

NAECCewsletter

Association for Emissions Control by Catalyst

Av. de Tervueren 100, B-1040 Brussels

Affiliated to CEFIC

JANUARY - FEBRUARY 2000

INTERNATIONAL REGULATORY DEVELOPMENTS

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For further information contact:

Robert A Searles
Executive Director

ASSOCIATION FOR EMISSIONS CONTROL BY CATALYST

Avenue de Tervueren 100

B-1040 Brussels

Tel.: ++ 32 2 743.24.90

Fax.: ++ 32 2 743.24.99

EUROPE

1. Milan experiences severe pollution

Record levels of air pollution forced the regional government to ban all cars and motorbikes in Milan, Como and other nearby cities for the first time in 25 years. The one-day traffic ban was because pollutants from factories, heating and car fumes had created a health hazard.

2. EU air quality remains poor

The European Commission's annual reports on the levels of tropospheric ozone in the European Union during 1998 and 1999 show a slight downward trend in ozone pollution peaks over the last years in Central Europe. However there still is no overall reduction in the EU in the exposure of the population and ecosystems to ozone.

The reports reveal that the levels of ozone concentration measured in most of the 1400 measurement stations remain well above the ceilings set by the Council's Framework Directive on air pollution by ozone (Directive 92/72/EC). The main points contained in the reports are:

Peoples health

In 1998, the indicative ceiling so that health is protected (110 micrograms per cubic meter over 8 hours) has, on average, been exceeded during a 20 to 60 day period in Mediterranean countries (for up to 80 days in certain areas), and during 10 to 35 days in countries located in the centre of the EU. The warning level (360 micrograms/m³ over 1 hour) was exceeded by eight monitoring stations in Greece, Italy and France.

In 1999, the 360 micrograms/m³ level was not exceeded, but the ceiling for informing

the public (180 micrograms/m³ during 1 hour) was exceeded by all EU members except Ireland, Denmark, Sweden and Finland. The most critical situations took place in Italy, Greece, France and Spain where the population was informed of the high levels of ozone pollution during a 40 to 60 day period.

Protection of vegetation

The vegetation protection limit, established at 200 micrograms/m³ was exceeded for more than 200 days in 94 measuring stations located in 13 Member States.

3. Another report supports low sulphur fuel

FEV Aachen under contract to VDA and IG Metall has prepared a report which supports the rapid reduction of sulphur levels in both petrol and diesel fuel. Major conclusions are summarised below:

Diesel Engines

Sulphur-free fuel (S < 10 ppm) very clearly reduces the contribution of road traffic to sulphur emissions. Moreover, sulphur free fuel not only has a beneficial effect on particulate, HC, NO_x and CO emissions but also indirectly reduces the CO₂ emissions of road traffic compared to the use of current commercial fuels.

For NO_x adsorbers, fuel sulphur content of less than 10 ppm is necessary in order to guarantee stable, high efficiency emission control and optimal fuel consumption over vehicle lives.

A reduction of the sulphur content to values less than 10 ppm increases the capability of oxidation catalysts, SCR catalysts and particulate filters. The results are reduced sulphate (particulate) emissions with oxidation catalysts and improved fuel

consumption for particulate filter systems.

Spark-ignition Engines

The lean burn petrol engine with direct fuel injection is already available on the market and is capable of achieving reductions of up to 15% in fuel consumption compared to conventional petrol engines. However, in order to comply with strict future emission legislation, the use of NO_x adsorber catalysts in combination with close-coupled 3-way catalysts will be necessary.

A reduction in sulphur content from 50 ppm to less than 10 ppm leads to an improvement in the long-term stability of emission-related components, in particular with ultra-low emission concepts.

For NO_x adsorber catalysts, "sulphur-free" fuels with sulphur contents less than 10 ppm are needed in order to guarantee the high-efficiency emission control and optimal fuel consumption required to meet the strict emission limits over vehicle lives.

4. Commission delays decision on 10 ppm sulphur fuel for Germany

In a Communication to be published in the Official Journal, the Commission says that it has decided that it needs more time to examine the technological and environmental benefits of fiscal incentives for 10 ppm sulphur fuels. The Commission will also look into how fuel standards can effect competition and trade in the single market.

Germany informed the Commission in September 1999 that it wished to increase duty on fuels with a sulphur content over 50 ppm by 3 pfennigs/litre from 1 November 2001 to 31 December 2002. From 1 January 2003 the higher tax would apply to fuels over 10 ppm sulphur.

The Commission has agreed to the first part of the request as 50 ppm sulphur fuels are to come in from 2005 under Directive 98/70/EC and stresses that is not rejecting the second part in principle but needs more time than is allowed.

5. European Council agrees new rules on air pollution from tractors

The Council of Ministers have reached a common position that applies the same rules on gaseous and PM emissions to agricultural and forestry tractors as required for other non-road mobile machinery in Directive 97/68/EC.

6. Heavy-duty Directive published

The final version of the heavy-duty directive setting Euro III and IV limit values was published on 16 February in the Official Journal as Directive 1999/96/EC.

7. In Brief

- Mitsubishi has announced that production of its GDI engines has passed 700,000 units.
- Honda have announced that the year 2000 model of their Fireblade (CBR 900 RR) motorcycle will be sold on the German market with a closed loop 3-way catalyst. This is said to be the first superbike to be so equipped and power is raised from 94 to 112 kw. Honda plans to sell 2800 Fireblades in 2000 in Germany
- New ships being built for Stena to operate on the Hook of Holland to Harwich, UK route will be fitted with catalytic converters and will cut two hours off the 8 hour crossing time

NORTH AMERICA

8. ARCO to offer Low Sulphur Fuel in California

ARCO will begin offering a cleaner burning diesel fuel, well in advance of anticipated regulatory requirements, aimed specifically at helping reduce soot emissions from urban municipal fleets in Southern California.

The new ultra low sulphur diesel fuel will be available immediately, upon request, to operators of urban municipal fleets that have been retrofitted with catalytic exhaust control technology. ARCO's announcement is being made simultaneously with the California Air Resources Board's (CARB) staff proposal requiring significantly lower emissions from urban buses (see below).

ARCO's new fuel will have a maximum sulphur content of 15 ppm, while the sulphur content of diesel fuel currently used in California is almost 10 times greater at an average of 120 ppm, with a maximum sulphur level of 500 ppm. Diesel fuel with an average sulphur content level of 340 ppm, and a maximum of 500 ppm, is used in other parts of the USA.

CARB has estimated that it expects low sulphur fuel to cost approximately 5 cents a gallon more than current CARB diesel.

9. California proposes to clean up Urban Buses

CARB has introduced a regulatory proposal that contains two elements to reduce emissions from urban buses:

- A transit bus fleet rule applicable to transit agencies to encourage public transit fleets to adopt two paths for compliance – a diesel path and an alternative-fuel path

- To encourage more stringent emission standards for engines used in urban buses, applicable to engine manufacturers

The fleet rule is designed to achieve nearer-term emission benefits while the engine standards are designed to achieve long-term emission benefits resulting from new bus engines with ultra-low, near-zero, and zero-emissions. The rules include:

- 4.8 g/bhp-hr NO_x fleet average requirement for transit agencies.
- PM retrofit requirements for 2003 and earlier model year diesel urban buses.
- Zero-emission bus demonstration project requirements in 2003 for large transit agencies on the diesel path.
- Zero-emission bus purchase requirements beginning in 2008 for large transit agencies on the diesel path and in 2010 for large transit agencies on the alternative-fuel path.
- Requirements for transit agencies using diesel fuel to use low sulphur fuel (15 ppm or less) beginning 1 July 2002.
- More stringent emission standards, including a 0.5 g/bhp-hr NO_x standard and 0.01 PM g/bhp-hr PM standard, for 2004 and subsequent model year diesel and dual-fuel urban bus engines.
- More stringent emission standards, including a 0.2 g/bhp-hr NO_x standards and a 0.01 g/bhp-hr PM standard, for all 2007 and subsequent model year engines.

10. US Energy Department to fund Clean Fuel Research

U.S. Energy Department will provide \$75 million in research grants to develop clean fuels and to develop innovative emission control systems and verify their performance in engine tests. The research money is part of the US Government's efforts to cut sulphur levels in petrol.

In December the US adopted new regulations requiring refineries to reduce sulphur levels in petrol to an average of 30 parts ppm by 2005, down from current levels of over 300 ppm. New regulations for lower sulphur levels in diesel fuel are expected by the end of the year.

ASIA - PACIFIC REGION

11. Japanese Government & Expressway Corporation must pay for pollution damage

The Kobe District Court has ordered the Japan central government and Hanshin Expressway Public Corporation to pay 210 million yen in compensation to residents affected and to take responsibility for pollution caused by vehicle exhaust emissions.

12. Nepal mandates tight emission standards

Nepal has banned the import of motor vehicles not meeting Euro I emission standards to try to curb pollution in the Himalayan kingdom. Vehicles owned by the government, public corporations and diplomatic missions should install emission control devices by 19 February 2000.

13. New motor vehicle pollution control rules In Singapore

From 1 August 2000, all off-road diesel

engines would be required to comply with Japan, US or EU off-road diesel exhaust emission standards. Any equipment or machinery equipped with diesel engines as the main or auxiliary prime mover and not registered for use on public roads is required to have a permit prior to the import of such equipment.

From 1 January 2001, all petrol & diesel-driven vehicles must comply with the exhaust emission standard as specified in the European Directive 96/69/EC for light duty vehicles with maximum laden weight (MLW) of 3,500 kg or less and 91/542/EEC Stage II for heavy vehicles with MLW of more than 3,500 kg before these vehicles can be registered for use in Singapore.

In addition, all vehicles are subject to mandatory periodic inspections with enforcement against smoky vehicles.

14. India continues to move forward on vehicle pollution control

Lead Phase Out

The oil industry has announced that only unleaded petrol will be sold throughout India from 1 February 2000. All the refineries have been producing only unleaded gasoline from October last year.

Two Stroke Engines

The Delhi Environment Pollution Authority has made a recommendation that can disallow the registration of two wheelers powered by two-stroke engines in Delhi.

15. Forthcoming Conferences

5th International Congress on Catalysis & Automotive Pollution Control "CAPoC5"

12-14 April 2000, CGER Auditorium, Brussels

Details from: ULB, Tel: +32 2 650 5714,
Fax: +32 2 650 5708, E-mail: jmbastin@ulb.ac.be,
<http://www.ulb.ac.be/sciences/surfcats/CAPoC5/index.html>

The full programme is now available on the CAPoC5 web site.

"Commercialising Fuel Cell Vehicles 2000"

12-14 April 2000, Grand Hyatt Berlin Hotel

Details from: info@intertechusa.com

"Hart 17th Annual World Fuels Conference on Refining Technologies and Low Sulphur Fuels"

28-30 March 2000, San Antonio, Texas

Details from: Harts, Tel. +1 301 424 3338,
Fax. +1 301 340 7136,
www.phillips.com/worldfuels

"F-Cells 2000"

23-26 May 2000, Palm Springs, California

Details from: IQPC, Tel. +1 973 256 0211,
Fax. +1 973 256 0205

A conference and workshop on fuel cell commercialisation covering automotive and power generation applications.