

Fact sheet

Berlin – Avanti Dilletanti

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CNG fuel

CNG (Compressed Natural Gas), often still labelled ‘natural gas’ at German filling stations, is a high performance 130 octane fuel. It is used in both a highly compressed form (known as CNG – Compressed Natural Gas) and liquid form (known as LNG – Liquefied Natural Gas). CNG is stored at up to 250 bar in specially designed gas pressure tanks which are integrated as a standard fitting on the underside of the vehicle. Due to the different properties of the natural gas storage facilities used, CNG is offered in two quality categories, H (“High”, calorific value: 46–53 MJ/kg) and L (“Low”, 39–46 MJ/kg), which has an effect on the potential distance range and the price.

In chemical terms CNG is primarily methane (CH₄). Depending on its source, this natural gas molecule can come from a fossil fuel source, or may be created from a 100 percent renewable biofuel source such as straw. As the chemical structures of natural gas and biomethane are identical, biomethane can be added to natural gas in CNG fuels in any chosen ratio without raising any concerns about technical problems for the vehicle.

CNG is 100 percent renewable: straw in the fuel tank

Biomethane from 100 percent straw is an advanced biofuel which impresses with its 90 percent CO₂ savings, the highest efficiency, and its competitive production cost. Furthermore, a CNG vehicle powered by biomethane produced using straw is more environmentally friendly than an electric car powered using the current German electricity mix, which is for the most part based on lignite and anthracite coal. This globally unique technology to manufacture biomethane from 100 percent straw on an industrial scale was developed internally by VERBIO AG. The first production plant has been in operation at Schwedt/Oder since 2014. A second will come online at Pinnow in the German State of Brandenburg from 2018.

Availability of CNG vehicles

There is a wide range of CNG passenger vehicles in serial production, including vehicles produced by VW, Audi, Fiat, Mercedes, Opel, Seat and Skoda. In addition, there are CNG powered commercial goods vehicles in serial production including buses, waste disposal vehicles, transporters, and light and heavy goods vehicles.

European emissions legislation

The European Union has committed itself to a 20 percent reduction in greenhouse gas emissions by 2020 (compared to 1990 levels). The transport sector is a significant contributor to CO₂ emissions in the EU, with a share of approximately 26 percent. Of this, the passenger vehicle sector is responsible for 12 percent, approximately half of the total. Pollutant emissions and climate-damaging CO₂ emissions from passenger vehicles and light commercial vehicles are governed by Europe-

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wide directives and regulations which set limits and testing procedures for emissions and evaporation. The emission limits in grams per kilometre (g/km) have been successively tightened since 1992 – initially with the implementation of the European directive 91/441/EWG (Euro 1).

Diesel passenger vehicles classified as Euro 4 are still permitted to emit approximately three times as much nitrogen oxides as vehicles powered by petrol-based fuels. In order to achieve further significant reductions in emissions of diesel particles and nitrogen oxides, the emission limits for these pollutants will be sharply reduced further in future Euro classifications for diesel passenger vehicles. Particle emissions are reduced with a reduction of 25 mg/km particulate mass for Euro 4 passenger vehicles and 5 mg/km for Euro 5 and 6 (vehicles powered by petrol-based fuels and diesel vehicles, as well as goods vehicles in all weight categories). For vehicles powered by petrol-based fuels classified as Euro 6 the nitrogen oxide limit is 60 mg/km, only a quarter below the limit for Euro 6 diesel vehicles. Euro 6 has been obligatory for all new passenger vehicles since September 2015. The emission limits for light commercial vehicles are staggered based on vehicle (reference) weight.

Further information and current news concerning the use of CNG fuels in Germany and Europe can be found on the following websites: www.gibgas.de and www.cng-club.de

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