Non-Toxic Reloading, by MEC Reloaders, Horicon, WI

We hope you'll find the information listed in this article interesting and valuable. It will give you the tested facts on how to reload your own steel shotshells. Best of all, it will open the door to endless hours of fun… and you'll save money while doing it!

There are three main factors that must be considered when reloading steel shot due to its higher hardness and lower density compared to lead. These factors are listed below as; proper shot charge, steel shot wads, and proper burn rate powders.

Shot Charge

Steel shot is harder than lead. Lead is quite soft on the Diamond Pyramid hardness (DPH) scale, soft lead or hard lead will test 30-35 on the DPH scale. Steel shot will test 90-95 on the DPH scale, or about three times harder than lead. Steel shot also differs substantially from lead in terms of weight. As a rule of thumb steel shot is about 1/3 lighter in weight or weighs only 60% as much as lead shot for the same volume. When reloading we would suggest weighing out the shot charge to ensure you are receiving the correct amount of shot for the load you are trying to accomplish.

Wads

Specialized steel shot wads are a must when reloading non-toxic shotshells. A steel shot wad, unlike a lead shot wad, must absolutely prevent the hard steel pellets from contacting the interior barrel. Steel shot wads achieve this by containing **ALL** the pellets of the steel shot charge in a large capacity shotcup featuring very thick, very dense petal walls. The dense petal walls will not allow the pellets to rub-through to contact the interior barrel as they often do in a shotcup or shot wrapper used for loading lead shot. Additionally, a steel shot charge must never extend above the top of the shotcup as it often does in heavy or magnum lead loads. Such shot would make direct bore contact and could cause extensive scoring and erosion in the barrel.

Powders

Steel shot requires different powders than lead. Traditional canister powders available for reloading lead shot should not be used to get **exactly** the same job done when reloading steel shot. The reason for this is that the hardness of the steel pellets, the stiffness of the extra-thick steel wad, plus the lack of the cushioning section results in a wad/shot combination that is much less compressible compared to lead shot. This results in different ballistics for steel than for lead. A steel shot charge of a given weight will create higher pressure rises than a lead shot charge of the same weight. To control these pressures a slower burning powder must be used with steel shot than with lead shot. The lack of compressibility of steel and its wad makes steel shot loads much more sensitive to component substitutions or deviations from loading data. **Never substitute any component for the exact components listed for the given load or recipe in the steel shot loading data manual. Component substitutions could result in dangerous velocity and pressure levels which could result in serious injury or damage to firearms.**

Waterproofing Steel Shot Reloads

Many factory steel shotshells utilize a shellac-like crimp seal to render the load more waterproof. **It is recommended that after crimping, reloaders using saltwater areas or who otherwise expect their shotshell loads might become immersed in water (such as in pockets of hunting coats when wading), seal crimp all steel loads to render them waterproof.** A couple of drops of candlewax, shellac, or fingernail polish applied to the crimp so the sealant closes the crimp center and migrates up the crimp folds will aid greatly in waterproofing the shell.

**Because all steel shot loads are subject to rust upon submersion, we specifically warn against the use of steel shot loads that have become submersed in water, especially saltwater. It is best to discard such shells rather than risk barrels damage from lodged wads due to bloopers caused by water contaminating the powder. Failure to heed this warning could result in damage to firearms and property and serious injury to shooter and bystanders.**

Other resources:

Shotshell Reloading Handbook: Lyman Products Corportation, 2007

MEC Shotshell Reloaders, www.mecreloaders.com or (800) 797-4632.

Hodgdon Powder Company (www.hodgdon.com)

Alliant Powder Company (www.alliantpowder.com)