

**The ASM International Bangalore Chapter and
The Indian Institute of Metals Bangalore Chapter**

Cordially invite you

For the Technical Lecture on

**“High Velocity Air Fuel (HVOF) Spray - A New Tool for
Producing Coatings of Metals/Carbides/Ti/Copper/Silver
at near 'Cold Spray' temperatures”**

By

**Dr. Andrew Verstak
President, Kermetico Inc. Benicia, CA, USA**

Date : Wednesday, January 23, 2019

Time : 3.30 p.m. - 4.30 p.m.

Venue : Lecture Theatre, Department of Materials Engineering,
Indian Institute of Science, Bangalore

High Tea : 4.30 p.m.

Abstract:

High Velocity Air Fuel spray (HVAF) A New tool to for producing for producing coating of metals/carbides/Ti, Cu, Ag at near cold spray temperatures.

High velocity air fuel spray process is an advanced coating technology bridging the gap between conventional HVOF and COLD SPRAY Coating technologies. With the use of different fuels burned with air in place of oxygen, results in flame with lower temperatures but with more velocities. The coating properties are surpassing the conventional HVOF coating at lower costs. Various guns are available for spraying different powders from 6 to 35 kgs per hr, with the additional benefit of using even fine abrasive grits through the flame for roughening the surface prior to coating termed as HOT GRIT BLASTING. This blasting process is faster, cheaper and clean with no residue in the spray cabin. These benefit of HVAF process reduces coating costs in fuel and coating time. The coating layer thicknesses up to 70 to 80 microns can be achieved with acceptable properties.

A novel approach to replace the electrolytic hard chrome plating called as FLASH CHROME is possible with the use of special powders with necessary feeding arrangement at the almost same cost and 2-3 times better salt spray hrs.

Special guns are also available to spray low melting point materials such as Ti, Cu and Al along with precious metals such as gold and silver almost at low temperatures equivalent to cold spray resulting in almost equivalent properties.

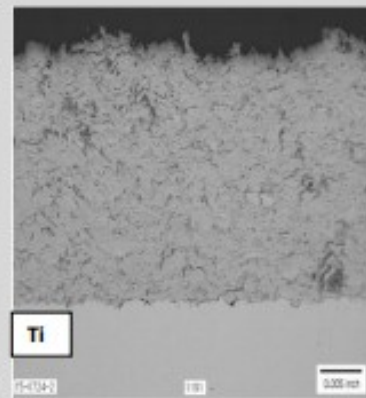
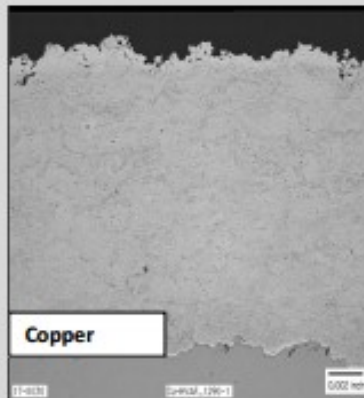
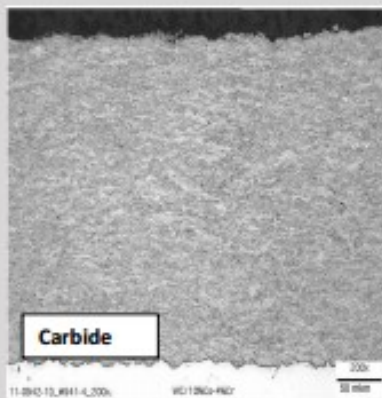
Speaker Biosketch:

Dr. Andrew A. Verstak is an owner and managing director of Kermetico Inc. (Benicia, CA), a company specializing in design and manufacturing of HVAF and HVAF+HVOF equipment, as well as providing thermal spray coating services for oil and gas, energy, pharmaceutical and food industries. MS degree in metallurgy from Belarusian National Technical University and Ph. D. in Material Science from Powder Metallurgy Institute (Minsk, Belarus). Work experience is in atmospheric and low-pressure plasma spraying, underwater plasma spraying and synthesis, electric arc, HVOF and HVAF spraying, failure analysis and metallography, corrosion, HVAF and HVOF equipment design. Dr. Verstak has over 80 scientific publications and is an author of 11 patents. He founded Kermetico Inc. in 2006.

HIGH VELOCITY AIR FUEL (HVOF) SPRAY

A New Tool for Producing Coatings of Metals / Carbides / Ti / Copper / Silver at near "COLD SPRAY" temperatures

➤ **By Dr Andrew Verstak***



Gun	Hardness, HV300	Porosity, %	Fracture Toughness K1C	Ratio W2C to WC
HVOF AK	1,326 ± 98	0.3	5.97 ± 0.7	0

* Dr Andrew Verstak is President of Kermetico Inc. Benicia CA (USA) He is inventor and co patent holder for HVOF process and narrow pattern gun design. He is in the forefront of recent developments in sprayed materials like low melting alloys such as copper, Al, Zinc. His recent development is HVOF- S Gun for spraying Precious metals like Ti, Silver, Gold at low temperature.