

SINTEF Materials and Chemistry is an independent, non-profit contract research institute. We develop advanced materials and products as well as environmentally friendly production and processing methods for the benefit of our clients and society in general.

This is SINTEF Materials and Chemistry

SINTEF Materials and Chemistry is a contract research institute that offers expertise in materials science and nanotechnology, applied chemistry and biotechnology. The institute conducts research and development, advanced laboratory services and commercialization of ideas that are not followed by our customers. The Institute serves important sectors and industries with emphasis on oil & gas, process industries, sustainable energy and biotechnology. Within sustainable energy we have a main focus on silicon-based solar energy, CO₂ capture and storage (CCS), and offshore wind. In this field we also have a growing activity towards biofuels and biorefinery, energy efficiency in the process industry, fuel cells and batteries, as well as geothermal energy.

We collaborate closely with our clients in developing advanced materials, products, processes and tools, including advanced science-based software to be used by our clients. To the best for our clients and cooperation partners we exploit co-financing schemes for projects from public funding sources like the Research Council of Norway and EU's framework programs for research.

The institute has altogether 400 employees from 44 different countries all over the world. About 70 % of our scientists have a Ph.D.

Examples of research

CO₂ Capture and Storage (CCS) from electric power production by natural gas or coal and from industry is an important research priority for the institute. We are active in a broad range of technologies, from post-combustion to pre-combustion and CO₂ pipeline transport. The institute has for many years been active in the development and improvement of

absorption processes for CO₂ removal and offers world class laboratory facilities, the latest one being our full height pilot plant at Tiller.

Biotechnology: Main focus is development and optimization of biotechnological processes for the pharmaceutical, fine chemicals, food and feed industries. Products are produced by microorganisms as bacteria and yeast. The microorganisms are modified to give high product yields. Typical products are antibiotics, enzymes, vaccines, pigments, amino acids and biofuels. The institute has top of the line equipment for molecular biology, high throughput screening, analyses and cultivation.

Oil spill R&D activities: The institute combines multidisciplinary knowledge and competence as a basis for development of new spill technology. This involves important elements such as: Oils spreading and fate on sea surface, lens technology, dispersant application technology, behavior of oil in ice and remediation/treatment of oil-spill on shore. Our department was heavily involved to support after the Deepwater Horizon incident in Gulf of Mexico

Recycling of materials: Recycling of materials: By recycling savings in terms of energy and capital can be obtained along with reduced environmental impact. For example, production of Aluminium slabs or ingots based on recycled metal consumes only about 5 % of the energy needed when using primary Aluminium. SINTEF offers competence and have gained experience with many of the processing steps for recycling of different materials.

Management

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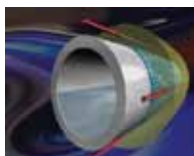
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The Institute has eight scientific departments, which together cover the following areas:

Applied Mechanics and Corrosion

Focus: Characterisation and reliable use of materials under demanding conditions, e.g. in the offshore, automotive and energy sectors. We study the mechanisms of damage,



fracture, and degradation in materials, and develop versatile computational tools that represent the observed phenomena.

Research Director: Bård Wathne Tveiten,
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Biotechnology

Focus: Development and optimisation of biotechnological processes for the pharmaceutical, fine chemicals, food and feed industries.



Research Director: Trond Ellingsen
trond.ellingsen@sintef.no

Energy Conversion and Materials

Focus: Development of materials for sustainable energy technology and applications in other fields where tailor-made functional properties are sought. We have extensive competence in light metals production and molten salt chemistry.



Research Director: Rune Bredesen
rune.bredesen@sintef.no

Process Chemistry

Focus: Development and optimisation of processes for the fine chemicals, chemical, petrochemical and oil industries.



Based on expertise within synthetic chemistry, materials, catalysis, adsorption, molecular modelling and process intensification.

Research Director: Duncan Akporiaye
duncan.akporiaye@sintef.no

Marine Environmental Technology

Focus: Experimental, monitoring and modelling studies in connection with both acute and regular releases of oil and chemicals to the marine and arctic environment.



Research Director: Tore Aunaas
tore.aunaas@sintef.no

Metallurgy

Focus: Production and processes, product development and recycling of high temperature materials and metals such as silicon carbide, carbon black, nano-carbons, ferroalloys, light metals, solar grade silicon, and special alloys.



Research Director: Aud N. Wærnes
aud.n.warnes@sintef.no

Process Technology

Focus: All aspects of chemical and metallurgical processes, including CO₂ capture processes. We have extensive



knowledge in chemical engineering, thermodynamics, mathematics, and flow modelling.

Research Director: Webjørn Remen
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Synthesis and Properties

Focus: Sustainable material based innovations for important industrial sectors, in particular the metallurgical, polymer, composite and manufacturing industries, as well as the energy sector. We bring together fundamental and applied research and have access to a wide range of advanced experimental and mathematical tools.



Research Director: Rudie Spooren
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Staff

The staff supports the scientific departments within economy, QA, HSE, human resources, IT, communication, and office and project administration and operations.

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