

LIST OF USEFUL ACRONYMS USED IN EMISSIONS ACTIVITIES

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| AAM | Alliance of Automobile Manufacturers (US) |
| ACCESSa | Association for Catalytic Control of Emissions from Stationary Sources to air |
| ACEA | European Automobile Manufacturers' Association |
| ACEM | Association des Constructeurs Européens de Motocycles (Motorcycle Industry in Europe) |
| ADAC | Allgemeiner Deutscher Automobil-Club (DE) |
| ADEME | Agence de l'Environnement et de la Maîtrise de l'Energie (F) |
| AECC | Association for Emissions Control by Catalyst AISBL |
| AES | Auxiliary Emissions Strategy |
| AEGPL | Association Européenne des Gaz de Pétrole Liquéfiés |
| AFEEVAS | South America Vehicles Emission Control Equipment Manufacturers Association |
| A/F or AFR | Air:Fuel Ratio |
| AQ | Air Quality |
| ARB | Air Resources Board (California) |
| ASC | Ammonia Slip Catalyst |
| B30 | Diesel fuel containing 30% biodiesel (Fatty Acid Methyl Ester) |
| BACT | Best Available Control Technology |
| BAFU | Bundesamt für Umwelt (Swiss Environment Ministry) |
| BAT | Best Available Technique |
| BC | Black Carbon (soot, approximately equates to Elemental Carbon) |
| BES | Base Emissions Strategy |
| BEUC | The European Consumer Organisation (Bureau Européen des Unions des Consommateurs) |
| BEV | Battery Electric Vehicle |
| BREF | Best Available Technique Reference Note |
| BTL | Biomass to Liquid |
| CADC | Common Artemis Driving Cycle |
| CAFE | Clean Air for Europe and Corporate Average Fuel Economy (US) |
| CATP | Committee for Adaptation to Technical Progress |
| CAPoC | Catalysis and Automotive Pollution Control (International Congress) |
| CARB | California Air Resources Board |
| CARS 21 | Competitive Automotive Regulatory System for the 21 st Century |
| CARS 2020 | Action Plan for a competitive and sustainable automotive industry in Europe in 2020 |
| C-DPF | Catalysed Diesel Particulate Filter |
| CCC | Close-Coupled Converter |
| CCMC | Comité des Constructeurs Européen d'Automobile du Marché Commun (now ACEA) |
| CCNR | Central Commission for Navigation on the Rhine |
| CEC | Co-ordinating European Council (Test Methods for Fuels/Lubricants) |
| CECE | Committee for European Construction Equipment |
| CECRA | European Council for Motor Trades and Repairs |
| CEFIC | European Chemical Industry Council |
| CEMA | European Committee of Associations of Manufacturers of Agricultural Machinery |
| CEN | European Committee for Standardization |
| CER | Community of European Railway and Infrastructure Companies |
| CVEC | Committee of Vehicle Emissions Control in China |
| CF | Conformity Factor |
| CH ₄ | Methane |
| CI | Compression Ignition (Diesel) |
| CITA | International Motor Vehicle Inspection Committee |
| CLA | Chemiluminescence Analyser (NO _x or ozone analyser) |
| CLD | Chemiluminescence Detector (NO _x or ozone detector) |
| CLEPA | European Association of Automotive Suppliers |
| CNG | Compressed Natural Gas |
| CMAJ | Catalyst Manufacturers Association of Japan |
| CO | Carbon Monoxide |
| CO ₂ | Carbon Dioxide |
| CONCAWE | Conservation of Clean Air & Water in Europe |
| COP | Conformity of Production |

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| CRC | Coordinating Research Council (US Auto/Oil companies) |
| CPC | Condensation Particle Counter |
| CUC | Clean-up Catalyst |
| CVS | Constant Volume Sampling System |
| DEFRA | Department for Environment, Food & Rural Affairs (UK) |
| DeNOx | Catalyst/trap system that reduces NOx in lean exhaust |
| DF | Deterioration Factor |
| DfT | Department for Transport (UK) |
| DG | Directorate-General |
| DG-CLIMA | Directorate-General for Climate Action of the European Commission |
| DG-ENER | Directorate-General for Energy of the European Commission |
| DG-GROW | Directorate-General for Enterprise and Industry of the European Commission |
| DG-ENV | Directorate-General for Environment of the European Commission |
| DG-JRC | Joint Research Centre the European Commission |
| DG-MOVE | Directorate-General for Mobility and Transport of the European Commission |
| DI | Direct Injection |
| DIN | Deutsches Institute für Normung |
| DME | Dimethyl Ether |
| DMU | Diesel Multiple Unit |
| DNT | Diesel NOx trap |
| DOC | Diesel Oxidation Catalyst |
| DPF | Diesel Particulate Filter |
| DTC | Diagnostic Trouble Code |
| DWE | Diesel Water Emulsion |
| EBU | European Barge Union |
| EC | European Community (now EU) or European Commission |
| EC | Elemental Carbon (fraction of particulate matter) |
| ECE | United Nations Economic Commission for Europe (also ECE urban test cycle) |
| ECMA | European Catalysts Manufacturers Association (CEFIC) or Emission Controls Manufacturers Association (India) |
| ECMT | European Conference of Ministers of Transport |
| ECT | Emissions Control Technology |
| EEA | European Environment Agency (EU) |
| EEB | European Environmental Bureau |
| EESC | European Economic and Social Committee |
| EEV | Enhanced Environmentally-friendly Vehicle |
| EFI | Electronic Fuel Injection |
| EFV | Environmentally-Friendly Vehicle |
| EGO | Exhaust Gas Oxygen Sensor |
| EGR | Exhaust Gas Recirculation |
| ELV | End of Life Vehicles |
| EMA | Engine Manufacturers Association (US) |
| EMIS | Committee of Inquiry into Emission Measurements in the Automotive Sector of the European Parliament |
| EMPA | Swiss Federal Laboratory for Materials Testing & Research |
| ENGVA | European Natural Gas Vehicle Association |
| ENVI | Environment, Public Health & Food Safety Committee of the European Parliament |
| EP | European Parliament |
| EPA | US Environmental Protection Agency |
| EPMF | European Precious Metals Federation |
| ESC | European Steady State Cycle (Heavy Duty) |
| ETBE | Ethyl Tertiary Butyl Ether (fuel oxygenate) |
| ETC | European Transient Cycle (Heavy Duty) |
| EtOH | Ethyl Alcohol (Ethanol) |
| EU | European Union |
| EUCAR | European Council for Automotive R&D (ACEA) |
| EUDC | Extra Urban Driving Cycle (EU) |
| EUROMOT | European Association of Internal Combustion Engine Manufacturers |
| EV | Electric Vehicle |
| FAEE | Fatty Acid Ethyl Ester (biodiesel) |
| FAME | Fatty Acid Methyl Ester (biodiesel) |
| FAS | Forum for the Automobile and Society |
| FBC | Fuel-Borne Catalyst |

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| FCV | Fuel-Cell Vehicle |
| FEMA | Federation of European Motorcyclists Associations |
| FFV | Flexible-Fuel Vehicle |
| FIA | Fédération Internationale de l'Automobile |
| FIA | Flame Ionisation Analyser (hydrocarbon analyser) |
| FID | Flame Ionisation Detector (hydrocarbon detector) |
| FQ | Fuel Quality |
| FTIR | Fourier-Transform Infra-Red analyser (emissions analyser) |
| FTP | Federal Test Procedure (US) |
| FuelsEurope | European Petroleum Refining Industry Association |
| GDI | Gasoline Direct Injection |
| GEAR 2030 | High Level Group on Automotive Industry in 2030 |
| GEME | Expert Group on Emissions from non-road mobile Machinery engines (European Commission) |
| GFV | Gaseous Fuelled Vehicles |
| GHG | Greenhouse Gas |
| GPF | Gasoline Particulate Filter |
| GRPE | Working Party on Pollution and Energy (UNECE) |
| gtr | Global Technical Regulation (UNECE) |
| GWW | Gross Vehicle Weight |
| GWP | Global Warming Potential |
| H ₂ | Hydrogen |
| HC | Hydrocarbons |
| HCCI | Homogeneous Charge Combustion Ignition |
| HDC | Highway Driving Cycle |
| HD(V, E) | Heavy Duty (Vehicle, Engine) |
| HDH | Heavy-duty Hybrids (UNECE) |
| HEGO | Heated Exhaust Gas Oxygen Sensor |
| HEV | Hybrid Electric Vehicle |
| HGV | Heavy Goods Vehicle |
| HUEGO | Heated Universal Exhaust Gas Oxygen Sensor |
| I&M or I/M | Inspection & Maintenance Program (US Clean Air Act) |
| IACCSEA | International Association for Catalytic Control of Ship Emissions to Air |
| IANGV | International Association for Natural Gas Vehicles |
| IC | Internal Combustion |
| ICCT | International Council on Clean Transportation |
| ICE | Internal Combustion Engine |
| IDI | Indirect Diesel Injection |
| IFEU | Institute for Energy and Environmental Research (Germany) |
| IFPen | Institut Français du Pétrole énergies nouvelles |
| IIASA | International Institute for Applied Systems Analysis (Austria) |
| IMCO | Internal Market and Consumer Protection Committee of the European Parliament |
| IMechE | Institution of Mechanical Engineers (UK) |
| IMMA | International Motorcycle Manufacturers Association |
| IMO | International Maritime Organization |
| IPA | International Platinum Group Metal Association |
| IPCC | Intergovernmental Panel on Climate Change |
| IPMI | International Precious Metals Institute |
| IPPC | Integrated Pollution Prevention and Control |
| IRGA | Infra-Red Gas Analyser |
| IRIS | Integrated Risk Information System (US EPA) |
| ISC | In-Service Conformity or Inter-Service Consultation (European Commission) |
| ISO | International Organization for Standardization |
| ITRE | Industry, Research and Energy Committee of the European Parliament |
| IUC | In-Use Compliance |
| IUPR | In-Use Performance Ratio |
| IWT | Inland Waterway Transport |
| JAMA | Japanese Automobile Manufacturers Association |
| JASIC | Japan Automobile Standards Internationalization Centre |
| JE05 | New Japanese driving cycle (Heavy-duty) |
| KAMA | Korean Automobile Manufacturers Association |
| KBA | Kraftfahrt-Bundesamt (Germany) |

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| LAT | Laboratory of Applied Thermodynamics (University of Thessaloniki, Greece) |
| LCA | Life Cycle Analysis |
| LCV | Light Commercial Vehicles |
| LD(V) | Light-duty (Vehicles) |
| LeanNOx | Catalyst that reduces NOx in lean exhaust |
| LEV | Low Emissions Vehicle |
| LEZ | Low Emission Zone |
| LNG | Liquefied Natural Gas |
| LNT | Lean NOx Trap |
| LOC | Light Off Catalyst |
| LPG | Liquefied Petroleum Gas |
| M100 | 100% MeOH |
| M85 | 85% MeOH:15% Gasoline |
| MDV | Medium Duty Vehicles |
| MDLT | Mini-Dilution Tunnel |
| MECA | Manufacturers of Emission Controls Association |
| MeOH | Methyl Alcohol (Methanol) |
| MEP | Member of European Parliament |
| MI(L) | Malfunction Indicator (Light) |
| MMT | Methyl Cyclopentadienyl Manganese Tricarbonyl |
| MON | Motor Octane Number |
| MS | Member State |
| MTBE | Methyl Tertiary Butyl Ether |
| MVEG | Motor Vehicles Emissions Expert Group (European Commission) |
| MVWG | Motor Vehicle Working Group (European Commission) |
| MY | Model Year |
| N ₂ O | Nitrous oxide |
| NDIR | Non-Dispersive Infra Red analyser (CO and CO ₂ analyser) |
| NEC | National Emission Ceilings |
| NEDC | New European Driving Cycle |
| NESSAUM | North Eastern States for Co-ordinated Air Use Management (US) |
| NGO | Non-Governmental Organisation |
| NGV | Natural Gas Vehicle |
| NLEV | National Low Emission Vehicle standard (US) |
| NMHC | Non-Methane Hydrocarbons |
| NMOG | Non-Methane Organic Gases |
| NO | Nitric oxide |
| NO ₂ | Nitrogen dioxide |
| NOVC-HEV | Not Off-Vehicle Charging – Hybrid Electric Vehicle |
| NOx | Nitrogen oxides (primarily NO + NO ₂) |
| NPRM | Notice of Proposed RuleMaking (US) |
| NRMM | Non-Road Mobile Machinery |
| NRSC | Non-road Steady-state Cycle (UNECE) |
| NRTC | Non-Road Transient Cycle (UNECE) |
| NSC | NOx Storage Catalyst |
| NTE | Not-To-Exceed |
| O ₃ | Ozone |
| OBD | On-Board Diagnostics |
| OBM | On-Board Measurement |
| OC | Organic Carbon (fraction particulate matter) |
| OCE | Off-Cycle Emissions (UNECE) |
| OE(M) | Original Equipment (Manufacturer) |
| OECD | Organisation for International Co-operation and Development |
| OICA | Organisation Internationale des Constructeurs d'Automobiles |
| OSC | Oxygen Storage Capacity |
| OTL | On-board Threshold Limit |
| OVC-HEV | Off-Vehicle Charging – Hybrid Electric Vehicle |
| PAH | Polycyclic Aromatic Hydrocarbon |
| PAMS | Portable Activity Measurement System |
| PCFV | Partnership for Clean Fuels and Vehicles (UNEP) |
| PEMS | Portable Emissions Measurement System |

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| PEV | Pure Electric Vehicle |
| PI | Positive Ignition |
| PGE | Platinum Group Elements (Pt, Pd, Rh, Ir, Ru, Os) |
| PGM | Platinum Group Metals (Pt, Pd, Rh, Ir, Ru, Os) |
| Pkm | Passenger carried for 1 km |
| PM | Particulate Matter |
| PM _{0.1} | Particulate Matter < 0.1 micron mean diameter |
| PM ₁ | Particulate Matter < 1 micron mean diameter |
| PM _{2.5} | Particulate Matter < 2.5 micron mean diameter |
| PM ₁₀ | Particulate Matter < 10 micron mean diameter |
| PMP | Particulate Measurement Program (UNECE) |
| PN, P# | Particle Number |
| PNC | Particle Number Counter |
| ppm | parts per million |
| PTW | Powered Two-Wheeler (motorcycle or moped) or Pump-To-Wheels |
| PZEV | Partial Zero Emissions Vehicle (California) |
| RAINS | Regional Air Pollution Information and Simulation |
| RCD | Recreational Crafts Directive |
| REC | Retrofit Emissions Controls (UNECE) |
| RED | Renewable Energy Directive |
| RDE | Real-Driving Emissions |
| RFG | Reformulated Gasoline |
| RME | Rapeseed Methyl Ester (biodiesel) |
| RON | Research Octane Number |
| RPA | Relative Positive Acceleration |
| RSC | Royal Society of Chemistry |
| RVP | Reid Vapour Pressure |
| S | Sulfur |
| SAE | Society of Automotive Engineers (US) |
| SCAQMD | South Coast Air Quality Management District (California) |
| SCR | Selective Catalytic Reduction |
| SHED | Sealed Housing for Evaporative Determination |
| SI | Spark Ignition (Otto)/Systeme International d'Unités |
| SIA | Société des Ingénieurs de l'Automobile (F) |
| SMMT | Society of Motor Manufacturers & Traders (GB) |
| SMPS | Scanning Mobility Particle Sizer |
| SPCS | Solid Particle Counting System |
| SOC | State Of Charge |
| SOF | Soluble Organic Fraction |
| SOFC | Solid Oxide Fuel Cell |
| SO _x | Sulfur Oxides |
| SULEV | Super Ultra Low Emissions Vehicle |
| SULG(P) | Super Unleaded Gasoline (Petrol) |
| SUV | Sports Utility Vehicle |
| T&E | European Federation for Transport and Environment |
| TA | Type-Approval |
| TAA | Type-Approval Authority |
| TCMV | Technical Committee Motor Vehicle |
| TDC | Top Dead Centre |
| TF | Transfer Function |
| THC | Total Hydrocarbons |
| tkm | Ton carried for 1 km |
| TLEV | Transitional Low Emissions Vehicle (CARB standard) |
| TNO | Road Vehicles Research Institute (NL) |
| TRAN | Transport and Tourism Committee of the European Parliament |
| TRL | Transport Research Laboratory (UK) |
| TSP | Total Suspended Particulate |
| TÜV | Techischer Überwachungsverein (German Testing Organisation) |
| TWC | Three-Way Catalyst |
| UBA | Umweltbundesamt (German Federal Environment Agency) |
| UBC | Under-Body Converter |

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| UBIA | Union Belge des Ingénieurs de l'Automobile |
| UEGO | Universal Exhaust Gas Oxygen Sensor |
| UFP | Ultra-Fine Particles |
| UITP | Union Internationale des Transports Publics |
| ULEV | Ultra Low Emissions Vehicle |
| ULG(P) | Unleaded Gasoline (Petrol) |
| ULSD | Ultra Low Sulfur Diesel |
| ULSG(P) | Ultra Low Sulfur Gasoline (Petrol) |
| UNECE | United Nations Economic Commission for Europe |
| UNEP | United Nations Environment Programme |
| UNIFE | Union of the European Railway Industries |
| UTAC | Union Technique de l'Automobile, du Motocycle et du Cycle (France) |
| VCA | UK Type-Approval Authorities |
| VDA | Verband der Automobilindustrie (D) |
| VDI | Vereinigung der deutschen Ingenieure |
| VDMA | Verband Deutscher Maschinen-und Anlagenbau (German Engineering Federation) |
| VED | Vehicle Excise Duty |
| VERT | Verification of Emission Reduction Technologies |
| VITO | Vlaamse Instelling voor Technologisch Onderzoek (Belgium) |
| VOC | Volatile Organic Compounds |
| VOSA | Vehicle and Operator Services Agency (UK) - responsible for roadworthiness tests |
| VPR | Volatile Particle Remover |
| WG | Working Group |
| WGAT | Working Group on Agricultural Tractors (European Commission) |
| WHDC | World-wide Heavy Duty Certification procedure |
| WHO | World Health Organisation |
| WHSC | World-Harmonized Steady-state Cycle (UNECE) |
| WHTC | World-Harmonized Transient Cycle (UNECE) |
| WHVC | World-Harmonized Vehicle Cycle (UNECE) |
| WLTC | World-Harmonized Light-duty Test Cycle (UNECE) |
| WLTP | World-Harmonized Light-duty Test Procedure (UNECE) |
| WMTC | World-wide Motorcycle Test Procedure (UNECE) |
| WP29 | World Forum for Harmonization of Vehicle Regulations (UNECE) |
| WTP | Well-To-Pump |
| WTW | Well-To-Wheel |
| ZDAKW | Gasoline engine test cycle developed by Zusammenarbeit Deutscher Automobilhersteller zur Katalysator |
| Weiterentwicklung | |
| ZEV | Zero Emissions Vehicle |
| λ 1 | Stoichiometric air-fuel ratio |