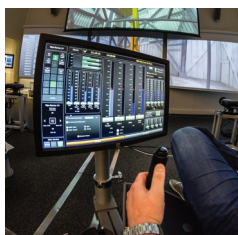


SINTEF Petroleum Research concentrates on improving the profitable, environmentally friendly and safe mapping and recovery of national and international petroleum resources.

This is SINTEF Petroleum Research



More than 40 years of experience of petroleum research have enabled us to make significant contributions to Norwegian exploration and production technology. We currently have customers and partners from all over the world.

The institute collaborates with other research institutes and several universities, and enjoys particularly close collaboration with The Norwegian University of Science and Technology (NTNU). We are located in Trondheim and Bergen.

Our laboratories provide an important foundation for much of our research and development activity. One example of this is the Multiphase Flow Laboratory, which is currently upgraded to operate with three-phase (gas-oil-water) flows.

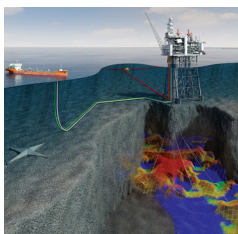
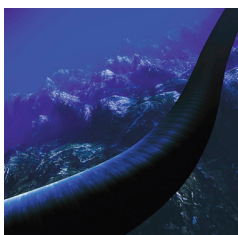
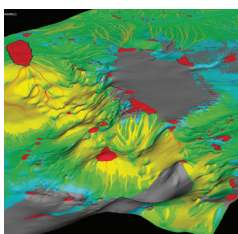
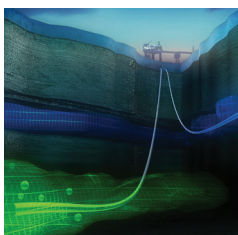
The Formation Physics Laboratory is another of the institute's important facilities. It performs a wide range of rock mechanical tests and makes an active contribution to the development of experimental techniques and methodology.

The Reservoir Technology Laboratory develops methods and equipment for tests performed at high temperatures and pressures.

The Organic Geochemistry Laboratory puts most of its efforts into pyrolysis techniques and the kinetics of oil and gas formation.

SINTEF Petroleum Research is fully owned by the SINTEF Foundation, the parent company of Scandinavia's largest research organisation.

The number of employees as of December 2012 are 109, and our annual turnover is NOK 199 million (2012).



Drilling and Well

SINTEF combines theoretical work with laboratory experiments and field experience, and focuses on making results from the work available for operational team, in order to contribute to faster, safer and cheaper drilling and well operations while also caring for the long term integrity of the wells.

CO₂ - Storage

Deep underground storage is the only current means of disposing of large amounts of CO₂, safely and permanently, thus reducing global-warming.

SINTEF Petroleum Research was among the first to propose dedicated underground storage of CO₂ and continues to study storage capacity, long-term behaviour of CO₂ underground, monitoring techniques and safety, as well as its use for Enhanced Oil Recovery.

Exploration

Applying geological, geophysical expertise and developing our in-house software we can model all elements of a petroleum prospect (from source rock, expulsion, migration, and trap, seal or cap rock). This can be used to evaluate and minimize uncertainties in exploration, development and production risk.

Flow Assurance

To ensure safe and economical oil and gas transport through pipelines from the reservoir to point of sale efficient engineering tools are needed. This implies a continuous development and experimental validation of computer simulators for multiphase flow.

Improved Recovery

About half of the oil in known North Sea fields has been produced and finding more is becoming increasingly difficult. A good alternative is to find means of extracting the remaining known oil, i.e. Enhanced Oil Recovery.

SINTEF's research in this direction involves lab experiments and simulation of the use of low saline water, polymers, surfactants, CO₂, microbes and nanotechnology.

Laboratories

SINTEF Multiphase Flow Laboratory

SINTEF's Multiphase Flow Laboratory in Trondheim, Norway, was established in 1982 as the world's largest industrial scale multiphase flow laboratory. Today, the laboratory has been developed into a complete Multiphase Flow Assurance Laboratory with the following facilities: The Large Scale Flow Loop, The Medium Scale Flow Loop, The Gas Hydrate Laboratory, and the high pressure real fluid Flow Characterization loop (The Weel Laboratory).

The laboratory's main activity is flow assurance related research for the petroleum industry. It has contributed significantly to the development of multiphase flow simulators, and this is still an ongoing activity. Development of hydrate cold flow technology and sand transport studies are currently also main topics.

The laboratory is available for multiphase flow and flow assurance research. In addition, it is well suited for testing of process equipment and instrumentation, and for concept and pilot studies.

Reservoir Laboratory

Since 1977, SINTEF Petroleum Research has performed flooding experiments and fluid studies related to petroleum production. Our laboratory holds high technological standards. We use advanced equipment both in standard experiments for service work, as well as in completely new set-ups for research.

The laboratory is particularly well equipped for reservoir condition services within special core analysis, pVT characterization, IFT measurements and other fluid studies. Numerical and analytical modelling with our simulation tools can increase the value of laboratory experiments. This is also offered as a service.

Our laboratory facilities and experimental equipment are based on commercial components, but we continuously improve the precision and reliability of our measurements by improving the equipment itself, and the methods applied. New high pressure instruments and equipment are being designed and built for special purposes. Projects often benefit from utilization of resources from several of our labs.

Formation Physics Laboratory

The Formation Physics Laboratory provides laboratory services covering a wide variety of aspects within petroleum rock mechanics and related areas. We do testing both separately for external clients, and as part of the Formation Physics Department's research projects.

We have experience with a variety of different rocks, and have developed sophisticated experimental procedures for revealing their acoustic and mechanic properties under near in situ conditions.

Petroleum Chemistry Laboratory

The Petroleum Chemistry Laboratory was established in 2009, in the city of Bergen, as an integrated laboratory of the Wellstream Technology Department.

This laboratory offers chemical analysis of petroleum, with particular focus on surface active components in crude oil. The research areas addressed by these services include flow assurance issues such as fouling and separation issues such as oil/brine emulsions and heavy oil.

The laboratory is located in close vicinity to the University in Bergen, and benefits from close cooperation between our institutions, also including student educational projects.

SINTEF's Organic Geochemistry Laboratory

The Organic Geochemistry Laboratory is integrated into the Basin Modelling Department. Activities concentrate on artificial maturation experiments to investigate processes of formation and cracking of petroleum fractions in source rocks and their expulsion. The models developed from the results of these experiments are used to simulate these processes in the geological history.

The laboratory also carries out carbon and sulphur analyses, solvent extraction and analyses of liquid hydrocarbons (GC-FID and GC-MSD) and natural gases (GC-FID/TCD).

SEM-XRD Laboratory

Scanning electron microscopy (SEM) and X-ray diffraction (XRD) analyses are, together with traditional optical microscopy, currently applied for characterization of sedimentary rocks, and for examination and visualization after rock mechanical experiments.

X-Ray CT and NMR Laboratory

The Reservoir Technology and Formation Physics Departments collaborate with NTNU on an X-ray CT instrument. We also have two low field NMR units with compatible core holders, enabling measurements on samples while subject to triaxial stresses.

This is SINTEF

SINTEF is the largest independent research organisation in Scandinavia. We create value through knowledge generation, research and innovation, and develop technological solutions that are brought into practical use. We have 2,100 employees from more than 68 countries, with international top-level expertise in science and technology, medicine and the social sciences.

SINTEF is a broadly based, multidisciplinary research concern that possesses international top-level expertise in technology, medicine and the social sciences, and our aim is to become the most renowned contract research institution in Europe.

SINTEF is an independent, non-commercial organisation. The profits of our contract research projects are invested in new research, scientific equipment and competence development. In the course of the past five years, we have invested NOK 500 million of our own funds in laboratories and scientific equipment.

The SINTEF Group comprises the SINTEF Foundation, four limited companies and SINTEF Holding.

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