

CORNET Call for Proposals: international Collective Research
--- Project Idea ---

Subject:	Innovative recycled based high temperature and railway pillar protection coatings, "RECCOAT"
Coordinator: Other applicant(s):	Dr Tomasz Dudziak
Sector/target group:	Energy, railway,
Proposal summary:	The concept of the proposal is to convert Ni based alloys (IN740, Haynes 282, 230) and austenitic steels (304, family, 800H, HR3C) scrap rich in Cr, Al, Ti, Co, Ni and other elements into a valuable final product in order to enhanced corrosion protection at high temperatures (energy sector) and in room temperature i.e. atmospheric corrosion. The idea behind the proposal requires to use scrap, post production chips and due to invented technology in Foundry Research Institute produce coatings using High Velocity Oxy Fuel (HVOF) gun or by Air Plasma Spray APS system or by any other technique which uses fine grain powder with dimensions of 20 – 100 µm. The fine grain powder produced by technological route where: cleaning, decreasing, compaction, casting atomisation, purification of the scarp is essential leading to the production of powder for high temperature application. The whole process requires collaboration between different universities, industry related partners and end user in order to test the materials in lab scale, analyse the corroded samples (throughout different experiment decision, atmospheres etc.). Finally, the performed tests and selection of the best performing coating can be used by end user in order to investigate in the real conditions coating performance (energy sector, railway sector)
Advantages for trade and industry:	Cheaper coatings than that offered on the market, eco coatings where scrap is converted into valuable products for energy and other sectors where corrosion occurs. Technology currently requires optimisations and high number of fundamental research in the lab atmospheres in order to perform screening tests. Further steps will be application of waterwall piping or super heaters (SH), re heaters (RH) tubing in coal fired power plants.
Dissemination concepts:	Conferences, scientific papers, patents in EU, meetings, summer schools
Profile of additional partners:	Energy sector (the end user) universities, industry with atomiser, powder purification, HVOF, APS facilities or other technique uses powder based material
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