

# TRICOM<sup>®</sup>-600

**USC**  
TECHNOLOGIES  
SURFACE ENGINEERING SOLUTIONS

## HIGH TEMPERATURE WEAR COATING

1-844-679-3591

### General Description

TriCom-600 is one of many proprietary, composite coatings developed by US Chrome Corporation and its affiliate USC Technologies, LLC. The TriCom coatings are a "green", high-performance, electroplating, alternative technology that replaces hard chrome, electroless nickel, nitro carburizing and metal spray surface treatments. Our TriCom-600 provides excellent oxidation resistance due to the oxygen scavenging properties of chromium carbide. TriCom-600 offers excellent adhesion to all engineering type metals with a strong mechanical and chemical bond.

### Process

The TriCom coating is applied using an electroplating process similar to chrome but has a deposition rate 4X faster resulting in 1/5 the energy consumption and reducing CO2 emissions by the same. The part to be coated is held in a rack and immersed in an aqueous bath with electric current applied at the contact points. The process is capable of coating net form shapes including external and internal diameters/surfaces. As with other electroplating processes TriCom tends to lightly build up on sharp edges and fade in deep corners. Embrittlement relief may be required for substrates exceeding 40 HRC.

### Characteristics

- High temperature (1100°F) anti-fretting
- Applicable to non-line-of-sight geometries
- Retards oxidation layer formation
- Bonds to ferrous and non-ferrous metals, including thin sheet metal components
- Excellent ductility
- No distortion of component during coating process and often no finishing required

PROPERTIES	TriCom-600
THICKNESS (inch)	0.0005" - 0.020"
HARDNESS (HVN)	300-350
CORROSION PROTECTION (ASTM B117)	1,000 hours
RECIPROCATING WEAR (mm <sup>3</sup> /Nm)	0.67 x 10 <sup>-5</sup>
ELONGATION	<3.5%
TEMPERATURE RANGE	<675°C
ROTATING BEAM FATIGUE LIFE	No Debit 6x

### Coating Structure and Process Advantage

TriCom-600 is an electro-composite coating that evenly distributes chromium carbide (Cr3C2) particles within a cobalt matrix. When heated, TriCom-600 forms a lubricious protective oxide glaze that separates the coated components allowing them to glide and to minimize wear on both parts. Unlike thermal spray coatings that often require grinding or polishing, components can be coated with TriCom-600 to near net shape without the need for secondary operations. Thermal spray can also easily damage thin structural components; TriCom-600 coating will not compromise the integrity of the part in any way.

### Applications

- Aerospace
- Power Generation
- Structural Steel in Gas Turbine Engines

