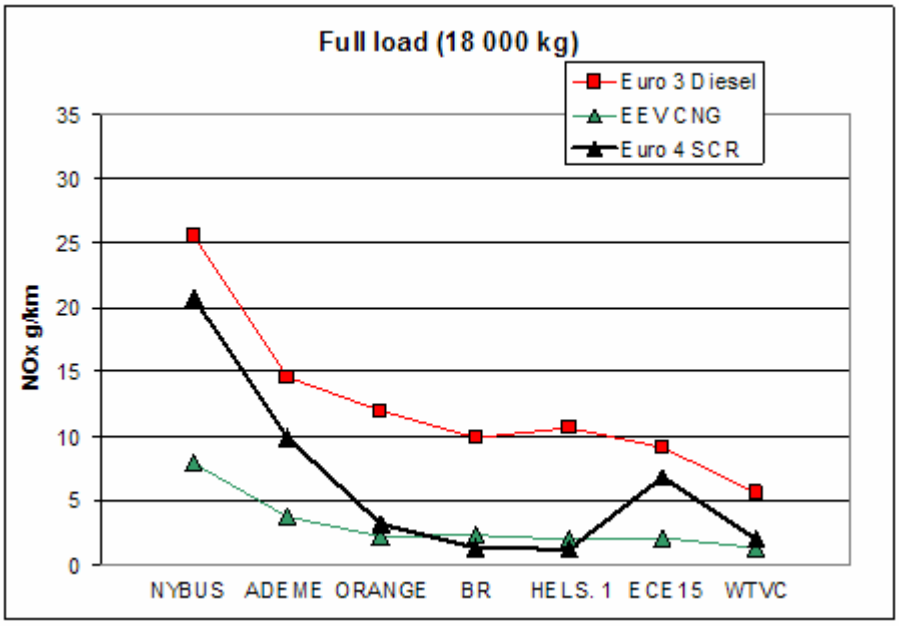
April 2007, issue no. 2/2007

AMFI Newsletter

Advanced Motor Fuels Information



Urea based selective catalytic reduction catalyst (SCR) is not working properly at low load conditions. This is seen as high NO_x emissions when running e.g. New York, Paris and ECE 15 driving cycles. Source: IEA/AMF Annex XXIX: Evaluation of Duty Cycles for Heavy-Duty Urban Vehicles. VTT, Environment Canada and West Virginia University, April 2007.

AMFI Newsletter is prepared for the members of the Implementing Agreement on Advanced Motor Fuels of the International Energy Agency (IEA/AMF).

AMFI provides four electronic Newsletters yearly describing recent news on advanced motor fuels, vehicles, energy and environmental issues in general. AMFI Newsletter is available on the AMF web-site:

www.iea-amf.vtt.fi

CONTENT

CO_2 tailpipe emission limit 130 g/km by 2012 for cars in Europe

In February 2007, the European Commission proposed a new strategy to reduce CO_2 emissions from new cars and vans. This is the first action to implement the 2006 Energy Efficiency Action Plan (AMFI 1/2007). The proposed legislation requires that average CO_2 emissions of new cars sold in the EU-27 should meet the 120 g/km target by 2012 (corresponds to 4.5 l/100km for diesel and 5 l/100km for petrol). For vans, the fleet average emission targets will be 175 g/km by 2012 and 160 g/km by 2015, compared with 201 g/km in 2002. The Commission concluded that the current strategy based on the voluntary commitments seems to fail, and thus mandatory limits are proposed. (Voluntary commitments 140 g/km by European manufacturers by 2008; Japanese and Korean manufacturers by 2009).

The proposed limit of 120 g CO_2/km by 2012 could be met by two means: 1) improvements in vehicle technology could reduce average emissions to 130 g/km 2) complementary measures could cut emissions by 10 g/km. The complementary measures mean e.g. biofuels and more efficient car components (tyres etc.). This was a compromise solution after a strong opposition by the German car industry to take responsibility of the total emission reduction. *Source: IP/07/155, Brussels 7 February 2007 (*europa.eu*).* ENGVA commented that natural gas vehicles sold on markets where they use biomethane should be credited as zero CO_2 emission vehicles. *Source: ENGVA, 9 February 2007, "Natural gas vehicles reduce CO_2 emissions up to 100%".*

The European Commission will support research actions to achieve an average of 95 g CO_2/km by 2020. Eco-labelling and differentiated car taxation is also encouraged to promote fuel-efficient vehicles. Car manufacturers are required to commit to an EU code of good practice in car marketing and advertising. An important part of the strategy concerns actions to change consumer behaviour. One of the main reasons for failing to achieve CO_2 targets is that consumers want to buy big and powerful cars. *Source: IP/07/155, Brussels 7 February 2007 (*europa.eu*).*

CO_2 defined as a pollutant in US

US Supreme Court has ruled that CO_2 is a pollutant, and consequently, US EPA can regulate CO_2 emissions from cars. EPA has argued that CO_2 cannot be regulated under the current Clean Air Act. Now it is foreseen that national legislation will include greenhouse gases in US. The Alliance of Automobile Manufacturers favours this by saying that "it would be easier to comply with uniform national CO_2 requirements than with the patchwork of programs that are being adopted by states". *Source: DieselNet News, April, 2007.*

Greenhouse gas reduction plan in Canada

In Canada, an Action Plan to Reduce Greenhouse Gases and Air Pollution was introduced on 26th April 2007. Mandatory targets require industry GHG emissions to be reduced by 150 megatons by 2020. Industry-caused air pollution is to be halved by 2015. The legislation will also affect the transportation sector. It will regulate fuel efficiency of cars and light duty trucks, beginning with the 2011 model year. Canada will collaborate with the US to pursue a Clean Auto Pact to establish a North American regulatory standard for such vehicles. The Government will also take action to reduce emissions in the rail, marine and aviation sectors. *Source: 26 April 2007, Environment Canada. News Release (*www.ec.gc.ca*).*

White Paper on US – Sweden cooperation

"The One Big Thing" - The US Embassy in Stockholm has announced cooperation with Sweden to achieve a breakthrough in the development of alternative energy sources. Both governments share common

U.S.	Sweden
U.S. intends to reduce gasoline consumption by 20% by 2017.	**Sweden aims to break its dependency on fossil fuels by 2020.**
Renewable sources provide 6% of the total energy.	Renewable sources account for 26% of the total energy.
Electric power is produced from 50% coal, 20% natural gas, 20% nuclear and 10% renewables, mainly hydro.	Electric power is produced from 50% nuclear, 40% hydro, 10% fossil fuel/biofuels/wind power.
There are 6 million flex-fuel vehicles on the road.	There are 70,000 bio-fuelled vehicles on the road; 40% of newly produced Saabs are flex-fuelled.
There are 1200 gas stations with ethanol, 0.5% of the total.	There are 795 gas stations with ethanol, 15% of the total.
The current use of ethanol in the U.S. amounts to 5 billion gallons, and the average annual increase is 20%. The U.S. goal is 35 billion gallons/year by 2017.	The annual use of ethanol in Sweden amounts to 64 million gallons; the use of E85 goes up by 100% annually; some 80% of ethanol is imported.
The National Renewable Energy Laboratory (NREL) pilot plans aim to validate new biomass-to-ethanol technologies to enable more cost-effective and less complicated production.	Sweden runs three R&D plants with cellulosic ethanol production and biomass gasification.
DoE goal is to obtain 6% of energy from wind power by 2020.	Sweden aims to increase its wind power production from 0.6% of the total to 6% by 2015.
The U.S. aims to produce a small percentage of its electricity through photovoltaics by 2015.	The total effect of photovoltaic energy in Sweden is 4 MW and the government aims to double it by 2010.

goals in the energy security field and have ambitious programs to reduce their reliance on fossil fuels. President Bush has set a national goal of replacing 75% of US oil imports from the Middle East by 2025. In Sweden, aim is to end use of fossil fuel by 2020. The two nations are among the leaders in energy research and development, and can better achieve their goals through cooperation in developing renewable energy sources and alternative fuels. The initiatives are a response to global climate change, rising petroleum prices, and concern about the availability of reliable energy supplies. "The One Big Thing" project aims to achieve a breakthrough over the next two years on e.g. 1) cellulosic ethanol and other 2nd generation biofuel production technologies, 2) improved battery and auto engine technology, 3) reduced cost of producing electricity from solar and wind, 4) clean coal and carbon sequestration and, 5) improved energy efficiency in homes and buildings. An Embassy steering committee oversees work and has tentatively identified over 30 goals that could lead to a technology breakthrough. *Source: April 23, 2007(stockholm.usembassy.gov*).

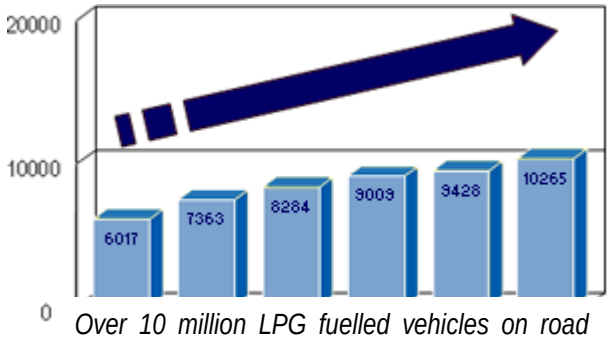
GASEOUS FUELS (NG, LPG, biogas)

"Biomethane" in Euro 5 draft regulation

The latest draft of the Euro 5 light-duty vehicle emission regulations includes "biomethane" within its definitions for natural gas. The previous version used the word "biogas", which is typically considered to be the first "crude" product of the 'methanization' process; used for electricity production. The upgraded product, which is suitable to be used in vehicles, is defined as 'biomethane' by the NGV industry. *Source: NGV Global 28 Feb 2007.*

New Autogas vehicles introduced

Vehicle manufacturers have introduced new LPG car models. Today, virtually all automotive manufacturers have Autogas models available, e.g. Volvo, Vauxhall, Subaru, Toyota, Renault, Citroën, Proton, Peugeot, Opel, Mitsubishi, Ford, Fiat, GM, DaimlerChrysler, Daihatsu. Many other offer conversions for Autogas. *Source: Autogas Updates, n°23 Winter 2006/2007.*



Over 10 million LPG fuelled vehicles on road (~5.7 million NGVs). (www.worldlpg.com)

LP Gas is a derivative of two large energy industries: natural gas processing and crude oil refining. Mixtures of several gases and liquids are obtained from natural gas fields. Methane, "natural gas", constitutes about 90% of this mixture, 5% is propane and 5% other gases. Depending on the field, gas liquids generally contain 1%-3% of the unprocessed gas stream. Crude oil also contains some LP Gases. Worldwide, gas processing covers about 60% of LP Gas produced and crude oil refining about 40%. (*www.worldlpg.com*)

ALCOHOLS, (BIO)GASOLINE

US – Brazil cooperation on biofuels

US and Brazil signed a Memorandum of Understanding to advance cooperation on biofuels. The world's two largest producers of ethanol intend to advance the research and development of new technologies to promote the use of biofuels. The key issues in global adoption of biofuels are reducing the cost of production, land use demands and price pressures on feedstock. The intention is to help third world countries to stimulate private investment in local production and consumption of biofuels. The United States and Brazil expect to support feasibility studies and technical assistance in partnership with the Inter-American Development Bank, the United Nations Foundation, and the Organization of the American States. Multilaterally, the United States and Brazil intend to work through the International Biofuels Forum to examine development of common biofuels standards and codes to facilitate commoditization of biofuels. Greater cooperation with Brazil is complementary to existing United States efforts in the Global Bio-Energy Partnership endorsed by the Group of Eight and the Asia-Pacific Economic Cooperation forum's Biofuels Task Force. *Source: 9 March 2007 (www.state.gov)*.

Evaporative emissions with ethanol

CONCAWE, EUCAR and the Joint Research Centre of the European Commission studied the influence of gasoline vapour pressure and fuel ethanol content on the evaporative emissions from modern passenger cars. Breathing losses through the tank vent and fuel permeation are the most important sources of evaporative emissions in a vehicle. Carbon canisters are used to control vapour emissions. Evaporative emissions depend mainly on ambient temperature, fuel volatility and fuel

system design. Ethanol is known to increase the vapour pressure when blended with gasoline. Seven cars (Euro 3-4) were tested with ten fuels, which comprised 60 and 70 kPa hydrocarbon fuels with 5 and 10% ethanol splash blends and 5 and 10% ethanol matched volatility blends. The test procedure that was used turned out to affect the results; the test protocol was not able to return the vehicle to a consistent condition at the start of each test. The programme confirmed that vapour pressure is a key fuel variable for evaporative emissions. The effect of vapour pressure was non-linear: the ethanol blends with vapour pressures of around 75 kPa gave considerably higher evaporative emissions than the lower volatility fuels in most of the vehicles. Differences between fuels with vapour pressure in the range 60-70 kPa were small. Some questions rose concerning possible effects of ethanol on the working capacity of carbon canisters, and on the role of permeation in determining evaporative emissions. *Source: Joint EUCAR/JRC/CONCAWE Study on: Effects of Gasoline Vapour Pressure and Ethanol Content on Evaporative Emissions from Modern Cars, Edited by G. Martini, © European Communities, 2007.* (*ies.jrc.cec.eu.int*)

PLANT OILS

Jathropa plantations in China

China plans to establish the world's largest jathropa plantation for biofuel production by 2010. The plan is to devote 13 million hectares (the size of England) to jathropa trees, producing some 6 million tons of biodiesel yearly, and fuel for a 12 MW power plant. Currently, 2 million hectares is devoted to jathropa in China for candles, soap etc. Jathropa oil is non-edible and thus does not compete with food. China has set a target of 10% biofuels in transport by 2010. *Source: DieselNet Mail, February 2007.*

Jatropha curcas, relative to castor, grows well in marginal and poor soils, and even in the crevices of rocks. It is easy to establish, it grows relatively quickly and produces seeds for 50 years. Jatropha trees are found in the tropics and subtropics. Jathropa endures heat, can withstand a light frost, and its water requirement is low. Jatropha is suitable for preventing soil erosion and shifting of sand dunes. (*www.jatrophaworld.org*). In addition, Jathropa does not compete with food. Estimates of yield from Jathropa plantation varies a lot, from some 700 to 3000 liters of fuel per hectare yearly (*www.greencarcongress.com*, *en.wikipedia.org*, *www.jatrophaworld.org*).

Jathropa is already planted in India with target to replace around 5% of its 40-million tonnes of annual diesel consumption. (*www.mozlegal.com*). Jathropa plantations exist also in other countries, like the Philippines, Thailand and African countries, e.g., Ghana and South-Africa. Sweden is going to use Jathropa in addition to tall oil in Piteå. *Source: Miljöbilens wärld, May 2007.*

Jathropa curcas. Source: (www.jathropaworld.com). © 2004-2007 Centre for Jatropha Promotion & Biodiesel.

Sustainability of palm oil discussed

The Guardian reports of the threat of palm oil plantations to the rainforests. The article states that in the next 15 years 98% of the rainforests of Indonesia and Malaysia might be gone. In Kalimantan, the Indonesian part of Borneo, 250,000 hectares (almost twice the size of Greater London) have been planted with palm. Indonesia has allocated 6.5 million hectares of forest for palm, and aiming to double this in five to eight years, and triple it by 2020. Palm oil should reduce life-cycle CO_2 emissions, but even this is questionable as new plantations are often created by draining and burning peat-land. The challenging biofuel targets of the industrial world are the major reason for expected increase in palm oil demand. *Source: Guardian, 4 April 2007 "Palm oil: the biofuel of the future driving an ecological disaster now"* (*www.guardian.co.uk*)

Certification needed – The Roundtable on Sustainable Palm Oil (RSPO), in which organisations around the entire supply chain for palm oil are represented, are aiming to define criteria for the sustainable production and use of palm oil, and to promote best practices and solutions. (*www.rspo.org*). Also in Europe, efforts are given to avoid usage of non-sustainable biomass feedstock by developing sustainability criteria and certification systems.

SYNTHETIC DIESEL AND RENEWABLE DIESEL

Neste Oil and Stora Enso: BTL biodiesel from wood

Neste Oil and Stora Enso join forces to develop technology for producing new-generation biofuels from wood residues. A demonstration plant will be built at Stora Enso's Varkaus Mill in Finland, with expected start-up in 2008. Stora Enso will be responsible for supplying wood biomass and utilizing the generated heat. Neste Oil's responsibility will be final refining and marketing of the biofuel. Expertise from Neste Oil, Stora Enso, and VTT Technical Research Centre of Finland will be utilized to implement the development phase and commercialize wood-based biofuel production. The major challenges are related to generation of clean synthesis gas from wood. The project will also focus on using the Fischer-Tropsch process to produce biodiesel from gas. *Source: Stock Exchange Releases, 16 March 2007* (*www.nesteoil.com*, *www.storaenso.com*). Full-scale commercial production is expected around 2012-2014 with a 250 MW plant, which would produce around 120 million liters of diesel fuel. *Source: Kauppalehti, March 2007.*

Picture by courtesy of Stora Enso. (*www.storaenso.com*)

Neste Oil is currently commissioning its first plant to produce 170,000 t/a of NExBTL Renewable Diesel, a high-quality fuel produced by hydrotreatment of vegetable oil and animal fat. A second similar plant is also under construction at Porvoo. Stora Enso is an integrated paper, packaging and forest products company producing publication and fine paper, packaging board and wood products. *Source: Stock Exchange Releases, 16 March 2007* (*www.nesteoil.com*, *www.storaenso.com*)

Hydrotreated refinery-based biodiesel in US

In US, 2nd generation renewable diesel fuel processed at refinery by hydrotreatment of vegetable oils or animal fats will get similar credits as traditional ester-type biodiesel. US EPA has defined refinery-based hydrotreated renewable diesel as eligible to get RFS credit (US EPA's Renewable Fuel Standard program), which is 1.7 times the credit of ethanol due to higher energy content. Credit for biodiesel (ester) is 1.5 times the credit of ethanol. US Internal Revenue Service has granted hydrotreated renewable diesel eligible for $1/gallon tax credit, which is granted for fuels produced by "thermal depolymerization" of biofeedstock. An example of hydrotreated renewable diesel fuel is NExBTL from Neste Oil (see above). *Source: DieselNet News, April 2007.*

Conoco Phillips and Tyson Foods will produce refinery-based hydrotreated renewable diesel fuel from animal fats in US. Production is expected to start in late 2007 with the expected volume of 175 million gallons per year (662 000 metric tons) of renewable diesel. Conoco Phillips started production of renewable diesel from soybean in Ireland in 2006. *Source: 16 April 2007, Conoco Phillips, Press release* (*www.conocophillips.com*).

FT study in Sweden

There is a need for several hundreds of BTL-plants to be built within EU. BTL technology is studied by several companies such as Choren, Renet-Güssing, Future Energy, Chemrec and Neste Oil. In Sweden, a recent study suggests that it would be reasonable for Sweden to build first a GTL-pilot plant to give time for development and testing of BTL and other concepts. The GTL-pilot plant would be located in Sundsvall, using the industrial off-gases which are now being flared at AkzoNobel, Sundsvall. Researchers at KTH, UmU, Mid Sweden University and Chalmers would make Sundsvall into a Research Center for BTL. (*www.fokusera.biz*)

OTHER FUELS AND VEHICLES

VW focus on battery-electric vehicles

Volkswagen announced that they will change strategy from fuel cells to biofuels and battery-electric vehicles. Volkswagen comments that development of fuel cells is slow, whereas technical progress and economic outlooks are more promising in

batteries. Still in December 2006, Volkswagen announced that they are convinced of the potential of fuel cells. Volkswagen is developing hybrid powertrains in co-operation with Porsche. *Source: Automotive Engineering, March 2007.*

China's hydrogen fuel cell vehicles

The number of cars is rising with enormous speed in China, resulting in a huge consumption of oil and urban pollution. One question is, whether hydrogen fuel cell vehicles could help mobilise China. According to Professor Gang Wan of Shanghai's Tongji University, up to 25% of the cars in China could be running on fuel cells by 2020. (*November, 2006, www.fuelcelltoday.com*). In 2006, China released the third generation of the fuel cell car ChaoYue III, which can store up to 2 kg of hydrogen gas, and has a cruising range of 230 km. Its top speed is 122 km/h (*HyWeb, July, 2006, www.hyweb.de*). Another hydrogen-fuelled car has been developed under the Sample Hydrogen Fuel Dynamic Sedan Development Project. (*People's Daily Online, October, 2006, english.people.com.cn*). Through a variety of partnerships, China is also expanding its hydrogen fuel cell bus fleet and learning how to produce and distribute hydrogen. The Chinese market is big enough for mass production of FCVs, which will lower the price level, if FCVs appear to be a technically reasonable solution.

MISCELLANEOUS

- **Alternative fuels in low temperatures**: Many technologies encounter problems at low temperatures. In Sweden, 5% FAME in diesel has showed problems at cold temperatures with ice plugs formed in the fuel system (*Norra Västerbotten, 7 Feb. 2007, www.norran.se*). After overnight parking below -15 °C, it is difficult to start a vehicle on neat RME or on E85. Exhaust after-treatment systems tend to have problems at low temperatures, e.g. SCR using urea (AdBlue™) with a freezing point of -11 °C. LPG cars, with LPG fuel supply from the gaseous phase, must at temperatures below - 15 °C switch to petrol in order to respond properly to a wide open throttle. Methane powered vehicles lack these problems. In addition to current certification tests at normal ambient temperatures, as well as cold start tests at – 7 °C, it would for various new fuels seem wise to introduce functionality and certification tests at – 15 °C. *Comment from Peter Boisen, ENGVA.*
- **CO_2 emissions and speed limits**: In Sweden, it is noted that CO_2 emissions from cars would be reduced 700,000 tons per year, if drivers followed the speed limits. However, Sweden is planning to increase the highest speed limit to 120 km/h. *Miljöbilens värld, May 2007.*
- **A particle number limit is proposed for Euro 5/6** (2009/2014). The proposed limit value is 5 x 10^{11} #/km measured as solid particles according to the so called "PMP method". In addition, particulate mass limit is lowered from 5 mg/km to 3 mg/km due to change of measurement method. *DieselNet News, April 2007.*

IEA & IEA/AMF News

IEA/AMF 33rd ExCo "Mini" Meeting in Detroit

The 33rd Executive Committee Meeting of IEA/AMF was held in Detroit, US, on April 19-20, 2007. The meeting was a kind of "Mini-ExCo" with a short agenda. New Delegates Gary Becker (NRCan) from Canada and Petter Åsman (SRA) from Sweden were welcomed. The "Mini-ExCo" meeting was organized to strengthen and activate the international exchange of views and information on advanced motor fuels, and to identify possible gaps in knowledge, in particular as concerns end-use aspects of AMF. In Detroit, second generation ethanol and "renewable diesel" or "thermally depolymerized diesel" (not FAME-type biodiesel) proved to be the most interesting issues, and some gaps in knowledge were recognized. As a result, a new Annex on ethanol was started, with Jesper Schramm (DTU) as an Operating Agent. New sub-tasks on ethanol can be started under this Annex. The possible sub-tasks will be independent tasks requiring a separate decision-making process. Minutes of the meeting, presentations and other material will be available at *www.iea-amf.vtt.fi* (members' area).

A brief summary of the ongoing AMF Annexes:

- Annex XXVIII "Information Service & AMF Website "AMFI" (TEC, Finland): In addition to AMFI Newsletters and website, the "AMFI Outlook report" was prepared in 2006. The extended version (February 2007) is restricted to IEA AMF and EU's Bioenergy NoE. A summary report will be prepared for the public domain. In 2007, four AMFI Newsletters will be prepared. In addition, questionnaires will be distributed. Atrax will carry out independent work on fuel standardisation.
- Annex XXIX "Evaluation of Duty Cycles for Heavy-Duty Urban Vehicles" (VTT, Finland): The three laboratories, VTT, Environment Canada and West Virginia University studied new diesel, CNG and hybrid buses with several test cycles for all test sites. A final "restricted" report was distributed in April 2007. The Annex is to be closed.
- Annex XXXI "Production and Use of Synthetic Vehicle Fuels made by Fischer-Tropsch Technique" (Atrax, Sweden): A final "restricted" report available in April 2007.

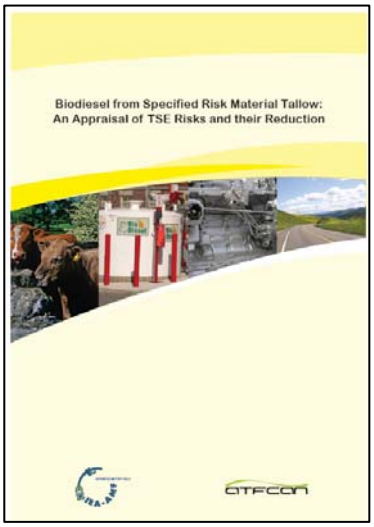
- Annex XXXIII "Particle Emissions of 2-S Scooters" (AFHB, Switzerland): The Annex will continue until the end of 2007.
- Annex XXXIV "Analysis of Biodiesel Options" (McGill, USA): The final report by December 2007.

Annex XXX Biodiesel from Specified Risk Material Tallow: public reports

Annex XXX reports "Biodiesel from Specified Risk Material Tallow: An Appraisal of TSE Risks and their Reduction, Volume 1" and "Detection of Prion Proteins and TSE Infectivity in the Rendering and Biodiesel Manufacture Processes, Volume 2" are now available in public domain *(iea-amf website)*. The conclusion is that biodiesel produced from animals infected with TSE poses a negligible risk to animal and public health. At present, the potential for infectivity reduction through biodiesel manufacturing and combustion can only be estimated from analogy to methods known to inactivate infectivity in saline suspensions of infected tissue. Studies of the actual biodiesel process, using experimentally contaminated input tallow, are recommended as the only means by which a scientifically-based conclusion can be made about the capacity of these processes to reduce or eliminate TSE infectivity.

PUBLICATIONS

- IEA/AMF Annex XXVIII: Outlook for biofuels, advanced motor fuels and new vehicles – restricted version. TEC and VTT, February 2007.
- IEA/AMF Annex XXIX: Evaluation of Duty Cycles for Heavy-Duty Urban Vehicles. VTT, Environment Canada and West Virginia University, April 2007.
- IEA/AMF Annex XXX: "Biodiesel from Specified Risk Material Tallow: An Appraisal of TSE Risks and their Reduction (Volume 1)" Baribeau, A-M. & "Detection of Prion Proteins and TSE Infectivity in the Rendering and Biodiesel Manufacture Processes (Volume 2)", Brown, S., Keller, B. and Oleschuk, R. at *iea-amf website* from March, 2007.
- IEA/AMF Annex XXXI: Synthetic gasoline and diesel oil produced by Fischer-Tropsch Technology - A possibility for the future? Atrax, Technical University of Denmark (DTU), The Swedish Transport Research Institute (TFK), March 2007.
- IEA: Biofuel production. IEA Energy Technology Essentials. January 2007 © OEDC/IEA 2007. (*www.iea.org*).
- IEA Hydrogen. IEAHIA News, March 2007 (*www.ieahia.org*)
- IEA HEV Newsletters (*www.ieahev.org*)
- ISAF 2006, International Symposium on Alcohol Fuels was reported in AMFI Newsletter 1/2007. Now proceedings are available at *www.isaf2006.org/e-book*.
- International Conference on Transport and Environment: A global challenge, Milan, Italy, 19-21 March 2007. Sessions: Alternative Fuels and Technologies for a Cleaner Environment, Real World Emission Measurements: PEMS, Advanced Particle Emission Measurements: PMP. Proceedings available at *transportenv07.jrc.it*.



- JARI Thailand Round Table 2007: Clean Air, Clean Fuel and Automobile – Japan and Thailand – Proceedings available at *www.jari.or.jp/en/ThRT2007_en/*.
- IPCC WG II report "Impacts, Adaptation and Vulnerability" (*http://www.ipcc.ch/*)
- EU Bioenergy NoE News, February 2007 (*www.bioenergynoe.org*)
- EUCAR/JRC/CONCAWE: Effects of Gasoline Vapour Pressure and Ethanol Content on Evaporative Emissions from Modern Cars, Edited by G. Martini, © European Communities, 2007. (*ies.jrc.cec.eu.int*)
- CONCAWE: Oil Refining in the EU in 2015. Report no. 1/07. (*www.concawe.org*)

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