

N AECC Newsletter

Association for Emissions Control by Catalyst
Av. de Tervueren 100, B-1040 Brussels

Affiliated to CEFIC

January – February 2003

INTERNATIONAL REGULATORY DEVELOPMENTS

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For further information contact:

ASSOCIATION FOR EMISSIONS CONTROL BY CATALYST

Avenue de Tervueren 100, B-1040 Brussels

Tel: +32 2 743.24.90, Fax: +32 2 743.24.99

Email: info@aecc.be, Web: <http://www.aecc.be>

EUROPE

1. EU releases Draft Directive on Non-Road Engine Emissions

A substantial strengthening of EU limits on nitrogen oxides (NOx) and particulate emissions from non-road machinery has been proposed by the European Commission. Otherwise non-road mobile machinery will be responsible for even more NOx emissions than road transport by 2020, and nearly as much particulates.

The proposal covers engines used in a wide range of machinery, especially used in the construction industry. Agricultural and forestry tractors will, under the Commission plan, be aligned to the same limit values and introduction dates through comitology as soon as the directive is finalised. Railway locomotives are excluded from the scope of the current and the proposed new directive but other railway applications (railcars, etc.) are covered as well as craft used on inland waterways.

The proposals would cut maximum allowable NOx emissions from regulated machinery by 30-40% in 2006. Particulate

limits in 2010 would be up to 90% tougher than current standards in 2010.

On both NOx and particulate emissions the Commission's proposal strongly reflects international experience, and largely follows rules already enacted by the USA.

For larger engines, identical new NOx standards would take effect simultaneously in Europe and USA. For those rated 19-37 kilowatts the EU limits would be the same as US limits but take effect two years later.

The proposed emission limits envisage fitting filters to cut particle emissions. Implementation would be subject to a 2006 review of technical progress in the development and application of technology.

The review would also consider the feasibility of even stricter NOx limits based on the availability of after-treatment equipment, which the USA has indicated it eventually wants to adopt. A further tightening of limit values for engines in the 19-37 kW power band will also be discussed.

Category: Net power (P) (kW)	Carbon monoxide (CO) (g/kWh)	Sum of hydrocarbons and oxides of nitrogen (HC+NOx) (g/kWh)	Particulates ¹ (PT) (g/kWh)	Particulates ¹ (PT) (g/kWh)
			Prelim. Proposal	Final Proposal
L: 130 kW ≤ P ≤ 560 kW	3.5	4.0	0.03	0.025
M: 75 kW ≤ P < 130 kW	5.0	4.0	0.04	0.025
N: 37 kW ≤ P < 75 kW	5.0	4.7	0.05	0.025

Table 1: Stage IIIB limit values

¹ PM standards subject to a technical review by the end of 2006. For applications where PM trap technology or similar is not possible the following limit values will tentatively apply 0.15; 0.20; 0.25

Category: Net power (P)	Enter into force dates	
	Prelim. Proposal	Final Proposal
L: 130 kW ≤ P ≤ 560 kW	31 December 2009	31 December 2010
M: 75 kW ≤ P < 130 kW	31 December 2010	31 December 2010
N: 37 kW ≤ P < 75 kW	31 December 2011	31 December 2011

Table 2: Stage IIIB. Enter into force dates. (Placing on the market dates).

2. New Car Registrations in Italy surge following Government's 'Green' Tax Breaks

New car registrations surged at the end of 2002, apparently benefiting from incentives aimed at encouraging purchases of environment-friendly vehicles. Ministry of Industry figures show that 198,600 new cars were sold in Italy in December - the last month for the "green" incentives - a 51% increase over sales a year earlier.

3. UBA finds high NOx Emissions from Trucks

A study by the Umweltbundesamt, the German Federal Environment Agency, has found that trucks on German roads are emitting up to twice as much nitrogen oxides (NOx) than permitted under the current EU directives on the prescribed test procedure.

Experts from the UBA revealed that while truck emissions were below the EU-mandated limit during the test procedure in the directive, vehicles emitted more than twice this level when on the roads. The results of the controversial study were broadcast on the German television news programme, Monitor. Dr Axel Friedrich, who led the team of experts, told the programme that the engines were programmed to meet EU emissions standards, including the one pertaining to NOx, under test cycle conditions. Yet when the trucks were on the road, EU limits on

NOx emissions were exceeded for the sake of fuel efficiency.

The environment agency estimates that the failure of the engines to meet EU standards causes an additional 140,000 tons of NOx pollution in Germany per year. The German motor industry association (VDA) firmly maintains that all truck engines currently in use adhere to EU emission limit values rules and would continue to do so when more stringent values are introduced.

4. EU adopts Low Sulphur Fuels from 2005

The European Union has completed a directive requiring much lower amounts of sulphur in petrol and diesel from 2005, and "sulphur free" fuels by 2009. The conciliation agreement, a compromise between the Commission proposal and Council and Parliament positions, was approved in a vote in the plenary session of the European Parliament on 30 January 2003 after the 3rd reading and the Council of Ministers approved the measure on 7 February 2003.

The agreement allows sulphur-free (<10 ppm) petrol and diesel to be phased in over the period from 2005 to 1 January 2009.

This now completes the fuel specifications provided for in Directive 98/70/EC by a phased reduction of the sulphur content in petrol and diesel fuels.

Limiting sulphur content to 10 parts per

million (ppm) will allow industry to develop new generations of "lean burn" fuel-efficient engines and improve the efficiency of catalytic converters, according to EU Environment Commissioner Margot Wallström. Zero-sulphur road fuel also will help the EU reach its goal of reducing average carbon dioxide emissions from new cars to 120 grams per kilogram of fuel.

The 2009 deadline for completing the EU-wide changeover to zero-sulphur road fuels represents a two-year advance on the Commission's original proposal, which had recommended a 2011 deadline. The reduction to 10 ppm by 2009 represents the second stage of fuel quality improvements envisioned in the 1998 directive, which mandates a limit of 50 ppm for 2005.

The final text also provides for review by 2006 of the quality of fuel used by non-road mobile machinery, such as tractors used in farming and forestry and construction equipment such as earthmovers and bulldozers.

The new legislation will require the oil industry to ensure that by 2005 zero-sulphur fuels are available across Europe on a "sufficiently balanced geographical basis" to allow drivers to refuel without having to drive long distances.

A further amendment secured by the Parliament will require the Commission to review technical issues regarding fuel quality in light of EU moves to encourage use of bio fuels.

5. UK Air Quality improves

The latest data indicate that the UK's air quality is improving. The air quality indicator for 2002 shows that in urban areas air pollution was recorded as moderate or

worse on 14 days on average per site compared with 24 days the previous year. In rural areas, the provisional figure for 2002 is 23 days on average per site, compared with 30 days recorded during 2001. The latest figures show that in urban areas there is a clear downward trend since 1993 in the average number of days of moderate or higher air pollution. The trend in rural areas has been variable.

6. PSA sold 400 000 Cars with Particulate Filters

PSA Peugeot Citroën says that it has sold nearly 400 000 cars equipped with diesel particulate filters since the system was first launched in May 2000. The PSA particulate filter system was first introduced on the Peugeot 607 HDi 2.2. In 2001 the filter system was introduced on the Peugeot model 406 HDi 2.2, and then on a number of other cars powered by Peugeot engines. The Group will sell an estimated 1 million filter equipped vehicles in 2005.

7. Commission Research to tackle Urban Air Pollution

The European Commission's Joint Research Centre (JRC) has launched a pilot study together with Lombardy regional environmental protection agency (ARPA) to measure urban air pollution in Milan in January and February 2003. The study will determine the source of harmful pollutants and is the first to use the latest JRC technology, the mass-spectrometer-based Single Particle Analysis and Sizing System (SPASS). By enabling full identification and measurement of different types of air pollution, such as traffic, heating and factories, the research aims to help achieve acceptable air quality levels throughout Europe.

8. Small Non-Road Engines Directive

Directive 2002/88/EC of the European Parliament and of the Council of 9 December 2002 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery has been published in the Official Journal L35 on 11 February 2003.

The scope of the current Directive 97/68/EC is now to cover small spark ignition engines also. This will contribute to achieving ambient air quality targets especially concerning formation of ozone.

NORTH AMERICA

9. Economic Slowdown curbs U.S. GHG Emissions

US emissions of greenhouse gases (GHG) caused by human activity declined slightly in 2001 compared to the previous year for a number of reasons, including the drop in overall economic growth, according to a US Department of Energy report. The 1.2% decline from 2000 to 2001 is the largest percentage annual decline in total US greenhouse gas emissions during the 1990 to 2001 timeframe.

10. Engine Makers balk at Plan for Trading in Non-road Diesel Rule

Diesel engine manufacturers are baulking at White House efforts to establish emissions trading between highway and non-road engines in an upcoming rule regulating farm and construction engines. It appears that the engine makers oppose the trading concept due to concerns it could create competitive disadvantages within the industry.

The debate is occurring as EPA is drawing closer to proposing the non-road emissions rule.

11. New Canadian Emissions Regulations largely harmonise with US Standards

On 1 January 2003, Environment Canada issued final regulations that it said would reduce smog-related vehicle emissions by up to 95% and make Canadian standards more compatible with those of the United States.

The On-Road Vehicle and Engine Emission Regulations, scheduled to take effect on 1 January 2004, largely harmonise Canada's emissions standards with those currently imposed by the US Environmental Protection Agency, but provide some unique features to take into account Canada's smaller vehicle market.

The regulations continue the current approach of requiring vehicles to meet the same emission standards to which they are certified for sale in the United States. This will result, during transition periods, in comparable emission performance on both sides of the border.

12. EPA unveils Voluntary Programme to cut US Truck and Train Greenhouse Emissions

The US Environmental Protection Agency has unveiled a voluntary programme with leading multinational corporations to reduce the amount of greenhouse gas emissions they emit that are linked to global warming. The programme aims to cut by 2012 significant amounts of air pollution and heat-trapping emissions from ground freight carriers like trucks and locomotives.

EPA hopes the programme will reduce 18 million metric tons of carbon equivalent and

200 000 tons of nitrogen oxides over the next decade. The program will also create fuel savings of up to 150 million barrels of oil a year, according to EPA.

13. CARB to push for Software Upgrade for NOx Control

CARB staff is proposing a regulation to require a heavy-duty diesel engine software upgrade for applicable model year 1993 to 1998 engines. This software upgrade will reduce the excess pollution from 1993 to 1998 trucks and buses.

In the 1990's, engine manufacturers utilised computer-based strategies on engines in trucks, school buses, urban buses and motor homes that allowed the engines to comply with emission limits under certification conditions but also allowed increased oxides of nitrogen (NOx) emissions during highway driving. The US EPA and CARB consider these strategies to be defeat devices that result in increased off-cycle emissions.

In 1998, the manufacturers signed Consent Decrees with the EPA, the Department of Justice, and CARB. The Consent Decrees stipulate penalties, additional certification requirements, the Low NOx Rebuild Program (engine software upgrades designed to reduce the increased NOx emissions), an October 2002 deadline for meeting 2004 model year standards, in-use testing, and offset and incentive programmes.

14. Mercedes-Benz to Sell Low-Emission Diesel Cars in USA in 2004

Mercedes-Benz has announced that it will begin selling a low emission, fuel-efficient diesel version of its popular E-Class in the United States beginning in 2004. The

German automaker said the car's engine is 30% more fuel efficient than its petrol equivalent, achieves lower exhaust emissions and is much quieter than previous diesels, even at idle. The new E320 CDI contains a turbocharged 6-cylinder engine with electronic fuel injection, that makes the E320 CDI (common-rail) engine “cleaner, quieter and more powerful” than conventional mechanically injected diesel engines, according to a Mercedes-Benz press release.

Mercedes hope the new technology on the E320 CDI will change US consumers’ “dated perceptions about diesel engines.”

ASIA-PACIFIC

15. New Zealand ratifies Kyoto Protocol

New Zealand’s Prime Minister has signed the document confirming New Zealand's ratification of the Kyoto Protocol. Under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, New Zealand is not to exceed 1990 emission levels, on average, during 2008-2012.

16. New Zealand is moving to Motor Vehicle Emission Standards

The New Zealand government on 9 December 2002 released the final draft of a new vehicle exhaust emissions rule expected to become law on 29 July 2003. The rule will ensure that all vehicles entering New Zealand are manufactured to an emissions standard.

New Zealand does not currently have vehicle emissions legislation, but the Transport Ministry is developing a broad programme for reducing emissions from vehicles. The programme may include testing the emissions performance of in-

service vehicles and of imported used cars and trucks at the time they enter the country.

The proposed new rule is a first step in this broader programme as it ensures that vehicles entering the fleet for the first time are built to standards that will allow them to subsequently pass in-service testing if maintained in good condition.

The new rule will apply to new and used petrol and diesel light vehicles that enter New Zealand from 1 January 2004. Heavy vehicles must comply with the rule by 1 January 2005. The intent of the rule is to align New Zealand's vehicle emissions standards with those of Australia, the US Federal standards, Japan, and Europe.

17. Japan to toughen requirements on Tailpipe Emissions

On 1 April 2003 Japan will begin to conduct vehicle tailpipe emissions testing for nitrogen oxides (NOx), sulphur oxides (SOx), and particulate matter (PM). The testing will pave the way for tougher auto emission standards to be instituted in 2005.

Under the present Japanese auto emission system, motor vehicles off the assembly line must comply with emission standards for NOx, SOx, hydrocarbons (HC), and carbon monoxide (CO), but once registered they only need to meet HC and CO emission standards. Inspections "on an experimental basis" on vehicles on the road will start this spring. The inspections will cover both private and commercial petrol- and diesel-powered vehicles.

The Tokyo, Nagoya, and Osaka urban areas began in October to ban the use of diesel vehicles that do not meet their new emission standards on NOx and PM.

AFRICA

18. Africa accelerates Switch to Unleaded Petrol

Africa is accelerating its switch towards unleaded petrol but is still lagging behind in totally phasing out leaded petrol, the United Nations Environment Program (UNEP) has announced. A UNEP report, presented to environment ministers attending a conference in the Kenyan capital Nairobi, showed that within five years most African countries will have phased out, or almost phased out, lead from petrol.

UNEP warned that lead emissions released with exhaust fumes lead to many ailments including respiratory problems, saying that children are the most vulnerable. The heavy metal contaminates the air and pollutes engines, raising vehicle maintenance costs.

About 90% of the world's petrol supplies are unleaded, but the remaining 10% is made up of leaded fuel found mainly in Africa and some countries in Asia and Latin America according to the report.

UNEP blamed Africa's slowness to switch to unleaded fuel mainly on outdated technology, but said a lack of awareness of the health risks and misconceptions about the impact of unleaded fuels on the engines had also played a part.

Only four African countries, Egypt, Libya, Mauritius and Sudan, are already fully lead-free. Morocco, Reunion, Tunisia and Western Sahara will join them this year.

UNEP said that more than 20 African countries, including Eritrea, Ghana, Kenya, Nigeria, South Africa, Togo and Uganda, had drawn up or were in the process of making plans to phase out leaded petrol by 2005-2006.

19. Workshop to consider Lead Phase-Out held in South Africa

A 3-day workshop to discuss the issues related to the phase-out of lead and reduction of sulphur in South African fuels by 1 January 2006 was held in Pretoria in late January. Discussions revolved around the technical, economic and public awareness processes for the phase-out of lead and set the stage for future debate and interaction on the processes related to this initiative.

Delegates recommended that the Fuels Reformulation Committee set up a task team to deal with the development of an overall communications strategy as a matter of urgency and to put recommendations to the next meeting.

Among the subjects that drew extensive comment during the workshop were fuel additives. In particular, debate centred on whether MMT should be used considering that it is a metallic additive.

GENERAL

20. Two New Studies show Health Damage from Air Pollution

In the first study¹, national maps of relative rates of mortality associated with short-term exposure to particulate matter <10 µm in aerodynamic diameter (PM10) are presented. Results for 88 of the largest metropolitan areas in the United States from

1987 to 1994 for all-cause mortality, combined cardiovascular and respiratory deaths, and other causes of mortality are reported.

Daily variations of PM10 were found to be positively associated with daily variations of mortality. In particular, the relative rate estimates of cardiovascular and respiratory mortality associated with PM10 are larger on average than the relative rate estimates of all-cause and other-cause mortality. The spatial characterisation of effects across cities offers the potential to identify factors that could influence the effect of PM10 on health, including particle characteristics, offering insights into mechanisms by which PM10 causes adverse health effects.

In the second study the authors conclude that increases in low concentrations of air pollution are associated with increased daily mortality.² The concentration-response relationship between daily ambient inhalable particle (particulate matter ≤10 µm or PM10) concentrations and daily mortality typically shows no evidence of a threshold concentration below which no relationship is observed. The concentrations of PM10 and other air pollutants in Vancouver, British Columbia, Canada, from January 1994 through December 1996 were very low. Analyses of 3 years of daily pollution (PM10, ozone, sulphur dioxide, nitrogen dioxide, and carbon monoxide)

¹ “National Maps of the Effects of Particulate Matter on Mortality: Exploring Geographical Variation”, Francesca Dominici, Aidan McDermott, Scott L. Zeger, (Department of Biostatistics and Department of Epidemiology, Bloomberg) and Jonathan M. Samet (School of Public Health, The Johns Hopkins University, Baltimore, Maryland, USA), *Environmental Health Perspectives* Volume 111, Number 1, January 2003

² “Air Pollution and Daily Mortality in a City with Low Levels of Pollution”, Sverre Vedal, (Department of Medicine, National Jewish Medical and Research Center, Denver, Colorado, USA), Michael Brauer, (Department of Medicine, School of Occupational and Environmental Hygiene), Richard White and John Petkau (Department of Statistics, University of British Columbia, Vancouver, British Columbia, Canada), *Environmental Health Perspectives* Volume 111, Number 1, January 2003.

concentrations and mortality counts showed that the dominant associations were between ozone and total mortality and respiratory and cardiovascular mortality in the summer, and between nitrogen dioxide and total mortality in the winter, although some association with PM10 may also have been present.

FORTHCOMING CONFERENCES

Autoabgaskatalysatoren

24-25 March 2003, Technische Akademie Esslingen

More info from anmeldung@tae.de

2 days seminar (in German) on the production, application and recycling of autocatalysts.

21st Annual World Fuels Conference: Refining 2003 and Beyond

25-27 March 2003, Adam's Mark Riverwalk Hotel, San Antonio, TX, USA

Details from: Tel: 1-800-897-HART (U.S. only), +1 301 354 2046, Fax: +1 301 424 7260

VDA Technical Congress 2003

2-3 April 2003, CongressPark Wolfsburg, Germany

Info from <http://www.vda.de/technical-congress>

Topics on Environment and Energy will be dealt with in parallel sessions.

2nd AVL Commercial Powertrain conference

3-4 April 2003, Graz, Austria

Details from: <http://www.avl.com/icpc>

The conference will focus on exploring the similarities and synergies between three

different markets: commercial vehicles, agricultural tractors and construction equipment.

24th International Vienna Motor Symposium

15-16 May 2003, Vienna, Austria

Details from: <http://www.oevk.at>, as from mid December 2002.

The symposium will cover Latest Results in Worldwide Engine Development, Future Legislation, New Engines and Fuels, Components, Electronics, Drive Train.

Hart World's Fuel Conference - Europe

19-21 May 2003, Brussels

Details from Tim Lloyd Wright at +46 31 971448, tim@timlloydwright.com

European refining and automotive issues.

Joint JSAE/SAE International Fuels and Lubricants Symposium

19-22 May 2003, Yokohama, Japan

Details from: <http://jsae.or.jp/intconf/>

With the participation of European industry. Programme includes Combustion, Emissions, Lubricants and Fuels.

9th International Inhalation Symposium Effects of Air Contaminants on the respiratory Tract – Interpretations from Molecules to Meta Analysis

11-14 June 2003, Hanover, Germany

Sponsored by Fraunhofer Institute and US EPA, National Health and Environmental Effects Research Laboratory

Details from +49 511 5350120, sekretariat@ita.fhg.de

The symposium is to foster a multidisciplinary approach to solving

problems in inhalation toxicology and will focus on particles themselves and on particles as components of complex mixtures of air pollutants.

“Transport and Air Pollution” and “Environment & Transport” – International Scientific Symposia

16-18 and 19-20 June 2003, Avignon, France

Details from:

www.inrets.fr/services/services.e.html

Organised by INRETS. Call for papers.

Clean Air 2003 – Seventh International Conference on Energy for a Clean Environment

7-10 July 2003, Lisbon, Portugal

Details from: <http://navier.ist.utl.pt/cleanair>

Abstracts for papers required by 24 January 2003. The conference will deal with the reduction of local and global environment degrading emissions and aims at a better integration of supply and demanding side, while covering all the end users sectors with emphasis on industry and transport.

European Congress on Advanced Materials and Processes - Euromat 2003

1-5 September 2003, Lausanne, Switzerland

Organised by Deutsche Gesellschaft für Materialkunde e.V. The full call for papers is available on the conference website: <http://www.euromat2003.fems.org>

Deadline for submitting abstracts was 31 January.

6th International Congress on Catalysis and Automotive Pollution Control (CAPoC6)

22-24 October 2003, Brussels

Details from Prof. N Kruse at ULB (nkruse@ulb.ac.be) or from CAPoC6 web site:

<http://www.ulb.ac.be/sciences/cpmct/capoc6/index.html>

Covers applications and requirements of catalysis in automotive (including cars, light and heavy duty vehicles) emission control, including catalyst technologies, fuel cell catalysis, materials for catalysts, washcoat and fuel-borne catalysts, particulate emission control, lean NOx emission control, unregulated pollutants, integrated emission control systems and alternative fuel technologies. Submission of extended abstracts (1-2 typewritten pages) was due by 20 January 2003.