

N AECC Newsletter

Association for Emissions Control by Catalyst

Av. de Tervueren 100, B-1040 Brussels

Affiliated to CEFIC

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INTERNATIONAL REGULATORY DEVELOPMENTS

Table of Contents

EUROPE	2
1. The next stage of European Emissions Legislation	2
2. International Conference on Future Emission Requirements and EU V for Light Duty vehicles.....	2
3. The 'Split Level' Directive for Heavy Duty Engine Emissions	2
4. CO ₂ and Fuel Consumption of Light Commercial Vehicles	3
5. Transport Blamed for poor EU Greenhouse Gas Performance	3
6. EEA Issues Plans to enhance Data Gathering.....	3
7. Parliament Report on Reduction of Ship Emissions	4
8. Parliament rejects Excise Duty Harmonisation	4
NORTH AMERICA	4
9. British Columbia AirCare Programme.....	4
10. Study supports tightening Mexican Air Quality Standards.....	4
11. Congress Strikes Deal on Californian Emissions Plan	5
12. Canada sets Regulations for Small Engines	5
13. Canadian Government offers Rebates to reduce Truck Idling	6
14. New York City adopts Diesel Bill.....	6
15. New Jersey closer to mandating Zero-Emission Vehicles	6
ASIA-PACIFIC	6
16. South Korea to tighten Vehicle Emission Standards for 2006.....	6
17. Tokyo Campaign cuts PM Emissions	7
18. Old Buses in Mumbai to be Scrapped	7
19. Kobe City introduces 'Green Delivery' Requirements	7
20. Health Effects of Pollution in Asia	8
21. 100 Million People inhale Polluted Air in China.....	8
GENERAL	8
22. EU, USA, Japan and China Transport Pollution Agreement	8
23. Worldwide Motorcycle Certification Procedure.....	8
24. Air Pollution even worse for Heart than Lungs	9
25. Study finds that SARS Deaths double with Pollution	9
26. Haren Gandhi receives Technology Medal	9
FORTHCOMING CONFERENCES	10

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EUROPE

1. The next stage of European Emissions Legislation

Meetings of the MVEG (Motor Vehicles Emissions Group) sub-group on the next stage of European light duty and heavy duty emissions standards have continued throughout November and December.

The group has so far concentrated on the detail of the light duty EU V questionnaire, which the Commission is proposing to send out to obtain information on the capabilities and costs of options for emission control. The final version of the document includes five emissions reductions scenarios for technology and cost comparison. The proposed scenarios for Spark Ignited (SI) and Compression Ignited (CI) engines are not interlinked.

The main focus of light duty EU V is expected to be on a further reduction of NOx and particulates, with the possibility of particle number being controlled in addition to particulate mass.

There will be a Stakeholder Consultation running from the start of February to end April 2004 to allow Member States and others to provide input without the detail of the questionnaire.

On EU VI for heavy duty engines, the Commission said that the process would be towards continued tightening of NOx standards with action on control of small particles also expected. The Commission will also construct a questionnaire for heavy duty engines.

2. International Conference on Future Emission Requirements and EU V for Light Duty vehicles

Delegates from Industry, Academia and the Legislature attended the International

Conference on Future Worldwide Emission Requirements and EU V for Light Duty vehicles organised by the EU's Directorate General Joint Research Centre and held in Milan on 10 and 11 December.

Speakers included representatives of the EU's DGs for Enterprise and for Environment, China's State Environment Protection Administration (SEPA), the National Traffic Safety and Environment Laboratory (NTSEL) of Japan, the Department of Energy and the Environmental Protection Agency (EPA/OTAQ) from the USA.

There were parallel sessions on 'New Emission Measurement and testing Systems', 'From Emissions to Air Quality', 'New Fuels, Engines and After-Treatment Technologies' and 'Health Effects'.

In the opening Plenary, Bernd Lange MEP said that the Parliament's priorities are, that limit values for diesel engines should approach those of gasoline engines and that ultrafines be considered for both. Further NOx and PM reductions are required for heavy duty diesels and off-cycle emissions must be addressed. He urged the Commission to prepare an EU V proposal by mid-2004.

DG Environment said that the conference had confirmed there is still a significant health and environmental issue for road vehicles, and that the EU IV for 2005 is not the end of the road.

3. The 'Split Level' Directive for Heavy Duty Engine Emissions

The European Commission has started discussions on the Technical Annexes for the Commission proposal for a heavy duty Directive on OBD, durability and in-use compliance checking.

This 'Split Level' Directive will have a 'Political' part setting the framework of the requirements as a Directive of the Council and Parliament, with the technical detail issued as a separate Commission Directive.

The Council is hoping to have the political part of the Directive proposal (COM(2003)522 final) finalised in early 2004. The technical part should ideally be aligned in time. The current plan is to have it approved by the Committee for Adaptation to Technical Progress (CATP) around May 2004.

4. CO₂ and Fuel Consumption of Light Commercial Vehicles

The European Parliament has approved the Council's Common Position on the proposed Directive on CO₂ emissions and fuel consumption of N1 light commercial vehicles.

The proposal introduces requirements for the measurement of carbon dioxide and fuel consumption of N1 vehicles to Directive 80/1268/EC, which currently only requires this for M1 vehicles (passenger cars).

The new provisions will apply from 1 July 2004 for new type-approvals; from 1 January 2006 for existing N1 class I, type-approvals, and from 1 January 2008 for existing N1 class II and III type-approvals.

A new Article added by Council introduces an 'engine family' concept and requests the Commission within 2 years to evaluate the concept and present a study on the possibility of applying it to multi-stage build vehicles.

5. Transport Blamed for poor EU Greenhouse Gas Performance

According to a report from the European Environment Agency (EEA), air and road traffic are the main culprits for the poor record on greenhouse gases in the European Union.

The transport sector is responsible for just over one-fifth of the EU's greenhouse gases. On the basis of existing domestic policies and measures, total greenhouse gas emissions from transport are projected to be 34% above 1990 levels in 2010. This does not include rapidly increasing emissions from international air travel, which is not covered by Kyoto.

6. EEA Issues Plans to enhance Data Gathering

The European Environment Agency's management board has approved a five-year plan to change the agency's role from a "statistical bureau" to an interpreter of data capable of making policy recommendations. The agency will not, however, become a policymaking body.

The approved strategy selects about 50 core indicators on which the agency will focus on improving the quality of its data. Key environmental themes will be climate change, biodiversity, sustainable development, and waste management. Instead of measuring the presence of pollution in the environment, the agency will increasingly focus on the harmful effects of human exposure to pollution.

As part of that work the European Commission, assisted by the EEA, is expected in February to launch an EU-wide pollution emissions register containing information on thousands of industrial pollution sources.

7. Parliament Report on Reduction of Ship Emissions

An Environment Committee report debated in the European Parliament on 3 December calls on the Commission to urgently analyse the costs and benefits of more far-reaching abatement measures for ships.

The report notes that ships release about twice as much NO_x per tonne-kilometre as the latest truck models today, and the difference is set to increase with the introduction of EU IV and EU V standards for trucks.

The report calls on the Commission to come forward - before the end of 2004 - with a proposal for NO_x emission standards for ships, which is based on the use of best available techniques (BAT).

8. Parliament rejects Excise Duty Harmonisation

The European Parliament has rejected by a large majority a Commission proposal on excise duties for petrol and diesel fuel.

The Parliament is not convinced that total harmonisation as proposed by the Commission is really necessary and says that "an element of tax competition is quite healthy". Another of the Parliament's concerns is the impact the proposal might have on the candidate countries, some of which currently apply much lower taxes than those in the EU. The proposed harmonisation would result in higher taxes in most cases, which would place tremendous burdens on the new Member States. Lastly, MEPs point to a number of practical problems, which would result from a system of differentiated tax rates for commercial and non-commercial diesel (potential fraud, extra 'red tape' if a refund system were introduced).

NORTH AMERICA

9. British Columbia AirCare Programme

AirCare regularly conducts detailed scientific reviews to assess Vancouver's overall Inspection and Maintenance programme effectiveness and report on total reductions in vehicle emissions attributed to the programme

The most recent report entitled "AirCare – Results and Observations in 2001 and 2002" shows that 16% of the vehicles inspected failed the initial inspection. Of these 70% were repaired and received a full pass on the re-test, 10% were partially repaired and received a conditional pass and 20% were "retired" from the fleet.

In 2001 and 2002, AirCare data shows that Hydrocarbons (HC), Carbon Monoxide (CO) and Oxides of Nitrogen (NO_x) were reduced by 23,208 tons. In its first ten years (1992-2002) the AirCare programme reduced total vehicle emissions by 35% for a total reduction of 731 790 tons of HC, CO and NO_x.

10. Study supports tightening Mexican Air Quality Standards

A new study released by the Commission for Environmental Cooperation (CEC) suggests that children are being hospitalised and dying because of air pollution at levels that are below Mexico's current health standards.

Between 1997 and 2001, respiratory problems led to 36 087 emergency visits by children less than five years age at two hospitals in the border town of Ciudad Juárez, Chihuahua. But Mexico's health standard for ozone was only exceeded 14 times.

"Children were being rushed to the hospital on days when no air quality alarms were sounding," says Dr. Matiana Ramírez Aguilar, a co-investigator in the study from the National Institute of Public Health in Mexico City. "This suggests that lower levels of ozone affect children's respiratory health and that action should be taken to revise Mexico's standards."

The study also found "significant associations" between particulate matter (PM10) and child mortality. Of the 696 children aged one month to one year who died during the study's five-year period, 231 deaths were related to respiratory illness. Ambient PM10 levels exceeded the norm only on a few occasions.

The researchers also indicated that children living in poor neighbourhoods were at greatest risk. When levels of PM10 were elevated for two consecutive days, respiratory deaths among infants between a month and a year old in lower income families increased by 82% in the following days. But youngsters of higher socio-economic status suffered no similar increase in mortality.

11. Congress Strikes Deal on Californian Emissions Plan

The US Congress has reached a compromise that would allow California to set new emission standards on small, off-road engines while requiring a nationwide emissions-reduction plan by 2005.

California has proposed new emissions standards for small engines - like those that power lawn mowers, leaf blowers and other small machines - which would probably require the use of catalytic converters.

The compromise would allow California to promulgate its new emissions rules but

require that the EPA consider safety issues, including the risk of fire, when approving them. The EPA would also have to propose a new, nationwide emissions standard for off-road engines of <50hp by December 2004 and to adopt it by the end of 2005. That rule will then apply to all other US states that do not already have their own such standards in place.

12. Canada sets Regulations for Small Engines

Canada has finalised regulations for 2005 and later model years emissions from small gasoline-powered engines in equipment such as lawn mowers, chain saws, and snow blowers.

The Off-Road Small Spark-Ignition Engine Emission Regulations harmonise Canadian emissions limits with U.S. Environmental Protection Agency standards. The final regulations do, however, provide less stringent standards for hand-held engines not covered by an EPA certificate when less than 2 000 engines of a given model are sold annually in Canada.

A number of technical changes have also been made to the original proposals to better align them with U.S. standards, including: exclusion of small spark-ignition engines designed to propel vessels; exclusion of engines that are being exported; a requirement for labelling of replacement engines; and a new requirement for a declaration for engines imported solely for exhibition, demonstration, evaluation, or testing.

Environment Canada has estimated that, when fully implemented, the requirements will reduce emissions of smog-forming pollutants from off-road, small, spark-ignition engines by about 44%.

13. Canadian Government offers Rebates to reduce Truck Idling

Canada will provide rebates to domestic trucking companies to help offset the costs of installing devices to reducing engine idling times for commercial vehicles.

The ongoing Commercial Transportation Energy Efficiency Rebate Program will provide between C\$350 (\$270) and C\$1400 (\$1080) for individual vehicles to subsidise purchases of equipment made on or after 12 August 2003. The programme will also help record reductions in greenhouse gas emissions for between 12 and 18 months after the equipment is installed.

The program will rebate 19% of the Manufacturer's Suggested Retail Price to a maximum of C\$350 for fuel-fired interior heaters and engine coolant heaters or to C\$1400 for auxiliary power generators.

14. New York City adopts Diesel Bill

New York City Council has passed a bill that requires the use of ultra-low sulphur diesel fuel and advanced emission controls to reduce particulate matter and nitrogen oxide emissions from all construction equipment used in city funded projects and contracts.

Reducing sulphur levels from the current 3400ppm to 15ppm will have important air quality benefits throughout the city. In addition, by making NYC a laboratory for cleaner diesel fuels and emission control technologies that can be used in construction settings, it will also be helping to make the case that the EPA non-road diesel proposal is technically feasible.

15. New Jersey closer to mandating Zero-Emission Vehicles

New Jersey may be the next state to adopt California's automobile emissions standards, including a provision requiring zero-emission vehicles.

A bill authorising the California rule's adoption passed the state senate's Budget and Appropriations Committee and proponents have until 13 January to pass it out of both houses and get it to the governor's desk. In its initial stages the bill would require 2% of all vehicles sold in the state to emit no or almost no tailpipe emissions, rising to 10% by 2010.

ASIA-PACIFIC

16. South Korea to tighten Vehicle Emission Standards for 2006

South Korea's revised automotive emissions standards for gasoline and diesel vehicles will take effect for cars manufactured after January 2006.

The Ministry of Environment's Air Quality Policy Division said that, when fully implemented, the improved automotive pollution control regime would cut the emissions of tailpipe pollutants by more than half from current levels. If combined with clean fuel technology, it will help improve the overall air quality standard by more than 50% in 10 years.

According to the revised regulation, introduced by Ministry of Environment Order No. 148, the emissions standards for gasoline-fuelled passenger and cargo vehicles will match California's Ultra Low Emission Vehicle standards. For diesel vehicles, South Korea will copy Euro IV emission standards due for implementation in Europe in 2005.

The revised rules also will phase in new emissions standards for off-road diesel-powered heavy construction equipment. Enforcement will start in January 2004 with more stringent limits taking effect in January 2005. These requirements will apply to six types of construction equipment: bulldozers, excavators, forklifts, loaders, rollers, and cranes.

The same rules also introduce tougher fuel quality standards, putting limits on the sulphur content of gasoline and diesel. From January 2006, the permissible limits for sulphur content will be lowered to 50 parts per million from the current 130ppm for gasoline and from 430ppm to 30ppm for diesel.

17. Tokyo Campaign cuts PM Emissions

Data compiled by Tokyo air quality monitoring stations has revealed a 30% drop in year-on-year particulate matter (PM) emissions.

From 1 October, the Tokyo municipal government imposed a city ordinance requiring fleet owners and independently operated diesel-powered trucks and buses to install diesel particulate filters.

Data from 34 observation points along major arteries in the city showed that in October, PM levels averaged $32\mu/m^3$, down from $46\mu/m^3$ a year ago. In early November, data continued to show much lower PM emissions than a year ago although the manager of the city's Air Quality Maintenance Division stressed that the data are tentative and the data stream not long enough to reveal a clear trend.

18. Old Buses in Mumbai to be Scrapped

The Mumbai (formerly Bombay) high court has issued an order requiring old buses to be scrapped by 1 January, 2006.

The court directed that Bombay Electric Supply & Transport (BEST) phase out and replace buses over 15 years of age with Euro II or CNG buses. Currently BEST has more than 700 buses of this age. They directed the undertaking to introduce at least 100 CNG buses per year for six years starting in 2004-05. The court directed BEST to retrofit at least 250 buses with Euro-II engines during 2004-5, 300 in 2005-6, 350 in 2006-7 and 400 in 2007-8.

The ruling comes as a part of the series of orders in response to public interest litigation on ways to curb vehicular pollution in the city.

19. Kobe City introduces 'Green Delivery' Requirements

Starting from 20 October, Kobe City in Japan introduced a "green delivery" system under which the use of eco-friendly vehicles became mandatory for the delivery of goods to City Hall and other municipal offices.

Approved "Green delivery" vehicles are:

- Low emission vehicles powered by electricity, methanol, natural gas, or hybrid engines; and ultra low emission vehicles (U-LEV) classified as three-star vehicles in an overall evaluation system
- Gasoline-powered automobiles
- Liquefied petroleum gas (LPG) vehicles
- Diesel vehicles certified under the LEV-6 Program or fitted with a diesel particulate filter system.

20. Health Effects of Pollution in Asia

The Better Air Quality conference organized by the Clean Air Initiative for Asian Cities has been told that pollution in Asian cities is responsible for 500 000 deaths every year and the working lives of many are shortened by health problems from breathing filthy air.

However, in Dhaka, Bangladesh a 41% reduction in the concentration of fine airborne particulate has resulted from the phase-out of motorcycle taxis' 2-stroke engines.

The capital of Nepal, Kathmandu, now heads a list of 17 Asian cities with the dirtiest air, followed by New Delhi, Jakarta and China's second-largest city, Chongqing. The World Bank report said every 1 000 people in urban East Asia and the Pacific lose more than 12 productive years due to disability caused by air pollution.

21. 100 Million People inhale Polluted Air in China

Two in every five Chinese town and city dwellers, or over 100 million people, are inhaling polluted air every day, says the chairman of the Environment and Resources Protection Committee of the 10th National People's Congress (NPC).

More than a third of the 340 cities monitored by the committee reported level III or worse air quality, indicating polluted or poor air quality. Air quality in the country's urban areas is classified in five levels: level I or excellent, level II or fairly good, level III or slightly polluted, level IV or poor, and level V or hazardous.

GENERAL

22. EU, USA, Japan and China Transport Pollution Agreement

During the EU V conference in Milan, an agreement was signed between the European Union, the USA, Japan and China, which will allow for joint research on emissions and vehicle testing. It foresees the creation of a common scientific platform to measure and benchmark air pollution from traffic and will offer scientific support for forthcoming international emission requirements for transport to provide a basis for EU V standards for passenger cars and light duty vehicles.

The new Memorandum of Understanding is between the JRC, (the EU's Joint Research Centre), the US Environmental Protection Agency's National Vehicle and Fuel Emissions Laboratory (EPA/NVFEL), Japan's National Traffic Safety and Environment Laboratory (NTSEL) and State Environment Protection Administration (SEPA) in China. This results from co-operation within the United Nations Economic Commission for Europe working group on Pollution and Energy (GRPE).

23. Worldwide Motorcycle Certification Procedure

The United Nations GRPE (Emissions Group) is now expected to receive the draft Global Technical regulation on Motorcycle Certification Procedures at the June 2004 meeting.

The working group on the Fundamental Elements of the Worldwide Motorcycle Certification Procedure (WMTC-FE) plan to present their Technical Report on the test development as an official GRPE document to the June 2004 meeting of

GRPE. It is planned to present the draft Global Technical Regulation (GTR) at the same time.

24. Air Pollution even worse for Heart than Lungs

Long-term exposure to fine particles in polluted air is reported to be more likely to cause death from cardiovascular disease than from respiratory conditions.

In a 16-year study by Brigham Young University in Provo, Utah looking at pollution effects in 50 US metropolitan areas, 45.1% of deaths were attributable to cardiovascular disease, whereas only 8.2% were related to respiratory diseases. Further analysis confirmed a direct link between long-term particulate matter exposure and cause-specific mortality. The study found that each 10 micrograms-per-cubic-meter increase was accompanied by an 18% increase in risk of death from ischemic heart disease and a 13% increase in risk of death from altered heart rhythm, heart failure or cardiac arrest. It found that people living in more polluted cities have an 18% higher risk of dying from heart disease than those in less polluted areas.

The scientists fed the data into a model that estimated the effects of air pollution while controlling for other factors, including smoking, diet and occupational exposures. The study says the particles can cause inflammation of lung tissues, which in turn, triggers a range of defense mechanisms including an increase in sticky blood platelets that can clog arteries leading to the heart. Earlier scientific efforts had attributed the same problem to high levels of cholesterol in the blood, but inflammation from soot, Dr. Pope explained, "plays a bigger role than we ever understood before in terms of these fatty plaques."

Respiratory disease deaths were not consistently associated with particulate matter exposure, the authors note. Among people who had never smoked, such exposure was positively linked to mortality from pneumonia and influenza. Interestingly, however, chronic obstructive lung disease (COPD) and related deaths seemed to decrease as levels of particulate matter rose.

25. Study finds that SARS Deaths double with Pollution,

SARS, the new flu-like disease that swept China and across many parts of the world over the past year, is twice as likely to kill patients in polluted areas, US and Chinese researchers have reported.

SARS has a death rate that varies between zero and about 17%. Writing in the journal *Environmental Health: A Global Access Science Source*, the researchers said pollution could help explain the variable death rates - at least in China.

In regions with low air pollution, the death rate was 4.08%, whereas in areas with moderate levels, such as Beijing, the death rate was 7.49%, and in high air pollution areas it soared to 8.9%.

26. Haren Gandhi receives Technology Medal

President Bush has presented the Indian-born engineer Haren Gandhi of Ford Motor Company with the National Medal of Technology. This is the highest honour an American president can bestow for technological innovation and was awarded for decades of research and achievements to reduce pollution and improve air quality. Gandhi's pioneer work led to the development and improvement of the catalytic converter. His efforts have also led to improvements in the recycling of

the precious metals from discarded catalytic converters.

Gandhi lectures in India on emission technology and strategy for environmental issues. He was recently appointed to an Indian government advisory committee on automotive emission regulations. His current projects include efforts to make diesel engine emission controls as effective as those for gasoline engines.

FORTHCOMING CONFERENCES

Engenex 1 – Environmentally Aware Engineering

2 March 2004, DTI Conference Centre, London

More on www.engenex1.com

This is a new event which will provide a showcase for some of the latest technologies in the UK and Germany, providing opportunities for informal yet focussed partnering meetings.

2004 SAE World Congress

8-11 March 2004, Detroit, USA

Details from:

<http://www.sae.org/congress/index.htm>

5th European Fuels Conference – The Future of the European Refining Industry

15-17 March 2004, Paris More info from

www.wraconferences.com

3rd International Conference on Children's Health and the Environment

31 March - 2 April 2004, London school of hygiene and Tropical Medicine, London, UK

The conference is meant to be a world-wide platform dealing with health problems of children caused by environmental influences and themes will include Air Pollution, Environmental

Smoke, Heavy Metals etc.

25th International Vienna Motor Symposium

29-30 April 2004, Conference Centre Hofburg Vienna

More on <http://www.oevk.at> from mid December 2003; e-mail info@oevk.at

The Symposium will show Latest Results in Worldwide Engine Development, Future Legislation, New Engines and Fuels, Components, Electronics and Drive train. New Engines and Components will be exhibited.

11th Nordic Symposium on Catalysis

23-25 May 2004, Oulu, Finland

Deadline for submission of extended abstracts is 15 December 2003. Details at: <http://cc.oulu.fi/~polamwww/nordic.html>

The aim of this symposium is to bring together all Nordic scientists working in field of catalysis. The symposium is a biennial meeting and the focus is Catalysis for a Sustainable Future. The three-day programme will include plenary lectures by invited plenary speakers, oral presentation of submitted papers, and a poster session.

World Automotive Congress FISITA 2004

23-27 May 2004, Barcelona, Spain

More on www.fisita2004.com

FISITA is a global conference on automotive technology with a session on "vehicles and the environment" dealing with, amongst other topics, emissions.

Engine Expo 2004

25-27 May 2004, Messe Stuttgart, Germany.

More on www.engine-expo.com

International Symposium on Internal Combustion Diagnostics

15-16 June 2004, Baden-Baden Kurhaus

Details from:

www.combustion-diagnostics.com

Themes are Pressure Indicating Technology, Visualisation and Simulation. The Symposium will be rounded off with papers on the use of these tools for further development of the HCCI combustion process.

2nd Emission Control 2004

17-18 June 2004, Dresden, Germany

More from the Institute of Internal Combustion Engines and Motor Vehicles (IVK), Dresden University of Technology, 01062 Dresden.

Emphases include: Spark ignition & diesel engines; emissions reducing methods applied within the engine; active and passive exhaust gas aftertreatment; control strategies; sensor technology; diagnostics; exhaust gas test methods; fuels & lubricants.

ISOTOPCAT – Isotopes in Catalytic Studies

7-9 July 2004, Poitiers, France

Abstracts are due 1 December 2003.

Details at: <http://labo.univ-poitiers.fr/umr6503/isotopcat/invitation/index.html>

ISOTOPCAT will deal with isotopes use in catalysis for mechanistic, kinetic and characterisation purposes. Four sessions will be organised covering Isotopic labelling for mechanistic studies; Isotopic exchange with solids (characterisation); Reaction kinetic studies using isotopes; Isotopic effects in heterogeneous catalysis