Minimisation of nox emissions (MINNOX)

Fact Sheet

Project Information

MINNOX

Grant agreement ID: ENK6-CT-2001-00530

Project closed

Start date
1 January 2002

End date
31 December 2004

Funded under
Programme for research, technological development and demonstration on "Energy, environment and sustainable development, 1998-2002"

Total cost
€ 2 190 542,00

EU contribution
€ 1 392 739,00

Coordinated by
AVL LIST GMBH
Austria

This project is featured in...

RESEARCH*EU MAGAZINE

Results Supplement No. 009

RESEARCH*EU MAGAZINE

Results Supplement No. 010

RESEARCH*EU MAGAZINE

Results Supplement No. 006

RESEARCH*EU MAGAZINE

Results Supplement No. 007

RESEARCH*EU MAGAZINE

Results Supplement No. 018

RESEARCH*EU MAGAZINE

Results Supplement No. 009

RESEARCH*EU MAGAZINE

Results Supplement No. 007

RESEARCH*EU MAGAZINE

Results Supplement No. 012

Objective

Objectives and Problems to be Solved: In combination with the very stringent Euro IV and V emission limits the present very low carbon dioxide levels of gasoline and diesel engines have still to be further improved to meet the Kyoto targets. The objective of this project is to develop new measurement and simulation techniques in order to improve the understanding of the interaction of NOx formation and engine heat transfer. Based on the results of the project significant optimisation potential of engines can be utilised and the reduction of pollutant emissions can be performed simultaneously with an increase in engine efficiency. The reductions of NOx emission levels will reduce air pollution and the associated health risks and improve the quality of life in Europe. The project will extensively use current ICTs to develop the simulation tools, and to exploit and disseminate the results.

Description of the Work: The objective of the project is to enhance the understanding of the interaction of NOx formation and engine heat transfer in diesel and gasoline engines. The work that the project necessitates is highly specialized and necessitates a multidisciplinary approach to develop this detailed knowledge, how engine heat transfer affects NOx formation which can applied for use in gasoline and diesel engine development. The project necessitates the development of simulation technologies with an accuracy of at least 10%. The project work will be divided into 9 separate work packages (WP) for the most part be subdivided into sub-tasks. The following is a brief overview of the 9 work packages: WP1 objective is the provision of comprehensive experimental data in order to gain a better understanding of how the changes in engine parameters are affecting heat transfer and NOx formation in gasoline engines. WP2 objective is the provision of comprehensive experimental data in order to gain a better understanding of how the changes in engine parameters are affecting heat transfer and NOx formation in HDT diesel engines. WP3 objective is to model flow turbulence and heat transfer as the important basis for accurate NOx predictions. WP4 objective is to provide fundamental experimental data to validate the new models. WP5 objective is the implementation of the new models in 3D CFD codes. WP 6 and WP7 involve the application and validation of CFD codes and 1

dimensional thermodynamic cycle codes for gasoline and HDT diesel engines In WP8, the database will be consolidated and the experiment and simulation results will be assessed. WP 9 is devoted aspects concerning to project management and coordination. Important to the development of the new simulation technologies and the project results is their integration and synergy with other existing projects in the field.

Expected Results and Exploitation Plans: The project will generate simulation tools necessary for manufacturers of gasoline and diesel engines to develop engines meeting future emission legislation and market demands. In the US and Japan large ongoing programmes with government funding are aiming at similar tools. There is a general understanding world wide, that simulations and advanced diagnostics will contribute significantly to future engine development. Not all combinations of possible parameters can be tested within reasonable costs, as the test procedure takes approx. 4 months for an entire engine map. A better understanding and the capability to simulate the basic processes of NOx formation/oxidation in combination with the simulation of combustion and other emissions within 4 weeks will utilise significant optimisation potential in matching the conflicting goals of high efficiency and low pollutant emissions.

Fields of science (EuroSciVoc)

engineering and technology > environmental engineering > energy and fuels > **liquid fuels**

engineering and technology > environmental engineering > energy and fuels > **renewable energy**

natural sciences > chemical sciences > electrochemistry > **electrolysis**

engineering and technology > environmental engineering > **air pollution engineering**

natural sciences > computer and information sciences > software > software applications > **simulation software**

Programme(s)

FP5-EESD - Programme for research, technological development and demonstration on "Energy, environment and sustainable development, 1998-2002"

Topic(s)

1.1.4.-6. - Key action Economic and Efficient Energy for a Competitive Europe

Call for proposal

Data not available

Funding Scheme

CSC - Cost-sharing contracts

Coordinator

AVL LIST GMBH

EU contribution

No data

Total cost

No data

Address

48,Hans-List-Platz 1
8020 GRAZ
Austria

Participants (7)

CHALMERS TEKNISKA HOGSKOLA AB*

Sweden

EU contribution

No data

Address

7,Hoersalsvaegen 7
412 96 GOETEBORG

Total cost

No data

DAIMLERCHRYSLER AG

Germany

EU contribution

No data

Address

Mercedesstrasse 137
70567 STUTTGART

Total cost

No data

DELFT UNIVERSITY OF TECHNOLOGY

Netherlands

EU contribution

No data

Address

136,Lorentzweg 1
2628 CJ DELFT

Total cost

No data

FORD WERKE AG

Germany

EU contribution

No data

Address

Spessartstrasse
50725 KOELN

Total cost

No data

KING'S COLLEGE LONDON

United Kingdom

EU contribution

No data

Address

Strand
WC2R 2LS LONDON

Total cost

No data

UNIVERSITAET STUTTGART

Germany

EU contribution

No data

Address

12,Pfaffenwaldring 12
70569 STUTTGART

Total cost

No data

VOLVO TECHNOLOGY (CORPORATION)

Sweden

EU contribution

No data

Address

9,Dept.6000, PVH31
405 08 GOETEBORG

Total cost

No data

Last update: 28 July 2005

Permalink: https://cordis.europa.eu/project/id/ENK6-CT-2001-00530