



Haldor Topsøe

RESEARCH | TECHNOLOGY | CATALYSTS

Committed to a better future

HALDOR TOPSØE 

Haldor Topsøe A/S



- **Global cleantech for 70 years**
 - Energy and environmental technologies
 - Multidisciplinary technical science
- **Topsøe Technologies:**
 - Saves CO₂ emissions equal to 3-6 times the total Danish emission
 - Removes sulphur emissions equal to 150 times the total Danish emission
 - Removes nitrogen emissions equal to 10 times the total Danish emission
 - Saves energy equal to 2-5 times the total Danish energy consumption
- **Facts**
 - 2050 employees
 - Turnover €670M
 - 98 % export

Product Areas

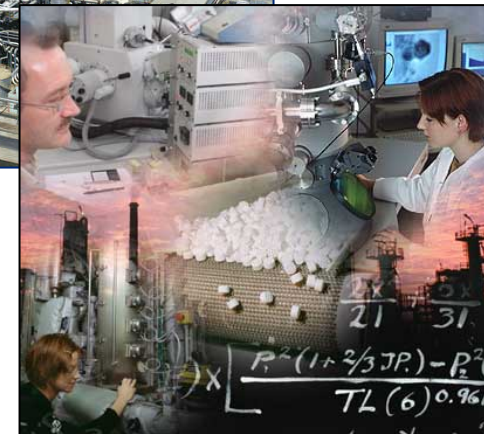
Catalysts
Catalyst Division



Catalytic Technologies
Technology Division

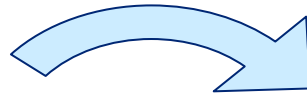


Research in new catalysts and processes
R&D Division



What do we do?

Energy efficient and environmentally friendly solutions



Natural resources

Fossil fuels
Biomaterials
Waste

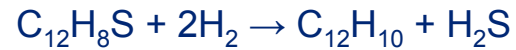
Commodities

Energy
Transportation fuels
Chemicals

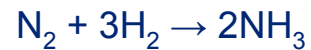


Customers

- Oil Refineries



- Ammonia Producers



- Sulphuric Acid Plants



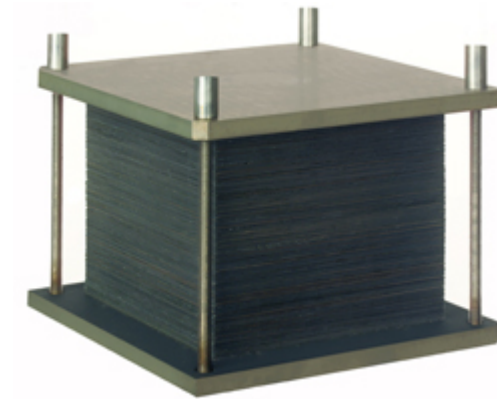
- Hydrogen Plants



- Off Gas and Exhaust

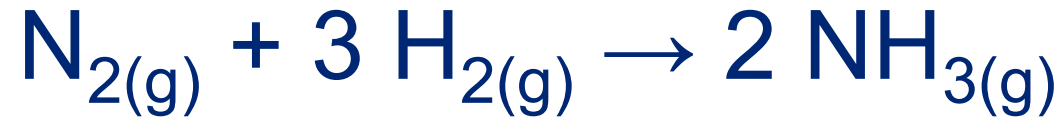


Fuel Cells



<http://www.topsoefuelcell.com>

Catalysis: Energy efficiency & CO₂ emission



Ammonia

- Annual production: 150.000.000 tons
- Most energy consuming industrial process
- Improvements in catalysts and processes leads to higher energy efficiency
- Worldwide saved:
 - 3.7 x total Danish energy consumption
 - 2.8 x total Danish CO₂ emission



Catalysis: Use of natural resources

- Natural Gas Flaring
 - Waste of resources
 - Significant CO₂ emission



- GTL – converting natural gas to diesel



CO₂ reduction ~ 1/3 of Danish transport sector

Haldor Topsøe – a knowledge company

Science to Dollars

Dr. Haldor Topsøe:

Research aimed at maximising profit may give you nothing. Research aimed at gaining knowledge may give you profit, but will always give you knowledge.

R&D at Haldor Topsøe

- 300 people – 120 engineers, 150 technicians, 30 other
- €50 mio/year (7,5% of company turnover)
- >40 publications/year

Catalysis Today

Journal of Catalysis

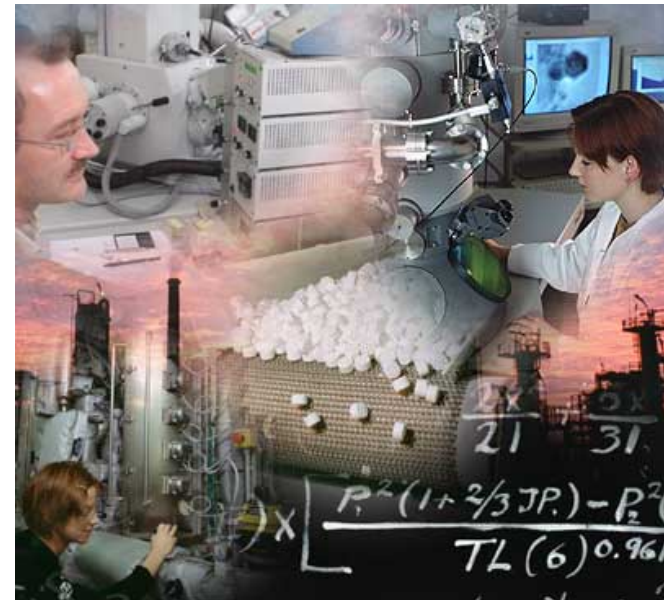
Journal of the American Chemical Society

Applied Physics A

Chemical Communications

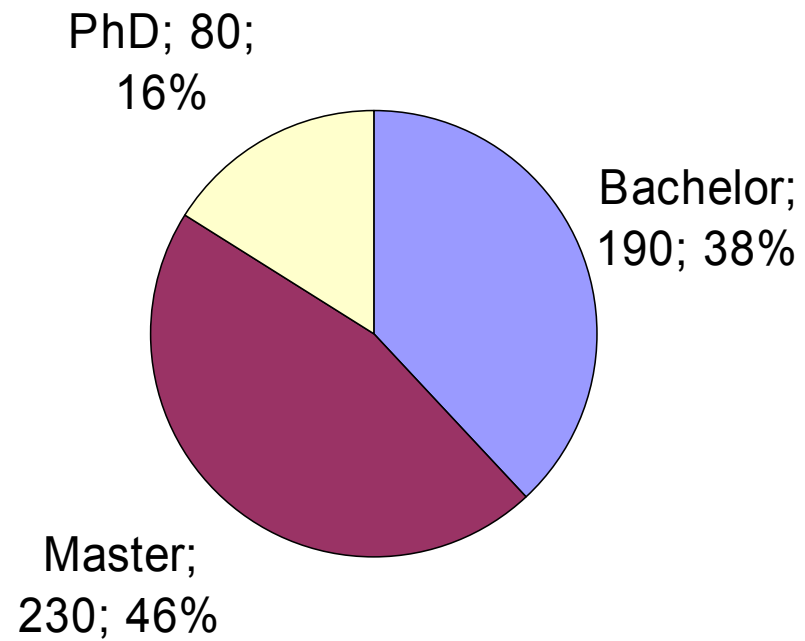
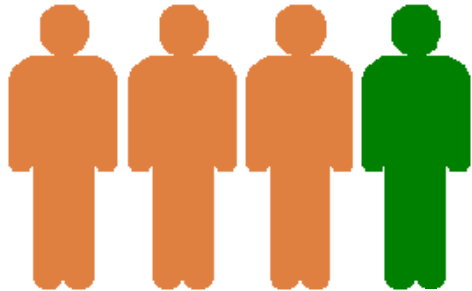
Science

Nature



Engineering staff

1 in 4 employees \approx 500 engineers



Catalysis – a life cycle job

- Research
- Production
- Process Design
- Sales & Marketing
- Installation & Start-up
- Customer Assistance



Haldor Topsøe – a world of opportunities



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