

# N<sup>AECC</sup>ewsletter

Association for Emissions Control by Catalyst

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Affiliated to CEFIC

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## September – October 2004

### INTERNATIONAL REGULATORY DEVELOPMENTS

#### Table of Contents

EUROPE .....	2
1. European Environment Council Debate on Sustainable Transport.....	2
2. Environment Policy leads to Sustainable Growth.....	2
3. Directive on Replacement Catalysts for Motorcycles.....	3
4. Cost of Particle Pollution .....	3
5. Greek Report notes reduced Smog but rise in Other Pollutants .....	3
6. Environment Agency Report for Policy-Makers .....	3
7. French Minister on 'Clean Car' Tax Differentials.....	4
8. European Parliament Debate on Aircraft Emissions .....	4
9. Volvo Vehicle Pollution Forum .....	4
10. Italian Tax and Incentives Proposal .....	5
11. Lombardy Region Incentives for Clean Two-Wheelers .....	5
12. London Buses SCR Tests .....	5
13. Grant for Fitment of Diesel Particulate Filters in Wales .....	5
14. Swiss Predict slower decline in Automobile Emissions .....	5
15. Mercedes announces more Diesel Particulate Filters .....	6
16. Danish Budget includes Tax Cuts for Sulphur-free Fuels .....	6
17. Mondial de l'Automobile.....	6
18. International Commercial Vehicles Motor Show .....	6
NORTH AMERICA .....	7
19. ARB approves Greenhouse Gas Emissions Reduction Rule.....	7
20. Canada to amend Diesel Fuel Sulphur Regulations .....	7
21. California requires Mexican and Canadian Trucks must meet US Emissions Standards .....	7
22. PM Sensor development .....	7
23. US Diesel Market prediction.....	8
24. Harmonisation of Off-Road Diesel Engine Emission Regulations.....	8
25. Controlling PM from existing Off-Road Diesel Engines .....	8
26. EPA Report shows drop in six Principal Pollutants.....	8
27. California Regulations for Small Off-Road Spark-Ignited Engines.....	8
28. Report on Catalyst Testing for Inboard/Stern-drive Pleasure Craft.....	9
SOUTH AMERICA .....	9
29. Argentina opens first Automobile Test Lab.....	9
ASIA-PACIFIC .....	9
30. Japan moving more quickly to Sulphur-free Fuels .....	9
31. China sets Fuel Economy Rules.....	9
32. Lung Ailments affect two people in every five in India's Capital .....	9
GENERAL .....	10
33. Diesel Exhaust Exposure linked to Ovarian Cancer .....	10
34. Particulates cut Lifeguard's Lung Capacity during a 12-hour Day.....	10
35. Study says Traffic boosts Risk of Heart Attack.....	10
FORTHCOMING CONFERENCES .....	11

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## EUROPE

### 1. European Environment Council Debate on Sustainable Transport

On 14 October, the European Environment Council has held a debate on sustainable road transport, focussing particularly on harmful emissions from road transport - especially from diesel vehicles - and greenhouse gas emissions.

Positions expressed by the Ministers were:

**France:** filters for diesel cars are an absolute priority and Euro 5 standards are needed before the end of the year. Proposed a 20% NOx reduction from Euro 4 with a review clause for a 2nd step following technology progress.

**Sweden:** catalyst technology to reduce NOx from light- and heavy-duty vehicles should be used and diesel particle filters should allow tightening of the diesel PM standard.

**Italy:** the Euro 5 standard should be an ambitious one and should drive innovation and not necessarily favour one specific technology. Clean vehicles are especially needed in the urban environment.

**Belgium:** asked for a fast solution imposing new stronger standards for passenger cars and trucks. A 2-step approach for PM and NOx was suggested as well as a standard for ultrafine particles.

**Germany:** proposals for fine particles and NOx have to come very soon as possibilities for tax incentives are running out with Euro 4 coming. A PM limit of 2.5 mg/km is justifiable and would force DPF on diesels.

**Austria:** a 70% decrease of Euro 4 NOx levels is wanted and possible for Euro 5. Austria also pleaded for a further reduction of heavy-duty NOx levels from 2 g/kWh to 1g/kWh.

**Luxembourg:** supported the idea for Euro 5 and 6 with a total NOx reduction of 70% from Euro 4 levels.

**Denmark:** stricter emission standards for diesels would force filters on these vehicles. Once these vehicles are clean, the share of

diesels could be increased to meet the CO<sub>2</sub> target.

The outgoing Environment Commissioner, Ms Wallström said that WHO studies indicated that PM is responsible for 100 000 premature deaths in Europe alone. The Euro 5 proposal - part of the Clean Air For Europe strategy - is expected to be completed by mid 2005. However, to allow Member States to formulate incentives for clean technologies, a first orientation for future Euro 5 levels will be given before the end of 2004. She strongly urged that "neither the Commission, nor the motor industry, can 'pick and mix' between reducing greenhouse gas emissions and minimising regulated pollutants".

Summing up, the Council President, Mr Van Geel - the Netherlands State Secretary for Environment -, said the Council is urgently calling upon the Commission to come forward with additional measures for clean air. Euro 5 for diesel should include a drastic reduction of fine particles by using DPF technology that is available today. He said several Member States agreed that solutions for reducing NOx levels will exist in future and that the target should be 70%. He suggested that the Commission propose a Euro 6 standard to go with Euro 5, especially for NOx reduction and durability, and added that real-world emissions should be much closer to the standard. Finally he said that innovative technologies will help the competitiveness of Europe's automotive sector.

### 2. Environment Policy leads to Sustainable Growth

A report for the Dutch Environment Ministry says that EU environmental policy has achieved high economic growth whilst reducing pollutant emissions, compensating investment costs by benefits for society.

The report, "Outstanding environmental issues - a review of the EU's environmental agenda" prepared by the Dutch National

Institute for Public Health and the Environment (RIVM), cites OECD statistics showing that investments in green technologies needed to achieve these results would amount to between 1.5% and 2% of GDP in Western Europe. These investments, the report argues, are "more than compensated by benefits to human health and improvements in ecosystems due to investments in technology and employment".

### **3. Directive on Replacement Catalysts for Motorcycles**

A draft European Directive on replacement catalysts for motorcycles and three-wheelers has been agreed by the EU's Committee for Adaptation to Technical Progress (CATP).

Type approvals will be required from 1 September 2005. In most respects the draft is based on and similar to that for Light Duty vehicles, but there are some differences; for instance test vehicles fitted with candidate units must simply meet the requirements of the appropriate emissions limits, rather than also being compared with the original unit.

### **4. Cost of Particle Pollution**

Every kilogram of fine particles emitted in Denmark costs the economy DKr 140-2000 (€19-269) in health costs. The figures are presented in a research study by the National Environmental Research Institute under the framework of the EU ExternE programme, which aims at calculating environmental externalities of pollution in monetary terms.

### **5. Greek Report notes reduced Smog but rise in Other Pollutants**

As Athens makes progress in reducing smog, new and potentially more dangerous forms of air pollution continue to affect the Greek capital, according to a government report.

The Ministry of Environment, Town Planning, and Public Works 2003 annual report says that the most serious public health hazard is posed by suspended particulate matter and benzene. NO<sub>x</sub> and

ground-level ozone also present severe problems, for which the increasing numbers and poor conditions of motor vehicles are to blame, the report says.

Concentrations of suspended particulate matter measuring less than ten microns in diameter (PM<sub>10</sub>) are frequently above safety levels at most monitoring stations in Athens. According to the report, even parts of greater Athens that ought not to be affected by pollution, such as the summit of Mount Pendeli on the capital's northern fringes, have high levels of airborne particles. During the Olympic Games in August, scientists from IES recorded PM<sub>10</sub> concentrations of 200µg/m<sup>3</sup>, which is four times the EU safety threshold of 50µg/m<sup>3</sup>.

### **6. Environment Agency Report for Policy-Makers**

The European Environment Agency (EEA) has issued a report on ten key transport and environment issues for policy-makers.

Of the ten indicators, only two are positive, one of which is vehicle emissions. The report says that "The vehicle fleet is gradually becoming cleaner due to improvements in the technology required to meet European emission standards. Improvements are occurring significantly faster than the growth in traffic volumes, with absolute reductions in emissions of harmful substances to the air. Nonetheless, further initiatives will still be needed to reduce people's exposure to damaging pollutants and to achieve the air quality targets set for 2010 especially for NO<sub>x</sub> and fine particles".

It notes that "there is, however, increasing evidence that standardised test cycles used for the type approval of vehicles do not necessarily represent real world driving conditions. The issue of 'chip-tuning' of diesel vehicles to boost power at the expense of fuel consumption and low emissions is a cause for concern".

### **7. French Minister on 'Clean Car' Tax Differentials**

The French Ecology Minister has announced that he has no date for the entry into force of the "bonus-malus" system previously proposed to encourage the purchase of more environmentally-friendly cars.

Two working groups have been created, with the French National Assembly and the Senate, to study the question. Previously he had renewed his commitment to introducing proposals for penalties for high CO<sub>2</sub> vehicles and incentives for the purchase of low-polluting ones. He had said that he planned to assess the progress of the plan at the end of September, and to announce further fiscal measures based on the July proposals. After discussions between the ecology, interior and finance ministries a parliamentary working group is to study proposals for 'practical plans on a European level'.

### **8. European Parliament Debate on Aircraft Emissions**

Aircraft emissions were discussed at the first plenary session of the new European Parliament in Strasbourg on 13 September.

Initial proposals from ICAO, the International Civil Aviation Organization, to control aircraft emissions had included economic (market) instruments, voluntary measures, and possibly emissions trading and taxes. However, it seems that ICAO will now propose eliminating the option of market instruments. The European Commission said that emissions from aviation are increasingly significant and they will press to keep all options – taxation, emissions charging and emissions trading – open. They will also study the technical feasibility of introducing aviation emissions trading schemes and will look at different solutions in this area. The conclusions are expected in nine months, and the Commission intends to propose measures on this basis.

### **9. Volvo Vehicle Pollution Forum**

"Facing Facts on Vehicle Pollution – Finding Global Consensus on Environmental Rules" was a seminar organised by Forum Europe and Volvo Group in Brussels on 14 October.

A speaker from DG Environment (European Commission) said that decisions need to be made at the appropriate level - National, European or Global - and cited two examples on global regulation. He said that the World Motorcycle Test Cycle (WMTC) used one third proportions of Japanese, US and European driving behaviour and so is no longer representative for any region. On the other hand alignment of the EU's new Non Road Mobile Machinery (NRMM) requirements with the US had resulted in manufacturers being prepared to give a little more to get harmonisation.

MEPs noted that particle emissions, largely from road transport, cause at least 100 000 deaths a year in Europe and stressed the need for strong emissions standards for cars, light vans and lorries. Euro 5 and Euro 6 must be introduced as soon as possible.

DG TREN (Transport & Energy) said that diesel engines must become still cleaner. The EU average shows a 25% reduction in pollutants overall, with a factor of 5 decrease expected by 2010, but there are negative messages at a local level. The new Commission will firstly set harmonisation guidelines for local clean zones, secondly promote energy efficient vehicles and thirdly encourage substitution with clean fuels.

ACEA said that modelling shows that the big polluters are now not cars but ships and industry. DG Environment responded that the CAFÉ programme is providing a multi-sectoral view of emissions, and confirmed that ships are now a large source and are especially important in the long distance transport of particulates. For road traffic, retrofitting is an excellent tool and should be taken up.

### **10. Italian Tax and Incentives Proposal**

Italy's Environment Minister says his department is working on a way of calculating road taxes depending on a car's pollution level - the size of engine, registration year and fuel type. He said that taxes on gas-guzzlers such as SUVs could be used to fund the reintroduction of incentives for people to scrap old cars and buy more environmentally friendly ones.

Details of the plan will only be decided in parliamentary debate on the 2005 budget, but the tax could add 5% to the cost of larger, more polluting vehicles. The higher fees will probably be added to the cost of renewing licence plates, which drivers in Italy must do every two years.

### **11. Lombardy Region Incentives for Clean Two-Wheelers**

An incentives agreement between the Italian Regione Lombardia and the Associazione Nazionale Ciclo Motociclo Accessori (ANCMA) aims to speed up the renewal of mopeds, scooters and motorcycles.

From 1 October a total of about €3 million in incentives is available to citizens of Lombardy for two wheelers with low emission impact, providing:

- €100 for the purchase of Euro 2 standard mopeds or €250 if fuel consumption is below 2.3l/100km,
- €150 for registration of scooters or motorcycles <125cc and €250 for scooters or motorcycles of 126 to 255cc.

The incentive will be increased by €50 for the associated scrapping of any "Euro 0" two-wheelers.

### **12. London Buses SCR Tests**

Transport for London (TfL) has announced a trial to reduce NOx from Euro 2 and 3 buses. SCR will be retrofitted to up to 20 vehicles, while EGR will be installed on ten.

The retrofitted buses will run in London for a few weeks before going to Millbrook automotive proving grounds to undergo low-speed test and evaluation cycles. If the trials are successful, SCR and EGR could start to be fitted to thousands of London buses, starting in March 2005.

### **13. Grant for Fitment of Diesel Particulate Filters in Wales**

Denbighshire County Council has received a grant from the UK's Energy Saving Trust to reduce emissions from a large number of its council vehicles. The Council has been awarded grants of £236,000 by Trust's CleanUp Wales TransportEnergy project to fit 73 existing council vehicles – including buses, school mini-buses, dust carts and road gritters - with diesel particulate filters.

### **14. Swiss Predict slower decline in Automobile Emissions**

Pollution from motor vehicle emissions in Switzerland will continue to decline over the next 25 years despite a projected increase in number of vehicles on the road, according to a forecast issued by the Swiss Federal Office for Environment, Forests, and Landscape.

Stricter emission standards for motor vehicles adopted since 1980 have had a positive impact on improving air quality and will continue to do so through to 2030. The study nevertheless warns that the projected decrease in emissions is less than earlier estimates, and says that "supplementary measures are necessary for sustained improvements... . In particular, this means using more advanced technologies and introducing stricter norms for nitrogen oxides (NOx) and particulates."

The agency said that one reason for the smaller than anticipated decrease in pollutant emissions is the projected increase in truck traffic despite the use of road tolls and quotas to encourage trucks crossing through Switzerland to be put on rail cars. As a result, NOx emissions, which were projected

to fall below 8000 tonnes per year by 2013 under a 2000 projection, will not decline to this level until 2018. Current emissions of NOx from motor vehicles are around 20000 tonnes per year.

However, a more important reason for the smaller decline in emissions is the growing popularity of diesel cars, which emit carcinogenic particulates. The agency noted that, for now, particulate filters are not obligatory for diesel cars. As a result, the agency's 2000 projection that particulate emissions from diesel cars will level off at 125 tonnes per year by 2015 was revised upwards to almost 500 tons by 2030.

## **15. Mercedes announces more Diesel Particulate Filters**

Mercedes-Benz claims that the 2.0 and 2.2 litre diesel models of the Euro 4 Mercedes-Benz Viano and Vito are the first vehicles in the N1 vehicle segment to become available with a particulate filter.

The additional cost for the particulate filter is €95 plus tax. The system consists of a combined oxidation catalyst and a silicon carbide particulate filter with temperature and pressure sensors to monitor the load status of the filter. The filter is regenerated by controlled combustion at over 550°C, either automatically under high engine load and speed or by metered post-injection of diesel fuel. No filter replacement is necessary as part of the vehicle's servicing.

## **16. Danish Budget includes Tax Cuts for Sulphur-free Fuels**

Denmark's national budget for 2005 includes Dkr 540 million in tax cuts of 4 øre and 2 øre per litre respectively for sulphur-free petrol and diesel. Pollution from petrol should be cut by 10% and diesel particulates by 5%, the environment ministry said.

## **17. Mondial de l'Automobile**

One notable fact from the 2004 Paris Motor Show held at the end of September was the number of displays of DPF systems.

There were specific DPF displays on the BMW, Citroën, Mercedes, Opel, Peugeot, Renault, and Volkswagen stands, as well as one shown by Denso. Toyota had a major display of their D-4D diesel with D-Kat (DPNR) system. Honda's emissions display showed not only their CTDi engine without DPF but also a new application in the CRV off-roader as the CR-Vi-CTDi, but this time fitted with DPF.

## **18. International Commercial Vehicles Motor Show**

The 60th International Commercial Vehicles Motor Show (IAA) was held in Hanover, Germany in September. There were many vehicles demonstrating the technology that European manufacturers will use to meet Euro 4 emissions requirements.

Volvo, Iveco and Mercedes-Benz all mounted specific displays of their SCR systems with information plaques showing the benefits and method of operation. SCR displays from Tier 1 suppliers Eberspächer, Bosch and Tenneco were reinforced by AdBlue displays from OMV, GreenChem, Brenntag and Yara (formerly Hydro Gas and Chemicals).

Not all manufacturers will use SCR, though. MAN introduced their D20 Common Rail engine which uses higher rates of externally cooled exhaust gas recirculation (EGR) with particle reduction technology 'PM-Kat' to meet Euro 4 emissions requirements. Soot particles are separated by turbulence and burnt up with the aid of NO<sub>2</sub> formed in the upstream oxidising catalytic converter. The separation rate for microparticles of solid matter is claimed to be 60% overall, and in certain points of the 13-stage cycle up to 80%.

## **NORTH AMERICA**

### **19. ARB approves Greenhouse Gas Emissions Reduction Rule**

The California Air Resources Board (ARB) has approved a regulation that requires car manufacturers to begin selling vehicles with reduced greenhouse gas emissions by 2009.

According to ARB staff, the average reduction of greenhouse gases from new California cars and light trucks will be about 22% in 2012 and about 30% in 2016, compared to today's vehicles. Costs for the added technology needed to meet the rule are expected to average about \$325 per vehicle in 2012 and about \$1050 per vehicle to comply in 2016. The analysis concludes that the new rule will result in savings for vehicle buyers by lowering operating expenses that will more than offset the added costs of the new vehicles and provide an overall cost savings to consumers.

### **20. Canada to amend Diesel Fuel Sulphur Regulations**

Proposed amendments to the federal Sulphur in Diesel Fuel Regulations were published in Part I of the Canada Gazette on 2 October.

The proposed amendments introduce limits for sulphur in off-road, rail and marine diesel fuels aligned with the levels and timing of the US Environmental Protection Agency requirements passed in June 2004:

- an initial limit of 500 mg/kg for off-road, rail and marine diesel fuels in June 2007,
- a final limit of 15 mg/kg for off-road diesel fuel in June 2010 and
- a final limit of 15 mg/kg for rail and marine diesel fuels in June 2012.

The Sulphur in Diesel Fuel Regulations set a maximum limit of 15 mg/kg for sulphur in on-road diesel fuel starting 1 June 2006. Until 2006, the limit is 500 mg/kg.

### **21. California requires Mexican and Canadian Trucks must meet US Emissions Standards**

The California Governor has signed legislation requiring heavy-duty diesel trucks entering California from Mexico or Canada to meet federal emissions standards.

Any diesel-fuelled commercial truck entering the state must provide evidence that the vehicle meets the US standards for that truck's model year. The bill requires the Air Resources Board, in consultation with the California Highway Patrol, to adopt regulations and implement an inspection programme by 1 January 2006.

Mexico's emission standards for heavy-duty diesel trucks are not as stringent as the current US Environmental Protection Agency requirements. The Mexican government did not impose emission standards on diesel trucks until 1991. While the requirements have become more stringent over time, they still do not match current EPA standards.

### **22. PM Sensor development**

Researchers from the University of Minnesota and Honeywell presented results of a novel PM sensor at the US Department of Energy's 10<sup>th</sup> Diesel Engine Emission Reduction (DEER) Conference.

The sensor has the potential for measuring and monitoring PM levels in the exhaust system of a vehicle under transient operation. It is based on image charge monitoring of PM and is claimed to have fast response and be able to survive a high temperature combustion environment. A viable PM sensor would be a significant breakthrough for future engine and emission system diagnostic requirements.

**23. US Diesel Market prediction**

A new report, "Future Potential of Hybrid and Diesel Powertrains in the US Light-Duty Vehicle Market", from the US Department of Energy (DOE) and the Energy Information Administration (EIA) examines the future growth potential of both diesels and hybrids in the U.S. light-duty vehicle market. The study predicts a two to four percent US market share growth for diesels by 2008 and a four to seven percent growth by 2012. Light-duty diesels currently account for only about 0.2 percent of the market. The report is available at:

[www.dieselforum.org/resources/downloads/DOE\\_HybridDiesel0804.pdf](http://www.dieselforum.org/resources/downloads/DOE_HybridDiesel0804.pdf)

**24. Harmonisation of Off-Road Diesel Engine Emission Regulations**

A staff report from the California Air Resources Board (ARB) proposes harmonising ARB's off-road new diesel engine emission regulations with EPA's Tier 4 off-road diesel programme which was finalised earlier this year.

The Tier 4 standards are modelled on EPA's 2007-2010 highway heavy-duty engine standards, including up to 95% reductions in PM and NOx emissions through the use of advanced emission control technologies such as diesel particulate filters, NOx adsorber catalysts, and/or selective catalytic reduction. The California standards would be phased in using the same schedule as the EPA programme: starting in 2008 with phase-in complete by 2015.

The California proposal will be considered by the Board for approval in December.

**25. Controlling PM from existing Off-Road Diesel Engines**

California Air resources Board (ARB) will conduct two workshops in November to begin developing a regulatory programme for reducing particulate matter emissions from existing off-road diesel engines.

These workshops will provide background on the need for controlling PM emissions from off-road sources, the possible scope and structure of an off-road equipment rule, and a timeline for completing the regulatory process. ARB staff has indicated that this rulemaking activity will probably focus on off-road diesel engines greater than 25 hp that are not used in agricultural operations.

**26. EPA Report shows drop in six Principal Pollutants**

EPA issued their annual report on air emission trends showing continued progress in reducing emissions of the six principal pollutants identified in the Clean Air Act: CO, NOx, particulate matter, SO<sub>2</sub>, volatile organic compounds, and lead.

Total emissions of these pollutants dropped by 12.5 million tons in 2003, which represents an 8% reduction since 2000. Emissions have been reduced by more than 50% since 1970 despite large increases in population growth, energy consumption, gross domestic product, and vehicle miles travelled.

**27. California Regulations for Small Off-Road Spark-Ignited Engines**

California has approved the final regulatory package covering small off-road spark-ignited engines.

The regulations have undergone several modifications since they were first adopted in September 2003. The final regulations detail both exhaust and evaporative emission requirements for off-road spark-ignited engines rated at or below 19 kW (25 hp). These engines are primarily used in handheld and non-handheld equipment, including string trimmers, leaf blowers, chainsaws, lawn mowers, riding lawn tractors, and small generators. This comprehensive programme harmonises California's Tier 3 exhaust requirements for handheld equipment with engines less than 50 cc in displacement with EPA's 2005 emission limits, establishes



catalyst-forcing Tier 3 exhaust HC+NOx emission limits for non-handheld equipment starting in 2007-2008, and for the first time sets evaporative emission limits on non-handheld equipment that are phased-in in the 2006-2013 timeframe.

## **28. Report on Catalyst Testing for Inboard/Stern Drive Pleasure Craft**

California ARB has issued a report on an in-water testing programme to demonstrate the safeness and durability of catalysts when used in a marine environment.

The ARB says that the successful results from the demonstration project should allay any concerns about the safeness and durability of catalysts in a marine environment. The results also reconfirm that California's catalyst-based standards are feasible with emission control technology that is presently available.

## **SOUTH AMERICA**

### **29. Argentina opens first Automobile Test Lab**

On 7 September, Argentine authorities unveiled the country's first laboratory for in-depth testing of emissions from new cars and said the facility would be enhanced in the coming months to meet US Environmental Protection Agency's (EPA) and European Union standards.

The laboratory, in the outskirts of Buenos Aires, includes a full-flow dilution tunnel to test emissions from diesel cars. New equipment to be added to the lab includes a 48-inch roll dynamometer to test vehicle emissions during a simulated drive cycle and a SHED chamber to measure evaporative emissions.

Under Decree 779/95 all cars sold in Argentina must meet standards based on the US test procedure, FTP75. However, until now new models could only be fully tested abroad. Therefore, many of Argentina's 11

automobile manufacturers would wait for models to be certified from foreign customers before releasing the vehicles to the local market. The alternative was to send some units to Brazil for certification. Under Argentine regulations, four out of every 1,000 cars of each model must undergo emissions tests.

## **ASIA-PACIFIC**

### **30. Japan moving more quickly to Sulphur-free Fuels**

The Petroleum Association of Japan has decided that all member companies will start to supply "sulphur-free" gasoline and diesel fuels from January 2005.

As a result, almost all gasoline and diesel fuels sold in Japan (nearly 99%) will be less than 10 ppm sulphur by April 2005. The decision responds to a request from the Tokyo Metropolitan Government.

### **31. China sets Fuel Economy Rules**

The Chinese government has set weight-based fuel-economy standards on new cars, sport utility vehicles and minivans. Pickup trucks (a tiny share of the Chinese market) and commercial vehicles are exempt.

For the first phase, car standards are similar to the averages for most cars now in the US, with some improvements mandated for the second phase; the standards for minivans and SUV's are more stringent for the first phase and much more stringent for the phase 2.

### **32. Lung Ailments affect two people in every five in India's Capital**

New Delhi's air pollution has caused lung ailments in two of every five people, according to press reports of a new study commissioned by the federal Central Pollution Control Board.

The findings were based on a questionnaire survey of 2379 people and on the clinical examination of 1270 people aged 20-75.

Those worst affected were taxi drivers, residents of the central New Delhi business hub, and those from poor families, according to the study carried out by the Chittaranjan National Cancer Institute.

High pollution levels forced the government to shift polluting industries out of the capital and to order buses and taxis to switch from diesel to compressed natural gas.

## **GENERAL**

### **33. Diesel Exhaust Exposure linked to Ovarian Cancer**

A new study from the Finnish Institute of Occupational Health has concluded that exposure to diesel exhaust may be linked with increased risk of ovarian cancer.

The study examined correlations between occupational exposure to diesel or gasoline exhaust and a number of cancers other than lung cancer. Results suggest an exposure-response relation between diesel exhaust and ovarian cancer, with the risk increased by more than 3.5 times in women with the highest diesel exposure. Engine exhaust exposures were computed based on the record of occupations from the population census in 1970. For gasoline engine exhaust, the relative risk was increased to 1.70 only in the middle exposure category. High exhaust exposure did not correlate with increased bladder cancer, in contradiction to some earlier reports. No effect of the exposures was observed for the other examined types of cancer.

### **34. Particulates cut Lifeguard's Lung Capacity during a 12-hour Day**

86 of 105 lifeguards in Galveston, Texas participated in a study to study how soot and smog damage people's lungs. Researchers studied how lifeguards' lung capacity and ability to expel air change when breathing dirty air during a 12-hour day on the beach.

Lung function was tested three times a day, from June to the start of the school year. By

using local air quality data and comparing the results of tests at the start of the work day with those taken after 12 hours sitting in the lifeguard's tower, the University of Texas Medical Branch determined that the lifeguards' lung capacity diminishes with exposure to particulate matter, probably due to inflammation of lung tissues.

### **35. Study says Traffic boosts Risk of Heart Attack**

People prone to a heart attack face triple their usual risk as a result of traffic, whether they are in cars, on bicycles or on mass transit, according to a new German study. The researchers put most of the blame on polluted air.

The researchers interviewed 691 heart attack survivors around Augsburg, a German city of about 260000. They were questioned about their activities on the four days leading up to their heart attack. The study discounted for the effect of hard exercise - as when bicycling - and for typical morning stress linked to heart attacks. The study participants had travelled largely in Augsburg, but also on some small-town and rural roads.

They were found to be three times more likely to suffer a heart attack within an hour of driving, riding or bicycling than they were during their activities away from traffic. That would make traffic to blame for 8% of their heart attacks.

## **FORTHCOMING CONFERENCES**

### **Transboundary air pollution control**

8-9 November 2004, Berlin, Germany

Details at: <http://www.fbu-ev.de/25clrtap/>

*As well as recounting achievements of the Convention on Long-Range Transboundary Air Pollution during the 25 years since its adoption, participants will discuss and advance urgent issues of transboundary air pollution control such as reducing particulate emissions (PM 2.5 and PM 10).*

### **World Fuels Conference - Asia 2004**

8-10 November 2004, Singapore

Details at

<http://www.cwacts.com/hart/pdf/wfcas04.pdf>

*Demand for personal transportation in the Asian region is predicted to double over the next decade. Continued pressure from regional and international authorities to reduce pollution and control greenhouse gas emissions presents a significant challenge to produce clean, efficient, safe and affordable vehicles and fuels.*

### **2. FAD-Konferenz: herausforderung – abgasnach-behandlung für dieselmotoren**

10-11 November 2004, Dresden, Germany

Details at <http://www.fad-diesel.de>

### **Innovative Powertrain Systems**

11-12 November 2004, Dresden, Germany

Details at <http://www.vdi.de/fvt>

*The conference will deal with improvements of today's gasoline and diesel engines; new fuels; hybrids; new solutions for transmissions; energy storage and management; and fuel cell technology.*

### **International Fuel Quality Center's Automotive & Marine Fuels Technology & Policy Briefing**

18 November 2004, Prague, Czech Republic

Details at

<http://www.worldfuels.com/pdf/ifqcprague.pdf>

*Topics include Russian and East European fuel quality developments including the role of bio fuels; How will the enlarged Europe meet current and future conventional and alternative fuel quality requirements?; The effect of emerging global heavy fuel oil, marine and bunker fuel markets.*

### **Spark Ignition Engine Emissions Short Course**

22-26 November 2004, Leeds, UK

Details at: [www.leeds.ac.uk/fuel/shortc/sc.htm](http://www.leeds.ac.uk/fuel/shortc/sc.htm)

*Both 4 and 2 stroke engines are considered. Particular emphasis is placed on engine warm-up and catalyst performance and warm-up, non-regulated emissions and fuel composition influences.*

### **Better Air Quality 2004**

6-8 December 2004, Agra, India

Details at: <http://www.BAQ2004.org>

*BAQ 2004 is jointly hosted by the Ministry of Environment and Forests of the Government of India and the Clean Air Initiative for Asian Cities (CAI-Asia). Session topics include Health Impacts of Air Pollution in India, Management of In-use Vehicle Emissions in Asia, and Costs of Air Pollution. Workshops include Emission Factor Development for Asian Vehicles and Market-Based Mechanisms for Air Pollution Control.*

### **Internal Combustion Engine Performance & Emissions Conference**

7-8 December 2004, IMechE, London, UK

*This Conference will address the on-going need for emissions reduction strategies and technologies in automotive, truck, off highway, industrial, marine and locomotive market sectors.*

## **Symposium on International Automotive Technology**

19-22 January 2005, Pune, India

Details at

<http://www.araiindia.com/html/siat2005/siatindex.htm>

*Topics will include Durability evaluation techniques, Powertrain, Engine, Emissions (EU3 and beyond), Fuel, Inspection & Maintenance Programmes, Global Harmonisation of Standards, Off-road vehicles, and Emissions inventory and ambient air quality.*

## **International Conference on Sustainable Transportation in Developing Countries (ENVIRONMENT 2005 Exhibition & Conference)**

30 January - 2 February 2005, Abu Dhabi International Exhibition Centre, United Arab Emirates. Details at: [www.ee-uae.com](http://www.ee-uae.com).

*Organized by the Environmental Research & Wildlife Development Agency (ERWDA) and the General Exhibitions Corporation (GEC). The conference marks the first part of a chain of international activities to promote sustainable transportation in developing countries. It will address policy issues related to sustainable transportation and the long term objective is to contribute to the promotion of awareness of environmentally sustainable transportation (EST) and its linkages to the socio-economic, health and environment issues.*

## **Additives 2005**

5-7 April 2005, Dublin, Ireland

*This meeting will put future developments of fuel and lubricant additive technology in the context of the challenge in simultaneously meeting the needs of vehicle owners and of government legislators on targets for exhaust emissions, fuel economy and vehicle recyclability*

## **SAE 2005 World Congress**

11-14 April 2005, Detroit, USA

Details at [www.sae.org/congress](http://www.sae.org/congress)

## **SAE Fuels and Lubricants Conference**

11-13 May 2005, Rio de Janeiro, Brazil

Details at <http://www.sae.org/>

*Topics will include Combustion & Emission Formation Processes in SI and Diesel Engines; Large Stationary Diesel Engines; In-Use Emissions Performance and Technology Trends; Automotive Catalyst and Converter Technologies for LEV and Beyond; Aftertreatment for Gas Direct Injection and Diesel; Lubricants and Fuels.*

## **2005 JSAE Annual Congress**

18-20 May 2005, Yokohama, Japan

Abstracts are due by 30 November 2004.

## **Harts World Fuels Conference Europe 2005**

23-25 May 2005, Brussels, Belgium

Details at:

<http://www.worldfuelsconferences.com/2005events.html>

## **Beograd 2005 EAEC European Automotive Congress**

30 May - 1 June 2005, Belgrade, Serbia & Montenegro. Details at

[www.jumv.org.yu/eaec2005/prog2.html](http://www.jumv.org.yu/eaec2005/prog2.html)

*Main topics include advanced propulsion and powertrain; energy, emissions, ecology, environment; safety; automotive logistics; and advanced engineering technics and tools.*

## **VDI Congress Trucks and Buses – Solutions of reliability, sustainable environment and transport efficiency**

9-10 June 2005, Böblingen, Germany

*In 2005 the first vehicles that satisfy Euro 4 exhaust gas regulations will come to the market, but what solutions are being offered for regulations after that?*

*In addition there are requirements on safety and the introduction of toll systems.*

**Non-CO<sub>2</sub> Greenhouse Gases (NCGG-4)  
Science, Control, Policy, Implementation**

4-6 July 2005, Utrecht, the Netherlands

Details at [www.ncgg4.nl](http://www.ncgg4.nl)

*The symposium will focus on the non-CO<sub>2</sub> greenhouse gases. The symposium will be conducted in parallel sessions, focussing on the main themes: Sources, sinks and inventories; Monitoring and modelling and Control and policy implementation.*