NACE CODE C32, E38, M72

PROTOTYPAL PLANT FOR CERAMIC POWDER PRODUCTION

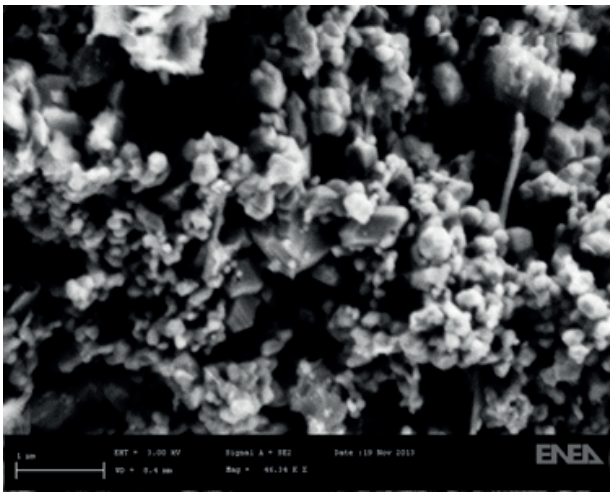
Innovations and Benefits - The prototype plant is based on DC plasma torch technology for the processing and synthesis of ceramic powder. The plant has been designed for the production of micrometric and nanometric powders (such as SiC, Si3N4, AlN, etc.) starting from solid, liquid and gaseous reagents. In addition, the technology can be applied to the production of nanoparticles from coarse powders (eg SiO2, SiC, etc.). The system is compact and combines high power density together with very short reaction time, thus reducing the working time.

Uses -

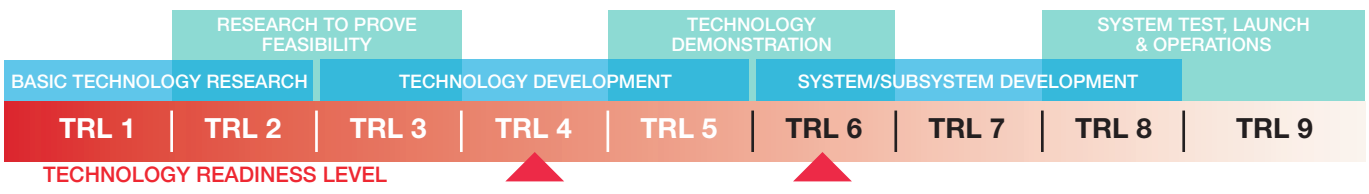
- High added value ceramic powders production;
- no-stoichiometric compounds synthesis;
- production of ceramic nano-powders starting from low-value precursors;
- process optimization in term of reduced reaction time.

Past and Present Activities - Production of silica and titania nanopowders starting from coarser commercial products. Production of nanometric silicon carbide from low-grade commercial SiC. Synthesis of non-oxide ceramics (SiC, Si3N4, AlN) starting from secondary raw materials. Other tests on the system are still underway.

DC plasma system for the production of ceramic nanopowders



Silicon carbide obtained from secondary raw materials



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