

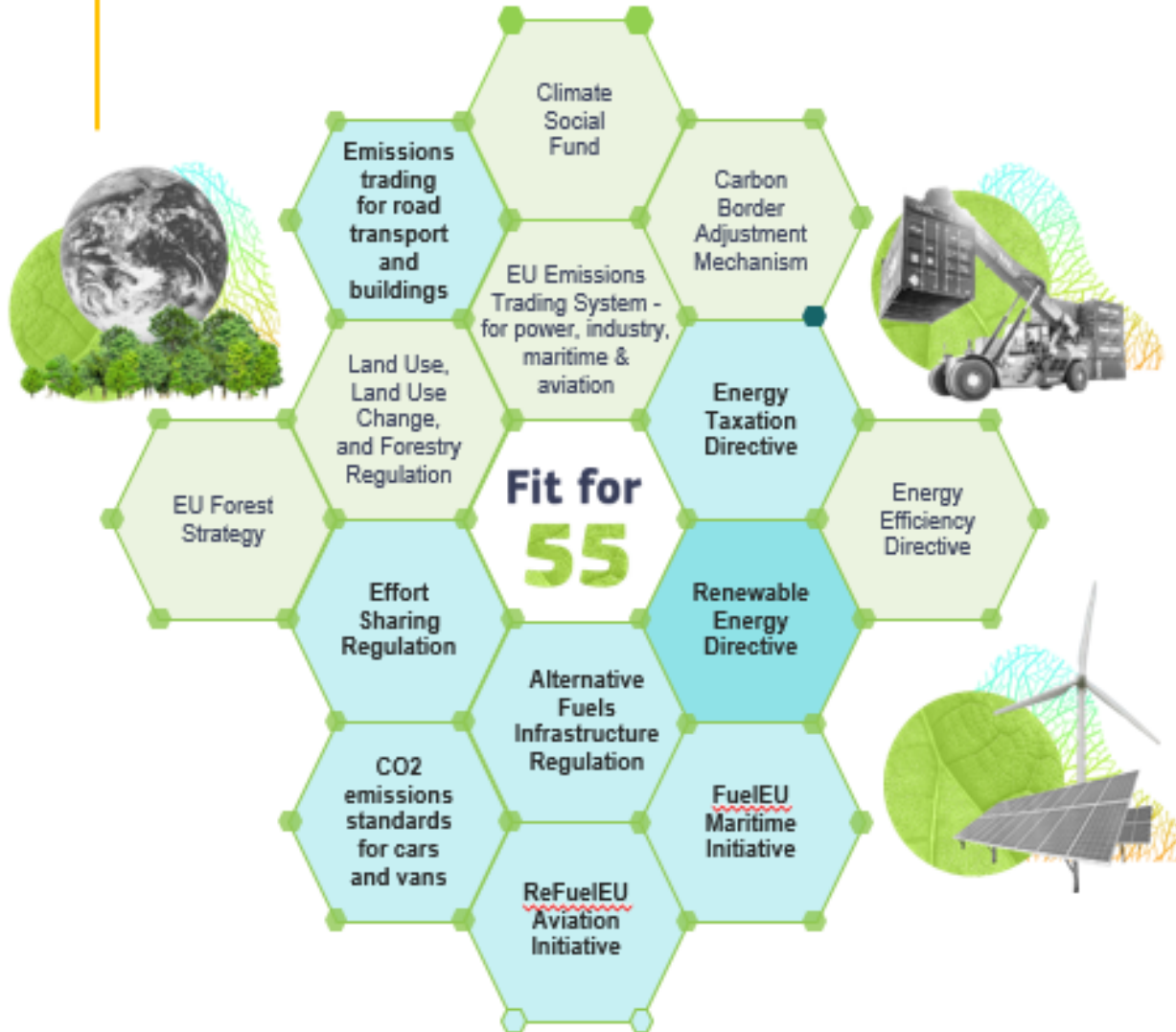


# The most up-to-date information on the Fuel Quality Directive in the EU Member States and its monitoring and reporting system associated with different types of fuels

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# The European Green Deal the Fit for 55 Legislative Package



Legislative package to deliver the increased climate ambition (the **European Green Deal**, the **European Climate Law**):

- Reduce net GHG emissions by **at least 55%** below 1990 levels by 2030.
- Contribute to the Union-wide **climate-neutrality** objective by 2050.
- **Most of the legislative files have been adopted.**

Transport related provisions include:

- Revised CO2 standards for new cars and vans;
- Revised CO2 standards for trucks and buses (Commission proposal published 14.02.2023);
- Alternative Fuels Infrastructure Regulation;
- Revised Renewable Energy Directive – **amending the Fuel Quality Directive**;
- Sustainable fuels in aviation and maritime sectors;
- Emission Trading for road transport and buildings.

# Objectives of the Fuel Quality Directive

- Environmental and health protection in relation to fuel used in road transport and non-road mobile machinery
- Air quality
- Functioning of the internal market for transport fuels and vehicles
- Reduction of life cycle greenhouse gas emissions from transport fuels\*

\*This part is being removed from the Fuel Quality Directive and taken over by the Revised Renewable Energy Directive – the main instrument for transport fuels decarbonisation.



# Key provisions [1/2]

- Fuel specifications for petrol, diesel, and blended bio-components used on-road
- Fuel parameters regulated (18 for petrol, 6 for diesel)
- Intended to limit air pollutants, including:
  - Sulphur oxide (SO<sub>x</sub>)
  - Metallic emissions (lead, manganese)
  - Particulate matter
  - Hydrocarbons (olefins, benzene, aromatics)
  - Polycyclic aromatic hydrocarbons (PAH)
- Vapour pressure of summer petrol (derogations)

Parameter	Unit	Limit values	
		Minimum	Maximum
<b>Petrol</b>			
Research Octane Number (RON)	-	95	
Motor Octane Number (MON)	-	85	
<b>Dry vapour pressure equivalent (DVPE)</b>			
Summer period (normal)	kPa		60
Summer period (with bioethanol)	kPa		66-68
Summer period (arctic or severe weather conditions)	kPa		70
<b>Distillation</b>			
Evaporated at 100 °C	% v/v	46	
Evaporated at 150 °C	% v/v	75	
<b>Hydrocarbon analysis</b>			
Olefins	% v/v		18
Aromatics (from 2005)			35
Benzene	% v/v		1
Oxygen content	% m/m		3.7
<b>Oxygenates</b>			
Methanol	% v/v		3
Ethanol	% v/v		10
Iso-propyl alcohol	% v/v		12
Tert-butyl alcohol	% v/v		15
Iso-butyl alcohol	% v/v		15
Ethers with 5 or more carbon atoms per molecule	% v/v		22
Other oxygenates	% v/v		15
Sulphur content	mg/kg		10
Lead content	g/l		0.005
Manganese	mg/l		2
<b>Diesel</b>			
Cetane number	-	51.0	-
Density at 15 °C	kg/m <sup>3</sup>		845
Distillation — 95 % point	°C		360
Polycyclic aromatic hydrocarbons	% m/m		11
Sulphur content (sulphur free, from 2005)	mg/kg		10
Fatty acid methyl ester (FAME) content	% v/v		7
Manganese	mg/l		2

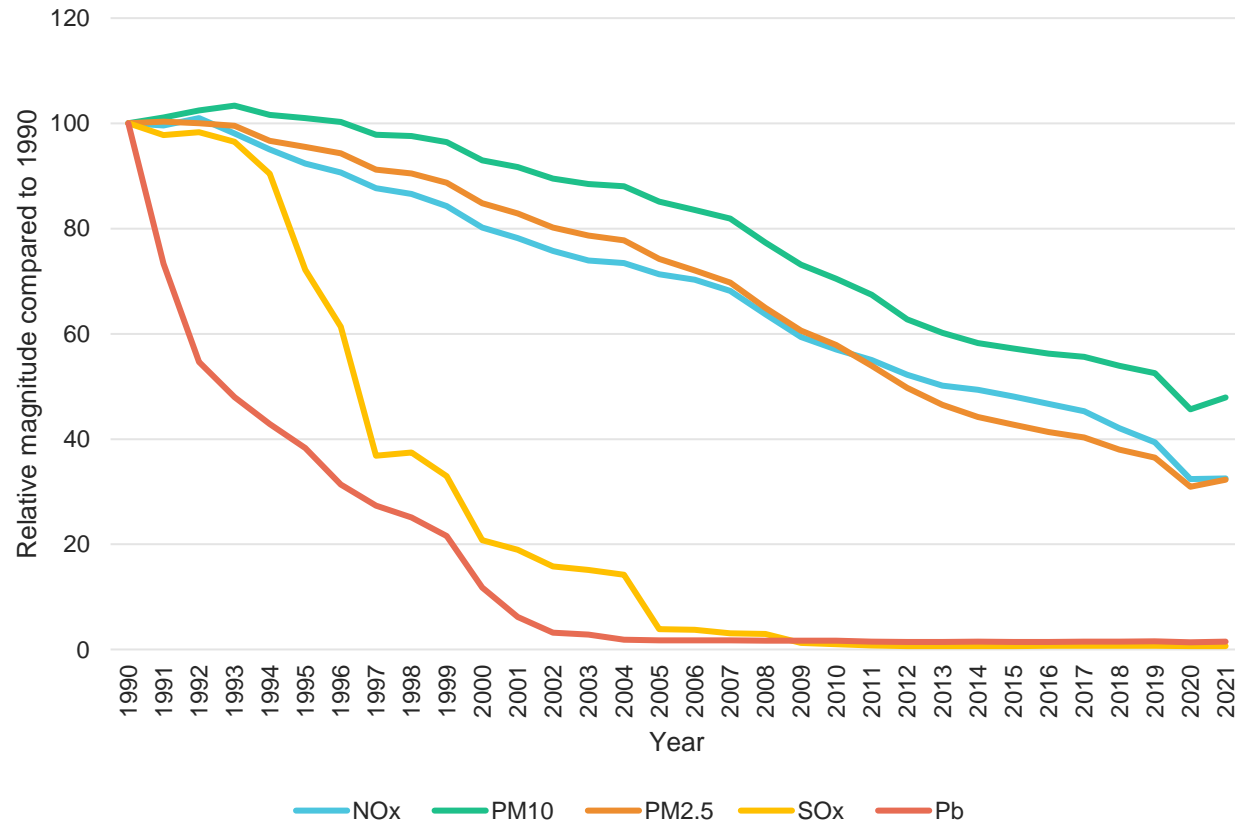
# Key provisions [2/2]

- Compatibility of fuels with engines and after-treatments.
- Blending limits for certain biofuels:
  - **FAME** (Fatty Acid Methyl Ester) generally limited to 7% in diesel (B7 grade)
  - **Ethanol** limited to 10% in petrol (E5 and E10 grades)
- Reduced requirements for gasoil used in non-road mobile machinery (sulphur, some metallic additives).

**Use of biocomponents in petrol and diesel fuels sold in the EU-27 in 2017-2021.** Source: FQD reporting data, EEA.

Fuel type		2017	2018	2019	2020	2021
Petrol	E0	14.5%	4.9%	0.7%	0.0%	0.0%
	E5	66.7%	81.5%	73.3%	65.7%	65.4%
	E10	18.6%	13.4%	25.7%	33.3%	34.2%
	E+	0.1%	0.2%	0.4%	1.0%	0.4%
Diesel	B0	0.0%	0.0%	0.0%	0.0%	0.0%
	B7	81.8%	99.2%	99.1%	86.2%	99.8%
	B+	16.2%	0.8%	0.8%	13.8%	0.2%

# The Fuel Quality Directive contributed to lowering emissions from road transport



Emissions from the road transport sector (cars, trucks, motorcycles) in the period 1990-2021 in the EU.  
Source: EEA data.

# Fuel quality monitoring and enforcement

- The FQD requires Member States to undertake systematic monitoring of the fuel quality and report it to the European Environment Agency.
- The European Environment Agency supports the European Commission in the compilation, quality checking and dissemination of information reported.
- There are currently two reporting streams in place:
  - 1) Article 8 reporting: Member States report the volume and quality of petrol and diesel fuels sold in their territories with an overall aim to minimise the effects on the environment and human health, and to ensure the compatibility with the vehicle engines.
  - 2) Article 7a reporting: Member States report the volume and type of fuels, and their associated their life cycle GHG emissions with the overall aim to reduce emissions from transport fuels and to contribute towards the climate goals. *This reporting stream is, however, being removed by the ongoing amendment of the FQD.*
- The FQD requires that effective, proportionate and dissuasive penalties are applied by Member States in cases of non-compliance.

# Article 8 – reporting requirements and format

- MS are required to set up their national fuel quality monitoring and reporting systems and sampling methods in accordance with the European Standard 14274:2013 or a nationally defined system.
- An excel template is being used to fulfill the reporting obligations (see: [Fuel Quality Directive Article 8 Reporting Guidelines \(europa.eu\)](#)).

## Example from the template:

Member States should indicate below whether their monitoring system is set up using the European Standard EN 14274:2003 statistical model A, B or C and whether it is based on the large or small country framework. Alternatively, the Member State should indicate if they are using their own nationally defined system. Where using a Nationally defined system, please include details of the system and the reason for using this system based on National conditions.

Country Size (L = Large, S = Small)		Please Note: A country is classified as <i>Large</i> if total automotive fuel sales exceed 15 millions tons per annum.	
		Minimum number of samples each period* (Petrol, per grade; Diesel)	
Fuel Quality Monitoring System model used:	Yes / No	Small Country	Large Country
EN 14274 Statistical Model A	No	50	100
EN 14274 Statistical Model B	No	100	200
EN 14274 Statistical Model C	No	50	--
National System	No	--	--



# Article 8 – reporting requirements and format

Example from the template:

## Main information reported:

- **country details and the national fuel quality monitoring system:** responsible organisations, country size, a description of the monitoring system used and its administration, the national reporting periods; a description of the sampling undertaken.
- **fuel sales information,** including details of fuel sales by fuel type, bioethanol/biodiesel contents, the number of samples taken in winter and summer periods, and the number of technical parameters measured.
- **exceedances of the fuel quality limits,** including a summary of the parameters for which exceedances were reported for the fuel grades measured.

### Total Sales of Petrol and Diesel

Year:

Member states are requested to complete the following table, as applicable detailing the quantities of each type and grade of petrol and diesel fuel marketed in their territory.

\*NB: Please do not report national fuel grade sales under more than one category.  
Blank rows have been provided where petrol fuel sales to be reported contain bioethanol.

Fuel Grade	Name of national fuel grade	Biofuel Content	National sales total	
			Litres	Tonnes
<b>Regular unleaded petrol (minimum RON &gt;= 91)<sup>1</sup></b>				
Regular unleaded petrol (minimum RON >= 91) E5 <sup>2</sup>	0	0.00%	0.0	0.0
Regular unleaded petrol (minimum RON >= 91) E10 <sup>2</sup>	0	0.00%	0.0	0.0
Regular unleaded petrol (minimum RON >= 91) E+ <sup>2</sup>	0	0.00%	0.0	0.0
<b>Unleaded petrol (minimum RON &gt;= 95)<sup>1</sup></b>				
Unleaded petrol (minimum RON >= 95) E5 <sup>2</sup>	0	0.00%	0.0	0.0
Unleaded petrol (minimum RON >= 95) E10 <sup>2</sup>	0	0.00%	0.0	0.0
Unleaded petrol (minimum RON >= 95) E+ <sup>2</sup>	0	0.00%	0.0	0.0
<b>Unleaded petrol (minimum RON &gt;= 98)<sup>1</sup></b>				
Unleaded petrol (minimum RON >= 98) E5 <sup>2</sup>	0	0.00%	0.0	0.0
Unleaded petrol (minimum RON >= 98) E10 <sup>2</sup>	0	0.00%	0.0	0.0
Unleaded petrol (minimum RON >= 98) E+ <sup>2</sup>	0	0.00%	0.0	0.0
<b>Total Petrol</b>			<b>0.0</b>	<b>0.0</b>
<b>Diesel fuel</b>				
-				
Diesel fuel B7 <sup>3</sup>	0	0.00%	0.0	0.0
Diesel fuel B+ <sup>4</sup> (>7% FAME <=30%)	0	0.00%	0.0	0.0
Diesel fuel B+ <sup>4</sup> (FAME >30%)	0	0.00%	0.0	0.0
<b>Total Diesel</b>			<b>0.0</b>	<b>0.0</b>

<sup>1</sup> as specified in Annex I of Directive 98/70/EC with maximum sulphur content of 10ppm.

<sup>2</sup> E5 denotes fuels/petrol with up to 5 % ethanol content where the ethanol is derived from biofuels (OR where ethanol is of biogenic origin)

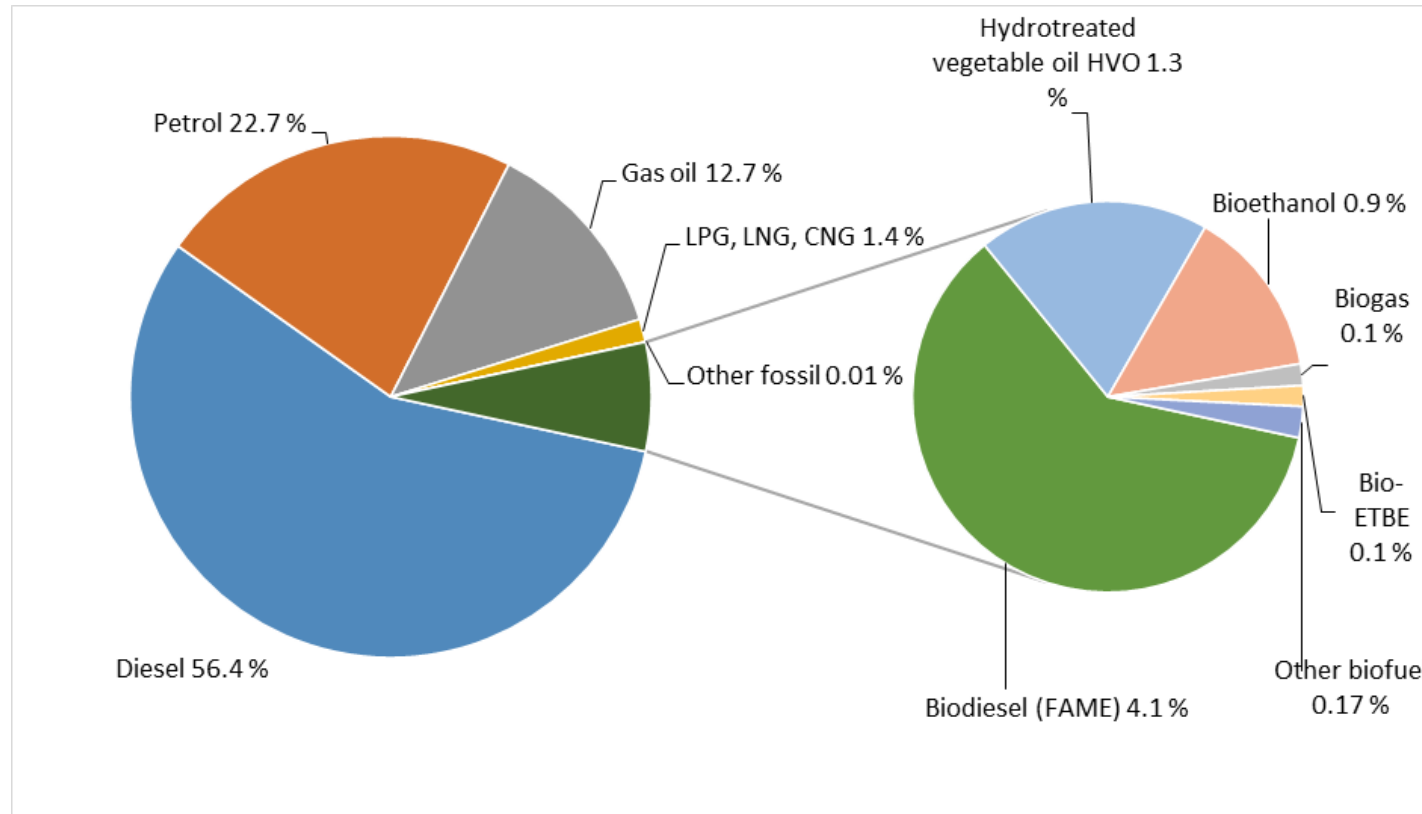
E10 indicates fuels/petrol with up to 10 % ethanol content where the ethanol content comes from biofuels (OR where ethanol is of biogenic origin).

E+ indicates biofuels blends with > 10 % ethanol.

<sup>3</sup> B7 includes diesel fuels with up to 7 % FAME and;

<sup>4</sup> B+ represents FAME blends of > 7 %

# Fuel Quality Report: quality and composition of road transport fuels in the EU in 2021



- **Fossil fuels (diesel and petrol) dominate** the market;
- **Biofuels account for 6.7%** of the total fuel supply;
- Almost all diesel and petrol sold in the EU contains **bio-based components** (E5, E10 or B7 grades);
- **High level of compliance** with the quality limits set by the FQD.

EEA Technical Reports:

✓ [ETC CM report 2023/01: Fuel quality monitoring in the EU in 2021 — Eionet Portal \(europa.eu\)](#)

✓ [ETC CM report 2022/02: Greenhouse gas intensities of transport fuels in the EU in 2020 - Monitoring under the Fuel Quality Directive — Eionet Portal \(europa.eu\)](#)

# Conclusions

- The FQD is fit for purpose and should remain in place, as established by an in-depth evaluation in 2017.
- Apart from the ongoing amendment that aims to streamline the decarbonisation part of the FQD with the Renewable Energy Directive, no further amendment of the FQD is currently planned.
- It is positive that the Contracting Parties are preparing the legal and institutional preconditions for the EU legislation to be transposed in their national legislation.
- The Commission looks forward to continued cooperation to help to advance the accession process of the Energy Community Contracting Parties.

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Thank you!

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