



Gunsmithy 3-Step Gun Cleaning



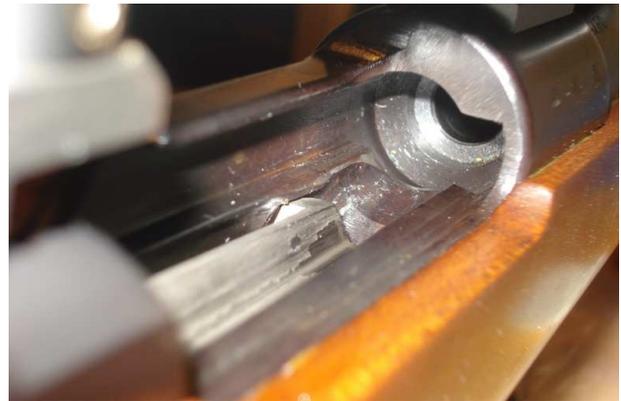
Cleaning your hunting rifle requires a combination of science and art.

At Gunsmithy we have great empathy with the passion and intuition the gun owner has for his/her guns. We know very well that every gun owner has his/her own way that works for him/her and his/her guns. It's part of the gun art.

Our aim with this article is therefore not to articulate the art of rifle cleaning. We do not think we can.

No, we rather focus on science of gun cleaning.

W.W. Greener, in ***The Gun and its Development*** (9de uitgawe 1910), skryf as volg oor geweer skoonmaak: *"If a gun be wet, it should be wiped dry at once, but the cleaning of the barrels and breech-action may be left until the sportsman or his servant has time to do it properly. To clean the barrels, use the cleaning-rod, with tow and oil, or turpentine. To remove the fouling, put muzzles on a piece of wood, and push the rod down to within an inch of the muzzle, and draw up to the chamber. Do this two or three times; and push right through. Use the bristle brush, or the rod with plenty of flannel; finish with the mop soaked in refined neatsfoot, pure Arctic sperm oil, or vaseline. ... To remove rust from the inside or outside of a barrel, procure a tub, and with a kettle of boiling water well scald the barrels inside and out, inserting a wooden peg in one of the barrels to hold them by, wipe perfectly dry with flannel, and then oil. It is as well to do this before putting the gun aside for any length of time. ... If the barrels are foul through using inferior powder, and the fouling has become hard and dry, cold water, or hot soap-suds, may be used to cleanse them."*



Since Mr Greener's writings, we have already learned that we need to make a bit more effort with cleaning guns.

"Cleanliness is godliness" writes **Warren Page** in ***The Accurate Rifle***, and also: *"If they (rifles) are to shoot superbly well they must be kept superbly clean."*

Below we demonstrate how to clean two different rifles using Gunsmithy's unique 3-Step Cleansing system: a .375 Winchester Model 70, and a .308 Ferlach. We show, using a bore-scope, how the rifle fouls inside the barrel, and what the cleaning results look like, before and after each step.

The .375 is the heavier caliber and not necessarily designed for high accuracy. Thus the bore is not a particularly smooth one, resulting in severe fouling. The specific .308 on the other hand is an old Bisley rifle, converted to a hunting rifle, and has a well-polished Ferlach barrel. We use these two specific guns to demonstrate that different barrels foul differently, thus requiring a slightly different approach during the gun cleaning process.

However, the Gunsmithy 3-Step cleaning process works for both guns. Let's look.

The three residue types that needs to be removed during the gun cleaning process ...

1 Firstly, the carbon residue results from the propellant and, to a lesser extent, the primer. Most of this residue (60-90%) consists of oxidising agents and high energy binders (eg, nitrocellulose, diethylene glycol dinitrate, ammonium perchlorate, etc.). Plastics (eg nitrodiphenylamine) and inert binders (wax, talcum, titanium dioxide) can contribute 5-25% by weight of residue. Stabilizers and other substances (dinitrotoluene, calcium sulfate, etc.) comprise the rest of the residue weight (less than 5%).

2 Secondly, the bullet itself, as well as the case, can deposit a combination of copper / bronze or lead residue. In the case of many rimfire bullets, a wax deposit may be left behind.

3 Thirdly, moisture and oxygen in the air can cause corrosion.

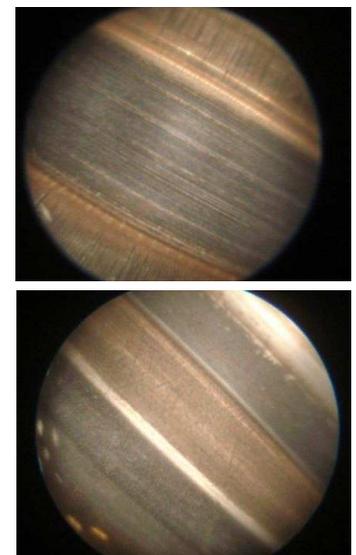


EXPERIMENT:

In the experiment below we did the following:

With a .375 Winchester we first shot 20 shots with factory ammunition. We used 270gr hunting bullets with lead core and brass jackets, at 2700 ft / sec. With a .308 Ferlach we shot 20 shots with reloaded ammunition. We used 165gr hunting bullets with Somchem's S341 propellant, also at 2700 ft / sec. It was also the first time we thoroughly cleaned this particular rifle. Back in our gunroom we cleaned both guns using the Gunsmithy's 3-Step procedure. We took photos with a "bore scope" before and after each cleaning step.

Propellant residue usually shows as a dark, burnt carbon residue. The photos to the right show the dark gray, dull residue of the propellant and other carbon residues, both in the .375 (top) and the .308 (bottom) bore. Both photos were taken immediately after the shooting session, but before the cleaning process. The .375 has 6 grooves, separated by lands of approximately 2mm wide. The top picture clearly shows the tooling marks of the reamer on the .375 lands, it also shows the brass bullet residue on the lands, as well as heavy carbon residue in the grooves and, to a lesser extent, on the lands. The bottom picture shows heavy propellant residue in the grooves of the .308 and, to a lesser extent, on the lands. Brass bullet residue on the lands are also visible. The .308 has 4 grooves, separated by lands of approximately 1.7mm wide.



During gun cleaning, it is important to remove all the residues described above ...

At Gunsmithy we have developed a 3-Step gun cleaning process to clean a gun in a step by step:

Step 1: Gunsmithy Carbon Cleaner in the **red bottle** - removes carbon residue

Step 2: Gunsmithy Traditional Gun Cleaner in the **blue bottle** - removes bullet and case residue

Step 3: Gunsmithy Best Gunsmith's Oil in **orange bottle** - preserves and protects.



PROUDLY MAGNUM APPROVED!

Gunsmithy 3-Step has recently been endorsed by MAN Magnum as a product of excellence.

“Magnum has a longstanding, worldwide reputation for its authoritative, informative and entertaining features on rifles, shotguns, handguns, black powder firearms, hunting, wing-shooting, hand-loading, African wildlife, history and adventure. Staffed by experts who ‘tell it as it is’. For the hunter and shooter, *Magnum* has it all.” (<https://www.mysubs.co.za/magazine/man-magnum>)

In the August 2017 Edition of Magnum, **Gunsmithy 3-Step** receives a Magnum’s approval and endorsement of world-class quality and value for money.

But don’t just take their word for it ...



BESPOKE GUN CARE PRODUCTS - ENDORSED BY CHAMPIONS!

The gun care products comprising Gunsmithy 3-Step have been meticulously developed and improved by Bushill RSA since 2010. Since then we have received many endorsements from World Champions and National Team members.

World Champions and National Team Members have written to us over the years to commend and endorse the Carbon Cleaner, Traditional Gun Cleaner, Best Gunsmith’s Oil and Bushill’s bespoke Flannelette.

Each one of our products that have received such endorsement proudly carries the “Endorsed by Champions” Gold Badge (<http://www.bushill.co.za/products/gunsmithy-gun-care-products>).

But don’t just take their word for it ... please read the attached article and then try it for yourself!

Step 1 – Removal of propellant residue and carbon ...

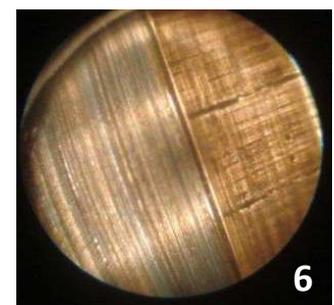
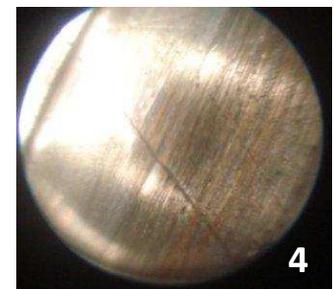
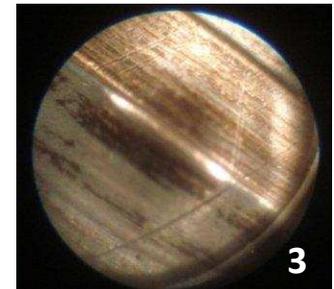
In Gunsmithy's Step 1 of rifle cleaning, we use the Gunsmithy Carbon Cleaner. This product contains surface chemistry solvents that removes a wide range of propellant and other carbon residue through a combination of chemical and surface chemistry reactions.

Here we used a total of 7 patches on a conventional jag to clean the .308 with Gunsmithy Carbon Cleaner. We thoroughly wet a flannelette patch with Gunsmithy Carbon Cleaner and push this through the barrel. Do not pull the patch back through the barrel, but remove it at the front end and discard.

Repeat this at least 3 times. A large amount of the propellant residue comes out immediately (see patches 1-3). However, in this rifle, there remains a harder layer of carbon deposition (photo 3). For this we wet a brush (brass or nylon) with Gunsmithy Carbon Cleaner and work this through the bore about 5 times. The photos featured here demonstrate this process. Patch number 4 removes the propellant residue post the first brushing, and patch number 5 comes out clean. The bore-scope, however, showed that there were carbon residues remaining that almost seemed to have penetrated into the metal. This residue probably resulted from carbon build-up from years of shooting. Thus we repeated the Gunsmithy Carbon Cleaner treatment with the brush, resulting in further carbon removal (see patches 6 and 7). Patch 7 comes out beautifully clean. After this process, the .308's bore is now brightly clean inside and only the brass residue remains (photo 4).

HINT: It's always good to remember that any chemical cleaning action works better if you give it more time. Therefore, it is recommended that, after running the Gunsmithy Carbon Cleaner with patches, before the brushing process begins, clean your bolt with the Gunsmithy Carbon Cleaner. It gives the Gunsmithy Carbon Cleaner in the barrel an extra minute to do its thing.

We similarly used 8 38×38mm patches on a spear-jag to clean the .375 with Gunsmithy Carbon Cleaner. After patch number 3 we brushed the bore five times with a brass brush. The pictures here show how patch number 1 immediately removes carbon residue. Patch number 4 removed the propellant residue from the brushing process. Patch number 8 is already pretty clean. Also note that patches numbers 2 and 3 contained a distinctive green color of a copper complex. The Gunsmithy Carbon Cleaner contains a light copper-residue pretreatment middle to remove especially coarse case residue. After this process, the .375's walk is brightly clean inside and only the brass residue remain (photo 6)



Step 2 – Removal of bullet residue ...

In this step we remove the brass and lead residue from bullets and bullets. Brass is removed chemically by reacting the copper/brass residue with chemicals that convert copper/brass from its metal form to what a metal complex. Copper/brass complexes are usually bright-colored blue or green. For this we use Gunsmithy Traditional Gun Cleaner.

This product also dissolves lead oxides and thus facilitates the removal of lead residue. This product does not contain ammonia.

Thoroughly wet a patch with the Gunsmithy Traditional Gun Cleaner and push it through. Repeat this process until the patch comes out clean. Use a clean patch every time and do not pull the patch back through the bore. This process removes brass and lead residues.

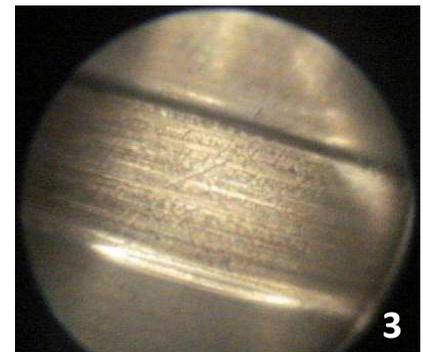
HINT: As in the case of the Gunsmithy Carbon Cleaner above, we recommend a little patience to give the chemicals within the Gunsmithy Traditional Gun Cleaner time to do their stuff. If your bolt is already clean, have a sip of coffee and admire on of the trophies on you gunroom wall.

ANOTHER HINT: Always wet the patches well. You want to get the cleaning chemicals nicely spreads throughout the bore.

In the case of light copper deposits and smooth running, and the use of the large 50x80mm patches of conventional jag one can use up to 5 patches to remove all the brass residue. The patches above clearly show how the distinctive green-blue color of the copper complex recedes until the bore of the .308 is finally clean.

See photos 2 and 3 and compare it with photo 4 on the previous page. In the case of heavy copper deposits and a rough bore and the use of the small 38x38mm patches the spear-jag (as in the .375 here) one can use up to 15 patches to remove the extreme brass residue. The patches clearly show how the characteristic green-blue color of the copper complex recedes, until clean. By the way, size counts, and the bigger the patch, the more effective the cleaning process - and the less patches you need. Although we demonstrate here that the 38x38mm patches can do its job, it would be better to use a conventional jag with a larger patch on the .375. See photos 4 and 5 and compare it with photo 6 on the previous page.

The brass philosophy: The nice thing about our sport is that there are so many different opinions about what works best. Brass removal is one of the things over which different opinions exist. Some do not believe one should remove brass fouling, others do. We have listened carefully to all these long, interesting and complicated debates. We are not prescriptive, and leave it to your intuition to decide what works best for your rifle.

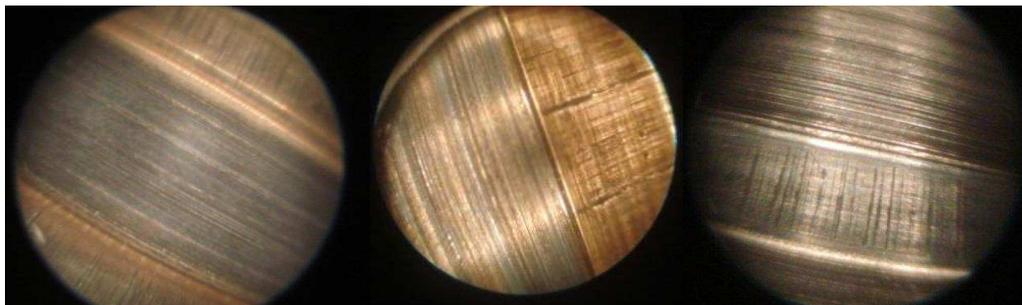


Step 2 – Best Gunsmith's Oil ...

A good gun oil has a number of features.

- (1) The best oil should provide good lubrication without being sticky or leaving a gummy residue. Our Best Gunsmith's Oil does this and contains a mixture of 4 oils and lubricants specifically developed for firearms.
- (2) The best oil must also penetrate into small pores. Therefore, Gunsmithy Best Gunsmith's Oil contains a synthetic oil component with penetration properties.
- (3) The best oil must provide long term protection against corrosion. Most oils biodegrade slowly, so our Best Gunsmith's Oil contains a long-lasting protective component. Furthermore, some of the oil components have a high boiling point extending its lifespan.
- (4) The best oil also contains light solvents that aid long-lasting cleaning action and corrosion removal ... and yes, you guessed right, our Best Gunsmith's Oil has it too. It's really the oil of world champions.

Please see the "Endorsements" on our website, and what the world champions think. Thoroughly wet a patch with Gunsmithy Best Gunsmith's Oil and push through the barrel, repeat two or three times. One can also wipe the rest of the gun metal with a patch wetted with Gunsmithy Best Gunsmith's Oil. The pictures below show how the bolts of the .375 and the .308 cleans easily by simply wiping it off with a patch wetted with Gunsmithy Carbon Cleaner. Then wipe the rest of the gun metal with a patch soaked with Gunsmithy Best Gunsmith's Oil. These guns are now ready for storage.



Flannelette en Bore-Chamber Degreaser

Gunsmithy flannelette patches are manufactured to our specifications, especially for gun cleaning. A good flannelette absorbs enough cleaning chemicals – and deposits this throughout the full length of the bore.



Gunsmithy's Bore-Chamber Degreaser dissolves heavy oil and gunk residues. You can spray it directly into the chamber and barrel. You can also use it to spray off all the gun-dirt off your jags, brushes and rods after cleaning.



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