

Ultrakoat. The Ultimate Coating?

by Rick Richardson, R&D Director

Ultrakoat is Techmetals' latest addition to the family of engineering finishes. It is actually a ceramic/nickel composite commonly referred to as CMC's. Ultrakoat is the next generation TM 117-C, a coating of electroless nickel co-deposited with Teflon®, and actually has a lower coefficient of friction than Teflon but is much harder. It is an ideal coating for industrial components that are subjected to wear or abrasive applications. This new coating also provides for superior performance in high temperature applications up to 2000°F. (Teflon has a melting point of approximately 500°F.). It has very good release characteristics and has proven itself in extending the life of inserts in certain molding applications. It has also outperformed chrome in certain abrasive applications, such as sliding wear, and has the extra-added benefit of covering the coated surfaces uniformly. Ultrakoat has been tested against hard anodize on aluminum and performed as well or better with thinner coatings. It provides the best control where tight tolerances and uniformity of deposit thickness are critical.

While corrosion protection is considered moderate when compared to high phosphorous electroless nickel, Ultrakoat performs better than chrome in most environments, and can be improved substantially with an underlayer of TM 103.

Is Ultrakoat the ultimate coating for all wear and abrasive applications? Wear under working conditions is a very complex phenomenon. The two main types of wear are categorized as adhesive or abrasive. Among the many parameters that affect wear and make it difficult to control are surface hardness and finish; the microstructures and bulk properties of the mating materials; the contact area and shape; the type of motion; its velocity and duration; the temperature; the environment; whether or not lubrication is used; the applied force between two materials and the coefficient of friction are some of the main considerations. It is because of these varied differences between specific applications, that one universal coating, which can prolong the life of components in wear or abrasive environments will be difficult to obtain.

Techmetals has developed a whole family of coatings for different wear and corrosion applications. Ultrakoat has outperformed some of our other coatings in certain applications and is rapidly developing its own market niche. This is just another example of Techmetals commitment to research and development, continuous improvement and striving to provide superior customer service. And it does not stop with this new coating. Currently, there are numerous other deposits being tested and evaluated as possible candidates to be "The Ultimate Coating". 