



# THE OPALINUS CLAY

**A clay formation serves as the most important geological barrier of the repository. The Opalinus Clay is very tight and can self-seal fissures.**

## **WHAT EXACTLY IS THE OPALINUS CLAY?**

The Opalinus Clay formed during the Jurassic Period some 175 million years ago. At that time, Northern Switzerland was covered by a sea. Fine clay muds were deposited on the seabed where they solidified to form the Opalinus Clay. Its name is derived from the ammonite *Leioceras opalinum* found in it.

## **ITS FUNCTION IN THE REPOSITORY**

The Opalinus Clay will not have to assume its barrier function for the repository for several tens of thousands of years and only after the engineered barriers have failed. By then, most of the radioactivity will have decayed.

The Opalinus Clay has three decisive properties:

- 1 IT IS IMPERMEABLE TO WATER**  
The Opalinus Clay is very tight. This means that it is very unlikely that deep groundwater contained in the rock formations above and below the Opalinus Clay can come into contact with the radioactive waste.
- 2 IT CAN SELF-SEAL FISSURES**  
The Opalinus Clay can self-seal fissures as it swells on contact with water. This has been scientifically proven.
- 3 IT CAN BIND RADIOACTIVE SUBSTANCES**  
The Opalinus Clay contains negatively charged platelets. Most radioactive substances in the waste are positively charged and therefore effectively stick to the Opalinus Clay, which prevents them from migrating through the rock.