ADVANCED PLATING TECHNOLOGIES

BLACK-TPD®

BLACK-TPD®: AN ADVANCED DUPLEX COATING ENGINEERED FOR CRITICAL AMMUNITION APPLICATIONS

Black-TPD® (Tactical Performance Defense) is an advanced duplex (2-layer) electro-plated finish optimized for critical defense, tactical and law enforcement ammunition applications. Black-TPD® utilizes duplex coating technology consisting of a proprietary TPD-alloy deposited on top of APT's benchmark Ducta-bright 7a® nickel. The result is a deep, liquid black finish that creates an effective barrier against corrosion in even the harshest environments. The TPD-alloy topcoat provides a unique balance of hardness and lubricity engineered to optimize feeding and reliability in all actions of firearms.

Black-TPD® Plated Hollow Point Bullets

BLACK-TPD®: A LIQUID-BLACK FINISH

Black-TPD® provides a semi-bright, liquid-black appearance that provides visual distinction as a premium coating at point of purchase. Black-TPD® is an excellent complement to ammunition components engineered for tactical black-gun calibers including 300 Blackout, 5.56 and 7.62 as well as semi-automatic and revolver handgun calibers used in law enforcement, home defense and concealed carry applications.

The liquid-black finish of Black-TPD® makes critical defense ammunition look as good as it performs. There is no other finish today that couples the performance benefits of duplex corrosion resistance with the visual distinction of Black-TPD®. The premium appearance of Black-TPD® is an excellent accompaniment to the significant performance improvements that the coating affords.

Black-TPD® Plated 300 ACC Casings (Left) vs. Traditional Nickel Plated 357 Casings (Right)

ENGINEERED SOLUTIONS IN SURFACE FINISHING ESTABLISHED 1948

BLACK-TPD®

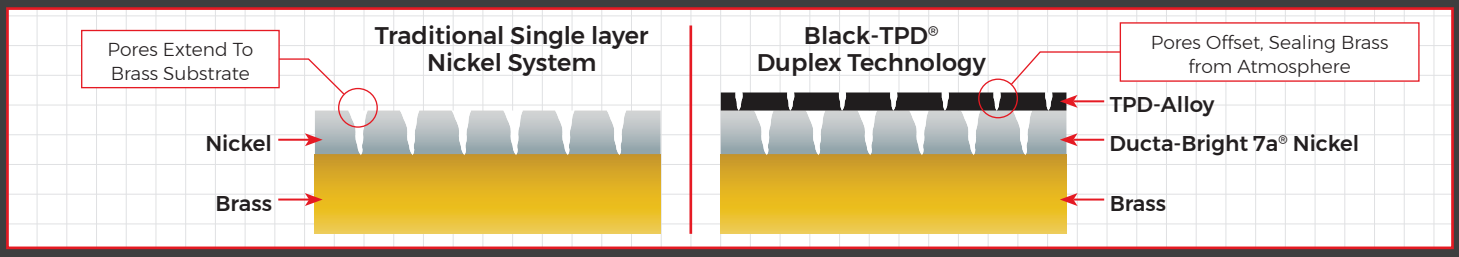
BLACK-TPD®: DUPLEX COATING TECHNOLOGY

Duplex coatings were originally pioneered for highly corrosive applications within the aerospace and automotive sectors. Traditional single layer plated finishes were not able to pass the increasingly demanding applications for corrosion resistance within these markets. The key to the function of a duplex deposit lies in its ability to reduce overall porosity of the coating to create a barrier between the base material and the corrosive environment.

The duplex coating of Black-TPD® consists of APT's benchmark Ducta-Bright 7a® nickel, which is over-plated with a proprietary TPD-alloy deposit. Ducta-Bright 7a® nickel was developed by Advanced Plating Technologies to maximize nickel ductility and bonding to the substrate to eliminate the cracking and flaking issues that often occurred with traditional nickel systems plated on ammunition components. Ducta-Bright 7a® nickel provides an extremely adherent and ductile nickel foundation to which the TPD-alloy is subsequently applied to complete the duplex system. Black-TPD® ensures plated components will resist corrosion over extended storage or harsh environments for reliable function when it counts.

WHAT IS DUPLEX TECHNOLOGY?

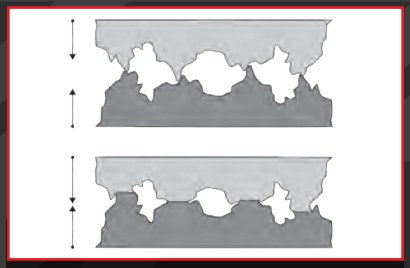
A plated layer acts as a shield between the corrosive effects of the atmosphere and the basis material. Any plated deposit will have intrinsic micro-porosity that can only be reduced in single-layer systems by increasing the thickness of the deposit. However, as plating thickness increases, the ability to hold tight dimensional tolerances become 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.



BLACK-TPD®: DRY FILM LUBRICATION

The tribology of metal on metal wear is a critical aspect in the design of ammunition. Unlike firearm coatings, which can rely on oil and lubricants for proper function, ammunition must rely on unlubricated or dry-film methods to reduce friction. Black-TPD® provides a unique solution to this requirement by incorporating a bi-metal alloy that provides both hardness and lubricity.

Today's modern firearm actions and magazines employ hardened steels and stainless steels with tighter tolerances than ever before. The asperity interactions can increase friction if the material bearing against the steel galls or engages with the mating surface. The TPD-alloy topcoat consists of a bi-metal alloy in which one metal provides improved hardness and the other acts as a softer dry-film metallic lubricant. The ratio of the metals is such that the coating both resists wear and reduces sliding friction to improve function and reliability in all actions of firearms.



Upper Image Illustrates Asperities (Micro Roughness) Under No Load. Bottom Image Illustrates same surface under load.

VISIT **WWW.ADVANCEDPLATINGTECH.COM** TO LEARN MORE ABOUT BLACK-TPD®.
CONTACT A MEMBER OF OUR TECHNICAL SALES TEAM AT: **SALES@ADVANCEDPLATINGTECH.COM**

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CERTIFICATIONS

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