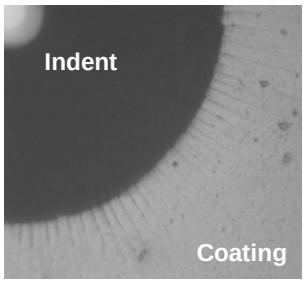
Engineered Coatings, Inc.
P.O. Box 4702
Parker, CO 80134
Frank Kustas, PhD
Ph. & Fax: (303) 593-0588
kustasfm@comcast.net

ECI
Engineered Coatings, Inc.
www.eciwear-corrosioncoatings.com

Product Data Sheet
TiC & a-C Nanocomposite Coating

TiC & a-C Nanocomposite Coating Description

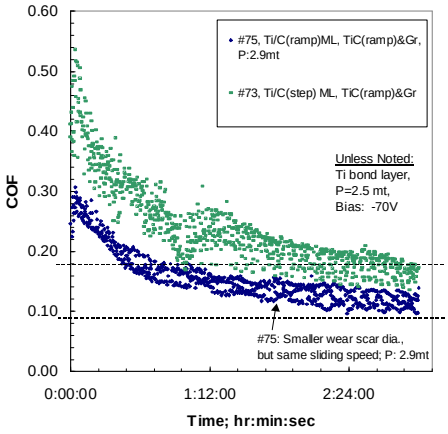
- Amorphous Carbon Layer Surrounding Fine-Grained Carbide Microstructure
- Nominal Composition: 70 At. % C, 30 At. % Ti
- Deposition Technique: Unbalanced Magnetron PVD From Carbide and Carbon Targets.



No Flaking From High Load (331-lb) Indent Into TiC & a-C Coating

Benefits

- High Hardness
- Excellent Adhesion, Indent Toughness
- High Wear Resistance, Low-Friction
- Excellent Fretting-Wear Resistance, Independent of Mating-Materials
- Low-Temp. Deposition, Will Not Temper 52100 Steel
- No Part Growth (Net Shape Process)
- Scaleable Coating Process

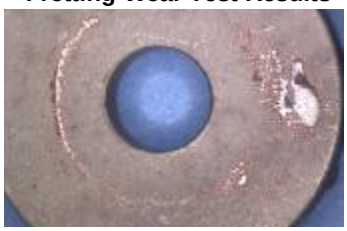


Low COF (<0.2), Which Reduces With Duration

Property Summary

Property	Value
Nanohardness	20-30 GPa (=f(comp.)) (vs. 11 GPa for 52100 Steel)
Indent Toughness	#1 (Highest) on German Indentation Standard
Coefficient of Friction (COF)	<0.2 (⇓ with Duration)
Fretting Wear-Resistance	Minor-to-No Matl. Transfer: • M50 vs. A357Al • X-53 vs. X-53 • X-53 vs. Ti-6Al-4V • 15-5PH vs. 15-5 PH • 6061Al vs. A357Al

Low-Sliding Amplitude, High-Speed Fretting-Wear Test Results



Fretting-Wear Debris for X-53 vs. X-53

No Wear Debris for X-53 With TiC & a-C Coating vs. Bare X-53