NACE CODE C25, C32, C10, M72

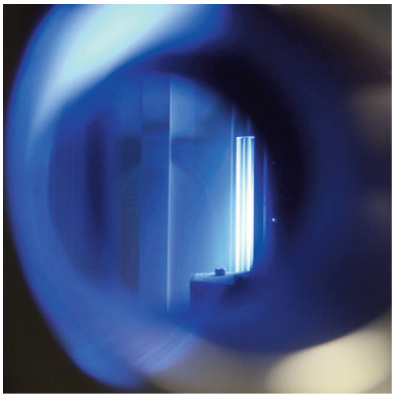
REALIZATION OF PROTECTIVE COATINGS AND SURFACE TREATMENTS, WITHOUT CRITICAL MATERIALS, FOR COMPONENTS IN THE MANUFACTURING, AGRICULTURAL AND TRANSPORT SECTOR

Innovations and Benefits - Performance improvement (hardness, working speed, operating temperature, etc.) and increase in the average life of components subject to wear or corrosion, for the manufacturing (e.g. mechanical processing), transport and industrial sectors (e.g. extrusion screws for food processing). The purpose is achieved through the realization of protective coatings with advanced PVD techniques (such as HIPIMS, DMS, etc.) and techniques of common use in the industrial sector (such as cathodic arc deposition). These techniques are environmentally friendly and the coatings created do not contain "critical materials" for the European Union. The performances of the coated components can also be increased by ion implantation. Therefore the components obtained are better performing, with economic savings and low environmental impact.

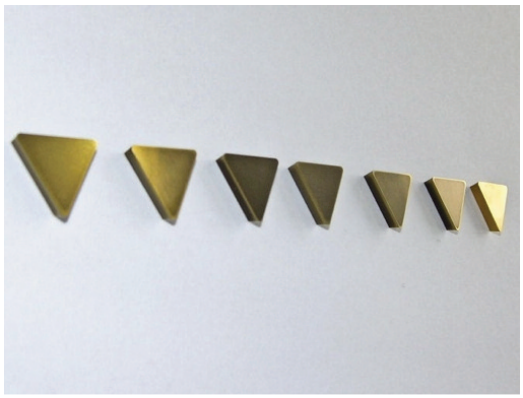
Use

- Tools for mechanical processes
- Components for the transport sector (automotive, aeronautics, etc.)
- Components subject to wear in general

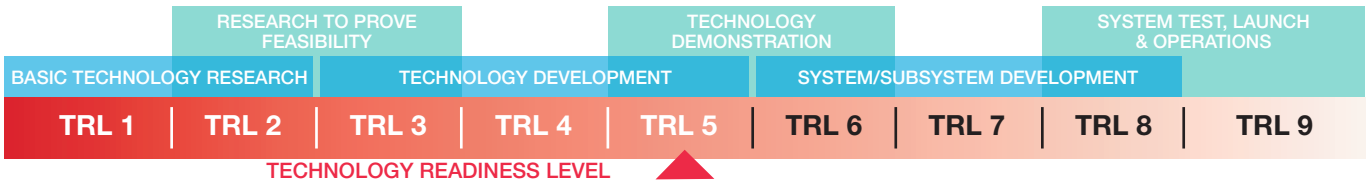
Applications and ongoing Activities - Development of protective coatings in projects (eg POR Puglia "TITRiS", PON03 "TEMA") with companies in the mechanical processing and aeronautics sectors, and establishment of a network of European institutions focussed on the replacement of critical materials used in extreme conditions ("EXTREME" project in the Knowledge and Innovation Community "EIT RawMaterials"). Increased average life of coated components up to 30% and those implanted up to 10 times. Possibility to coat hundreds of small tools (cutting, milling, drilling tools, etc.) in a single process or medium/large components (typical size around 40 cm). Relative support and mechanical characterizations for hardness, adhesion and wear assessment.



1) Plasma generated during a deposition process of protective coatings



2) Coated inserts for mechanical processes



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