, it may be necessary to degrease the firearms and re-lube with natural lubricants. Gunk-Out, Gun Scrubber, or some other de-greaser can be used to remove all oils from the bore and the action.

The gun should be completely disassembled for degreasing. If you are uncomfortable with this, then have a gunsmith do this step for you.

Once the firearm is free of oils, clean and lube with Ballistol, or other natural lubricants like Ox-Yoke, T/C Bore Butter, and others.

## **Cleanup of Firearms After Shooting Black Powder**

Hot soapy water may be the best (certainly the least expensive) solvent for removing black powder fouling from firearms after shooting. Some people remove the grips and run handguns through a cycle in the dishwasher. However, a jag and soapy, wet patches works very well. Don't clean them in the bathtub unless you want to clean that too (I found this out the hard way)! After all the fouling is removed from cylinders, bore, and all accessible areas, lube with Ballistol or another natural lube to prevent rust.

The key to a quick cleanup is to keep the fouling in the bore out of the action. One way to do this is to insert the cleaning rod down the bore, screw a brush on to the end and wrap the brush with a soapy water soaked patch, and pull this back out through the muzzle. The fouling comes back out the front of the barrel and doesn't fall into the action of the rifle.

Cleanup at first can appear tedious. Continued use of Ballistol acts to "season" the firearm, much like an iron pan is seasoned. Cleanup continues to get easier until only a few patches and about 30 minutes are all that is needed to clean up 2 revolvers, lever gun, and shotgun after a match.

Surprisingly, it is not necessary to break the firearms down completely after each match. A full breakdown just once or twice a year to clean all the fouling out of the action is all that is needed. Some Ballistol sprayed into the action will neutralize the acidic nature of the fouling and prevent corrosion and rust.

## **In Match Maintenance**

If the action of the firearm starts to bind up during the match, a 10:1 mixture of Ballistol:Water sprayed from a spray bottle is usually all that is necessary. If rifle accuracy starts to deteriorate, a few sprays of the Ballistol/Water mixture into the bore and a “Bore Snake” or cleaning brush and patch will clean the bore and help restore accuracy.

The Winchester Model 1866 and 1873’s (and clones) seem to be susceptible to having the lifter bind. A squirt of the Ballistol/Water into the action will free the lifter and return functionality. The Marlin seems to work just fine.

## Summary

I hope that you have learned enough about the practical aspects of loading black powder to be able to load and shoot it at a Cowboy Action Shooting match. There is a lot more about black powder loading than what is listed here. There are many sources including Internet bulletin boards, other books and publications, and many black powder shooters. Everyone has different ideas and concepts about loading. So, don't be afraid to ask questions!



## **Bibliography**

<sup>1</sup> Richard D. Frantz, *A Chronology of Black Powder*,  
<http://www.rdfrantz.com/rdf/shootingsports/history/Chronologies/HistBpContainer.htm>.

<sup>2</sup> *The Complete Black Powder Handbook*, 3<sup>rd</sup> Edition, p.99, Sam Fadala, 1996, Krause Publications, ISBN 0-87349-175-0.

*Dixie Gun Works Catalog*, 2001, No. 150, P665.

*Shooting Colt Single Actions*, Mike Venturino, 1995, MLV Enterprises, PO Box 914, Livingston, MT, 59047.

*Shooting Lever Guns of the Old West*, Mike Venturino, 1999, MLV Enterprises, PO Box 914, Livingston, MT, 59047.

*Shooting Sixguns of the Old West*, Mike Venturino, 1997, MLV Enterprises, PO Box 914, Livingston, MT, 59047.