

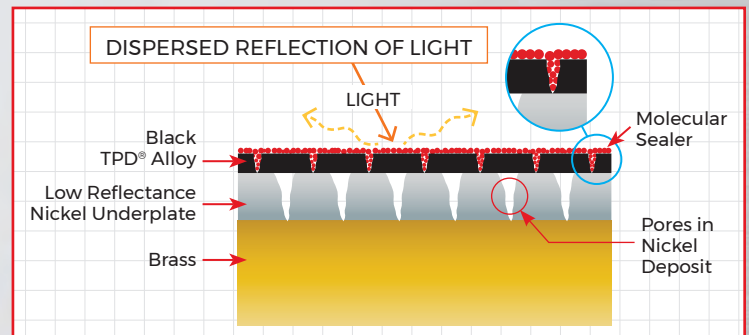
## ECLIPSE-TPD®: AN INNOVATIVE LOW REFLECTANCE COATING FOR TACTICAL AMMUNITION APPLICATIONS

Eclipse-TPD® (Tactical Performance Defense) is an innovative tri-plex (3-layer) electroplated coating engineered to enhance the performance of high-performance, tactical ammunition. Eclipse-TPD® combines duplex coating technology with a third layer of a proprietary molecular sealer to provide the highest corrosion performance and lubricity of any ammunition coating available today. The stealthy, smoke-black appearance is ideal for tactical applications within the law enforcement and defense markets.



## ECLIPSE-TPD®: MOLECULAR ENHANCED DUPLEX TECHNOLOGY

Advanced Plating Technologies pioneered the use of duplex coating technology within the ammunition industry with our Black-TPD® process. Black-TPD® utilizes a proprietary TPD-alloy topcoat plated over APT's benchmark Ducta-bright 7a® nickel to provide both enhanced lubricity and corrosion performance. Similarly, Eclipse-TPD® utilizes the same TPD-alloy but with a ductile, low-reflectance nickel engineered to reduce the reflectivity of the finish.



Eclipse-TPD® takes duplex technology to the next level with a proprietary molecular sealer that both disperses reflected light and significantly enhances the corrosion resistance of the duplex process. The molecules of the Eclipse-TPD® sealer embed within the pores of the TPD-alloy creating an effective barrier between the base material and the atmosphere. The coating virtually eliminates the pathway between the substrate and corrosives within the environment such as saltwater or human sweat. Simply put, there is no ammunition coating system available today that can exceed the corrosion performance of Eclipse-TPD®.

### WHAT IS DUPLEX TECHNOLOGY?

A plated layer acts as a barrier between the corrosive effects of the atmosphere and the basis material. Any plated deposit will have intrinsic porosity that can only be reduced in single-layer systems by increasing the thickness of the deposit. However, as plating thickness increases, the ability to hold tight dimensional tolerances becomes increasingly challenging. Duplex systems employ two plated layers in which the pores of the two deposits are not in alignment, which greatly reduces the porosity of the overall plated system. This allows for improved corrosion resistance consistent with much thicker single-layer systems while maintaining the tight dimensional tolerances that today's modern firearm designs demand.



## ECLIPSE-TPD®: ENHANCED DRY FILM LUBRICITY

Today's firearms function at higher chamber pressures and at faster cycle rates than ever before. The widespread use of +P and +P+ loads to expand the performance envelop of compact firearms makes proper surface engineering of ammunition components imperative. Most traditional ammunition materials such as copper, lead and brass are softer materials that have a higher coefficient of friction and can gall during metal-on-metal wear. Unlike firearm coatings, which often rely on oil and lubricants for proper function, ammunition must rely on unlubricated or dry film methods to reduce friction and improve function in modern semi-automatic and automatic actions.

Eclipse-TPD® utilizes a bi-metal TPD-alloy topcoat engineered with the perfect balance of hardness and lubricity to provide reduced friction over that of nickel alone. The TPD-alloy is then enhanced with a proprietary molecular sealer that embeds in the pores of the alloy, creating a dry film lubricant that dirt and sand will not stick to. Eclipse-TPD® provides a coating that will cycle smoothly and reliably in any action of firearm under the worst of environmental conditions. The performance of the coating will not degrade even during extended storage, for reliable service when in counts.

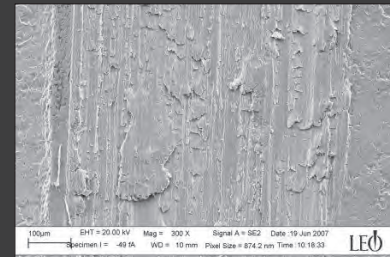
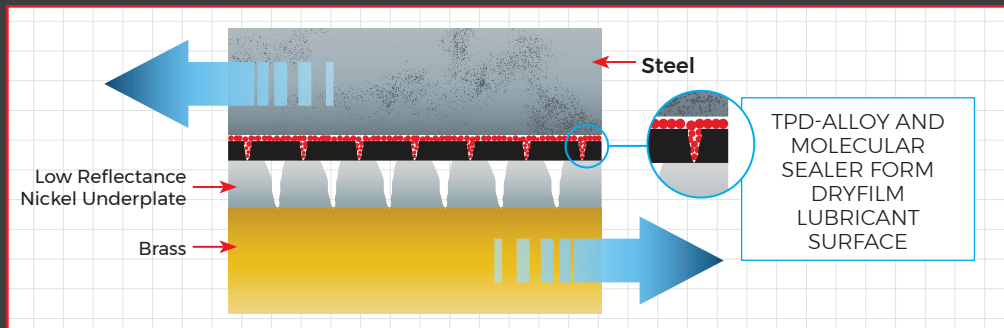
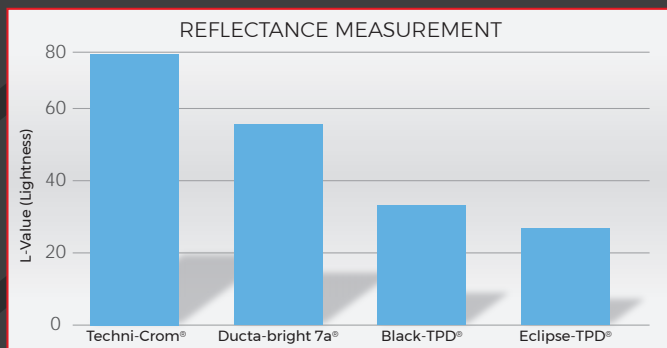


Figure 1: 300x Magnification of Surface Deformations Resulting from Galling of Soft Metal

## ECLIPSE-TPD®: LOW REFLECTANCE COATING FOR TACTICAL APPLICATIONS

Eclipse-TPD® provides the lowest reflectance of any coating within the ammunition industry today. The ability of the coating to scatter light provides a tactical advantage for any application where low visibility is a design consideration. Eclipse-TPD® is "material blind" and can be applied to any basis material including brass, copper, steel and aluminum to produce a similar finish regardless of the basis material. It can be applied to polycarbonate or Delrin® tipped projectiles without bonding to the tip, providing an enhanced visual contrast between the tip and bullet jacket.

The matte, smoke-black color of Eclipse-TPD® provides a significant tactical advantage by dispersing light within the visible range. There is no other finish today that couples the lubricity and corrosion performance benefits with the low reflectance tactical advantage of Eclipse-TPD®. The consistent cosmetic appearance of Eclipse-TPD® is an excellent accompaniment to the significant performance improvements that the coating affords.



VISIT [WWW.ADVANCEDPLATINGTECH.COM](http://WWW.ADVANCEDPLATINGTECH.COM) TO LEARN MORE ABOUT ECLIPSE-TPD®.  
CONTACT A MEMBER OF OUR TECHNICAL SALES TEAM AT: [SALES@ADVANCEDPLATINGTECH.COM](mailto:SALES@ADVANCEDPLATINGTECH.COM)



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### CERTIFICATIONS

