

## Process Datasheet

# TECH 10

For increased wear resistance in light-pressure wear applications with little dimensional change

**TECH 10** bonds ceramic with a metal surface by chemically reacting with other oxides produced on that surface. TECH 10 etches and penetrates into surface grain boundaries. The strength of the ceramic oxide-to-metal bond is exceptionally strong, preventing flaking or particle pull-out at least 0.5% beyond the yield point of the metal.

### THICKNESS OF ONLY 0.0002 INCHES

**TECH 10** does not typically require pre-machining. It has a thickness of only 0.0002 inches (5 microns) and a penetration into the substrate of less than 0.0005 inches (12 microns).

### HARDNESS

**TECH 10** has a Vickers hardness of 2850. Comparatively, hard chrome plate is 850 to 1000 Vickers and tungsten carbide is 1900 Vickers. This hard ceramic, well bonded to the substrate, provides a wear surface that can withstand wear by most materials. Due to the thinness of the coating, however, it is best in low load, sliding wear with little abrasion as high forces can cause the metal underneath the coating to give way - thereby opening a path for decreased wear life.

### LOW FRICTION

**TECH 10** produces a surface that has a coefficient of friction of 0.11 - 0.25, depending on the substrate texture and the contact material. The combination of low friction and high particle hardness can increase resistance to galling by threads, especially when the same material is used for both thread components.

### PROPERTIES

- Has thickness of only 0.0002"
- Is chemically bonded into substrate
- Will not change dimensions
- Is low friction
- Offers sliding wear resistance

### TECHNICAL DATA

|                         |   |
|-------------------------|---|
| Max Hardness            | Up to 2850 Vickers                                    |
| Bond Mechanism          | Chemical  |
| Bond Strength           | Over 10,000 PSI                                       |
| Thickness               | 0.0002- 0.0003 Inches                                 |
| Coefficient of friction | 0.22 - 0.28 Against fiber<br>0.1 - 0.13 Against metal |