

# GLOSSARY

COMMITTEE EMIS

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## A

- [ACEA - European Automobile Manufacturers' Association](#)

ACEA represents 15 Europe-based car, van, truck and bus manufacturers. It is an advocate for the automobile industry in Europe. ACEA's members are BMW group, DAF Trucks NV, Daimler AG, Fiat Chrysler Automobiles, Ford of Europe GmbH, Hyundai Motor Europe GmbH, Iveco S.p.A, Jaguar Land Rover, Opel Group, PSA Group, Renault SA, Toyota Motor Europe, Volkswagen AG, Volvo Car Corporation and Volvo Group.

Its main role is to define and promote the common interest, policies and positions of the European car industry. It is registered as a European lobby.

- [Acidification](#)

Raise of the acidity in the soil, the water or the air because of human activities. It can modify chemical balance and affect ecosystems. Air acidification is linked principally to SO<sub>2</sub>, NO<sub>x</sub> and HCl emissions and causes acid rains.

- [ADAC - Allgemeiner Deutscher Automobil-Club \(which means: General German Automobile Club\)](#)

The second-biggest automotive club worldwide, ADAC is also an official type-approval lab, accredited by the German Federal Motor Transport Authority (KBA) (see above).

- [AdBlue](#)

AdBlue is a fluid composed of water and urea, which is part of the SCR (Selective Catalytic reduction) system. Adblue liquid is stored in a separate tank with Diesel Exhaust Fluid. This chemical solution is injected into a specially modified part of the vehicle's exhaust and converts harmful NO<sub>x</sub> from diesel vehicle exhaust into harmless nitrogen, oxygen and steam.

The inconvenience is that AdBlue need to be stock into a tank, which takes place and has to be filled.

- [Audi](#)

German car manufacturer created in 1909.

## B

- [BMW \(Bayerische Motoren Werke\)](#)

German car manufacturer founded in 1916.

## C

- [Certificate of conformity \(CoC\)](#)

A certificate of conformity is a statement by the manufacturer that the vehicle conforms to EU type-approval requirements. EU countries cannot refuse to register vehicles if they have a valid CoC that proves their compliance with EU law.

- [Chevrolet](#)

American car brand created in 1911 and became a branch of General motor in 1918.

- [Component](#)

A device that is intended to be part of a vehicle and that may be type-approved independently of that vehicle.

- **CLEPA – European Association of Automotive Suppliers**

CLEPA is an association representing the automotive supply industry in Europe. It is composed by the European automotive suppliers and helps them to coordinate actions, strategies and advises them on European affairs, or technical vehicle legislation.

CLEPA is present at international and European meeting and workshop, such as CARS21.

## D

- **Defeat Device**

A defeat device is basically anything that reduced the activity of an anti-pollution system in a car under specific circumstances.

Defines by 715/2007 Regulation as:

“any element of design which senses temperature, vehicle speed, engine speed (RPM), transmission gear, manifold vacuum or any other parameter **for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, that reduces the effectiveness of the emission control system** under conditions which may reasonably be expected to be encountered in normal vehicle operation and use”.

Defines by the US Clean Air Act as “an auxiliary emission control device (AEC) that **reduces the effectiveness of the emission control system** under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless

- 1) such conditions are substantially included in the Federal emission test procedure;
- 2) the need for the AEC is justified in terms of **protecting the vehicle against damage or accident**;
- 3) the AEC does not go beyond the requirements of engine starting;
- or 4) the AEC applies only for emergency vehicles and the need is justified in terms of preventing the vehicle from losing speed, torque, or power due to abnormal conditions of the emission control system, or in terms of preventing such abnormal conditions from occurring, during operation related to emergency response. Examples of such abnormal conditions may include excessive exhaust backpressure from an overloaded particulate trap, and running out of diesel exhaust fluid for engines that rely on urea-based selective catalytic reduction.”

- **Diesel exhaust fluid**

Diesel exhaust fluid (DEF) is an aqueous urea solution made with urea and water, used in the selective catalytic reduction (SCR) in order to lower NOx emissions in diesel exhaust gases.

- **Diesel gate**

The diesel gate, or VW case, is a scandal revealed by an American NGO, the International Council on Clean Transportation (ICCT). Performing independent tests, the NGO has found that some cars emissions were above and beyond the limit permitted by US legislation.

It appears that Volkswagen has cheated emission tests on its diesel cars in the US, allowing nitrogen oxide (NOx) emissions well above legal limits, with dire consequences on health and the environment. Against the US Environment Protection Agency (EPA) pressure, VW has to admit that it falsified emissions tests run by employing special technology that only turned on during test conditions and which artificially lowered the amount of pollutants produced from diesel engines.

This scandal also highlighted the discrepancies between emissions in tests carried out under laboratory conditions and in road performance for both pollutants and CO<sub>2</sub> for many cars.

- **Diesel Particle Filter (DFP)**

A device to remove particle matter or soot from the combustion gases, such as the exhaust gas of a diesel engine or fireplace, carcinogenic for humans. The filter usually removes 85% or more of the soot, but it get dirty over time.

It was first considered in the 1970s and has been used on non-road machines since 1980 and on automobiles since 1985. The particle are now regularly limited since the Euro 5 standard (1<sup>st</sup> January 2011) for diesel vehicles, and since Euro 6 standard (1<sup>st</sup> September 2015) for petrol vehicles.

## E

- **Electronic Control Module (ECM)**

An electronic control module is a small electrical component that controls and monitors a number of actuators inside a vehicle's engine. It is often referred to as the brain of an engine and it dynamically regulates air and fuel mixture, idling speed and ignition timing to ensure ideal engine operation.

- **Engine control unit (ECU)**

It is a type of electronic control unit that controls mechanism on internal combustion to ensure optimal engine performance.

- **European Council for Automotive R&D (EUCAR)**

The European Council for Automotive R&D, closely linked to ACEA, represents European cars manufacturers. It is composed by the main European carmakers (like ACEA) and its major aim is “to strengthen the competitiveness of the European automotive manufacturers through strategic collaborative research & innovation”.

- **European Council for Motor Trades and Repairs (CECRA)**

It is the European federation bringing together national professional associations, which represent the interests of motor trade and repair businesses, and European Dealer Councils on behalf of vehicle dealers for specific makes.

The main aim of CECRA is to promote the interests of its members and above all maintain a favorable European regulatory framework for the 336,720 enterprises of motor trade and repair businesses it represents through national associations and European Dealer Councils.

As the representative of car dealers and repairers, CECRA is part of GEAR 2030 (see above).

CECRA is also registered as a lobbying organization in the European lobbies register.

- **European emission standards**

Pollutant gases are regulated and limited for each type of vehicle and is controlled by Euro Standards since 1992. Euro standards define the acceptable limits for exhaust emissions of new vehicle sold in the European Union. They are setting up by European directives staging the progressive introduction of increasingly stringent standards. The emissions limitations are controlled with standardized test cycle. The current Euro norm is Euro 6 for light-duty vehicles and Euro VI for heavy-duty vehicles.

- **European Environment Agency (EEA)**

Created in 1990, the EEA is a European agency that provide information on the environment.

- **Eutrophication**

Excess nutrient nitrogen (in the form of ammonia and nitrogen oxides) which disrupts plant communities, and leaches into fresh waters, leading in each case to a loss of biodiversity.

- [Exhaust gas recirculation \(EGR\)](#)

EGR is an antipollution system that helps to reduce NOx by recirculating a portion of the engine's exhaust gas back to the engine cylinders. By cooling air, it reduces the temperature of the combustion, which is a cause of NOx production.

To meet current Euro standards, most of the new cars are now equipped with this technology.

## F

- [Fiat](#)

Fiat is an Italian car manufacturer, created in 1899. After Chrysler bought Fiat in 2009, the group is now called Fiat Chrysler Automobiles.

- [Ford](#)

American car manufacturer created in 1903.

## G

- [GEAR 2030](#)

GEAR 2030 is a workshop launched in 2015 by the European Commission to boost competitiveness and growth in the automotive sector by discussing and making recommendations for the next 15 years.

- [GHG \(Green House Gas\)](#)

Greenhouse gases (GHG) are the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface. They include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ozone (O<sub>3</sub>) and water vapor.

## H

- [Honda](#)

Japanese car manufacturer created in 1948.

- [Hyundai Motors](#)

South-Korean car manufacturer and leader in its country, created in 1967.

## I

## J

- [Jaguar Cars Ltd](#)

English car brand famous for its luxury and sporty models, founded in 1922. It is now a branch of Tata Motors, the Indian automaker, since 2008.

- [Jaguar Land Rover \(JLR\)](#)

English car manufacturer specialized in all-terrain vehicles (ATVs) and SUV, created in 2008 from the merger of Jaguar and Land Rover, after Tata Motors' acquisition.



- [Japan Automobile Manufacturers Association Inc. \(JAMA\)](#)

JAMA is a non-profit industry association which is composed by fourteen Japanese manufacturers of passenger cars, trucks, buses and motorcycles. It was established in 1967 and its role is to support the development of the automobile industry.

- [JRC \(Joint Research Center of the European Commission\)](#)

The Joint Research Center is the in-house science service of the European Commission, independent of private, commercial or national interests. Its mission is to provide scientific and technical support to EU policy makers throughout the whole policy cycle. Their research contributes to a healthy and safe environment, secure energy supplies, sustainable mobility, innovation and growth and consumer health and safety.

## K

- [KBA \(Kraftfahrt-Bundesamt – German Federal Motor Transport Authority\)](#)

The KBA approves new vehicle types and vehicle parts ; monitors the work of test centers ; runs the Central vehicle register, register of driver fitness, central register of driving licenses and the central register of tachograph cards ; draws up and publishes statistics based on these registers as well as on vehicle inspections and by road haulage.

- [Kia Motors](#)

South-Korean car manufacturers created in 1944. In 1998, Hyundai Motors bought Kia Motors.

## L

- [Land Rover](#)

English car manufacturer founded in 1948. It is currently “JLR” since 2008.

## M

- [Mercedes-Benz](#)

German car manufacturers created in 1926 by three other carmakers: Daimler-Motoren-Gesellschaft, Mercedes and Benz & Cie. It merges with Chrysler between 1998 and 2006 but Mercedes-Benz is now again independent.

- [Mitsubishi Motors Corporation](#)

Japanese car manufacturers created in 1970. Mitsubishi has many partnerships with other worldwide carmakers (PSA, Nissan..).

## N

- [New European Driving Cycle \(NEDC\)](#)

Test cycle for the type approval of vehicles in Europe. The NEDC is a modal driving cycle that consists of four repeated urban driving cycles (the so-called ECE-15 cycles, each lasting 195 s) and one extra-urban driving cycle (EUDC) of 400 seconds duration.

Because this test-cycle was not reflecting the real-drive emissions, it has been replaced by the WLTC in September 2015 with the Euro 6 standard.

- **Nissan**

Japanese car manufacturer created in 1932.

- **Nitrogen oxides (NOx)**

Greenhouse gas, atmospheric pollutant. Nitrogen oxides is formed when fossil fuel is burned at high temperatures, as in a combustion process.

The primary sources of NOx are motor vehicles – especially diesel engine –, electric utilities, and other industrial, commercial, and residential sources that burn fuels. As a pollutant, NOx can be dangerous for human health and so the environment. It can induce:

- **Smog** (Ground-level Ozone) with volatile organic compounds, heat and sunlight;
- **Acid rains** when meeting sulfur dioxide;
- **Water Quality Deterioration;**
- **Global Warming;**
- **Negative health effects**, such as: irritation of eyes and nose, damage to lung tissue and reduction in lung function, asthma, shortness of breath, heart attacks, premature death...

- **Not-to Exceed (NTE) standards**

United-States of America's standards adopted by the EPA to control heavy-duty engine emissions.

- **NOx storage catalytic converter (NOx trap)**

The catalytic converter is an after treatment technology that absorbs the NOx with a chemical process.

## O

- **Opel**

German car manufacturer and branch of the American General Motors, created in 1862.

- **Ozone**

Ozone is formed through chemical reactions between volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight and which accumulates at low altitudes.

## P

- **Particulate matter**

Small soot particles primarily composed of carbon. They are smaller than 10 or 2.5 micrometer (PM<sub>10</sub> and PM<sub>2.5</sub>). According to the World Health Organization (WHO), they are carcinogenic for humans because they infiltrate deeply into the lungs.

They appear mostly on diesel vehicles, so they are equipped with a diesel particle filter.

The particles are now regularly limited since the Euro 5 standard (1 January 2011) for diesel vehicles, and since Euro 6 standard (1 September 2015) for petrol vehicles.

- **Passenger car**

Refers to a road motor vehicle, other than motor cycle, intended to carriage of passengers and designed to seat no more than nine persons (including the driver).

- **PEMS (Portable Emission Measurement System)**

PEMS is a technology to measure the tail-pipe emissions of light-duty vehicles as they occur on the road during normal vehicle operation and use.

It is used since the Euro VI regulation in 2009 and as a mandatory part of the type approval of heavy-duty vehicles since 2011.

- **Pollutants**

A physical, chemical or biological element that causes discomfort or a problem in a milieu and deterioration of the environment quality.

- **PSA group**

French car manufacturer created in 1965 (Peugeot). Peugeot bought Citroen in 1976.

## Q

## R

- **Random-cycle testing**

Refers to any test procedure that employs driving cycles composed of randomly or semi-randomly arranged short trips to measure the tail-pipe emissions of light-duty vehicles on chassis dynamometers in the laboratory.

- **Registration**

The permanent or temporary administrative authorisation for the entry into service in road traffic of a vehicle, including the identification of the vehicle and the issuing of a serial number;

- **Renault**

French car manufacturer officially created in 1899.

- **RDE (Real-Driving Emissions)**

The European Commission sets up in January 2011 the Real-Driving Emissions - Light-Duty Vehicles (RDE-LDV) working group with the aim of developing a complementary emissions test procedure for light-duty vehicles. Real-driving emissions are measured with a Portable Emissions Measurement System (PEMS).

The RDE procedure shall be applicable at type approval to ensure that the vehicle emissions control technologies are functional under real-driving conditions.

## S

- **Selective-catalytic reduction system (SCR)**

It is a post-combustion technology treatment for diesel vehicles to reduce their emissions of NO<sub>x</sub>. The use of SCR system is common on new vehicles, in order to meet Euro 6 requirements.

This system works with the use of a SCR catalyst, an auxiliary oxidation catalysts, and urea injection system which supplies urea solution upstream of the SCR catalyst, composed of Diesel Exhaust Fluid and AdBlue. The NO<sub>x</sub> is converted into harmless nitrogen (N<sub>2</sub>) and water. It also helps to minimize particulate matter (PM). Since 2006, it permits to trucks to respect Euro IV and Euro V. SCR system is also use now on certain light-duty vehicles.

- **Smog**

The smog is a dark and heavy “haze”, which often reduce visibility, driven by industrialization, rising living standards and urbanization. It affects urban centers of the biggest cities.

Smog has terrible consequence on human health. It significantly increases the risk of asthma,

- **Suzuki**

Japanese manufacturer of motorbikes, cars and boat engines, created in 1909.

## T

- **Technical Committee of Motor Vehicles (TCMV)**

Regulatory Committee of the European Union where all the Member States are represented.

- **Technological-optimism**

Theory that no ecological, environment trouble can resist to the power of technology.

- **Technology neutrality principle**

Public power cannot support one type of technology more than another.

- **Thermo windows**

Device used to switch off emission control systems under certain ambient temperatures order to protect the engine. Considered as a defeat device, but a legal one (article 5§2 715/2007 Regulation), thermo windows vary depending the manufacturer. For example, antipollution system for NOx in Renault's Euro 6 cars (EGR) only works in an optimal way between 17 °C to 35 °C, whereas Mitsubishi's antipollution system works well between -7 to +50°C. Despite such a difference between thermo windows, both are "legal defeat device", according to article 5§2 a) of Regulation 715/2007.

According to article 5§2 a) exemption, such defeat device can be allowed where "*the need for the device is justified in terms of protecting the engine against damage or accident and for safe operation of the vehicle*". In this case, it allows automakers to reduce emissions control systems' effectiveness to prevent condensation buildup in the catalytic converter during low ambient temperatures.

- **TNO**

Independent research organisation based in the Netherlands and created in 1932 in order to innovate in five branches in a sustainable way: industry, healthy living, urbanisation, energy and defence, safety & security.

- **Toyota**

Japanese car manufacturer created in 1937.

- **Type-approval**

The European approval scheme is based on the concept of 'type approval'. This process provides a mechanism for ensuring that vehicles meet relevant environmental, safety and security standards. The EC type-approval is a procedure whereby a type-approval authority certifies that a type of vehicle, system, component or separate technical unit satisfies the relevant administrative provisions and technical requirements.

One production vehicle, but not every single vehicle, will be test as being representative of the 'type'. A number of performance requirements will apply to a given vehicle type ranging from tyres through to exhaust emissions and braking systems

The car manufacturers have to follow a strict process to reach the type-approval. When they achieve, they had a certificate of conformity, and this type of car can thus be sell and register in European countries.

- **Type-approval authority (TAA)**

The authority of a Member State, notified to the Commission by that Member State, with competence for all aspects of the type-approval of a vehicle, system, component or separate technical unit, or of the individual vehicle approval, for the authorisation process for parts and equipment, for issuing and, if appropriate, withdrawing or refusing approval certificates, for acting as the contact point for the approval authorities of the other Member States, for designating the technical services, and for ensuring that the obligations regarding the conformity of production of the manufacturer are met.

## U

## V

- **Vehicle**

Any motor vehicle or its trailer.

- **Volkswagen**

German car manufacturer created in 1937. In 1964, VW bought Audi and become Volkswagen AG.

## W

- **Worldwide-harmonized Light-vehicles Test Procedure (WLTC)**

The development of the WLTC was carried out under a program launched by the World Forum for the Harmonization of Vehicle Regulations (WP.29) of the United Nations Economic Commission for Europe (UN-ECE) through the working party on pollution and energy transport program (GRPE). The aim of this project was to develop a World-wide harmonized Light duty driving Test Cycle (WLTC), to represent typical driving characteristics around the world, to have the basis of a legislative worldwide harmonized type certification test from 2014 onwards.

- **Whole Vehicle Type-Approval System (WVTA)**

The technical harmonization in the EU is based on the Whole Vehicle Type-Approval System (WVTA). Under the WVTA, a manufacturer can obtain certification for a vehicle type in one EU country and then market it EU-wide without the need for further tests. This system significantly contributes to the completion of single market in automotive products.

## X

## Y

## Z