Training - Hydrogen and Helium: from Exploration & sampling to valorization

H2HE-EN-P

Face-to-face only

20 days

Although Hydrogen and Helium have been considered as ancillary components of underground fluids in the past, their valorization is now key in the Energy Transition process. This course provides participants with a clear understanding of Hydrogen and Helium specificities, and also a practical knowledge on sampling and valorization challenges of these two chemical species

Level

Skilled

Public

Geoscientists, geologists, geophysicists and reservoir engineers with E&P experience, but also for any professional with Geosciences, Reservoir or Chemistry background, getting involved in hydrogen/helium-related projects, R&D program or in Energy transition projects

Objectives

Attendees will be able to implement the following skills:
Upon completion participants will be able to:

- Understand the geological context leading to H2/He underground presence
- Familiarize with sampling and chemical analysis challenges of H2/He.
- Identify underground storage types and specificities
- Apply modelling workflow on ad-hoc basins
- Review surface processing and safe transport criteria

Pedagogical & technical resources

- Interactive presentations, practical exercises, case studies involving appropriate industry software,
- laboratory visits.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Degree in Geosciences, Reservoir engineering, Chemistry with 2 years of experience, or equivalent experience.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

H2/HE EXPLORATION – PETROPHYSICAL ASPECTS — 5 days

Industrial production of H2.
Current H2 usage and future of H2.
Natural H2 Dynamics: serpentinization, underground consumption...

SAMPLING & GAS ANALYSIS – LAB ANALYSIS — 2 days

Different matrices (water, gas).
Instruments & Tools.
Analytical Workflow: on the field, in the lab, lab experiments.

UNDERGROUND STORAGE — 3 days

Natural H2-bearing reservoirs – Reservoir Evaluation and characterization.
Underground Storage types: aquifers, depleted reservoirs - Storage characteristics (gas cushion, mix...).
Examples.
Stored gas alteration.

RESERVOIR CHARACTERIZATION & MODELLING — 5 days

Thermodynamic properties.
Gas species solubility.
Stable and Metastable phases.
Kinetics of reaction.
Transport: diffusion, advection.
Basin modelling.

SURFACE TREATMENT & TRANSPORTATION — 2 days

Treatment, Surface transportation, industrial valorization.

H2 PROJECTS MANAGEMENT & REVIEW — 3 days

Case Studies.
Examples (Mali, USA, France).

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com