

# The Reloading Bench....

## Pan Lubing Explained

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**F**or some reason, one of the hardest things to explain over the phone is the concept of pan-lubing. We get many calls from folks new to black powder shooting who hear of “pan-lubing” and don’t comprehend the procedure, or can’t understand why it is necessary to use on particular designs of bullets. Hopefully in this installment of the Reloading Bench we can explain pan-lubing and why it is necessary in some instances.

When one wishes to use a tapered bullet design, pan lubing is the best way to apply lubricant. You can run tapered bullets through a lubri-sizer, but unless the sizing die is the same size as the largest driving band on the bullet you will simply turn a tapered bullet into a parallel-sided bullet. Using a sizing die that is as large as the largest band will work, but is very messy and a waste of lubricant. Pan lubing insures that the bullet diameter is not altered and that lube grooves are filled with solid lubricant.

Another benefit of pan lubing is that, in the specific case of SPG Lube, the bullet lubricant is applied its hardest “temper”. This is an advantage to those who shoot in hotter temperatures. Extruded lubricant, as it is applied with a lubri-sizer, is in it’s softest temper; it has already been subjected to pressure through the sizer and subsequently softened. Pan lubing also eliminates the voids that sometimes result on sized bullets from

air being trapped in the lubri-sizer. Voids in the lube leave a groove unsupported and may result in deformation of the bullet when the powder gasses hit it.

Before we go any further, let me discuss the “release agent” that some mould makers recommend. Bullets that have been cast using a release agent sometimes do not retain lubricant in their grease grooves when removed from the pan. This makes sense, as the function of the release agent is to let the bullet drop from the mould. My personal opinion is that if the mould is correctly done, no release agent is necessary. If you are going to pan-lube bullets, do not use release agent when casting.

Another hard and fast rule to pan-lubing bullets is to always use a double boiler arrangement when melting lube. Applying direct heat to any bullet lubricant will scorch it and ruin the lubricating qualities. The heat must come from boiling water in order to prevent damage to the lubricant. We have had people enquire about using a microwave oven to melt bullet lubricant and I recommend against it. I have not tested the use of a micro-wave but my feeling is that, like chocolate, bullet lubricant would be changed in consistency when melted in the micro-wave. The double boiler works for me and I have melted the same bullet lubricant many, many times with no adverse affects.

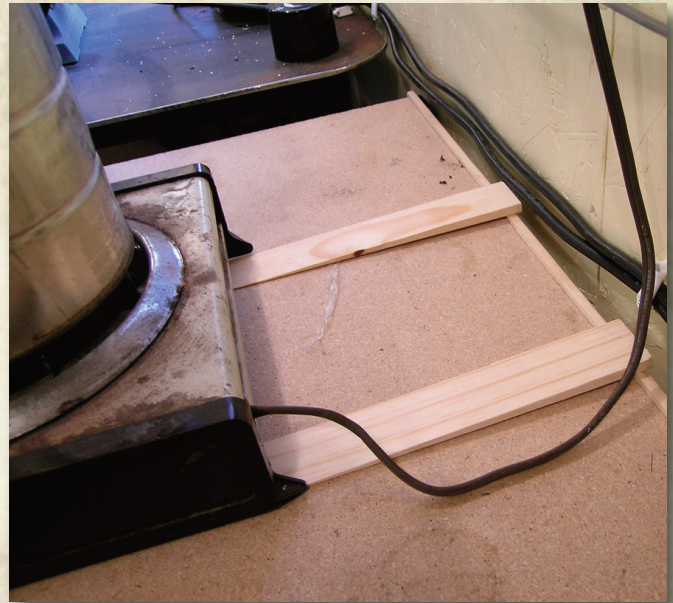
First, let's make the double boiler. The simplest arrangement is using a pie tin for the bullet tray and a slightly deeper, heavier tray for the water tin. It is a easy task to find two tins at the local "Wal-Mart" that will fit one inside the other. However, a coffee can may be used for the "water-tin" and in many ways I prefer it as it will hold a greater supply of water. This lessens the risk of running the water-tin dry and scorching the lubricant. The only other item needed is a one-burner hotplate with an adjustable heat setting. It is important that the bullet tin have tapered sides that allow the easy removal of the bullet "pie" when the melted lube solidifies.



Double boiler utilizing a coffee can as the "water can". Pie tin holds melted lubricant and bullets.

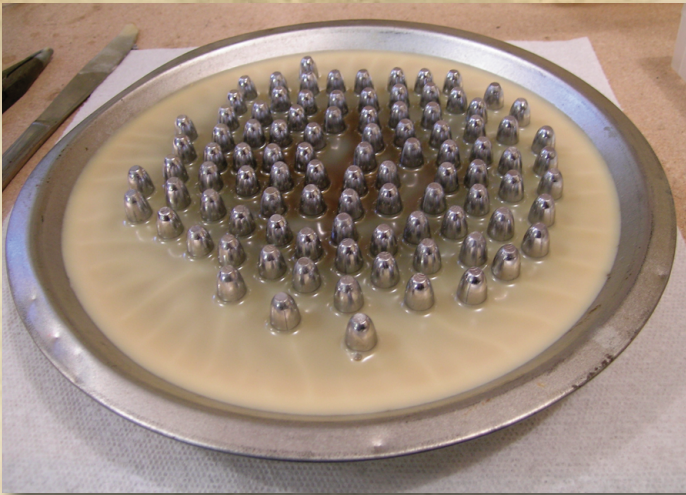
Now that we have our double boiler, we simply fill the bottom tin with water, place the bullet tin on top and turn on the hotplate to a low heat, preferably just below boiling. If we boil the water it will erupt out the sides of the water tin and create a big mess...not to mention the fact that we will lose most of our water. Once I find the setting that gives me hot water with no boiling I leave the thermostat alone and simply plug the hotplate in to start the process.

If you are setting up for the first time, simply add a quantity of bullet lube in the top pan and let it melt. Once it is melted, stand the bullets up, base first, in the melted lubricant. Be aware that the bullets will displace the lube and cause the level to rise in the pan. Also be careful that hot lube does not spill on to the hotplate as this could be a fire hazard. You may have to use wooden shims to level the hotplate to insure a level bullet tin.



Wooden shims to level heating element and consequently the lubricant in the lube tin.

Once you have added bullets to the pan and the lube level has reached the top grease grooves, let the bullets sit in the hot lubricant for about five minutes. Letting the bullets warm up to the temperature of the melted lube insures good groove fill-out and makes sure that the lubricant will stay in the grooves when the bullets are pushed out. When the bullets are completely lubed and have soaked in the heated lube, simply unplug the hotplate and let the "bullet-pie" cool. I don't like to set the tin in a refrigerator to speed this process up, as the lube will contract away from the bullets if cooled too fast. Let them cool at room temperature.



**Bullets slowly cooling in lube tin that has been removed from heating element.**

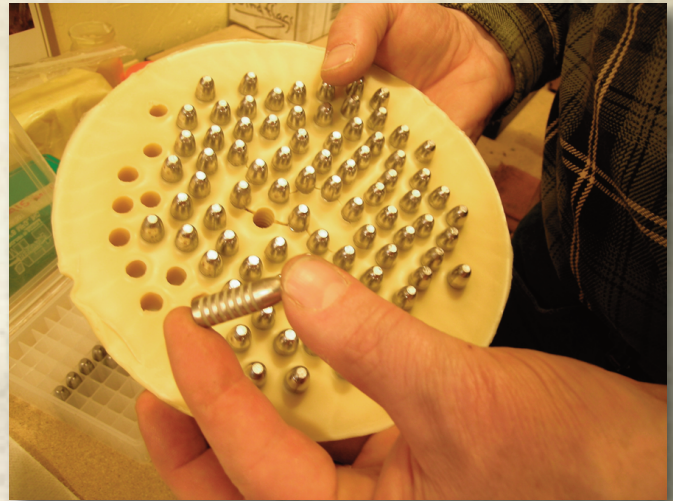
When the lube has solidified, simply turn the tin over and catch the cake of lube containing the bullets. The bullets can be easily pushed out of the lube cake, point first. If you let the lubricant cool overnight, be prepared for a harder job of pushing the bullets out. I use an old leather glove on my hand to push out the bullets as the spitzer nose on many bullet designs can lead to a sore thumb.



**Pushing bullets from the solidified cake of lube.**

Now you have a bullet pie with empty holes. To do another batch of bullets, simply push un-lubed bullets into the old holes and bring the lube back up to melting temperature. You may have to add a small amount of lube to get the right height and I would still let the bullets “soak” in the hot lube for a few minutes to insure good fill out.

At this point you have a batch of cleanly lubed bullets with full grease grooves. Once you wipe the bases clean they are ready to use. I store my lubed bullets in airtight containers and have shot them as much as a year after lubing with no adverse results. I also cover the “lube pie” when I’m done to keep out dust and dirt as well as keep the lube fresh. As long as a double-boiler is used to melt the lubricant it can be re-melted over and over. If you happen to run the water-tin out of water and scorch the lube... throw the lube out, it will only cause you headaches.



**The desired goal- a perfectly lubricated bullet with no wasted lubricant.**

Pan lubing is an effective way to lubricate large batches of bullets very uniformly and without deformation. Harry Pope claimed that the best way to shoot a cast bullet was just the way it came out of the mould; no sizing. Of course, that means that you start with a good bullet of the correct size, but I believe old Harry was right. Pan lubing is an easy way to save a few dollars on the equipment needed to reload your own black powder ammunition and the only way to efficiently lubricate tapered bullet designs.