

Engineered Coatings, Inc.
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Product Data Sheet:
Titanium Carbide-Metal
PVD Wear Coating

Cermet PVD Coating

- Unbalanced -Magnetron Physical Vapor Deposition (PVD)
- Composition: Titanium Carbide and Refractory Metal

Benefits

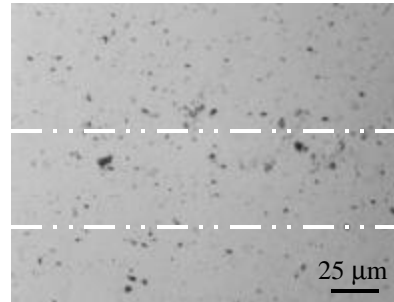
- Extremely High Hardness (HKN > 4500)
- Exceptional Wear Resistance
- High Toughness from Metal Addition
- High-Temperature Capability
- Low Temp. Deposition, Will Not Temper Steel Parts
- Smooth, As-Coated Surface Finish
- Virtually No Part Growth (Net Shape)
- Scaleable Process

Performance Data

% Metal ¹⁾	L _C , N	HKN (gm load)	Wear Factor mm ³ /Nm
15	54.7	--	5.2E-6
33 ²⁾	48.3	2944 (100) 4569 (25)	~ 0 ³⁾

Notes : 1) TiC Coating With No Metal - Flaked
 2) Coating Thickness, ~ 1.5 μm
 3) Could Not Resolve Wear Scar
 L_C -Scratch Adhesion Force
 HKN - Knoop Microhardness Number

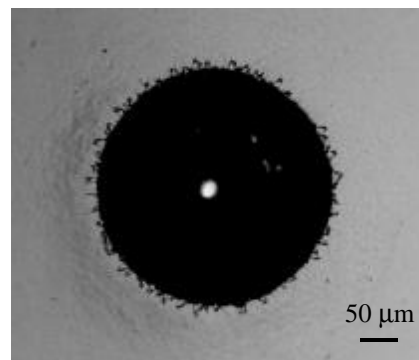
High Wear Resistance



Ball Sliding Area

Non-Measurable Wear (by Profilometry) vs. WC-Co Ball; 1.3 GPa Stress

Exceptional Toughness



Minor Cracking From 150 Kg Indentation

Applications

- Engine Components
- Forming Tools
- Biomedical Instruments, Implants
- Mechanical Components - Gears, Bearings, Seals

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