

## EternAloy® TCHP Grade: TL-3 HVOF Applied onto M42 HSS Substrate

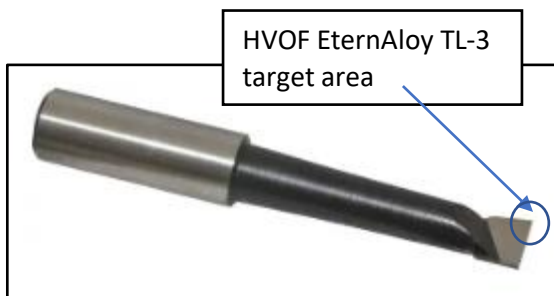
EternAloy Coating Material: Grade TCHP TL-3  
 Substrate Material: M42 HSS, 68 HRC  
 HVOF Equipment: Praxair TAFA Model JP-5000®

	Grit Blasting Media	Surface Roughness, Ra (after grit blasting, before thermal spray)	Surface Roughness, Ra (after thermal spray)	Adhesion Bond Strength, psi (Failure in the Epoxy, not in the Coating)
Sample 1	Aluminum oxide – 60 mesh	71	106	10,763
Sample 2	No grit blasting	8	140	11,231
Sample 3	Silicon Carbide – 36 mesh	84	100	10,622
Sample 4	Silicon Carbide – 60 mesh	103	111	10,736

- Excellent Adhesion Bond Strength on relatively harder HSS (high speed steel) substrates.
- Potential to apply EternAloy TCHP TL-3 material onto components where grit blasting could damage a component, such as a precision ground blade.
- Standard grit blasting using 60 mesh aluminum oxide has the potential to work well on HSS components, eliminating the need to change grit blasting media specifically for HSS components in a production environment.

### Application

The HVOF process can allow for specific areas of a component to be coated with EternAloy Corporation’s TCHP TL-3 material. For example, in the boring bar pictured below, the TCHP TL-3 could be applied only onto the area used for cutting. This same concept can be applied to numerous geometries of a variety of cutting tools.



Typical cross-section microstructure

