

TRICOM[®]-804

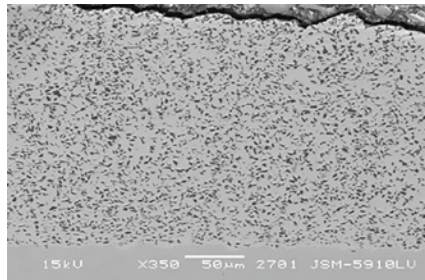
USC
TECHNOLOGIES
SURFACE ENGINEERING SOLUTIONS

SUPERIOR WEAR CORROSION COATING

1-844-679-3591

General Description

TriCom-804 is an alloy electro-composite coating with superior wear resistance in a corrosive environment, typically present in oil and gas exploration and downhole production tools, mining and agricultural equipment. For these and other applications, both abrasive and corrosive wear occur simultaneously, accelerating overall wear. TriCom-804 is a "green" high performance coating which consists of a ternary Ni-Co-P alloy metal incorporating SiC particulates which are evenly dispersed throughout its matrix. This combination of superior wear resistance and corrosion protection makes it a good replacement for hard chromium and some thermal spray coatings. Applications include oil and gas pistons, housing IDs and mandrels.



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 a heated aqueous bath with electric current applied at the contact points. Tank agitation keeps the 5-8 micron size SiC particles in suspension for uniform dispersion.

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

- Incredible wear resistance
- Build-up coating suitable for grinding/honing
- Applicable to non-line-of-sight internal surfaces
- Good corrosion protection
- Bonds to ferrous and non-ferrous metals
- Heat treat for greater hardness to 900 HVN

PROPERTIES	TriCom-804	Hard Chrome	Electroless Ni (high P)
THICKNESS (inch)	0.0003" - 0.030"	0.0001" - 0.020"	0.0001" - 0.002"
HARDNESS (HVN)	680-650	900-1000	500-550
CORROSION PROTECTION (ASTM B117)	1,000 hours* *No egradation	72 hours	1,000 hours
RECIPROCATING WEAR (mm ³ /Nm)	6.0 x 10 ⁻⁵	0.4 x 10 ⁻⁵	44 x 10 ⁻⁵
TABER ABRASION WEAR	1.6	1.8	22.5
ELONGATION	<2%	0.1%	3.0-6%
TEMPERATURE RANGE	<315°C	<425°C	<315°C
ROTATING BEAM FATIGUE LIFE	No Debit 3.5x	Debit 0.4-0.6x	Debit 0.3x

Applications

- Aerospace
- Agriculture
- Oil & Gas
- Mining
- Marine
- Military
- On/Off-highway
- Industrial

