

CENTRE FOR ENGINEERED COATINGS (CEC)

Providing a wide range of surface modification technologies and solutions to private and public sector industries and transferring state-of-the-art technologies to Indian market.

DETONATION SPRAY



Sea Harrier

- High velocity, moderate temperature
- Metals, ceramics and cermets
- Robust and economical

SOLUTION PRECURSOR PLASMA SPRAY



YSZ for TBC applications

- Nano coatings without nanopowders
- Metastable and novel composites
- YSZ, Al₂O₃, LSM, LiFePO₄, ferrites, TiO₂

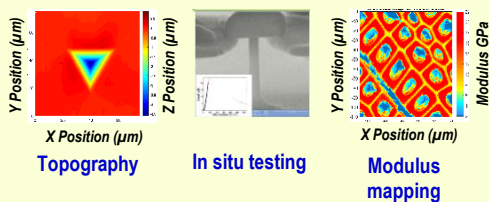
COLD SPRAY



Sn coating on Al Bus Bars

- High Deposition Rate and Efficiency
- Retention of feedstock properties
- Cu, Ag, Sn, Al, Zn, Ta, Nb, Ti, Ni-Cr, HEA

ADVANCED CHARACTERISATION FACILITIES



Topography

In situ testing

Modulus mapping

- State of the art nanomechanical testing
- Tribological characterisation of coatings (Abrasion, erosion and sliding wear)
- Micro-tensile testing

MAJOR FACILITIES

- Detonation Spray
- Solution Precursor Plasma Spray
- Cold Spray
- Micro Arc Oxidation
- Pulsed Electrodeposition
- Electron Beam Physical Vapour Deposition (EBPVD)
- Cathodic Arc Physical Vapour Deposition (CAPVD)
- Advanced Characterisation

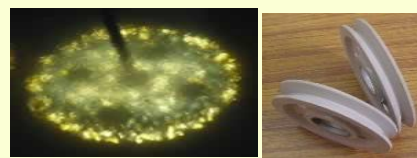
TECHNOLOGIES TRANSFERRED AND APPLICATIONS DEVELOPED

- Transferred 3 technologies to 17 entrepreneurs
- Successfully developed applications for a wide range of industries including, automotive, aerospace, defence, nuclear, energy, steel, textiles. etc.,
- Significant contributions to the strategic sector
- Healthy mix of basic research and technology / application development

TECHNOLOGIES AVAILABLE/TO BE AVAILABLE FOR TRANSFER

- Advanced Detonation spray (Mark II) with enhance Pulse Frequency
- Portable Cold spray Technology
- Advanced Micro Arc Oxidation technology for Industry and Academia
- Pulsed Electrodeposition will be shortly available for transfer

MICRO ARC OXIDATION



Coating in Progress

Wire-drawing pulleys

- Eco friendly & economically viable
- Excellent wear and corrosion resistance
- Can coat Al, Ti, Mg, Zr and their alloys

PULSED ELECTRODEPOSITION



Nano Ni coating for Helicopter Hinge Pin

- Environment friendly plating bath
- Control over composition and properties
- Ni, Zn, Ni-W, Fe-W, Ni-P, Ni-W-SiC

EBPVD



Aero Engine components

- High yield and wide range of thickness
- Can coat thin foils & heavy blanks
- TBC and oxidation resistant coatings

CAPVD



Solar thermal

Cutting tools

- Mono/multi/gradient coatings / thin films
- High adhesion, low temperature & clean
- TiN, CrN, TiAlN, TiCrN, M-DLC, nc-TiAlN/a-Si₃N₄