

EternAloy® TCHP, HVOF Surface Coating Data

HVOF Thermal Spray Gun	JP5000		JP8000		Jet Kote
EternAloy TCHP Grade	NL-3-2	TL-3	NL-3-2	TL-3	NL-3-2
Particle Size Distribution	-53 / + 20 micron	-53 / + 20 micron	-53 / + 20 micron	-53 / + 20 micron	-53 / + 20 micron
Substrate	Inconel 718	Inconel 718	410SS	410SS	410SS
As-Sprayed Ra Average	180	139	151	146	Not Measured
Porosity	0.68%	0.25%	<0.5%	<0.5%	<0.5%
Microhardness, HV300					
1	1250	1300	1319	1384	1124
2	1090	1220	1272	1258	1099
3	1150	1420	1258	1190	1111
4	1250	1450	1161	1340	1232
5	1190	1500	1143	1326	1176
6	1370	1400	1272	1377	1261
7	1260	1590	1094	1392	1052
8	1240	1460	1100	1340	1075
9	1070	1580	1220	1265	1176
10	1170	1190	1094	1208	1099
Average HV300 (n=10)	1204	1411	1193	1308	1141

EternAloy HVOF Materials have unsurpassed Coating Adhesion to the substrate. In ASTM C633 adhesive testing, failure occurs in the adhesive epoxy, not in the coating.

Adhesive Bond Tensile Results, psi					
1	10,904	10,155	12,809	14,433	11,227
2	10,799	10,335	11,832	12,421	10,894
3	10,133	10,546	13,890	12,162	12,313
Average Bond Tensile Results, psi	10,612	10,345	12,844	13,005	11,478
Failure Mode	Epoxy	Epoxy	Epoxy	Epoxy	Epoxy

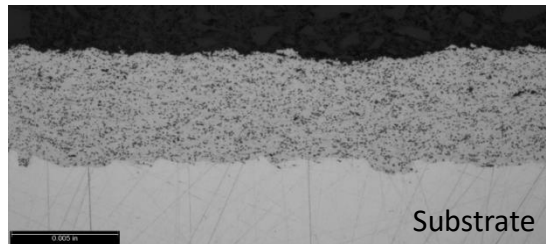
TCHP has been qualified for use on HVOF systems from leading equipment manufacturers.

- Oerlikon Metco DJ™ Hybrid
- Praxair JP-5000®
- Praxair HV-2000™
- Stellite Jet Kote™
- Praxair JP-8000™

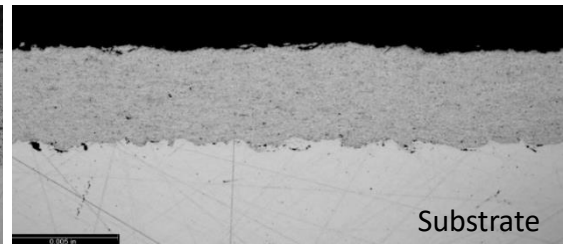
TCHP has been applied successfully on a variety of substrate materials.

- 316 & 410 SS
- Inconel 718
- L-605
- TiAl
- Al6061
- M42 Tool Steel
- Carbon Steel

EternAloy HVOF coatings exhibit porosities at <0.5% and excellent adhesion to a variety of substrate materials.



EternAloy® Grade NL-3-2



EternAloy® Grade TL-3

EternAloy® TCHP HVOF grades are manufactured by an exclusive patented process. Grade TL-3 contains Ti(C,N) core particles and grade NL-3-2 contains Al₂O₃ core particles. In both grades, the core particles are encapsulated with layers of WC and Co to create individual composite powder particles for producing wear resistant HVOF surface coatings.