



Fellow	Host Institution No.1: Instituto Superior Técnico Host Institution No.2: CATEC	Country: Portugal Country: Spain
DC14	Supervisor (academic): Prof. João Salvador Fernandes Supervisor (industrial): Dr. Fernando Lasagni	WP No: 4
Title: Advancing the durability of corrosion resistant alloys for sCO₂ power systems		
Research Objectives: (1) To study the performance of a high cost nickel alloy (800H) and to compare it with that of stainless steel (316) in supercritical CO ₂ at temperatures around 650°C. (2) To study the processes of formation of protective corrosion scales and the respective mechanisms; (3) to carry out a comparative corrosion resistance assessment based on electrochemical impedance spectroscopy complemented with microscopic studies. (4) to create a set of guidelines to better select corrosion resistant alloys for sCO ₂ . (5) To investigate the possibilities of additive manufacturing technologies for stainless steel (or other alloys) for HX purposes in sCO ₂ . (6) To investigate design limitations related to different additive manufacturing technologies for the purpose of the HX applications.		
Mobility rules (eligibility of applicants): more information here <ul style="list-style-type: none">• Researchers funded by Doctoral Networks should comply with the mobility rules: in general, they must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting organisation for more than 12 months in the 36 months immediately before their recruitment date¹.• In addition, they:<ul style="list-style-type: none">○ must not have a doctoral degree at the date of their recruitment.○ can be of any nationality.		
Applicant - specifications: in addition to the general specifications (eligibility criteria) listed above, the applicant must feature the following requirements: <ul style="list-style-type: none">• Earned degree:<ul style="list-style-type: none">○ MSc in Materials or Chemical Engineering (or related area). Preference will be given to candidates with good knowledge on materials• Background (preferential):<ul style="list-style-type: none">○ Materials science○ Corrosion○ Electrochemical Techniques○ Additive manufacturing• Additional background that will be valued in the selection process:<ul style="list-style-type: none">○ Laboratory experience		

¹ This rule applies to the first contract only (Instituto Superior Técnico)





<ul style="list-style-type: none">● English language:<ul style="list-style-type: none">○ A certified C1 level of English is required
<p>Scheme:</p> <ul style="list-style-type: none">● M1-M24: the applicant is employed by Instituto Superior Técnico.● M19-M24: the applicant is seconded to Rosswag GmbH● M25-M36: the applicant is employed by CATEC, without undergoing another selection process.
<p>Locations (place of work):</p> <ul style="list-style-type: none">● M1-M18: the applicant will be employed by Instituto Superior Técnico at the Research Centre CQE: Instituto Superior Técnico Av Rovisco Pais, Lisbon, Portugal Google Maps: https://goo.gl/maps/t5zUn93PS8U5dTf5A● M19-M24: the applicant will be seconded to Rosswag GmbH Rosswag Engineering GmbH August Roßwag Str. 1, 76327 Pfinztal, Alemania Google Maps: https://goo.gl/maps/6CtiGgsNNp3kYtAe8● M25-M36: the applicant will be employed by CATEC Parque Tecnológico y Aeronáutico de Andalucía C/ Wilbur y Orville Wright 19 - 41309 La Rinconada, Sevilla (SPAIN) Google Maps: https://goo.gl/maps/wPR1TqniJN7Y7qyi6
<p>Planned secondments: DC14 is expected to carry out the following secondment:</p> <ul style="list-style-type: none">● Rosswag GmbH: carry out studies related to material ageing under different operating conditions.
<p>How to apply: submit application package (see below) to Prof. João Salvador (joao.salvador@tecnico.ulisboa.pt) before May 31st 2023, 17:00 h CET.</p> <p>The Application Package is comprised of:</p> <ul style="list-style-type: none">● CV Europass (https://europa.eu/europass/en/create-europass-cv)● Letter of motivation● <i>Analysis of the challenges faced by the energy sector to accomplish Carbon Neutrality by 2050, and the associated needs for technology development</i> (max 3 pages)● Short video (less than 2min): <i>why I should be selected for the position</i>. The candidates should address some of the following questions:<ul style="list-style-type: none">○ D1: Why did you decide to apply for a position in ISOP?○ D2: What do you expect/want to gain from an MSCA programme?○ D3: How do you think you can add value to an MSCA programme?





- D4: Summarise your strengths and weaknesses.
- D5: Describe a time when you had to deliver a challenging project. What was your role and what was the outcome?
- D6: Where do you see yourself in 10 years?
- D7: Why should you be selected for the position?
- Letters of recommendation (not mandatory)

The application package must not exceed 15 Mb

Contract:

- Start date (estimate): September 2023
- Type: full-time exclusive
- Annual gross salary:
 - Instituto Superior Técnico: € 34,395.00
 - CATEC: € 33,650.00
- An additional (family) allowance is available for candidates who have family obligations (applied from and until this condition applies)

Equal Opportunity Employers:

IST and CATEC are Equal Opportunity Employers. We believe that no one should be discriminated against because of their differences, such as age, disability, ethnicity, gender, gender identity and expression, religion or sexual orientation. All employment decisions shall be made without regard to age, race, creed, colour, religion, sex, national origin, ancestry, disability status, sexual orientation, gender identity or expression, genetic information, marital status, citizenship status or any other basis as protected by European laws.

