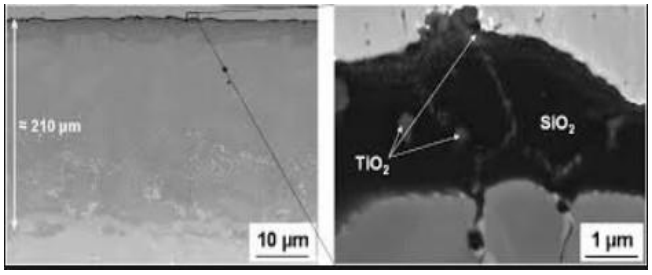
Our skills

High-temperature corrosion



YOUR NEEDS

- Find solutions to corrosion at high temperature

OUR SOLUTIONS

- Study of chromino- or aluminium-forming alloys oxidation (reaction mechanisms, additive elements effect, etc.)
- Study of Nb and Mo complex silicide's oxidation and corrosion mechanisms
- Molten phases corrosion (glass, sulphates, carbonates, etc.) by electrochemistry
- Surface treatment: pack-cementation coatings (Fe/Ni aluminides, etc.)
- Surfaces and interfaces characterization
- Installation of cementation pack (Chromi-, silici-, aluminization) and electrolytic deposition of Pt, Pd and Ru
- Various synthesis assemblies and measurements of thermodynamic quantities (DSC)
- Experimental setups:
  - -Under air or oxygen: thermobalances (maximum temperature 1400°C)
  - -Under SO_2: thermobalance TG85 (maximum temperature 1000°C)
  - -TG mass spectrometer coupling (maximum temperature 1400°C)
  - -Water vapor coupling TG: Wetsys (maximum temperature 1400°C)
  - -ATD-TG coupling (maximum temperature 1400°C)
  - -Dilatometer (maximum temperature 1400°C)
  - -Furnaces (basic, tubular, cycling or muffle) under controlled atmosphere (maximum temperature 1200-1600°C)
- Modelling tools:
  - -Thermocalc, Pandat, HSC
  - -XRD structural refinement (various software)

KEYWORDS

Corrosion, oxidation, electrochemistry, surface treatments, coatings

RELATED SKILLS

- Materials chemical reactivity
- Atmospheric corrosion
- Surfaces and interfaces characterization:
  - Electron microscopy
  - X ray diffraction
  - Thermogravimetric analyses

OUR REFERENCES

SAFRAN AIRCRAFT ENGINES, FERRO, fives cryogenie, Cerfav Centre européen de recherches et de formation aux arts verriers, Air Liquide, ArcelorMittal, Trédi Séché global solutions, orano, ICAR Techniques et Recherches Matériaux Réfractaires, vallourec, SAFRAN Ceramics, AIRBUS, SAINT-GOBAIN

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