



## What makes these things so accurate?

**T**hat's the question that Oregon Trail Bullet Company employees get asked many times a day by customers. We will attempt here to give you an explanation that is hopefully not too technical.

The Laser-Cast alloy is a multi-element virgin alloy that is prepared in a smelter especially for this purpose. It contains such minerals as copper, bismuth, antimony, arsenic, silver, lead and a few trace elements. The exact mix is a trade secret as is the temperature at which the alloy is poured.

This alloy was developed to do three things and we now know it does them well: deliver better accuracy, allow use at higher velocities and eliminate leading. Okay, so the Laser-Cast silver bullets do this... BUT HOW?

The silver, in conjunction with copper and arsenic, creates a condition referred to by metallurgists as *inoculation*. This is defined as "the introduction of a substance into a metallic mix for the purpose of providing additional centers for crystallization." Normal alloys solidify from the outside-in (the coolest areas first). The Laser-Cast silver alloy solidifies from the inside-out in spite of it being the hottest area in the mix. Inoculation causes a more uniform grain structure which means a denser bullet, more stable and less prone to air pockets. The bullet fills out better, looks better and is much more consistent bullet to bullet. (Many of our customers mention that they notice these differences.)

The unique mix of these particular metals also causes another condition to occur: ***Dendrite Melt-off***. This is defined as “the branching of the grain structure caused by a foreign mineral.” Branching of the grain structure causes the bullet to have increased strength. (Think of the Empire State Building with a bunch of extra steel girders in it.) This helps the bullet resist the forces of ignition and the shock of the super-sonic wave. This results in increased accuracy and also causes the bullet to have much less tendency to lead the barrel of the gun.

The hardness of this alloy is 24 BHN which is half way between copper bullets (50 BHN) and normal cast bullets (15 BHN). That’s why you can shoot the Laser-Cast silver bullet at copper jacket speeds but still not cause undue barrel wear. One other side benefit of the bullet is that it has less resistance to the barrel than other bullets. This allows the use of less powder to achieve the same speeds.

So there you have it. All you wanted to know about bullet metallurgy and more!

— *Oregon Trail Bullet Company Staff*



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