

Ultra-high polymer coatings applied with cold spray

Industry / Materials / Coatings



REFERENCE

COLDSPRAY [L1342]

KEYWORDS

ULTRA-HIGH MOLECULAR WEIGHT POLYMER / COATING / COLD SPRAY DEPOSITION



APPLICATIONS

- High resistance coating for components / parts under harsh environment conditions (corrosion, erosion, shocks...):
 - Boat propeller blades,
 - Helicopter blades,
 - Plane turbine blade & casing,
 - Joint prosthesis...



TARGET MARKETS

- Aeronautic industry
- Aerospace industry
- Automotive industry
- Medical device industry...

Technology readiness level

TRL 4



INTELLECTUAL PROPERTY

Patent application pending
FR14114361, extended in EP, US, JP.

CONTACT US

Florent BOUVIER
+33(0)4 26 23 56 96
Florent.bouvier@pulsalys.fr

DESCRIPTION

This invention is based on the projection of a ultra-high molecular weight polymer powder, e.g UHMWPE or PTFE, on a surface using cold spray technology. It gives rise to a homogeneous polymer layer while preserving the polymer chemical integrity. This coating improves shock resistance (cavitation), corrosion and erosion resistance of complex shaped metallic or ceramic parts. The current deposition techniques used for such polymers requires long-time implementation and are simply not adapted to complex shapes.

COMPETITIVE ADVANTAGES

- Low friction coefficient & hydrophobic coating
- Deposition of highly viscous polymers
- Homogeneous deposition
- Adapted to complex shapes
- Reduced deposition time vs sintering process
- No chemical modification of projected powder

DEVELOPMENT STATUS

- Proof of concept : UHMWPE deposition on Aluminium substrate with cold spray technology
- Automated cold spray machine prototype adapted to polymer projection
- Process optimisation ongoing
- Erosion, friction and cavitation mechanical tests ongoing

PARTNERSHIP

PULSALYS offers to grant patent licence and looks for industrial partner(s) to commercialize this device.



OUR OPPORTUNITIES

www.pulsalys.fr/entreprise/offres-technologies/

PULSALYS SATT LYON ST ETIENNE :
47 bd du 11 novembre 1918 - CS 90170
69625 Villeurbanne Cedex
FRANCE



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