

Plated Bullets vs. Jacketed Bullets – What’s the Difference?



Background

Jacketed bullets have been around since about 1882 and are still the norm for rifle bullets fired at high velocities. Although factory pistol ammunition is commonly made using jacketed bullets the competition pistol shooter will usually prefer an alternative to hand load due to the high cost of jacketed bullets. The thick jacketing is also unnecessary given the lower velocities used in pistol shooting competitions. Lead or lead alloy (hard-cast) bullets are far more common for hand loading as their cost is much more reasonable compared to jacketed bullets. However, this is not without compromise. Lead has a low melting point and can leave deposits in the barrel due to the heat generated on firing. These deposits are commonly referred to as lead fouling which is a cumulative process that eventually results in problems such as poor accuracy. In addition it also has the potential to increase pressures due to the obstruction of the lead deposits. Lead fouling is also very difficult to remove when allowed to build up in the barrel. Over the years applications of chemical coatings have been used on bullets to prevent or minimise lead fouling with varying degrees of success primarily related to the quality of the coating used. Some of these



A recovered hard-cast bullet with the chemical coating stripped off in the barrel

coatings can be very light and easily stripped off upon firing, particularly by the lands of the barrel if the bullet is not sized correctly for the barrel or if the chemical is applied too lightly or without sufficient coats. In more modern times technology has allowed manufacturers to produce high quality bullets using a plating process to encapsulate the lead in copper. This process is much less expensive than jacketing, slightly more costly than chemically coated hard-cast lead but very effective in eliminating the issues associated with lead. The result has been a dimensionally stable and consistent product at a greatly reduced price point compared to traditional jacketed

bullets. Well recognised ammunition manufacturers, such as Focchi use electroplated copper plated bullets to produce a range of factory ammunition. Encapsulating the lead core in copper also makes it safer to handle as there is no exposed lead and the coating eliminates the potentially dangerous lead fumes and particles that can be generated on firing lead bullets.

Manufacture

Simply put jacketed bullets are made using a process in 2 parts; the lead core and the copper "cup". The jacket is drawn out of the copper cup forming a "jacket" over the core. On the other hand copper coated bullets are made by swaging a lead core followed by the application of a thin coating of highly ductile copper over the lead in an electrically charged bath.

This process is known as electroplating. Time in the electroplating bath will determine the thickness of copper applied. After electroplating the bullets are then re-formed for uniformity. The finished Tigershark bullet will have a 12-15 micron copper coating – that's only 0.12 - 0.15 of a millimetre. A jacketed bullet can have a jacket thickness 3 or more times than that of a Tigershark copper plated bullet. Depending on the design a jacketed bullet



Tigershark hollow point
Note the copper covers the hollow



A typical jacketed bullet
Note the exposed lead point

will have a jacket thickness anywhere between .39 and .72 micron.

Tigershark plated bullets tend to splatter rather than fragment when they hit a solid object such as steel (IPSC Poppers, NRA Action Match plates etc.) so they are often considered a safer option when used on steel targets.

Note: Jacketed bullets will usually not be completely or fully jacketed as most often part of the bullet will have exposed lead typically on the base or, for hollow point or soft point bullets, the hollow point/tip will have exposed lead. The nature of the electroplating process will mean that unlike jacketed bullets plated bullets will have their entire surface including the hollow (for HP's) fully coated with copper.

Using Plated Bullets on Ranges that Ban Jacketed Ammunition

Some ranges/clubs do not allow the use of “jacketed” ammunition. To most people plated bullets look much like jacketed bullets and unfortunately some Range Officers cannot tell the difference by simple visual inspection and have the opinion that if it looks jacketed then it must be jacketed.

Due to the high cost of jacketed bullets a ban on jacketed bullets has fairly minimal impact on competition shooters in Australia but the prohibition does start to limit your choices of ammunition/bullet when an R.O. decides your copper plated bullet is, in his/her opinion, “jacketed” and therefore not permitted. This decision may push you to use an alternative that is not accurate, does not perform well, has potential health concerns and/or leaves lead deposits in your gun. So it's worth the time to re-educate R.O's on the differences between plated and jacketed.

Pistol Australia

Although not representative of the entire pistol shooting community Pistol Australia have a role in setting rules in ISSF matches which many clubs conduct. Naturally each club/range determines what can and what can't be used on their range but many follow the rules set down by Pistol Australia. Pistol Australia's National

Referee Council has recently announced that they have determined that, along with jacketed ammunition, “plated” bullets (meaning electroplated copper) will not be approved for use at ranges where jacketed ammunition is not permitted. That means at any Pistol Australia sanctioned Service or ISSF Centrefire event PA will not allow the use of jacketed or plated bullets where the particular range bans the use of jacketed ammunition. However, they offer a proviso that “The ‘*scrape*’ test remains the benchmark” meaning that the scrape test determines whether or not a particular type of bullet/ammunition can be used.

So what is the “Scrape Test”?

‘The “scrape” test is a simple test devised to assist members... in deciding if a batch of ammunition may be used on a particular range. Effectively, if the coating can be scraped through using a penknife or similar then it can be considered as not a jacketed projectile’

Sharon Reynolds NRC Director at Pistol Australia



A jacketed bullet that has failed the scrape test



A Tigershark Bullet that has passed the scrape test

So this simple test will show that if you can cut a portion of coating off a bullet to expose the lead core and thereby pass the 'scrape test" then Pistol Australia consider that the bullet is NOT Jacketed and can therefore be used in their events.

Conclusion

Tigershark Plated Bullets are plated not jacketed. The manufacturing process applies a very thin layer of copper coating to a soft lead core unlike the relatively thick copper *jacket* in a true jacketed bullet.

In our experience most clubs/ranges, where jacketed ammunition is prohibited, will allow the use of Tigershark's. Sometimes an R.O. may want to inspect your ammunition but will normally take your word that you are using a Tigershark plated bullet (that passes the scrape test) rather than a jacketed one – particularly if you are using hollow points. If not, then it's easy to quickly demonstrate that they are not jacketed by cutting the coating off with a pocket knife to show how Tigershark's pass the scrape test – the *benchmark* test according to Pistol Australia.

Want to know more about Tigershark Pistol Bullets? Call, email or visit our website



www.tigersharkballistics.com.au