

# The Use of Copper Alloy Horseshoes

By Dr. Esco Buff, PhD, APF, CF



Dr. Esco Buff

Copper is man's oldest metal, dating back more than 10,000 years. A copper pendant discovered in what is now northern Iraq goes back to about 8700 B.C.

Copper is a mineral and an element essential to our everyday lives. It's a major industrial metal because of its high ductility, malleability, thermal and electrical conductivity and resistance to corrosion. Its antimicrobial properties are becoming increasingly important to the prevention of infection.

## First experiences with copper horseshoes

I first started forging copper for horseshoes back in the late 1970's to use for horses being used to pull wedding parties. The look of a black hoof with copper shoes and nails looked regal. The copper shoes would not last much longer than two weeks. Copper in its pure form is not obviously suited for everyday use as a horseshoe, however it is easily alloyed with other metals. This alloying with other metals gives the copper strength, wear resistance, hardness, antimicrobial, thermal conductivity and corrosion resistance, making it ideal to use as a therapeutic horseshoe.

## The important role of EPA

Copper and Copper Alloys have been used for thousands of years to kill bacteria and can commonly be found in hospitals to minimize the spread of bacterial and fungal diseases. The U.S. Environmental Protection Agency (EPA) has acknowledged and tested over 350 copper alloys. Copper is the only metal whose antimicrobial properties have been certified by the EPA. Laboratory testing has shown that Copper Alloy has continuous and ongoing antibacterial action killing greater than 99.9% of bacteria within 2 hours.

Initial studies at the University of Southampton, UK, and tests subsequently performed at ATS-Labs in Eagan, Minnesota, for the EPA show that copper alloys containing 65% or more copper are effective against: Methicillin-resistant Staphylococcus aureus (MRSA), Vancomycin-resistant Enterococcus faecalis (VRE), Enterobacter aerogenes, Escherichia coli O157:H7, and Pseudomonas aeruginosa.

## Antimicrobial capacity of Kawell™ Horseshoes

In order for a Copper Alloy horseshoe company to make any claims about killing bacteria, they must have been tested and undergone registration with the EPA. To date, I'm only aware of one horseshoe company is EPA registered, that is Kawell™. This means Kawell™ can claim that their horseshoes have a 99% effectiveness against killing bacteria that comes in contact with the horseshoe.

Any horse with bacterial or fungal hoof, sole and frog infections can benefit from the use of EPA approved Kawell's Copper Alloy horseshoes. Habitual seedy toes, Canker cases after debridement and with a brazed or welded in copper alloy frog plate, and Thrush cases all benefit from the contact of the Kawell's Copper Alloy horseshoes. The Kawell's Copper Alloy horseshoes can be brazed or welded just like steel. Steel can be brazed/welded into the Copper Alloy horseshoes as well as Copper Alloy into steel horseshoes.

## Other properties of this Copper Alloy

Also, Kawell's Copper Alloy horseshoes produce a force transmission of a lesser magnitude than that of steel horseshoes. There is an attenuation of the magnitude of the force as well. What this means is Copper Alloy horseshoes reduce the impact of vibrations, about 8.53% in one study.

Moreover, Kawell's Copper Alloy horseshoes can be cold and hot shaped. When shaped cold, they work like steel shoes but with a bit more spring when hit with your shaping hammer. When shaped hot, found the Kawell™ Horseshoes are easily manageable to 1100F working temperatures and held together without any issues or break down of metal. I found this temperature good for shaping, forging and drawing clips. Lower temperatures are fine for shaping and some forging. Copper Alloy horseshoes when worn out are a recyclable material too.

## All horses can benefit

For all these reasons and experiences, I have been highly impressed with Kawell's Copper Alloy Horseshoes due to their strength, wear resistance, antimicrobial properties and corrosion resistance.



3045 S. Archibald Ave. Suite 104 | Ontario, CA 91761  
(888) 576-5237 | info@Kawellusa.com  
www.kawellusa.com