

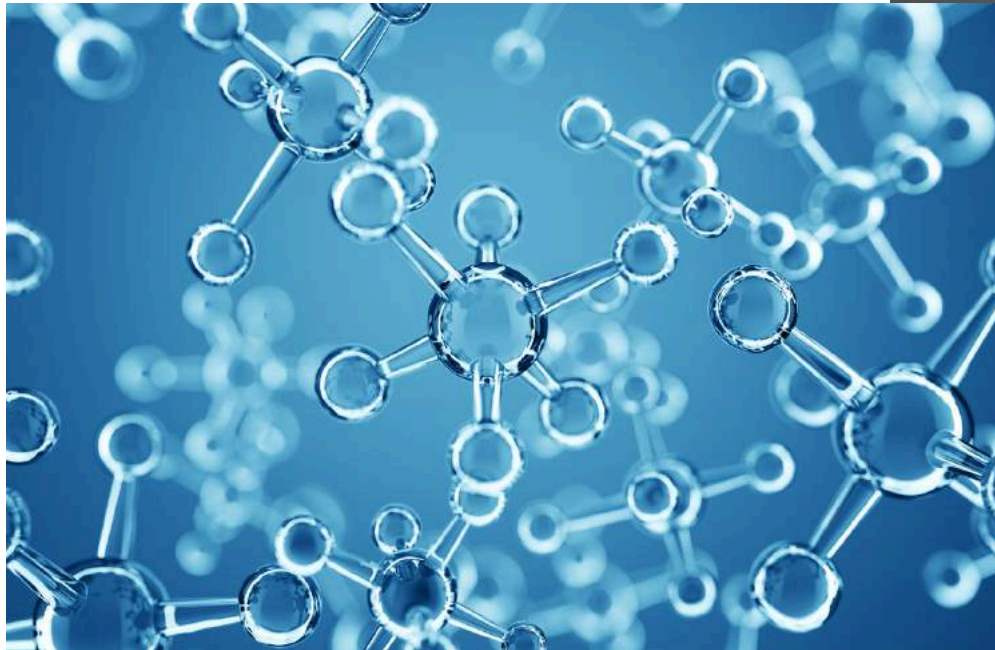


# nanotech EXTRACTION<sup>®</sup>

*The evolution in oil exploration*



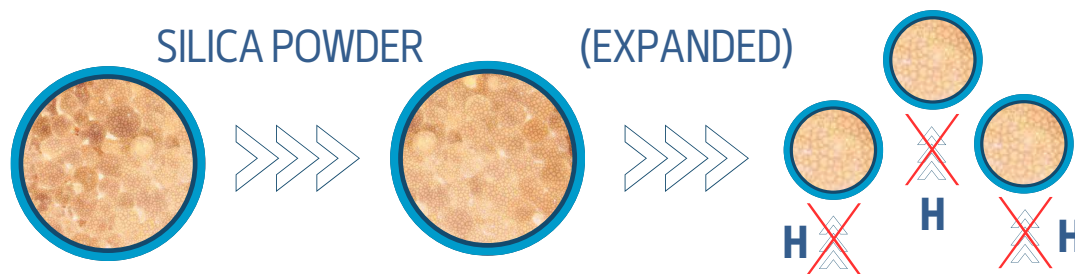
# The great advantage of **nanotechnology**



**Nanotech Extraction®** is a revolution in the steam injection process in recovery wells!

The use of nanotechnology in pipe insulation maintains its insulating characteristics for more than 10 years, unlike the VIT usually used, which lose efficiency between 4 to 5 years, with its annular space (vacuum) contaminated by hydrogen (H) from the base inner tube. The result is **superior durability** (10 years) and **constancy in thermal efficiency**, also for **10 YEARS**

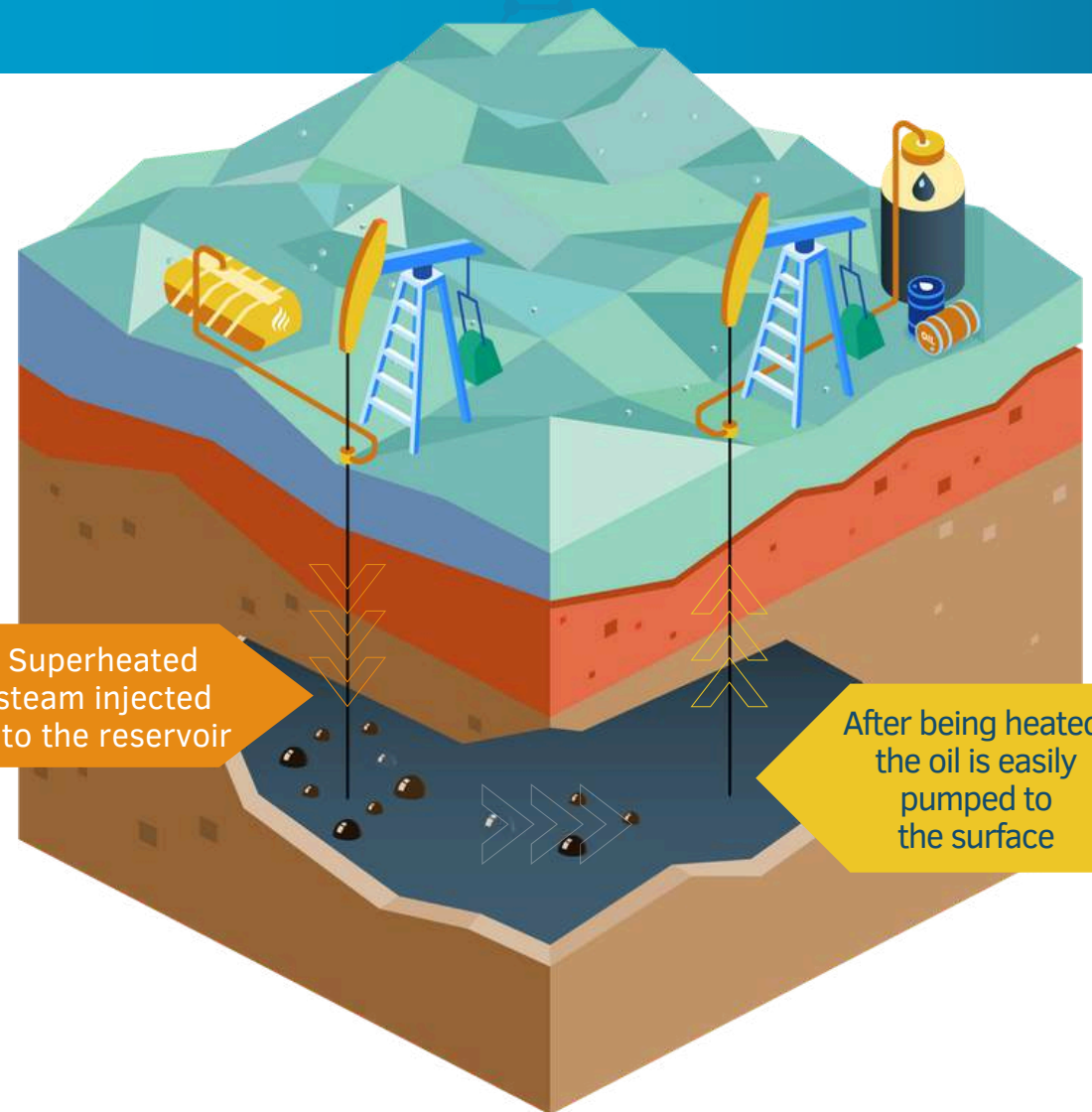
## The nanotechnological isolation **process**



Acts as a **high performance insulator** maintaining its characteristics for **over 10 years**

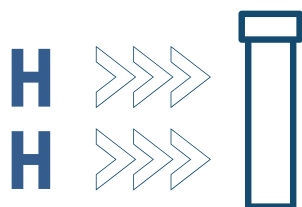


# Operational Process of **Steam Injection & Petroleum** Extraction





## Market practice



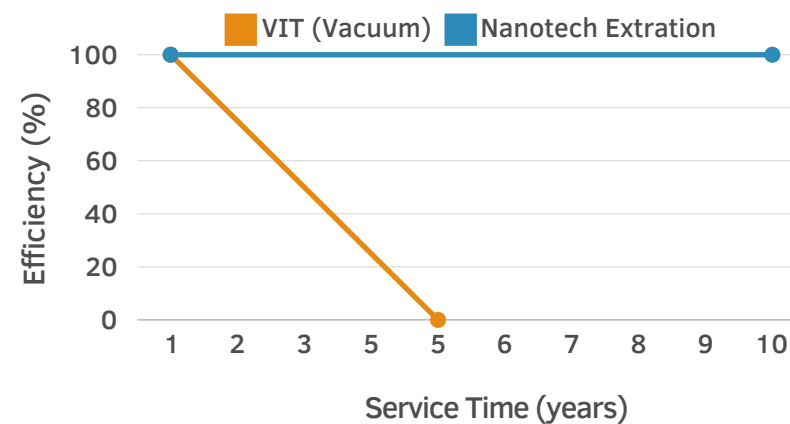
Vacuum  
Insulated Tubing  
**VIT**

The hydrogen (H) existing in the walls of laminated tubes penetrates the annular space containing vacuum, causing a partial to total loss of it, despite containing getters (gas absorbers)

**nanotech**  
EXTRATION®



We guarantee the efficiency of  
your project for **10 years**

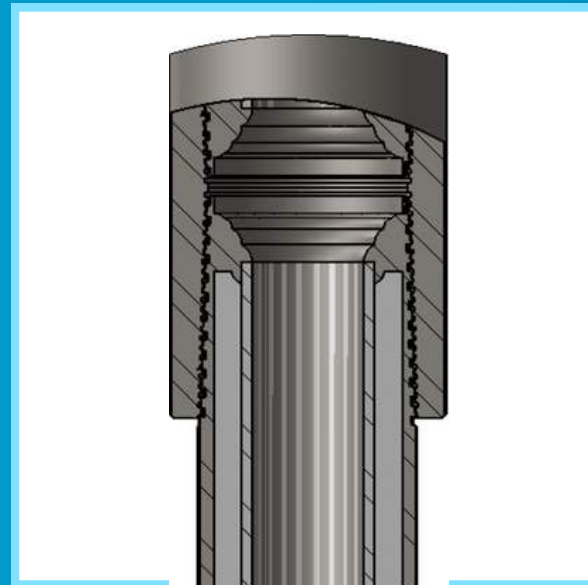


## Our PRODUCT



Our tubes also have state-of-the-art technology in the **welding process**. The addition of alloying elements increases the elastic limit of the welded joint, thus **protecting against rupture or fatigue cracking**. This guarantees a longer useful life for our insulated piping, manufactured using a proprietary technique called the Super Thermal Insulation System – **STIS**

Save energy. Increase your **profits!**



Steam inside  
the pipe



Increased  
elastic limit of  
the welded joint



Inner pipe:  
up to 360°C / 680 °F  
Outer pipe:  
down to 80°C / 176 °F



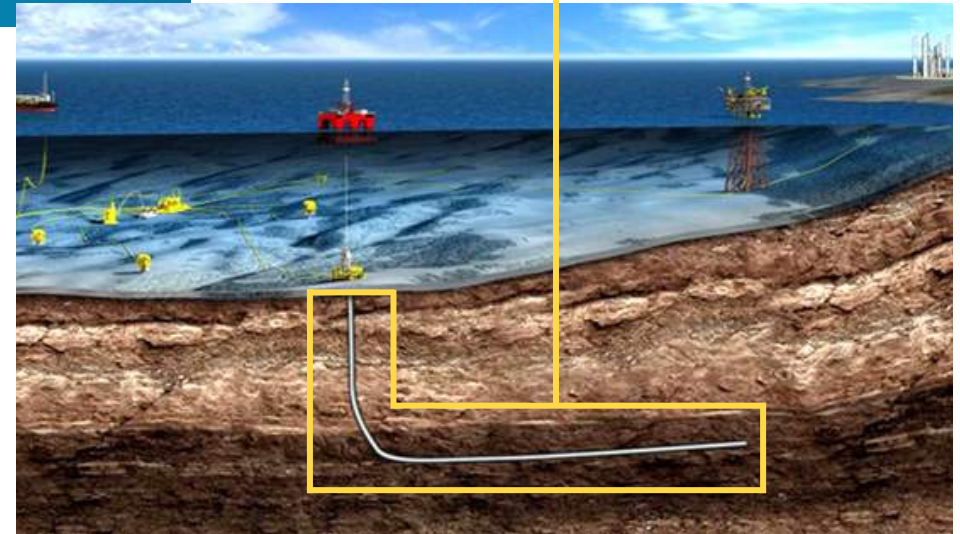
Nanotechnology  
embedded in the tube

# STIS – Super Thermal Insulation System

## NOT BASED ON VACUUM. It is based on NANO TECHNOLOGY

While VIT requires a mechanically produced and chemically maintained vacuum, **STIS technology has a kind of insulation which is never lost.** So, **STIS insulation efficiency remains the same all along its use.**

For this offshore specific application where **the tubes will be placed below the sea floor** in a costly operation, **it is required that their insulation efficiency stay the same** for a long period of time. **STIS's technology will meet this requirement!**



The **result above** represents a

**DAILY GAIN OF  
3 - 7 PERCENT IN OIL  
PRODUCTION**

**Different diameter** configurations and types  
of steel **can be considered.**

The **equipment maintains**

**CONSTANT THERMAL CHARACTERISTICS  
FOR OVER 25 YEARS**

with payback for the well in **less than 5 year**  
due to the increase in production.