

Consortium

What is Geo-Coat?

An EU research project aimed at the development of cost effective corrosion/erosion resistant coatings suitable for components operating in the aggressive natural environments of geothermal power plants.



UNIVERSITY OF ICELAND



Innovation Center
Iceland



Impact objectives

Maintaining and improving the competitiveness and sustainability of the European geothermal industry by:

- Adopting a lifecycle approach to material and system specification
- Improving early stage design capability
- Optimising materials performance in order to reduce costs
- Increasing production efficiency
- Improving longevity and reducing downtime through failures

GEO-COAT

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HIGH PERFORMANCE COATINGS FOR GEOTHERMAL APPLICATIONS

1606.05/19



This project has received funding from the European Union's Horizon 2020 research and innovation programme. Grant agreement 764086.

KNOWLEDGE-BASED SYSTEM (KBS) DATABASE & FLOW ASSURANCE SIMULATOR (FAS)

KBS Database

- Different coating methodologies
- Coating material data
- Substrate material data
- Geothermal Application data
- Well integrity data
- Technical data

The FAS

- Pressure
- Flow velocities
- Temperatures
- Geofluid compositions

COATING MATERIALS

- **High Entropy Alloys (HEAs)** - claimed to exhibit superior erosion and corrosion performance
- **Ni-P-PTFE** - offering excellent corrosion protection and reduced surface energy
- **Cermets** - commonly used for wear resistance applications
- **Metal Matrix Composites** - containing Ti, retain the corrosion and chemical resistance of the base material as well as having superior wear and hardness properties

DEPOSITION TECHNIQUES

- High Velocity Oxygen-Fuel
- Laser Cladding
- Hot Isostatic Pressing
- Electrospark Deposition
- Electroless Plating

COMPONENTS

- Valves and casing
- Pipelines
- Turbine
- Pumps
- Heat Exchangers

