Project BioGEL

Nanotechnologies for an enhanced and sustainable exploitation of geothermal energy potential.

PROJECT GOAL

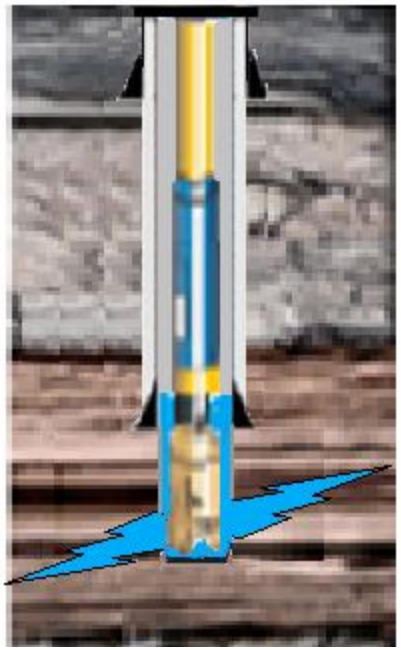
The BioGEL project has as main goal the development of innovative nano-structured polymeric materials to be applied in the geothermal energy sector to minimize the environmental impact.

The innovative materials are biodegradable and can be used as:

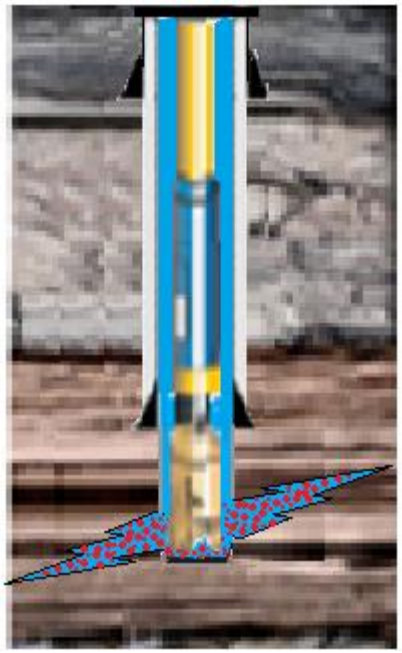
- sealant in correspondence of unwanted loss of circulation during the drilling operations
- inhibitor of scaling in correspondence of fracture zone during the exploitation of geothermal reservoir

BioGEL 1: sealant to reduce drilling fluid losses

The fractured zones induce circulation losses



BioGEL 1(sealant)
Nanostructured polymeric materials,
eco-friendly and biodegradable



Fractures sealed by the swelling of BIOGel 1

BioGEL 1: swelling tests results

	Specimen as it is	Swelling 45°C	Swelling 70°C
C6			
C8			

BioGEL 2: prevention and reduction of wellbore scaling

Fractures clogged by scaling

BioGEL 2 (anti scaling)

Typical acidification treatments require a rig on place

The BioGEL 2 product can be inject through a tubing.

The permeability of the fracture is restored and preserved