

## **The Complex Chemistry of Coating Brass**

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Brass coating steel rods is a process known to many manufactures in the automotive, medical, and semiconductor industry, and it holds fascinating chemistry in its process. Brass is an alloy of Copper and Zinc; and it has several properties that make the alloy widely used including strength, machinability, ductility, wear-resistance, hardness, electrical and thermal conductivity, and corrosion-resistance. Brass is used commonly in tire cord, but brass also has excellent thermal conductivity, making it a first choice for heat exchangers (radiators. Copper and brass are playing a leading role in the fight against hospital-acquired infections, which can be spread by touch, will die in a few hours on copper/brass surfaces unlike stainless steel or plastic surfaces. Even though the brass coating process is relatively simple at first glance, the formation can be very complex. The steel rod is cleaned through hydropickling, stretched during course draw, coated with Zinc and Copper ions during plating and the diameter condensed even farther in stranding. This process presents many problems that adding chemistry to the process fixes. This presentation will uncover a unique process that is more complex than what meets the eye.