AECC

Newsletter

July - August 2009

INTERNATIONAL REGULATORY DEVELOPMENTS

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EUROPE

Euro VI Regulation published

The Euro VI heavy-duty emissions co-decision Regulation was published in the Official Journal as Regulation (EC) 595/2009 on 18 July 2009, followed by a corrigendum published on 31 July 2009.

The Regulation applies from 31 December 2012 (this was shown in the original version as 7 August 2009 but corrected on 31 July). Nevertheless, Type Approvals must be granted, if requested, from 7 August 2009 and incentives can be given from the same date, although both of these are subject to the entry into force of the implementing Regulation, or 'comitology'. The implementation dates are 31 December 2012 for new Type Approvals and 31 December 2013 for all registrations. Limit values, as currently defined, are shown in the table below. Some elements of the limits will be finalised in the amending technical Regulation ('comitology'). This will also provide detailed test procedures and requirements such as those for reference fuels, off-cycle emissions, in-service performance, conformity of production and replacement pollution control devices. Durability requirements are 160 000, 300 000 or 700 000 km, depending on the type of vehicle.

	CO	THC	NMHC	CH_4	NOx (3)	NH_3	PM mass	PM (1) number
	(mg/kWh)					(ppm)	(mg/kWh)	(#/kWh)
ESC (CI engines)	1500	130			400	10	10	
ETC (CI engines)	4000	160			400	10	10	
ETC (PI engines)	4000		160	500	400	10	10	
WHSC (2)								
WHTC (2)								

(1) Particle number standard to be set through comitology.
(2) WHSC & WHTC limits to be set through comitology.
(3) The Commission may define an NO_2 limit through comitology.

Work on the comitology is continuing in stakeholder working groups and the Commission hopes to have a draft available in September 2009 for review by the Motor Vehicle Emissions Group (MVEG). The deadline for adoption of the comitology is 1 April 2010.

Motorcycle Directive amended

Commission Directive 2009/108/EC was published in the Official Journal on 18 August 2009. The new Directive amends 97/24/EC to add emissions and noise requirements for hybrid motorcycles.

The test requirements are based on those for hybrids in ECE Regulation 83 (light-duty vehicles) and cover both 'stand alone' and externally-rechargeable hybrids with and without driver-switchable operating modes. For externally-chargeable vehicles without an operating mode switch, emissions tests have to be conducted with the energy storage fully charged and with it at minimum charge. A weighted average is calculated using the electric-operation range. For externally-chargeable vehicles with an operating mode switch, the 'fully charged' test has to be carried out in hybrid mode (or the "most electric hybrid mode" where there is more than one hybrid mode) and the 'minimum charge' test has to be in a pure fuel-consuming mode where this is available, the most fuel consuming mode where there is more than one hybrid mode, or in hybrid mode where the only modes are hybrid or pure electric.

For hybrids without external charging, the normal emissions test procedure is used. If there is an operating mode switch it must be set to hybrid mode or, where there are several modes, the one that is set automatically after turn on of the ignition key.

EU Committee calls for Stronger Vehicle Emissions Controls

At its plenary session on 15 and 16 July 2009, the European Economic and Social Committee (EESC) adopted an opinion on "*Emissions from road transport: concrete measures to overcome stagnation*". The opinion says that emissions from private, public and goods road transport continue to cause serious illness and erode quality of life, especially for urban populations, representing more than 75% of European citizens. The author of the report said that "While tests in laboratory conditions are used to prove compliance with EU emission standards, on-road controls, particularly during use, show that noise and pollutants emissions are considerably higher than those recorded in the cycle tests." The EESC recommends that the European Community Institutions take immediately steps to strengthen control measures, thereby protecting citizens' health.

European Air Pollution Inventory for 2007

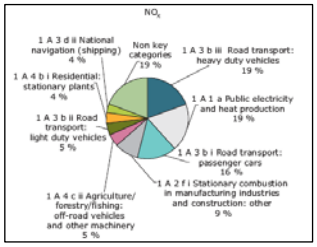
Emissions levels of key pollutants were lower in 2007 than the previous year according to a new report by the European Environment Agency (EEA). Europe's residential sector was the most important source of air pollution in the EU in 2007, but road transport and power plants remained significant sources.

CO, NMVOC and NOx and SOx emissions were down by 57%, 47%, 36% and 72% respectively. Emissions of all four pollutants were also down from 2006 levels. PM_{10} and $PM_{2.5}$ emissions have fallen by 12% and 11% respectively since 2000, the first reporting year.

The housing sector was the biggest emitter of particulate matter and non-methane volatile organic compounds (NMVOCs). It was the second most

important source of CO emissions, and a major emitter of SOx and NOx.

In the transport sector, heavy-duty vehicles were the most important source of NOx while passenger cars were among the top six polluting sources for CO, NOx, fine particulate matter ($PM_{2.5}$) and NMVOCs. The sector was singled out as a major source of air pollution in the EEA's previous report.



Power plants have significantly reduced their emissions to air since 1990, but remained responsible for around 60% of the EU's SOx emissions in 2007 and 20% for NOx. The report and data can be downloaded from www.eea.europa.eu/publications/lrtap-emission-inventory-report-1990-2007.

EEA Report on Ground-level Ozone

Efforts to combat European ozone levels are achieving only limited success, according to a report from the European Environment Agency (EEA), issued on 22 July 2009. Although Europe has steadily reduced emissions of the air pollutants that lead to ozone formation in recent decades, ozone levels remain largely unchanged in many countries. Ozone and its precursors brought into Europe by intercontinental transport, meteorological variability and inadequate data may explain why concentrations are not declining, EEA says.

The longest time series of data are available for four countries. These indicate that ground-level ozone has declined significantly in the Netherlands and the UK, falling during the 1990s and levelling off thereafter. No significant trends were identified in Austria and Switzerland. In general, ambient air measurements do not show any downward trends in ground-level ozone. One reason for this could be intercontinental transport, which accounts for 10-30% of surface ozone levels in Western Europe according to the EEA. The strong dependence of ozone levels on meteorology suggests climate change could also lead to increased ground-level ozone concentrations in many parts of Europe, the agency says. It calls for ozone abatement to be integrated into global, as well as local and regional strategies addressing air pollution and climate change.

EEA Report No. 7/2009: Assessment of ground-level ozone in EEA member countries, with a focus on long-term trends.

German Notification on Retrofit Incentives for Passenger Cars

Germany has notified the European Commission of a new proposal to promote the retrofitting of diesel passenger cars with particulate filters.

Cars (Class M1) with compression-ignition engines which were approved before 1 January 2007 are eligible, from 1 August 2009 to 31 December 2009, for a subsidy of €330 for fitment of a particulate matter reduction system if the vehicle then meets one of the particulate matter reduction categories defined in the Road Traffic Licensing Regulations.

Austrian MAUT System signed

The Austrian Minister of Transport has formally signed the 'Verordnung zur Ökologisierung der Lkw-Maut', the ecological truck tax regime. The new regime comes into force on 1 January 2010, with charging rates depending on emissions class. Euro III vehicles will pay around 10% more than those meeting Euro V.

Toll rates from 1.1.2010 (in cents/km)

Tariff Group	Category			Difference from current
	2 axles	3 axles	≥4 axles	
C (Euro I to III)	17.40	24.36	36.54	+ ~ 10%
B (Euro IV & V)	15.20	21.28	31.92	- ~ 4%
A EEV & (probably from 2011) Euro VI	14.20	19.88	29.82	- ~ 10%
Current Tariff	15.80	22.12	33.18	

According to calculations by the Austrian Ministry of Transport, the toll will decrease NOx and particulate emissions in Austria in 2015 by around 50%.

Swiss Ordinance on Eco-label for Passenger Cars

A draft Swiss Ordinance prescribes that from 1 January 2011 new passenger cars offered for sale in Switzerland must display an eco-label.

The content of the current energy label based on the EU Directive 1999/94/EC will be integrated virtually unchanged to the future eco-labels and complimented with additional information on the environmental impact of the vehicle in the form of eco-points. As part of the fundamental life cycle assessment, the resulting environmental impact of the passenger car will be calculated for every car type from its emissions based on the type test data. The individual eco-points can then be added up to deliver an aggregate score. The lower the eco-points, the smaller a car's impact on the environment. On the basis of fuel efficiency and specific environmental impact limits, cars will then be divided into different eco-label categories.

Environmental Impact of Norway's Transport Sector

Greenhouse gas emissions from transport have risen more sharply in Norway than across the EU, reaching 40% above 1990 levels in 2007, according to a report on the green impacts of transport published by the Norwegian national statistics office (SSB) on 3 July. Road traffic now accounts for 58% of greenhouse gas emissions from mobile sources in Norway, and 19% of the country's overall emissions, say the authors.

Preliminary figures for 2008 indicate a decrease of NOx emissions from mobile sources of about 10%. NOx emissions from road transport have been reduced substantially since 1980, close to 44%, despite the fact that the total number of kilometres driven is higher than ever. Ships and boats are the country's largest source of NOx emissions, but preliminary figures for 2008 indicate a substantial decrease in NOx emissions from this source, and the emissions are now at the 1980 level.

The contribution of road traffic to particulate emissions is smaller than that for NOx, but is still significant, and has a considerable impact on air quality close to roads. In 2005, over 230 000 people in Oslo were exposed to concentrations of PM_{10} above the concentration defined in the national target for local air quality. In 2007, this number reduced to 187 000. Projections by the Norwegian Institute for Air Research indicate that this will decrease to 54 000 in 2010 and to 26 000 in 2020, due to reduced emissions from road traffic and use of wood for fuel.

Source: Brunvoll et al, Samferdsel og miljø 2009: Utvalgte indikatorer for samferdselssektoren; Statistisk sentralbyrå - Statistics Norway, Report 2009/27 www.ssb.no/emner/01/rapp_samferdsel_miljo/rapp_200927/rapp_200927.pdf.

France seeks to further reduce Particle Emissions, PAHs and Benzene

The French government is to adopt a plan to further reduce emissions of particulate matter in the domestic, industrial, transport and agricultural sectors. The plan, one of several measures to be taken as part of France's second action plan on reducing health risks from pollution (PNSE 2), was outlined on 30 July 2009 as the government and the Environment agency ADEME presented air quality data for 2008.

France has a goal of reducing fine particulate matter ($PM_{2.5}$) concentration levels by 30% by 2015. The government is considering stricter emissions standards in the industrial sector and an ecolabel for wood burning stoves.

There was a slight decline in PM_{10} concentrations in 2008, the government said. Annual concentration limits were exceeded in six areas compared to 10 in 2007, but the number of breaches is expected to increase this year. Air quality data show a continued downward trend for NOx, sulfur dioxide, CO and benzene, but a slight increase in NO_2 concentrations. Ozone concentrations were lower than 2007 but remain higher than 1990 levels.

The action plan on reducing health risks from environmental pollution, which contains twelve key measures for the period 2009-13, also includes a 30% cut in the emissions to air of PAHs and benzene. A mid-term review of the first action plan's implementation showed slow progress in reducing emissions of particulate matter from diesel engines. The report on air quality is available at www.developpement-durable.gouv.fr/IMG/pdf/DPfinal_cle24c1cc-3.pdf.

The second action plan is available at www.sante-sports.gouv.fr/IMG//pdf/Deuxieme_plan_national_sante-environnement_-_pnse_2_-_2009_-_2013.pdf.

French Parliament approves Kilometre Tax for Trucks

Both chambers of the French Parliament, the Assemblée Nationale and the Senate, have backed a proposal to introduce a kilometre tax on trucks from 2011. The proposal is part of the "Grenelle 1" environmental legislation adopted on 23 July 2009. The kilometre tax will apply to all trucks using national roads, and some local roads in France. About one third of lorry kilometres driven in France are reported to be already covered by tolls. The new system will extend coverage by around a third.

Particulate Pollution Measurement Campaign in Paris Region

A major measurement campaign to assess the impact of particulate pollution generated by large cities was organised in the Paris region during July. The number of instruments used and the innovative character of this campaign - involving observations on fixed sites, on mobile platforms and in the air from a research plane and from a tethered balloon – makes it the largest ever conducted in Europe for the study of particulate pollution in urban areas.

The campaign is intended to quantify and qualify the sources of primary (directly-emitted) and secondary particulate (formed during the oxidation and condensation of VOCs). The Paris region was chosen because of the high population density, its relatively large pollutant load and its representative location in temperate latitudes. The innovative instrumentation is intended to provide very detailed physico-chemical characterisation of particulate pollution (concentration, size distribution of aerosols, chemical composition,

optical properties, physical properties such as volatility) and its precursor gases.

The data collected will be used to assess and improve the models used for forecasting and simulation of air pollution in the short term and long term and to link to the Megapoli project's scenarios of demographic development and urban planning for 10 major cities inside and outside Europe.

London Mayor to review Congestion Charge Exemptions

London's congestion charge may be changed to allow non-hybrid petrol and diesel cars to enter the UK capital's charging zone for free. Existing exemptions apply to electric and hybrid cars, but there are now 20 conventional car models that emit the same or less carbon than the second generation Toyota Prius, which is exempt. Campaigners claim the rules have failed to keep up with improvements in vehicle technology since the congestion charge was launched in 2003. Campaigners say the "injustice" is highlighted by the fact that a 4x4 Lexus hybrid with emissions of 192 g/km CO_2, almost twice today's most efficient cars and well above the national average, is exempt.

Spain confirms it will exceed Air Pollutant Limits

Spain will exceed national limits on emissions of three of four air pollutants set for 2010 under the national emissions ceilings (NEC) Directive, according to the latest government forecasts. An analysis published last year by the European Environment Agency (EEA) showed Spain would not meet limits for nitrogen oxides, non-methane volatile organic compounds and ammonia without taking additional measures. But Spain's 2008 environment profile shows that even with additional measures, NOx, NMVOC and ammonia emissions will exceed national ceilings for 2010 by 19%, 12.6% and 15% respectively.

Latvia sets Environmental Priorities for 2009-15

The Latvian government has announced policy guidelines setting priorities for environmental protection during the period 2009-15. The guidelines specify environmental policy objectives in five areas: air, water, land, nature and climate change.

Actions in coming years will focus on "priority tasks" because of an anticipated drop in public revenues, the government said. Priorities include improving air quality in cities. Air quality has surpassed the norms in many cities, and the government says that most of the pollution is created by the transport sector.

NORTH AMERICA

California approves Amendments to In-use Off-Road Regulation

On 23 July 2009, the California Air Resources Board (CARB) approved amendments to the state's in-use off-road diesel vehicle regulation.

The amendments allow large fleets to delay, until 2013, a portion of their compliance obligations currently required for 2011 and 2012 as well as providing new credits for fleets that have experienced drops in activity of their vehicles or that have reduced their fleet size. At the same time, the amendments also include new incentives for early actions by fleets, including allowing fleets to claim an exemption for up to 15% of their total horsepower from future turnover if they install a retrofit prior to 1 March 2011; allowing fleets to claim double credit for NOx retrofits installed by 1 March 2011; allowing medium and small fleets to claim double credit for PM retrofits installed by 1 March 2012; and allowing fleets to accumulate NOx credits for repowering vehicles, regardless of the total amount of fleet horsepower that is repowered.

IMO gives Initial Approval for proposed North American Emissions Control Area

The Marine Environment Protection Committee of the International Maritime Organisation (IMO) at its meeting on 13-17 June 2009 gave initial approval to a proposal by the US and Canada to create an Emissions Control Area (ECA) near their coastlines. This would require ships within 200 miles of the coastline to use lower sulfur fuels. ECAs will have a fuel sulfur limit of 1% from 1 March 2010, reducing to 0.1% from 1 January 2015. ECAs will also ultimately include controls on NOx, PM and SOx emissions.

New Retrofit Legislation in US States

The city council of Providence, Rhode Island, has agreed an ordinance that requires retrofitting of diesel vehicles used on city-funded construction projects costing $2 million or more, from 2 January 2010. Costs for the emissions control devices, which must reduce pollution by at least 25%, would be fully reimbursed from projects funds. The ordinance would also prohibit the use of diesel vehicles made before 1994 on city projects from the start of 2014 and would require the use of ultra-low-sulfur diesel fuel.

The Governor of the State of Oregon has signed a bill that will require all existing diesel school buses to be retrofitted with emissions control devices by 2017 or to be replaced (with buses built after 2006) by 2025 if too old to be retrofitted.

EPA urged to review Aftermarket Catalytic Converter Regulations

The Ozone Transport Commission (OTC), an association of 13 US States, has requested the US Environmental Protection Agency (EPA) to review and update the requirements of the federal aftermarket catalyst exemption programme.

OTC says that despite advances in automotive catalyst technology, the US aftermarket converter policy had not been revised since 1986. It believes that "improvements to the performance requirements for non-original equipment aftermarket catalytic converters are needed to keep pace." OTC suggests that conversion efficiency, durability, and OBD compatibility should be addressed by the update, together with requirements for the sale of used original equipment catalytic converters. The organisation plans to use modelling to quantify potential benefits, with the help of NESCAUM, the Clean Air Association of the Northeast US States.

US EPA can enforce more Stringent Standards on Fine Particle Pollution

A federal court has given the American Environmental Protection Agency (EPA) clearance to enforce more stringent standards to reduce fine particle pollution or soot. The U.S. Court of Appeals for the District of Columbia Circuit rejected nearly all challenges to the new EPA $PM_{2.5}$ standards brought by nine cities and counties, 10 power industry groups and three states.

US Vehicle Greenhouse Gas Emissions Rule sent to White House for Review

On 25 August 2009, the US Environmental Protection Agency (EPA) and the Transportation Department sent draft rules to the White House for review that would impose the first-ever federal greenhouse gas standards at the tailpipe and boost car and light truck efficiency standards for model years 2012-2016.

The US administration plans to boost corporate average fuel economy standards to reach 35.5 miles per gallon (approximately 6.6 litres/100 km) in 2016. EPA is planning a carbon dioxide limit under the plan - which will apply to passenger cars, light-duty trucks and medium-duty passenger vehicles - that would reach an average of 250 g/mile (156 g/km) per vehicle in 2016. There are also several pending petitions from states officials, environmentalists and others urging the agency to issue GHG rules for aircraft, marine vessels, non-road vehicles and other sources.

US announces Numerous Emissions Funding Programmes

Over recent weeks, the US Environmental Protection Agency, Department of Transportation and Department of Energy have announced wide range of projects to be funded under the country's 'American Reinvestment and Recovery Act'.

Projects include:

- Retrofitting or re-powering two ocean-going ships for the port of Tacoma, two bulk carriers on the Great Lakes, ferries in northern New England and on the Hudson river, the Staten Island ferry (NY) harbour craft in the Ports of Baltimore and Los Angeles, and various boats in Chesapeake Bay;
- re-powering or upgrading of some rail locomotives in California, Connecticut, Louisiana, Minnesota, Nebraska, New York State and Pennsylvania;
- retrofitting, re-powering or replacement of cargo-handling equipment in the Ports of Baltimore, Charleston, Houston and Long Beach, plus ground support equipment at Albuquerque's airport;
- projects to reduce diesel emissions from municipal fleets in the Cities of Chicago, Chelsea (Mass.), Chesapeake, Denver, Houston, Miami, Phoenix, Portland, Providence (Rhode Island) and St. Louis, Lincoln-Lancaster county (Nebraska) and Maine;
- projects to retrofit on-road and off-road vehicles in Illinois, Indiana, Maryland, Minnesota, Ohio, Pennsylvania, Virginia and Wisconsin;
- fitment of idle-reduction technologies for trucks in Oregon, Wisconsin and Tennessee and for rail shunter (switcher) locomotives in Wisconsin;
- retrofitting and re-powering construction equipment in Arkansas, California, Kansas, Kentucky, Massachusetts, Minnesota, North Carolina, New York State, Pennsylvania and Wyoming;
- retrofitting, re-powering and/or purchase of alternative-fuel and hybrid buses for various state and local transit systems;
- retrofitting, re-powering or replacement of school buses in areas of a number of States; and
- re-powering agricultural equipment in areas of California, Florida, Kentucky and Utah.

EPA Emission Standards Reference Guide

The US Environmental Protection Agency (EPA) has put a new emission standards reference guide on its website. The guide provides information on current and past EPA mobile source emissions regulations, emissions test cycles, and fuel standards. The guide is available at: www.epa.gov/otaq/standards/index.htm.

US EPA to study Effects of Pollution near Roads on Children's Health

The US Environmental Protection Agency has announced a $1.4 million (€1 million) joint study with the University of Michigan on the health effects of air pollution on children living near busy roads.

EPA and the University of Michigan will study traffic-associated pollution in Detroit and whether it could lead to more severe asthma attacks in children of ages 6 to 14. The study will also explore whether traffic exposure has any effects on the likelihood of respiratory viral infections and will help researchers improve the predictive capabilities of computer models. The researchers will study the types of pollutants common near roadways, how people are exposed to them, the extent of exposures, and the types and severity of health effects.

EPA Advisors urge Review of Diesel Risk Studies

A new report by a special panel of the National Environmental Justice Advisory Committee (NEJAC) urges the US Environmental Protection Agency (EPA) to quickly revisit its 2002 assessment of the risks posed by diesel exhaust. Such a move would help the agency better quantify cancer risks nationwide, NEJAC says, and would allow EPA and States to evaluate the negative health effects of ports and freeways on nearby communities.

The report also calls for increased local monitoring because central site monitors do not adequately reflect the higher levels of exposure that communities face in proximity to goods movement. In addition, fine particle measurements do not fully reflect the levels of diesel emissions to which residents are exposed, the report says. EPA says the latest version of its National Air Toxics Assessment (NATA) very likely understates average cancer risks from directly inhaling air toxics because the data exclude the effects of diesel PM.

California extends Deadline for Transport Refrigeration Units

The California Air Resources Board (CARB) has delayed the deadline for older Transport Refrigeration Units to meet the State's emissions legislation. Engines from 2001 model year or older will now have until 31 December 2009 to meet the State's Low-Emission In-Use Performance Standards. Compliance dates for 2002 and newer model year units are unchanged.

SOUTH AMERICA

Chilean Government proposes Standard to reduce Respirable Particulate Material

On 3 August 2009, the Chilean government unveiled proposed legislation that would cut atmospheric levels of respirable particulate material ($PM_{2.5}$) to acceptable levels by 2032. Presenting the standard to journalists in Santiago, Environment Minister Ana Lya Uriarte said the government followed World Health Organization recommendations in proposing a gradual, three-step implementation.

The norm would require levels of $PM_{2.5}$ to be reduced to 25 $\mu g/m^3$ by 2012, to 20 $\mu g/m^3$ by 2022, and to 10 $\mu g/m^3$ by 2032 on an annual average basis. Levels of $PM_{2.5}$ currently average 32 $\mu g/m^3$ in the greater Santiago region, which continues to suffer from serious air pollution despite decades of efforts to clean up emissions.

The bill follows recommendations made in a study on the costs and benefits of implementing a $PM_{2.5}$ standard conducted at the government's behest by DICTUC, an engineering consulting firm owned by Chile's prestigious Catholic University. According to the study, implementation of the norm would avoid a total of 148 000 deaths by 2040 and save the country some $33.5 billion (€23.4 billion) in health spending in the same period. The cost of reducing emissions through the installation of filters in industrial flues and other measures is estimated at just over $5 billion (€3.5 billion) over the first decade, the minister said.

Poor Results for Emissions Tests in Peru

Less than 13% of vehicles that underwent emissions inspections in the region of Arequipa, Peru, passed and were found to emit less than the required limit of carbon monoxide. In random inspections, it was found that only seven of fifty-seven private and public transport vehicles passed the emissions tests. Authorities stated they would begin fining motorists during the next round of inspections.

Argentina delays Fuel Sulfur Reductions

Argentina's Ministry of Energy has announced that it is to delay this year's planned fuel sulfur reductions until 2012. The Ministry says that action is to allow refiners extra time to address chronic diesel fuel shortages. The new proposal is that 'urban' diesel fuel sulfur will be reduced from the current 1500 ppm S to 500 ppm, 'rural' diesel sulfur from 2 500 ppm to 1 500 ppm, gasoline from 300 ppm to 50 ppm S in 2012. Argentina currently requires 50 ppm S diesel to be available only within some large cities.

AFRICA

Vehicle Emissions in Addis Ababa are increasing

Vehicular emissions have become the single largest source of urban air pollution in Ethiopia and are contributing significantly to health hazards which have grown into a major environmental concern for policy makers, according to the Forum for Environment.

Speaking at a briefing in Addis Ababa, an activist working for the Forum for Environment (FfE) said that in the last three years alone the number of vehicles imported from abroad has increased by 17.2%. "From the total population of vehicles, 65% are more than 15 years old. This makes the vehicles to be even more polluting". He said that a very striking difference between urban areas like Addis Ababa and rural areas is the difference in the quality of the air between the two places. "The air is cleaner and fresher out in the rural areas," he said.

The Federal Ethiopian Environmental Authority said that Ethiopia has already planned to reduce sulfur, particularly in imported diesel fuel in its long term target, and that implementation of standards and regulations on urban pollution is essential. Participants at the briefing also discussed the need to review the government's policy, to reduce tax for importing newer cars that are fitted with catalytic converters and other emissions reduction technology.

MIDDLE EAST

Jordanian Air Pollution Hotspots identified

The Jordanian Ministry of Environment (MoEnv) with its partner Agence française de développement (AFD) has released maps showing air pollution levels in three Jordanian cities: Amman, Zarqa, and Irbid. The production of the maps is the first part of an air pollution monitoring project to help the Ministry design standards and procedures to limit harmful emissions and subsequent air pollution.

The maps were based on test tube samples collected from 12 locations within the three cities: seven in Amman, three in Zarqa, and two in Irbid. The next stage of the project is the installation of permanent air pollution detectors for SO_2, NO_2, ozone and Total Suspended Particulate. The maps will assist in determining the placement of future air pollution detectors, as well as the types of elements to be monitored, according to the activities in each area such as high-traffic, industrial, or residential areas. The project will not be limited to the three initial cities.

ASIA PACIFIC

Chinese Requirements on Fuel Consumption for Mopeds enter Force

Chinese National Standard GB 16486-2008, an updated version of “The limits and measurement methods of fuel consumption for mopeds”, replacing GB/T 16486-1996, entered force on 1 July 2009. The standard was drafted by the Shanghai Motorcycle Institute, the Tianjin Motorcycle Technical Centre and Zhejiang Qianjiang Motorcycle Co., Ltd.

Beijing tightens Vehicle Exhaust Controls

China's environment authorities are to ban motor vehicles registered outside Beijing from entering the capital city if they fail to meet exhaust emissions standards. The Ministry of Environmental Protection has announced that from 1 October 2009, petrol vehicles would not be allowed to travel along or within Beijing's Sixth Ring Road, the city's outermost highway loop, if their exhaust emissions do not comply with National Emission Standard I (equivalent to Euro 1). Diesel-driven vehicles must comply with National Emission Standard III or above before they can operate in the same area. Traffic police are to carry out checks on major highways leading to downtown Beijing from 1 September 2009.

An official with the Ministry of Environmental Protection said that the Ministry encourages local governments to increase financial support in eliminating high-emission vehicles, especially in big cities like Beijing and Shanghai. "High-emission cars and trucks only make up 28% of all automobiles in China, but they are responsible for 75% of the pollutant emissions". Beijing became the first Chinese city to enforce Standard IV (equivalent to Euro 4) on newly bought and produced cars, on 1 March, 2008. Other cities such as Shanghai and Guangzhou are also moving to lower car exhaust emissions in attempts to address growing pollution concerns.

All Second-Hand Cars imported into New Zealand to be Emissions-Tested

The Government of New Zealand is going ahead with a new emissions-testing rule for imported second-hand vehicles, despite the opposition of used-car importers. The Vehicle Exhaust Emissions Rule has been phasing in since May last year, but some used-car importers wanted its implementation delayed. The Government has decided, however, that from January 2010 all second-hand imported diesel cars will have to meet the Japan 05 standard, as will second-hand imported petrol cars from 2012.

Hong Kong Consultation on Air Quality Objectives Review

The Hong Kong Environment Bureau has launched a four-month public consultation on the Air Quality Objectives Review. The Bureau proposes adopting:

- the WHO 'interim target 2' 24-hour and annual concentration targets for PM_{10};
- the WHO 'interim target 1' 24-hour and annual concentration targets for $PM_{2.5}$ and 24-hour target for SO_2 and the interim 8-hour target for ozone;
- the WHO guidelines for SO_2, NO_2, CO and lead.

To help achieve the proposed new goals the review recommended various implementing measures. These include the early retirement of older and heavily-polluting vehicles, and earlier replacement of Euro III commercial diesel vehicles with models meeting the latest Euro standards. There can be wider use of hybrids, ultra-low-sulfur diesel and selective catalytic reduction for local cars. Emissions control for off-road vehicles and equipment, and tightening control of volatile organic compounds are also proposed. On transport management, the bureau suggested implementing low-emission zones.

Hong Kong Airport to require Alternative-Fuel Vehicles

Hong Kong Airport Authority is to impose stricter rules on the fleet of 2 700 vehicles on the airport island in an effort to reduce emissions. It hopes that within 10 years all vehicles operating within the airport will be clean-diesel, LPG, electric or hybrid-petrol powered. To take the lead, the authority is expanding the use of bio-diesel fuel for about 50 vehicles such as passenger buses and operations marshalling cars. Of the 2 700 vehicles operating at the airport, about 190 are owned by the Airport Authority and the rest are operated by franchises. New contracts will require environmentally friendly or fuel-efficient vehicles be chosen by operators of airport services when old vehicles or equipment are replaced.

Hyderabad Crackdown on Polluting Vehicles

From 1 August 2009, the Transport Department in Hyderabad launched an initiative to ensure that all vehicles on roads possess 'Pollution Under Check' (PUC) certificates. Special task forces were formed focussed on the Twin Cities, Tirupati, Visakhapatnam and Vijayawada. The fine for not possessing a valid PUC as a first time offence is Rs. 300 (€4.5) for two, three and four-wheelers, up to light motor vehicle category, including school buses. The penalty is Rs. 600 (€9) for all other transport vehicles.

Government says India's Air is getting more polluted

Air pollution is increasing in all India's cities, says the government's third official report on the state of India's environment. The report, *'State of Environment Report India 2009'*, prepared by the NGO 'Development Alternatives' was released by the Minister of State for Environment and Forests, Jairam Ramesh.

Presenting the salient features of the report to the media, Development Alternatives said one of its most worrisome findings was that the level of respirable suspended particulate matter had increased in all the 50 cities across India studied by the All India Institute of Medical Sciences and the Central Pollution Control Board. For the whole of Delhi, the report said, NO_2 levels have risen 33% between 2000 and 2008. The main causes of urban air pollution were vehicles and factories. The vehicle stock is expected to quadruple by 2020, the report said.

Road Transportation Emissions Inventory in India

A new paper presents an up-to-date inventory of the exhaust emissions of ten species, calculated bottom-up from the vehicle mileage of 7 vehicle categories, 4 age/technology layers and 3 fuel types each, for the seven biggest cities in India as well as nationwide. The authors conclude that more comprehensive inspection and maintenance, including commercial vehicles, is essential to limit pollutant emissions.

Source: Baidya and Borken-Kleefeld, Atmospheric emissions from road transportation in India, *Energy Policy*, 2009, doi: 10.1016/j.enpol.2009.07.010.

Reports on Korean PMP Exercise

A report has been published on the Korean Particle Measurement Program (KPMP) using a domestic diesel passenger vehicle equipped with a diesel particulate filter. The vehicle emissions were measured at three certification laboratories and the research centre of an automotive manufacturer.

The mean total particle number concentration levels ranged from $5.43*10^{10}$ /km to $1.58*10^{11}$ /km and the PM results from 0.0003 g/km to 0.0036 g/km. The authors concluded that repeatability between participating laboratories ranged from 32% to 66% for particle number and 11% to 70% for particle mass; the reproducibility level was 46% for particle number, and 66% for particle mass.

Source: Myung et al, Inter-laboratory correlation exercise on a light-duty diesel passenger vehicle to verify nano-particle emission characteristics by Korea particle measurement program. *Journal of Mechanical Science and Technology*, 2009; Vol.23 No.3, 729-738; doi: 10.1007/s12206-009-0204-z.

A related paper, from Korea University focuses on the comparison of nanoparticle size distribution and number concentration level characteristics for gasoline- and diesel-fuelled light-duty vehicles using PMP procedures. Test modes included the New European Driving Cycle (NEDC), US Federal Test Procedure (FTP-75), and Highway Fuel Economy Test (HWFET). In addition, particle emission characteristics from vehicles were analysed during transient and high-speed driving conditions. The authors say they found that the formation of particles was highly dependent on vehicle speed and load conditions for each mode. The diesel vehicle equipped with a particulate filter showed a substantial reduction of the total particle number whose number concentration was equivalent to that of the gasoline vehicle. Nucleation mode particles were mainly emitted from gasoline fuel; but those from diesel were generally the accumulation mode.

Source: Hyungmin Lee et al, Experimental investigation of nanoparticle formation characteristics from advanced gasoline and diesel fueled light duty vehicles under different certification driving modes; *Journal of Mechanical Science and Technology,* 2009, Vol.23 No.6, 1591-1601; doi: 10.1007/s12206-009-0425-1.

South Korea to set New Fuel Economy and Greenhouse Gas Standards

The South Korean news agency *Yonhap* reports a government announcement that the country will introduce new fuel economy and greenhouse gas emissions standards for all passenger cars in 2012.

The plan, outlined at the Presidential Committee on Green Growth, calls for local carmakers to meet tougher standards than those being planned by the United States. "The plan that will be phased in from 2012 through 2015 stipulates that local carmakers must make vehicles that on average can travel 17 km or more on a litre of fuel, and emit less than 140 g of greenhouse gases per kilometre travelled," said Woo Ki-jong, Secretary General of the State Committee. He said companies that fail to meet the standards will be penalised after a one-year grace period, while those that satisfy the requirements will be rewarded in the form of tax benefits and other incentives.

Because time is needed for companies to develop the necessary technology, only 30% of cars made by companies for sale in the country need to meet the requirements in the first year, rising to 60% in 2013, 80% in 2014, and 100% in 2015. The requirements are for cars made in the country and sold domestically. Imported cars will be required to meet similar standards “with some allowances”. The rules will only apply to cars that carry less than 10 passengers with requirements for large buses and trucks to be established in the next few years.

Singapore orders Euro V Buses

SBS Transit, which operates three-quarters of the scheduled bus services in Singapore, has announced that it has ordered 200 single-deck and 150 double-deck buses meeting Euro V emissions requirements.

Beijing to run 1000 Hybrids and Electric Vehicles in 2009

The Beijing municipal government has announced that it will put 1 000 ‘new energy’ vehicles on trial this year in the public transportation and sanitation sectors. According to Yang Weiguang, Deputy Director of the Beijing Municipal Commission of Science and Technology, 50 electric buses were put into service during the 2008 Olympics Games in Beijing and this year another 50 will join them. Later this year 860 hybrid buses will join the 10 currently running in Beijing, and about 30 electric sanitation vehicles will also come into service. Beijing Bus Group has signed a deal with Beiqi Foton Motor to buy 450 Foton AUV hybrid buses and 350 chassis of this bus model in 2009.

RESEARCH

Health Effects of Emissions

Health Impact Assessment of Urban Air Pollution

The health impact of urban air pollution has been assessed in the area of Perpignan (France) as part of the programme for air quality of the Languedoc-Roussillon region. Calculation of the expected health benefits after reducing exposure levels shows that an effective public health action would be a decrease of 5 µg/m^3 of the annual average of PM_{10}, equivalent to a reduction of the annual mean value to 20 µg/m^3.

www.invs.sante.fr/publications/2009/eis_perpignan/rapp_sci_eis_perpignan_web.pdf.

Air Pollution linked to Lower IQ in Children

US researchers have found a link between pregnant women being exposed to air pollution and lower IQs of their children. The study showed that the children of mothers exposed to the highest level of PAHs had IQ scores that were between 4.3 and 4.6 points lower than those whose mothers had the least exposure.

Source: Perera et al. Prenatal airborne polycyclic aromatic hydrocarbon exposure and child IQ at age 5 years. *Pediatrics*, Vol. 124 No. 2 August 2009, pp. e195-e202; doi:10.1542/peds.2008-3506.

Expert Health Assessment of Ultrafine Particles

In an ‘expert elicitation workshop’, twelve European experts assessed the evidence for a causal relationship between exposure to ultrafine particles (UFP) and health endpoints and the likelihood of potential causal pathways for cardiac events. The

authors say that outcomes stress the importance of considering UFP in future Health Impact Assessments of (transport-related) air pollution, and the need for further research on UFP exposure and health effects.

Source: Knol et al, Expert elicitation on ultrafine particles: likelihood of health effects and causal pathways; *Particle and Fibre Toxicology* 2009, 6:19 doi: 10.1186/1743-8977-6-19.

Allergic Inflammation in Mice exposed to Diesel Particles

In a new study, researchers examine whether, in the setting of allergic asthma, exposure to oxidant air pollutants enhances the susceptibility to respiratory virus infections, which in turn leads to increased virus-induced exacerbation of asthma. The results suggest that in the setting of allergic asthma, exposure to diesel exhaust could enhance virus-induced exacerbation of allergic inflammation.

Source: Jaspers et al., Exacerbation of allergic inflammation in mice exposed to diesel exhaust particles prior to viral infection, *Particle and Fiber Toxicology,* 2009, 6:22; doi: 10.1186/1743-8977-6-22.

Air Quality Measurement

Atmospheric Impact of Transport Emissions

Results from a study estimating the impact of road, aircraft and ship emissions on ozone and the hydroxyl radical OH indicate that the largest impact from total traffic emissions on total ozone occurs in the summer in the northern hemisphere. Changes are about 50% lower in the southern hemisphere. Ship emissions have the greatest effect on the lower troposphere, whilst road traffic strongly affects the northern upper troposphere, especially during the summer.

Source: Hoor et al., The impact of traffic emissions on atmospheric ozone and OH: results from QUANTIFY. *Atmospheric Chemistry and Physics.* (2009) 9: 3113-3136; http://www.atmos-chem-phys.net/9/3113/2009.

Ambient Levels of Black Carbon during the Olympics

Black Carbon (BC), measured at different elevations during the Olympic Games suggests a consistent decrease in BC concentrations as height increased, which indicates that the nearby ground level sources, probably dominated by traffic, contributed to a large portion of BC concentrations in the lower atmospheric layer in Beijing during summertime. Diurnal patterns strongly suggest that diesel trucks are a major source of summertime BC in Beijing.

Source: Xing Wang et al, Evaluating the Air Quality Impacts of the 2008 Beijing Olympic Games: On-road Emission Factors and Black Carbon Profiles; *Atmospheric Environment,* doi: 10.1016/j.atmosenv.2009.06.054.

$PM_{2.5}$ and Black Carbon near Schools

This study reports that concentrations of black carbon (BC) were 2-3 fold higher at urban New York City high schools compared with a suburban school and were higher at schools located adjacent to highways. An increase of 443 trucks/buses per hour was associated with a 0.62 µg/m^3 increase in hourly average BC at a school located adjacent to a major highway. Car traffic counts were not associated with BC.

Source: Molini M. Patel et al, Spatial and Temporal Variations in Traffic-related Particulate Matter at New York City High Schools; *Atmospheric Environment,* doi: 10.1016/j.atmosenv.2009.07.004.

Personal Spatiotemporal Exposure Assessment

The development and evaluation of a sampling method integrating continuous measures of personal PM levels with the corresponding location–activity (i.e. work/school, home, transit) is described in a new paper. The authors say that the method allows examination of an individual's estimated exposure through space and time, which may provide new insights into exposure–activity relationships.

Source: Adams, Riggs and Volckens, Development of a method for personal, spatiotemporal exposure assessment; J. Environ. Monit., 2009, 11, 1331 – 1339; doi: 10.1039/b903841h.

Tunnels can concentrate Ultrafine Particles

Ultrafine particle concentration levels outside a vehicle travelling through a tunnel in Sydney were measured using a condensation particle counter (CPC). The study showed that, at times, the levels were up to 1000 times higher than in urban ambient conditions.

Source: Knibbs, de Dear, Morawska and Mengersen, On-road ultrafine particle concentration in the M5 East road tunnel, Sydney, Australia. *Atmospheric Environment* (2009) Volume 43, Issues 22-23, Pages 3510-3519 doi: 10.1016/j.atmosenv.2009.04.029.

Profiling Transient Daytime Peaks in Air Pollutants

Data from urban background and traffic hotspot monitoring stations have been compared over a 12-month period to demonstrate the hourly flux of air pollutants, notably NOx, SO_2 and PM_{10}, and illustrate the effects of controlling influences, such as traffic movements and exotic dust intrusions.

Source: Moreno et al., Profiling transient daytime peaks in urban air pollutants: city centre traffic hotspot versus urban background concentrations. *J. Environ. Monit*., 2009, 11, pp 1535 - 1542, doi: 10.1039/b904844h.

Impacts of the London Congestion Charging Zone

A new paper assesses the impacts of the London congestion charging scheme on roadside and background levels of NOx, NO, NO_2, PM_{10}, CO and ozone since its introduction in 2003.

Source: Atkinson et al, The impact of the Congestion Charging Scheme on ambient air pollution concentrations in London; *Atmospheric Environment,* doi: 10.1016/jatmosenv.2009.07.023.

Characterisation of Particulate

Chemical Characteristics and Oxidative Potential

This paper examines the chemical characteristics and oxidative potential of particulate matter (PM) emissions from gasoline, diesel and biodiesel cars. The vehicles were tested using a variety of real-world

driving cycles. The diesel car equipped with a particulate filter (DPF) and the gasoline vehicles were characterized by the lowest overall PM mass emissions. The DPF decreased mass emission rates and distance-based oxidative potential by 98%.

Source: Ka Lam Cheung et al, Chemical Characteristics and Oxidative Potential of Particulate Matter Emissions from Gasoline, Diesel, and Biodiesel Cars; *Environ. Sci. Technol.*, 2009, *43* (16), pp 6334–6340; doi: 10.1021/es900819t.

Elemental & Organic Carbon in PM_{10}

A continuous observation of organic carbon (OC), elemental carbon (EC), and PM_{10} was conducted at an urban site in Beijing. OC accounted for 9.3 ± 5.7% of the PM_{10} and EC for 4.7 ± 2.7%. Both OC and EC concentrations reach maximum values in the morning (07:30-10:30) due to motor vehicles during rush hour.

Source: Renjian Zhang et al, Organic carbon and elemental carbon associated with PM10 in Beijing during spring time; *Journal of Hazardous Materials,* doi: 10.1016/j.jhazmat.2009.07.087.

Inventory of $PM_{2.5}$ Trace Elements

A paper from the US EPA presents the first National Emissions Inventory of $PM_{2.5}$ that includes the full suite of trace elements measured at ambient monitoring sites across the US. The work reveals that the largest $PM_{2.5}$ sources lacking specific speciation data are off-road diesel-powered mobile equipment, road construction dust, marine vessels, gasoline-powered boats, and railroad locomotives.

Source: Reff et al, Emissions Inventory of $PM_{2.5}$ Trace Elements across the United States; *Environ. Sci. Technol.*, 2009, *43* (15), pp 5790–5796; doi: 10.1021/es802930x.

Emissions Measurement

Behaviour of a 4-Way Catalyst

The behaviour of a commercial "4-way catalytic converter" with the ability to simultaneously convert CO, HC, NOx and particulate matter on a single support was characterized on a synthetic gas bench in a new paper from French researchers.

Source: Millet, Chedotal and Da Costa, Synthetic gas bench study of a 4-way catalytic converter: Catalytic oxidation, NOx storage/reduction and impact of soot loading and regeneration; Applied Catalysis B: Environmental 90/3-4 339-346; doi:10.1016/j.apcatb.2009.03.026.

Effect of Ethanol Blends on Motorcycle Emissions

The effect of ethanol-gasoline blends on air pollutant emissions was investigated in a 4-stroke motorcycle. In general, exhaust CO and NOx emissions decreased with increasing oxygen content in fuels but did not reduce THC emissions for a constant RON gasoline. A 15% ethanol blend had the highest emissions reductions relative to the reference fuel.

Source: Yung-Chen Yao, Jiun-Horng Tsai & Hung-Lung Chiang, Effects of ethanol-blended gasoline on air pollutant emissions from motorcycle; *Science of the total Environment,* doi: 10.1016/j.scitotenv.2009.06.017.

Effect of Biodiesel on Construction Equipment

A US paper, based on real-world measurements using a Portable Emission Measurement System, examines substitution of soy-based biodiesel fuels for petroleum diesel. 20% biodiesel gave average differences in life cycle emissions versus diesel of 3.5% higher NOx, 11.8% lower PM, 1.6% higher HC, 4.1% lower CO.

Source: Shih-Hao Pang, H.C. Frey and W.J. Rasdorf, Life Cycle Inventory Energy Consumption and Emissions for Biodiesel versus Petroleum Diesel Fuelled Construction Vehicles; *Environmental Science & Technology*, doi: 10.1021/es802916u.

Formaldehyde and Methanol from Methanol Blends

A paper from Xi'an Jiaotong University, China, examines formaldehyde and methanol emissions and catalyst efficiency from a three-cylinder spark-ignition engine run on various gasoline-methanol blends. Experimental results show that the addition of 10% methanol in gasoline doubled the formaldehyde emissions. Methanol can be totally removed by the catalyst once light-off is achieved.

Source: Wei et al, Formaldehyde and Methanol Emissions from a Methanol/Gasoline-Fuelled Spark-Ignition (SI) Engine. *Energy & Fuels*, 2009;23(6):3313-3318, doi: 10.1021/ef900175h.

Interaction of Emissions and Climate Change

Black Carbon, Ozone Precursors and Global Warming

An article in the September/October 2009 edition of the magazine '*Foreign Affairs'* highlights the importance of black carbon and ozone-forming gases as global warmers and their potential for an early and simple control.

The article, by Jessica Seddon Wallack of the Institute for Financial Management and Research in Chennai, India and Veerabhadran Ramanathan from the University of California, San Diego, says that the warming effect of ozone and black carbon together is around 40-70% of that of CO_2. "Limiting their presence in the atmosphere is an easier, cheaper, and more politically feasible proposition than the most popular proposals for slowing climate change - and it would have a more immediate effect."

Effects of Electric Vehicles on Climate

A new study suggests that a 50% reduction in road transport emissions as a result of using more electric vehicles will result in a cooling effect on the climate. But the degree of cooling, caused by reductions in ozone and black carbon, varies according to whether energy comes from clean sources or fossil fuels.

Source: Unger, Shindell and Wang, Climate forcing by the on-road transportation and power generation sectors. *Atmospheric Environment* 43:3077-3085 (2009).

FORTHCOMING CONFERENCES

European Transport Forum 2009

9 September 2009, Brussels, Belgium

Details at www.europeantransportforum.eu

Held on an annual basis, the European Transport Forum is the EU's central debating platform on transport issues. It gathers stakeholders, policy-makers, academics and NGOs to help shape the EU's future transport policy. Headline speaker will be Antonio Tajani, Commissioner responsible for Transport policy, who will present the upcoming Communication on the future of European transport.

AVL Congress Engine and Environment

10-11 September 2009, Graz, Austria

Details at www.avl.com/conferences

Issues will include powertrain electrification, combustion engines as main propulsion or emergency power supply, and new concepts for combustion engines as range extenders.

9th International Conference on Engines and Vehicles (ICE2009)

13-18 September 2009, Capri, Naples, Italy

Details at www.sae-na.it/iceconf.html

Conference topics include fuel injection and combustion processes, alternative fuel power systems, powertrain technology, and exhaust aftertreatment and emissions.

MODEGAT – International Symposium on Modelling of Exhaust-Gas Aftertreatment

14-15 September 2009, Karlsruhe, Germany

Details at modegat.itcp.uni-karlsruhe.de

This is the first symposium in Europe that specifically focuses on modelling and numerical simulation in automobile exhaust-gas aftertreatment.

"Soots"

16 September 2009, Chester, UK

Details at www.combustion.org.uk/events.html

European CO_2 Emission Performance Standards: Enhancing Policy, Collaboration and Innovation

1 October 2009, Brussels, Belgium

Details at www.awbriefing.com/events/09-10-01.php

This one-day conference will provide a high-level forum for local practitioners, businesses, consultancies and EU officials to exchange ideas, explore effective ways towards achieving reasonable European CO_2 emission standards as well as solutions to overcome the hurdles that create fragmentation of the car market.

2nd International FINE!Dust-Free Congress

1-2 October 2009, Klagenfurt, Germany

Details at www.life-spas.at/deutsch/374.asp

The programme will focus on the new EU Air Quality Directive, costs, causes and the health impacts of fine-dust pollution.

18th Aachen Colloquium 'Automobile and Engine Technology'

5-7 October 2009, Aachen, Germany

Details at www.aachener-kolloquium.de

The congress will provide a wide range of technical presentations addressing current challenges of the vehicle and powertrain industry. Programme-related test vehicles, prototypes and aggregates from participating companies and institutions will be presented on the ika test track.

SAE 2009 Commercial Vehicle Engineering Congress and Exhibition

6-7 October 2009, Rosemont, Illinois, USA

Details at www.sae.org/events/cve

AVL Roadshow: Abgasmesstechnik

7 October 2009, Fürth, Germany
14 October 2009, Hannover, Germany

Details at www.avl-abgasmesstechnik.de

Busworld 2009

16-21 October 2009, Kortrijk, Belgium

Details at www.busworld.org

Internal Combustion Engine Fundamentals – Diesel (Ricardo Seminar)

20 October 2009, Shoreham-by-Sea, UK

Internal Combustion Engine Fundamentals – Gasoline (Ricardo Seminar)

21 October 2009, Shoreham-by-Sea, UK

Automotive Near Zero Emission Vehicle Technologies 2009 Conference

22 October 2009, Novi, Michigan, USA

Details at www.itbgroup.com/conferences_NZEV.htm

This event will provide a forum for understanding developments to meet future exhaust emissions regulations and CO_2/fuel economy requirements. It will focus on alternative powertrain technologies such as hybrids and electric vehicles together with developments in exhaust aftertreatment systems.

APAC 15 – Asia-Pacific Automotive Engineering Conference

26-28 October 2009, Hanoi, Vietnam

Details at www.vsae.org.vn

Biofuels 2009

27-29 October 2009, Budapest, Hungary

Details at www.wraconferences.com/2/4/articles/57.php

15th Small Engine Technology Conference

3-5 November 2009, Penang, Malaysia

Details at www.setc2009.com

The conference will have presentations relating to small power sources and applications such as motorcycles, scooters, marine, agricultural and garden equipment, ATVs and portable generators.

7th FAD Conference: The challenge – exhaust aftertreatment for diesel engines

4-5 November 2009, Dresden, Germany

Details at www.fad-diesel.de

Ricardo: Use of Biofuels by OEMs

5 November 2009, Shoreham-by-Sea, UK

This seminar will discuss the different types of biofuel and the problems OEMs are experiencing with the use of this fuel.

Emission Control Technologies to Improve Ambient Air Quality – Path Forward for India (ECT – 2009)

6-7 November 2009, New Delhi, India

This special conference will provide an opportunity to discuss the current issues facing the industry in the field of vehicular emissions controls. Through two panel sessions and interactive presentations, delegates will consider the key challenges that lay ahead which will define and shape the success and sustainability of the automotive industry in India.

3rd International Symposium on Development Methodology: Challenges in the field of new Powertrain Concepts

10-11 November 2009, Wiesbaden, Germany

Details at www.symposium-development-methodology.com

The overall theme of this symposium is the application of development methodology in order to overcome current and future application and development tasks in the field of engine and powertrain development.

Reduction of Vehicles Particulates Emission – Experiences and Challenges

18-19 November 2009, Cracow, Poland

Details at www.inig.pl/DEXFIL/index.asp?P=1&L=E

Planned thematic sessions cover the role of alternative fuels in PM reduction; exhaust aftertreatment systems - technical solutions and future requirements; PM filtration systems for biofuels and alternative fuels application; the development of DPF regeneration methods and field experiences.

Grundlagen der Abgasnachbehandlung im Verbrennungsmotor

1-2 December 2009, Köln, Germany

Details at www.vdi-wissensforum.de

The Spark Ignition Engine of the Future

2-3 December 2009, Strasbourg, France

Details at www.sia.fr/evenement_detail_international_conference_1005.htm

This new SIA international Conference is intended to provide the opportunity for experts from OEMs and their suppliers, the oil industry, research laboratories and universities to exchange their points of view and information on the potential of the future spark ignition engine to respond to the combined low CO_2 and electrification challenges of the future.

Air Quality – The Major Challenges

9-10 December 2009, London, UK

Details at http://rsc-aamg.org/Pages/Meetings/MAA2009.html

The conference will focus on issues around compliance with air quality legislation generally and around specific cases such as airports and shipping. It will cover how technology and regulation should be adapting to address the challenges of the future. The conference will be introduced by internationally recognised experts to set the scene at the national and European level and will provide a broad and up-to-date survey of regulatory and scientific issues, including health effects and future perspectives.

6th International Exhaust Gas and Particulate Emissions Forum

9-10 March 2010, Ludwigsburg, Germany

SAE 2010 World Congress

12-15 April 2010, Detroit, Michigan, USA

Details at www.sae.org/congress/techprogram/cfp.htm

33rd FISITA World Automotive Congress

30 May - 4 June 2010, Budapest, Hungary

Details at www.fisita2010.com

Top experts from the automotive community around the world will review the latest technical breakthroughs and innovations and show the world that our future mobility depends on engineers.