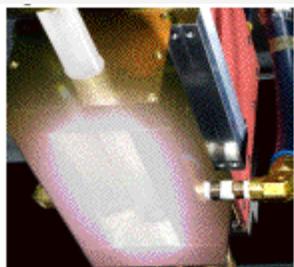


High Density Infrared (HDI) Processing For Wear and Corrosion Resistant Coatings

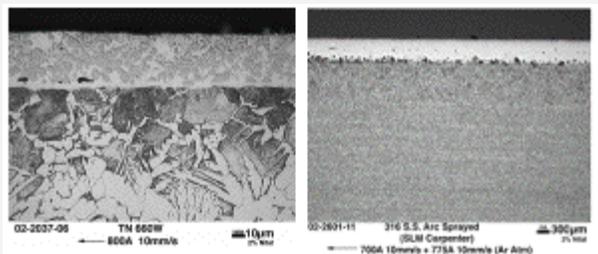
Oak Ridge National Labs

[Gail Ludtka](#), [John Rivard](#), [Craig Blue](#), [Adrian Sabau](#), [Dave Harper](#)

Goal: Develop and evaluate wear- and corrosion- resistant coating-substrate systems.



300 kW HDI Plasma Arc Lamp

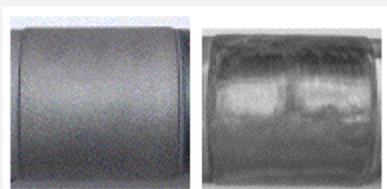


Adherent, fused coating

Significantly Reduced Coating Porosity

Benefits:

- Eliminates energy intensive and costly cladding processes
- Reduced Operating Costs
- Increased Energy Efficiency
 - Heat input is tailored using localized heating sufficient to fuse /bond coatings to substrates
- Rapid, high flux processing heats large surface areas and produce well-adhered, metallurgically fused coatings



HDI fused Bushings after IR fusing and after 7,000 Wear Cycles

Accomplishments:

- HDI processing eliminated porosity in thermally sprayed steel coatings
 - HDI produces adherent, fused suspension coatings
 - Developed experimental model that predicts thermal flux and processing parameters to enhance wear and corrosion resistant coatings
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