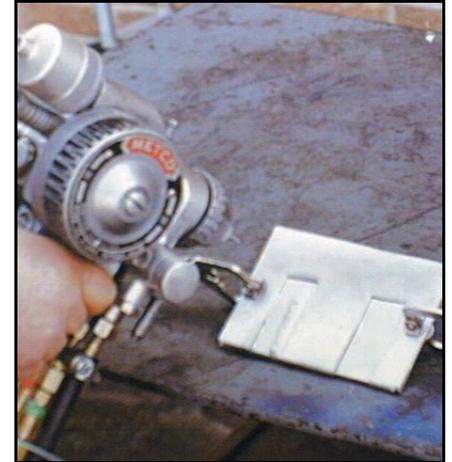


Comparison of Metalizing vs Hot Dip Galvanizing

Zinc metalizing (*right*) is accomplished by feeding metal in either wire or powder form to a spray gun where it is melted and sprayed onto the part using the combustion gases and/or auxiliary compressed air to provide the necessary velocity. Melting is accomplished either by combustion in an oxygen-fuel gas flame, or an electric arc where the zinc or zinc/aluminum is fed as two wires which electrically arc and melt the material at the tips.



Background

Hot dip galvanizing (*below*) produces a zinc coating on iron and steel products by immersion of the material in a bath of molten zinc metal. Hot dip galvanizing is a process involving 4 steps; surface preparation (removing mill scale and rust), pickling in acid, flux coating, and finally - dipping in molten zinc. Upon immersion in the zinc bath, the zinc and iron react metallurgically through a process called diffusion to create a progression of four layers consisting of zinc-iron alloys culminating in a surface layer of nearly pure zinc. This coating is actually harder than the base steel, and 5 times greater than painted steel.

Unlike a painted or metallized surface, hot dipped galvanizing becomes a part of the surface rather than a coating that sits on top. This bonding is called cathodic protection and is much more resistant to abrasion and wear. Spray on coatings can scratch and wear easily which immediately turns to rust. Picture dropping, sliding and rolling poles onto the trailer pictured above, and then imagine that same trailer painted. How long do you think any type of sprayed on coating will last ?



10 North Sauber Road
Virgil, IL 60151-1000

SAUBERMFG.COM

Phone 800.323.9147

Fax 800.833.3264

Comparison of Metalizing vs Hot Dip Galvanizing

Information/Studies

A study undertaken by Cominco's Product Technology Center, Vancouver, British Columbia evaluated various *touch-up* methods for hot-dipped products. The study was done to evaluate the relative strengths of zinc-rich paints, lead-tin-zinc solders (galv stick) and thermally sprayed metallic zinc (metalizing) as a repair medium to parts that had originally been hot-dip galvanized. Although "metalizing was found to provide the best overall performance" among the three, "it was *still less than half as abrasion resistant as a galvanized coating.*" Their conclusion was that "none of the touch-up materials tested were able to perform as well as hot dip galvanizing in all aspects of testing."

Metallizing is normally reserved for "items which cannot be galvanized because of their size or must be performed on site" according to the American Galvanizing Association. No manufacturer seeking the ultimate in product protection, would choose to metallize a trailer, unless they did not have the capability of hot dip galvanizing it.

Reading Body has also begun to metallize some bumpers. It is interesting to note that these "bumpers are then processed through the Lectro-Life priming system to further combat rust and corrosion" according to Reading. The American Galvanizing Association states that "coatings such as mechanical plating and metallizing, which rely on mechanical methods for zinc deposition, contain spaces between particles of zinc, resulting in a lower coating density." This may be why Reading has decided to apply wet coatings over metallized bumpers. This is not an unusual practice. According to the American Galvanizing Association "it is common for metallized coatings to receive a sealer after application."

The metallizing process is also highly dependent on the operator for success at any level. According to the guidelines for thermal spraying with zinc and zinc/aluminum that are outlined by National Thermal Spray & Sandblasting, Inc. of Deerpark, NY, the surface requires "blast cleaning to white or near white (SSPC-SP5 or SSPC-SP10) with angular grit to achieve an anchor-tooth 2-4 mil profile." In a trailer application, what will happen to those areas that can not be blasted and therefore not receive metallizing? They further indicate that "moisture cannot be present" and that the process "should not take place when the steel temperature is less than 5 degrees above the dew point." The metallizing must also be done within four hours of blasting.

With all the *hidden* areas inside trailer tubes, can metallizing possibly compete with galvanizing as an alternative trailer finish? The answer is emphatically no. According again to American Galvanizing Association, "metallizing can be applied to materials of nearly any size, although some limits on the complexity of the structure may apply due to limited access to recesses, hollows, and cavities by the metal spray, in this case similar to limitations in painting."

Sauber Mfg. Co. has been hot dip galvanizing trailers for the utility industry for over twenty years. That experience confirms what our customers are increasingly telling us - "Galv it ."



Phone 800.323.9147

10 North Sauber Road
Virgil, IL 60151-1000

SAUBERMFG.COM

Fax 800.833.3264