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EU fuel quality monitoring — 2014

Summary report

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European Environment Agency

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Contents

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Abbreviations and acronyms

B+	Diesel fuel with > 7% (% v/v) biodiesel content
B0	Diesel fuel with no biodiesel content
B5	Diesel fuel with up to 5% (% v/v) biodiesel content
B7	Diesel fuel with up to 7% (% v/v) biodiesel content
CEN	European Committee for Standardization
CPSC	Cyprus Petroleum Storage Company
CTIA	Czech Trade Inspection Authority
DG	Directorate General
E+	Petrol with > 10% ethanol content
E0	Petrol with no ethanol content
E5	Petrol fuel with up to 5% (% v/v) ethanol content
E10	Petrol with up to 10% ethanol content
EC	European Commission
EEA	European Environment Agency
ELOT	Hellenic Organization for Standardization
EPA	Environmental Protection Agency, Denmark
ETC/ACM	European Topic Centre on Air Pollution and Climate Change Mitigation
EU	European Union
EU-28	28 European Union Member States
FAME	Fatty acid methyl ester
FQD	Fuel Quality Directive
FQMS	Fuel Quality Monitoring System
GHG	Greenhouse gas
ISO	International Organization for Standardization
kPa	Kilopascal
L	Large country (i.e. having total automotive road fuel sales of > 15 million tonnes per annum)
MIT	Ministry of Industry and Trade, Czech Republic
MON	Motor octane number
MMT	Methylcyclopentadienyl manganese tricarbonyl
ppm	Parts per million
QA/QC	Quality Assurance/Quality Control
QCLF	Quality Control of Liquid Fuels
RON	Research Octane Number
S	Small country (i.e. having total automotive road fuel sales of < 15 million tonnes per annum)
SAMTS	State Agency for Metrological and Technical Surveillance, Bulgaria
UBA, Federal Environment Agency, Germany	
v/v%	Volume/volume percent

Executive summary

Each year, under the requirements of the European Union (EU) Fuel Quality Directive (FQD) ([1]), EU Member States must report various types of information relating to the quality of petrol and diesel fuels sold in their territories. More specifically, Member States must sample fuels each year and analyse their technical characteristics to ensure that they are consistent with the requirements of the FQD. From 2015 onwards, the European Environment Agency (EEA) is supporting the European Commission's Directorate-General Climate Action in the compilation, quality checking and dissemination of information reported under the FQD.

The requirements of the FQD have evolved with the introduction of new fuel specifications and reporting requirements. The first FQD specifications for petrol and diesel sold for road transport in the EU came into force on 1 January 2000, the second on 1 January 2005 and the third on 1 January 2009, all of which limited the sulphur content of all automotive road fuels in the EU to 10 parts per million. Additional requirements are defined in the European Standard for the Fuel Quality Monitoring System (EN 14274).

This report provides a summary of the information reported by Member States for 2014, describing the quality of petrol and diesel used for road transport in the EU.

All Member States submitted fuel quality reports for 2014, although some Member States provided reports later than the required deadline of 30 June 2014. The key findings from the reported information are listed below.

- Fuel sales in just nine Member States accounted for > 80% of total EU fuel sales in 2014. The 13 Member States with the lowest fuel sales accounted for < 10% of total EU sales.
- EU fuel sales continue to be dominated by diesel: 70% (245 876 million litres) of fuel sold was diesel and 30% was petrol (105 566 million litres). Diesel sales increased by 1% compared with the previous year, whereas petrol sales decreased by 0.5%.
- The fraction of diesel fuel sales has increased over the years, from a share of total sales in 2001 of 55.6% to a share of 70% in 2014. This reflects to a large degree the increasing dieselisation of Europe's vehicle fleet during that period. Diesel fuel consumption is significant in most of the 28 EU Member States (> 60% of total fuel sales) with the exception of Malta, Greece and Cyprus.
- The majority of petrol sales in 2014 comprised the petrol grade minimum Research Octane Number (RON) = 95, which accounted for 81.7% of the total petrol fuel sales; 12.2% of sales were 95 ≤ RON < 98; and 5.8% were RON ≥ 98. There was an insignificant proportion of minimum RON = 91 sales (0.3% of petrol sales).
- Almost all diesel sold in the EU contains biodiesel, as 99% of diesel fuel is of the B7 product type (i.e. containing up to 7% fatty acid methyl esters), whereas the majority of petrol sold contains bioethanol.
- Of petrol sold in the EU in 2014, 72.4% was of the product type E5 (i.e. having up to a 5% ethanol content, where the ethanol is derived from biofuels or is of biogenic origin). A total of 10% was E10 (i.e. up to 10% ethanol content) and 17.4% was E0 (no ethanol content). Only 0.1% of petrol was E+ (i.e. > 10% ethanol content).

([1]) Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 as amended by Directive 2009/30/EC.

1 Introduction

1.1 Context

The road transport sector is a major contributor to air pollution and greenhouse gas (GHG) emissions in Europe. Significant efforts are made by vehicle manufacturers to optimise vehicles in terms of energy conversion efficiency, exhaust emission levels and durability of emission control systems (e.g. catalytic converters). Having clean fuels available on the market and following strict technical specifications with regard to them contributes to achieving higher degrees of performance from vehicles. The role of liquid fuels and their contribution to air pollution and GHG emissions has been recognised in European Union (EU) law, which has stipulated minimum quality requirements and reduction targets for a range of different petroleum and bio-based fuels.

Each year, EU Member States report the quality of petrol and diesel used for road transport to the European Commission (EC), in line with their obligations under the Fuel Quality Directive (FQD) 98/70/EC, as amended by Directive 2009/30/EC. From 2015 onwards, this reporting is to be managed by cooperation between the EC and the European Environment Agency (EEA). The submission procedure for monitoring information and country reports has changed with the new role of the EEA with regard to FQD monitoring and reporting. Member States now use the European Environment Information and Observation Network Reportnet infrastructure for reporting the required information.

This report summarises the information on the quality of petrol and diesel fuel sold in the EU for the year 2014.

Key documents that lay out the official requirements for the quality of fuel sold in the EU as well as its monitoring and reporting are the following:

- **Directive 98/70/EC** of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (see http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:31998L0070);
- **Commission Decision 2002/159/EC** of 18 February 2002 on a common format for the submission of summaries of national fuel quality data (see http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32002D0159);
- **European Standard EN 14274:2003** describing the Fuel Quality Monitoring System (FQMS) for assessing the quality of petrol and automotive diesel fuel marketed in any of the EU Member States within the European Community;
- **Directive 2003/17/EC** of 3 March 2003 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels (see http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32003L0017);
- **Directive 2009/30/EC** of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce GHG emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC (see http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32009L0030).

1.2 Report structure

This report is organised into four chapters as follows:

- Chapter 1 provides an introduction to the report;
- Chapter 2 describes the reporting requirements as well as the summary format for each Member State's submission;
- Chapter 3 provides an overall EU summary;
- Chapter 4 provides a summary of each Member State's submission.

2 Reporting by European Union Member States

A reporting template is used by EU Member States for their reporting obligations. Its purpose is to provide the necessary information and guidance for the preparation of national reports, as well as to ensure that all the required information has been provided. A number of consistency tools and checks are included in the template to facilitate data entry as well as to provide a standard format for the presentation of the collected data.

This report provides a summary, for the EU overall and for each Member State, of the reported information received.

The individual country profiles present information on four aspects:

1 country details (responsible organisations, country size, summer period, a description of the FQMS used and the location of sampling);

2 FQMS information, including a description of sampling undertaken, FQMS administration, national legislation that transposed the FQD and reporting periods;

3 fuel sales information, including details of fuel sales by fuel type, bioethanol contents, the number of samples taken in winter and summer periods and the number of technical parameters measured;

4 exceedences of the fuel quality limits, including a summary of the parameters for which exceedences were reported for the fuel grades measured.

3 European Union summary

3.1 Fuel Quality Monitoring 2014

The EEA is responsible for the Quality Assurance/ Quality Control (QA/QC) of the submitted data at EU level and is assisted in these checks by the European Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM).

In the 2014 reporting year, all 28 EU Member States (EU-28) submitted their fuel quality reports in accordance with the requirements of the FQD. During the QA/QC procedure, the ETC/ACM reviewers posed in total 92 questions to EU Member States, relating to the completeness and consistency of their submitted datasets. The most common findings communicated to Member States following the quality checks performed on the reported information were:

- FQMS model not declared;
- no fuel sales reported in the regional sampling sheets;
- biofuel content not provided or incorrect units used;
- missing values for various fuel parameters;
- summer-grade fuel samples taken outside the summer period;
- use of non-numeric values (e.g. the '< ' symbol) for different fuel properties (e.g. oxygenates, sulphur, lead, manganese), which produces an error in the relevant evaluation cells of the reporting template;
- exceedences of certain fuel quality parameters (e.g. summer vapour pressure, sulphur content, etc.), without specifying the number of samples outside the tolerance limits, or providing any explanations or a description of the action taken;
- analytical and statistical values (e.g. maximum, minimum, median, mean, etc.) reported for the full year not consistent with the corresponding summer/winter data.

Most of these issues could be solved directly with the Member States in the communication process, by means of them completing missing information, correcting erroneous values or providing the necessary clarifications to comments. Following the QA/QC procedure, 21 Member States submitted revised datasets.

There are two outstanding issues, which were not resolved during the QA/QC procedure. These are briefly described below.

Romania did not provide any analytical and statistical results for summer fuel grades. Romania stated that it had not taken — and hence also not analysed — any summer fuel samples owing to an administrative issue with the contractor who was responsible for taking the fuel samples.

The United Kingdom provided only the analytical and statistical results for the full year for each fuel grade without providing the relevant information for summer and winter fuel. The United Kingdom stated that it used its own national system for fuel quality monitoring which takes a large number of samples at service stations, as well as at distribution and import terminals and refineries, and that this approach provides an equivalent degree of confidence to European Standard EN 14274:2003.

Figure 3.1 EU petrol and diesel fuel sales (million litres)

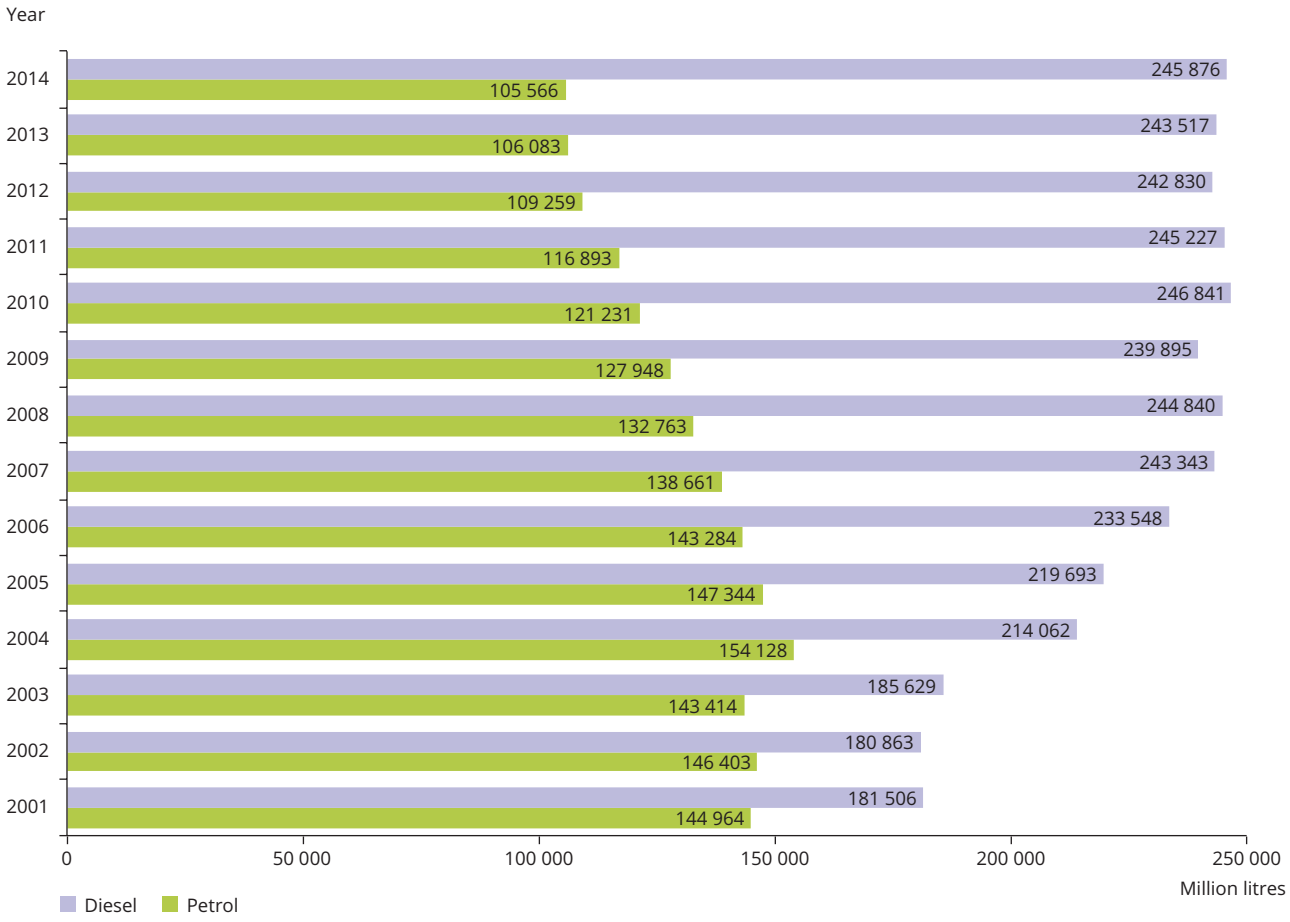
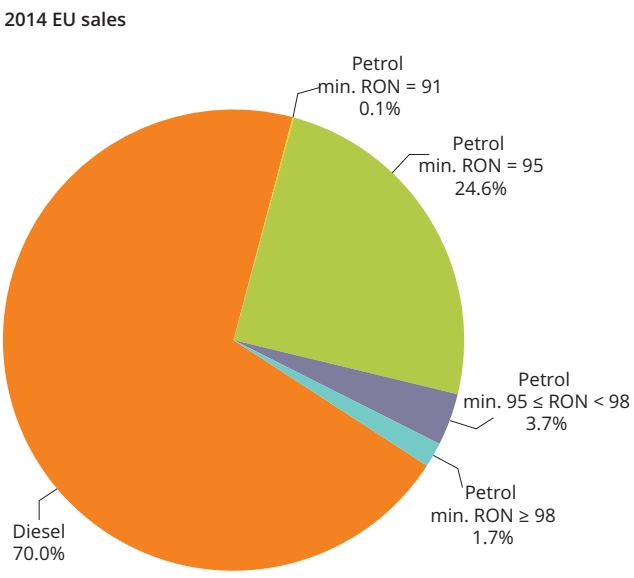


Figure 3.2 2014 EU petrol and diesel fuel sales

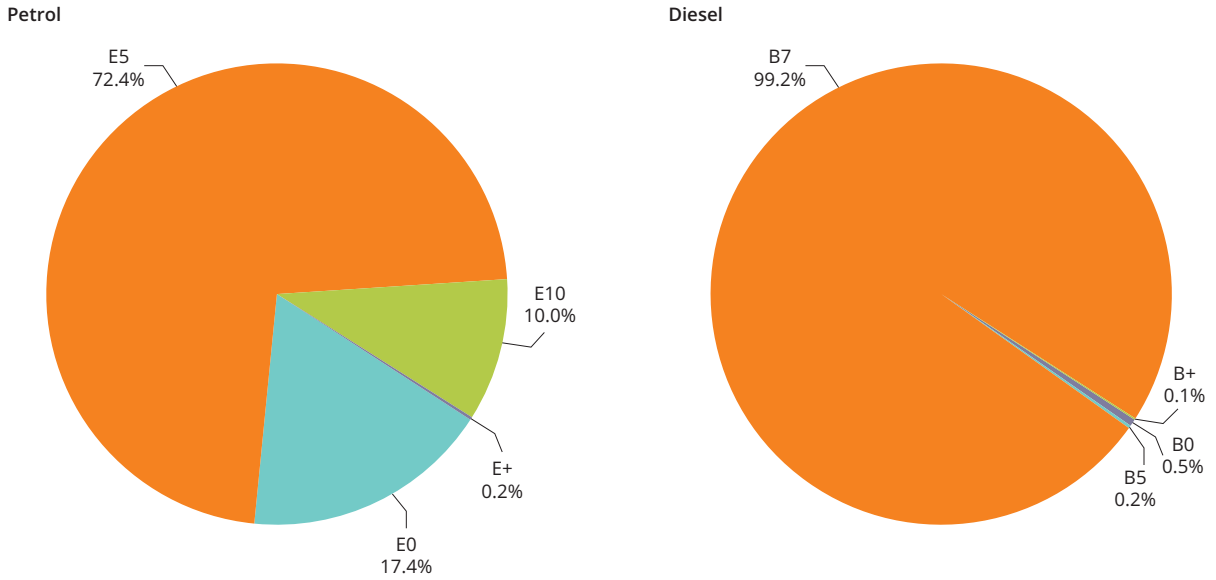


Figures 3.1–3.3 and Table 3.1 summarise the main information on the FQMS collected from Member States' submissions, such as fuel sold, model used, country size and sampling method as well as the number of samples and the number of measurements outside the tolerance limits.

Figure 3.3 shows the percentage of fuel with and without any biocomponents for petrol and diesel sold in the EU. It is evident that almost all diesel sold in the EU contains biodiesel, whereas the majority of petrol sold contains bioethanol.

The average percentage content of biodiesel and bioethanol in diesel and petrol sales has not been calculated because most countries have not reported the exact biofuel content in the various fuel grades.

Figure 3.3 Use of biocomponents in petrol and diesel



Note: B+, Diesel fuel with > 7% (% v/v) biodiesel content; B0, diesel fuel with no biodiesel content; B5, diesel fuel with up to 5% (% v/v) biodiesel content; B7, diesel fuel with up to 7% (% v/v) biodiesel content; E+, petrol with > 10% ethanol content; E0, petrol with no ethanol content; E5, petrol fuel with up to 5% (%v/v) ethanol content; E10, petrol with up to 10% ethanol content.

Table 3.1 FQMS summary

Member State	FQMS model	Country size	Summer and winter sampling	Total samples required (a)	
				Petrol	Diesel
Austria	A	S	Yes	106	104
Belgium	National	S	Yes	200	100
Bulgaria	B	S	Yes	205	200
Croatia	C	S	Yes	105	100
Cyprus	C	S	Yes	106	100
Czech Republic	C	S	Yes	104	104
Denmark	National	S	Yes	200	100
Estonia	C	S	Yes	108	100
Finland	A	S	Yes	200	100
France	B	L	Yes	1 211	400
Germany	B	L	Yes	849	400
Greece	A	S	Yes	105	100
Hungary	C	S	Yes	103	100
Ireland	C	S	Yes	100	100
Italy	A	L	Yes	200	200
Latvia	National	S	Yes	113	200
Lithuania	C	S	Yes	104	200
Luxembourg	National	S	Yes	200	100
Malta	National	S	Yes	100	100

Table 3.1 FQMS summary (cont.)

Member State	FQMS model	Country size	Summer and winter sampling	Total samples required ([a])	
				Petrol	Diesel
Netherlands	A		Yes	101	100
Poland	B	L	Yes	444	400
Portugal	C	S	Yes	108	100
Romania	B	S	Yes	212	200
Slovakia	C	S	Yes	101	100
Slovenia	C	S	Yes	106	100
Spain	A	L	Yes	215	200
Sweden	National	S	Yes	103	100
United Kingdom	National	L	No	208	200

Note: ([a]) Based on EN 14274:2003.

L, large country (i.e. total automotive road fuel sales of > 15 million tonnes per annum); S, small country (i.e. total automotive road fuel sales of < 15 million tonnes per annum).

A short description of the different FQMS models follows.

European Standard EN 14274 Statistical Model A — macro-regions: In this model, the regions within the country are grouped (preserving some geographical identity) into macro-regions so that they have similar total sales volumes relative to each other as well as approximately the same number of different supply sources. This approach is recommended, as it is designed to capture fuel variations efficiently and hence requires a smaller number of samples. If geographical and destructive or other circumstances do not allow fulfilment of the requirements for the design of this preferred model, Model B shall be considered the next best model. The minimum overall number of samples per grade and per season is 50 per small country and 100 per large country.

European Standard EN 14274 Statistical Model B — non-macro-region: If the construction of macro-regions (based on fuel supply patterns) is not possible within a country, then the country shall be divided into regions using only geographic and administrative criteria. To ensure that fuel variability is reliably captured, a large number of samples per grade is required: 100 for small countries and 200 for large countries.

European Standard EN 14274 Statistical Model C — non-region model: If the country is small and it can be demonstrated that a division into macro-regions or non-macro-regions is not possible, having considered the procedures and provisions given in this European standard, then the country shall be considered one region for sampling purposes. A total of 50 samples per grade and per season are required.

National model: Some countries have implemented their own models for the FQMS in accordance with their national legislation.

3.1.1 Minimum number of samples

For fuel grades with market shares of 10% and above, the minimum number of fuel dispensing sites that should be sampled and tested in any country is given in Table 3.2.

For each fuel grade with a market share of < 10%, considering petrol and diesel separately, the minimum number of fuel dispensing sites to be sampled shall be calculated proportionally from the number of samples for the corresponding parent grade, using the following equation:

$$N_{\text{grade i}} = \text{market share}_{\text{grade i}}/\text{market share}_{\text{parent grade}} \times N_{\text{parent grade}}$$

Table 3.2 Minimum number of samples per fuel grade in each winter and summer period

Model	A	B	C
Small-size country			
Petrol, per grade	50	100	50
Diesel fuel	50	100	50
Large-size country			
Petrol, per grade	100	200	N/A
Diesel fuel	100	200	N/A

Note: N/A, not applicable.

Table 3.3 Sampling summary

Member State	Samples taken		Non-compliant		Parameters outside tolerance limits for non-compliant samples
	Petrol	Diesel	Petrol	Diesel	
Austria	106	99	1	0	Vapour pressure
Belgium	1 843	5 885	53	68	RON, Vapour pressure, Sulphur content, FAME content
Bulgaria	267	382	11	20	RON, Vapour pressure, Distillation, Ethanol, Sulphur content
Croatia	134	182	3	N/A	Vapour pressure, Benzene, Cetane number, Density at 15 C, Distillation
Cyprus	265	140	15	2	Vapour pressure, Sulphur content
Czech Republic	1 007	1 201	4	10	Vapour pressure, Aromatics, Oxygen content, Ethanol, Cetane number, Density at 15 C, Distillation, Sulphur content, FAME content
Denmark	39	20	0	20	RON, MON, Vapour pressure, FAME content
Estonia	351	209	20	1	MON, Vapour pressure, Aromatics
Finland	225	117	5	8	RON, MON, Distillation, Aromatics
France	476	408	12	14	Vapour pressure, Benzene, Sulphur content, FAME content
Germany	726	394	22	1	Oxygen content, Sulphur content, FAME content
Greece	114	100	2	19	Vapour pressure, Oxygen content, Ethanol, Sulphur content, FAME content
Hungary	120	120	0	2	FAME content
Ireland	100	100	14	3	RON, Vapour pressure, Sulphur content, FAME content
Italy	200	200	7	2	RON, Vapour pressure, Sulphur content
Latvia	70	156	5	0	RON, Aromatics, Benzene
Lithuania	106	100	0	0	
Luxembourg	69	86	1	0	Oxygen content
Malta	61	65	0	0	
Netherlands	102	100	N/A	N/A	MON, Vapour pressure, Aromatics, Distillation
Poland	528	403	5	6	RON, MON, Oxygen content, Distillation, Sulphur content, FAME content
Portugal	50	42	0	0	
Romania	100	100	0	0	
Slovakia	152	120	8	2	RON, MON, Vapour pressure, Olefins, Aromatics, FAME content
Slovenia	135	151	N/A	0	Sulphur content

Table 3.3 Sampling summary (cont.)

Member State	Samples taken		Non-compliant		Parameters outside tolerance limits for non-compliant samples
	Petrol	Diesel	Petrol	Diesel	
Spain	200	200	N/A	1	Vapour pressure, Distillation (evaporated at 100 and 150 C), Oxygen content, Sulphur content
Sweden	552	684	0	0	
United Kingdom	1 282	2 361	43	3	Vapour pressure, Aromatics, Oxygen content, Density at 15 C, FAME content

Note: FAME, fatty acid methyl ester; MON, Motor Octane Number; N/A, not applicable.

On the basis of the information presented above, the following general remarks can be made.

- Most Member States are using one of the Statistical Models A, B or C. Seven Member States are using a national monitoring system.
- Most key fuel parameters in the samples taken are within the tolerance limits. Only very few exceedences are observed.
- Almost all Member States — with the exception of Romania and the United Kingdom — have provided information for both summer and winter fuel grades.
- For petrol reporting, exceedences of the summer vapour pressure were reported in 16 Member States, exceedences of the RON were reported in 9 Member States and exceedences of the aromatics, oxygen content and distillation were reported in 6 Member States.
- For diesel reporting, of the six fuel parameters that require testing and analysis, the most common parameters falling outside the specifications were sulphur content (in 12 Member States) and fatty acid methyl ester (FAME) content (in 11 Member States).

3.2 Fuel availability for 2014

Table 3.4 summarises fuel sales for the EU-28 as well as the total fuel sold.

On the basis of Table 3.4, the following general remarks can be made:

- diesel fuel consumption is dominant in most of the EU-28 (> 60% of total fuel sales), with the exception of Malta, Greece and Cyprus;
- the nine Member States with the highest volumes of fuel sold account for > 80% of total EU sales;
- the 13 Member States with the lowest volumes account for < 10% of total EU fuel sales;
- the number of different fuel grades and biofuel blends sold in EU Member States is increasing and, hence, the reporting and monitoring processes are becoming increasingly complex.

Table 3.4 Fuel sales (petrol and diesel for 2014)

Member State	Min. RON = 91	Min. RON = 95	Petrol sales 95 ≤ RON < 98	RON ≥ 98	Total petrol (million litres)	Diesel sales: total diesel (million litres)
Austria	28.02		2 069.06	66.89	2 163.97	7 573.51
Belgium		1 481.04		270.25	1 751.29	8 204.15
Bulgaria		600.60		16.15	616.75	1 615.41
Croatia		670.82	18.30	11.89	701.01	1 740.41
Cyprus			441.09	24.51	465.60	300.39
Czech Republic	3.37	2 036.63		69.94	2 109.94	5 211.69
Denmark	291.15	1 510.96			1 802.11	3 065.45
Estonia	1.10		298.57	21.79	321.46	754.66
Finland		1 215.87		795.25	2 011.12	2 870.91
France		7 517.90		1 849.77	9 367.67	40 486.38
Germany	2.69	23 351.63		1 415.18	24 769.50	42 548.94
Greece		3 175.54	5.76	116.58	3 297.88	2 806.61
Hungary		1 593.14		47.58	1 640.72	3 505.20
Ireland		1 730.30			1 730.30	2 928.60
Italy		10 602.68			10 602.68	27 299.48
Latvia		240.32	25.41		265.73	953.24
Lithuania		263.03		12.23	275.26	1 471.00
Luxembourg		342.27		71.87	414.14	1 985.04
Malta			98.15		98.15	121.92
Netherlands		5 071.00	0.27	60.00	5 131.27	6 684.33
Poland		4 318.12		473.83	4 791.95	13 010.99
Portugal			1 352.50	106.33	1 458.83	4 976.11
Romania			1 613.40	93.82	1 707.22	4 796.69
Slovakia		877.20		8.87	886.07	1 795.76
Slovenia			562.99	31.24	594.23	1 633.35
Spain			5 751.96	421.32	6 173.28	24 951.46
Sweden		3 408.89		117.80	3 526.69	5 533.10
United Kingdom		16 271.24	619.95		16 891.19	27 051.68
EU-28	326.34	86 279.17	12 857.40	6 103.10	105 566.01	245 876.43

4 Summary of Member States' submissions

4.1 Austria

4.1.1 Country details

Responsible organisations:	Austrian Environment Agency
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model A
Location of sampling:	Refuelling stations

4.1.2 Fuel quality monitoring service

Sampling
This information was provided in the national language in the accompanying report.

Fuel Quality Monitoring System administration
This information was provided in the national language in the accompanying report.

National legislation that transposed the Fuel Quality Directive

The FQD was enacted in national law by means of an amendment of the Austrian Fuel Ordinance which was published in 2012 (BGBl. II Nr. 398/2012).

Reporting periods
There is no arctic weather condition in Austria.
The transition period is defined as between 1 and 31 October and between 1 March and 30 April. Samples taken within the transition periods are regarded as 'winter' samples. They are part of the FQMS.

4.1.3 Sales

Table 4.1 Total sales and sample number

Fuel grade (name)	Bioethanol content (v/v %)	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Regular unleaded petrol (min. RON = 91) E5 (Normal)	5.02	28 023 838	21 137	3	0	19 of 19
Unleaded petrol (min. 95 ≤ RON < 98) (Super E0)	0	82 083	61	0	0	
Unleaded petrol (min. 95 ≤ RON < 98) E5 (Super)	5.22	2 068 973 080	1 552 350	50	50	19 of 19
Unleaded petrol (min. RON ≥ 98) (Super Plus E0)	0	8 616	6	0	0	
Unleaded petrol (min. RON ≥ 98) E5 (Super Plus)	5.67	66 886 179	50 349	3	0	19 of 19
Total petrol		**2 163 973 796**	**1 623 904**	**56**	**50**	
Diesel fuel (Diesel B0)	0	285 634 058	237 933			
Diesel fuel B7 (Diesel)	6.69	7 287 876 751	6 107 677	49	50	6 of 6
Total diesel		**7 573 510 809**	**6 345 611**	**49**	**50**	

Note: S, summer; W, winter.

4.1.4 Exceedences of the fuel quality limits

Petrol fuel grades
Table 4.2 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.2 Unleaded petrol (min. 95 ≤ RON < 98) E5 (Super)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	56.1	89.8	1	50

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.2 Belgium

4.2.1 Country details

Responsible organisations:	Fapetro
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	National system
Location of sampling:	Refuelling stations and depots

4.2.2 Fuel quality monitoring service

Sampling
The International Organization for Standardization (ISO) EN 17020 certified organisation, Fapetro, is responsible for the reporting of fuel quality in Belgium. Belgium uses a national system instead of the statistical models. Belgium takes samples at refuelling stations and pumps with private owners. Only samples from refuelling stations and depots are reported here. Petrol at depots is not taken due to blending issues.

Belgium was willing to provide further detailed information, procedures used, analyses, etc., at any time. The proportion of samples taken was adapted for the volume of fuel sold on the Belgian market; therefore, mainly diesel samples were taken. Belgium controls many more parameters than are imposed by the EC to ensure the customer of the quality of the sold fuel. A template can be obtained, showing in detail the analysed parameters and methods for every fuel type.

Only a very small number of samples were non-compliant, owing to involuntary contamination.

Belgium used ISO 4259:2006 for the interpretation of the analyses results from 1 January 2009. Samples were taken in compliance with EN 14275 (latest version).

All samples were analysed by laboratories that were ISO 17025 certified. All test methods used were accredited or the demand for accreditation was in progress at the time of testing.

Moreover, Fapetro performed a biannual audit of the laboratories to reassure itself of the quality of the reported analysed samples.

Pump labelling is regulated by national legislation.

Fuel Quality Monitoring System administration
All the information can be found above.

National legislation that transposed the Fuel Quality Directive
Transposition in national law was effected by the Ministerial decree of 24 January 2002 (latest version) and needs to be seen in relation to Fapetro's ISO 17020 procedures.

Reporting periods
Concerning the results for petrol, Fapetro drew special attention to the Belgian annex of the Bureau for Standardisation EN 228, in particular for the vapour pressure parameter.

National specifications for vapour pressure (minimum-maximum) were:

- in summer 45.0–60.0 kPa
- in winter 65.0–95.0 kPa
- in two transition periods (April and October) 45.0–95.0 kPa.

Vapour pressure is analysed throughout the year in Belgium, in summer as well as in winter. The transition

periods are used to give fuel producers the ability to adapt the production of fuel in order to meet the specifications for summer or winter fuel quality.

However, every year, Fapetro reports a rise in dry vapour pressure equivalent infringements in the month of May. These infringements are involuntary and attributable to low stock rotation in primarily small retail stations (at the end of the chain). At these stations, the 'winter' quality petrol stayed in stock longer in 2014, as retail stations did not sell a great deal. As a result, the transfer period from 'winter' to 'summer' quality petrol was disturbed. All these infringements were small, harmless to the environment and involuntary.

Non-compliant samples for petrol vapour pressure were attributable to the low rotation of stock in transition periods between winter and summer grades.

4.2.3 Sales

Table 4.3 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (ES 10 ppm S)	yes	1 481 035 521	1 107 000	744	943	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (S+ 10 ppm S)	yes	270 252 191	202 000	68	88	19 of 19
Total petrol		**1 751 287 712**	**1 309 000**	**812**	**1 031**	
Diesel fuel B7 (Diesel 10 ppm S)	yes	8 204 145 202	6 848 000	2 488	3 397	6 of 6
Total diesel		**8 204 145 202**	**6 848 000**	**2 488**	**3 397**	

Note: S, summer; W, winter.

4.2.4 Exceedences of the fuel quality limits

Petrol fuel grades
Tables 4.4 and 4.5 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.4 Unleaded petrol (minimum RON = 95) E5 (ES 10 ppm S)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
RON	-	< 95	94.2	96.8	1	215
Vapour pressure	kPa	< 60	55.3	77.9	45	744

Table 4.5 Unleaded p etrol (minimum RON ≥ 98) E5 (S+ 10 ppm S)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	55.1	77.9	6	68

Diesel fuel grades
Table 4.6 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.6 Diesel fuel B7 (diesel 10 ppm S)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Sulphur content	mg/kg	< 10	3.7	32.7	38	5 885
FAME Content	% v/v	< 7	0.05	10.3	30	5 885

4.3 Bulgaria

4.3.1 Country details

Responsible organisations:	1. Ministry of Environment and Water 2. State Agency for Metrology and Technical Surveillance to Ministry of Economy and Energy
Country size:	Small
Summer period:	16 April to 15 October
FQMS used:	EN 14274 Statistical Model B
Location of sampling:	Liquid fuels in commercial, industrial and storage facilities, petroleum depots and terminals, refuelling stations and mobile tanks for liquid fuels transport

4.3.2 Fuel quality monitoring service

Sampling
The control of liquid fuel quality is performed by the President of the State Agency for Metrological and Technical Surveillance (SAMTS) via the Directorate-General 'Quality Control of Liquid Fuels' (DG QCLF). The DG QCLF officials are authorised by the President of SAMTS to carry out the following activities: taking samples of liquid fuels, testing them and reporting results.

The DG QCLF staff inspected liquid fuels in commercial, industrial and storage facilities, petroleum depots and terminals, refuelling stations and mobile tanks for liquid fuel transport.

Sampling took place regularly every week, with up to 20 samples being taken per week and not more than 800 samples taken per year. Sampling locations were determined by randomisation software or after receiving an alert at SAMTS or DG QCLF for fuel that did not meet the fuel quality requirements.

Bulgarian legislation introduced Directive 98/70/EC, as amended by Directive 2009/30/EC, Directive 2009/28/EC and Directive 1999/32/EC. The fuel quality monitoring model used was Statistical Model 'B', for a small country, in accordance with EN 14274. The minimum number of samples required for each period was 100 for petrol RON = 95 and diesel fuel. The number of samples for petrol RON ≥ 98 was estimated by means of a formula, in accordance with EN 14274, where the market share of petrol RON ≥ 98 is not > 3%. Samples were tested only in the permanently sited laboratory, or first in a mobile and then in the permanently sited laboratory of the DG QCLF.

Fuel Quality Monitoring System administration
Organisations responsible for the management and implementation of the FQD are the Ministry of Environment and Water and SAMTS via the DG QCLF.

Control was carried out by inspections of the quality of distributed consignments of fuels, by checks of their accompanying documents and by imposing administrative measures when non-compliances were established.

The DG QCLF is a public body, responsible for taking action where non-compliances are established in the liquid fuels' control. Every month, every three months and every year the DG QCLF provides data on the SAMTS website relating to the number of inspections, the number of non-compliances and the number and type of imposed administrative measures for the reference period.

National legislation that transposed the Fuel Quality Directive
European liquid fuel quality legislation has been introduced in Bulgarian legislation by the Clean Ambient Air Act, the Energy from Renewable Sources Act and the regulation on the quality requirements, conditions, order and control of liquid fuels. The Clean Ambient Air Act and the regulation on the quality requirements, conditions, order and control of liquid fuels implement

the requirements of Directive 98/70/EC and standards EN 228 and EN 590. The Energy from Renewable Sources Act imposes requirements for the blending of liquid fuels with a biocomponent for transport.

Reporting periods
Regulations for liquid fuels have been introduced in Bulgaria for the summer period (16 April to 15 October) and the winter period (16 October to 15 April). Transition periods have also been determined for petrol (winter–summer from 16 April to 31 May and summer–winter from 16 October to 30 November) and for diesel fuels (summer–winter from 16 October to 30 November).

During previous transition periods, samples were taken and tested with the same frequency as during the rest of the year.

Samples taken during previous periods are not considered in the annual Fuel Quality Report.

4.3.3 Sales

Table 4.7 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E10 (Unleaded petrol RON 95 E10)	6%	600 596 323	450 447	119	140	18 of 19
Unleaded petrol (min. RON ≥ 98) E10 (Unleaded petrol RON≥98 E10)	6%	16 152 929	12 115	6	2	17 of 19
Total petrol		**616 749 252**	**462 562**	**125**	**142**	
Diesel fuel B7 (Diesel fuel B7)	6% FAME	1 615 405 466	1 373 095	220	162	6 of 6
Total diesel		**1 615 405 466**	**1 373 095**	**220**	**162**	

Note: S, summer; W, winter.

4.3.4 Exceedences of the fuel quality limits

Petrol fuel grades
Table 4.8 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.8 Unleaded petrol (minimum RON = 95) (Unleaded petrol RON 95, E10)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	89.1	98.7	3	245
Vapour pressure	kPa	< 60	49.1	69.4	N/A	119
Distillation — evaporated at 100 °C	% v/v	> 46	42	58.8	2	259
Oxygen content	% (m/m)	< 3.7	0	4.2	1	259
Ethanol	% v/v	< 10	0	10.4	N/A	259
Sulphur content	mg/kg	< 10	3.2	50	6	259

Note: N/A, not applicable.

Diesel fuel grades
Table 4.9 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.9 Diesel fuel B7 (Diesel fuel B7)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Distillation -- 95-%-Point	°C	< 360	334	389.4	5	382
Sulphur content	mg/kg	< 10	3.8	50	15	382

4.4 Croatia

4.4.1 Country details

Responsible organisations:	Croatian Environment Agency
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	N/A

4.4.2 Fuel quality monitoring service

Sampling
The FQMS in Croatia is based on European Standard EN 14274, using Statistical Model C (small country).

Distributors are obliged to submit fuel quality data to the Croatian Environment Agency. The sampling is performed by the legal entity that is certified in accordance with HR EN ISO/IEC 17020 and HR EN ISO/IEC 17025.

Samples of petrol, diesel fuel and gas oil are taken in accordance with the 'Fuel quality monitoring programme' which is under the responsibility of the Ministry of Environmental and Nature Protection, which sets out the programme for each year.

Fuel Quality Monitoring System administration
Distributors are obliged to submit fuel quality data to the Croatian Environment Agency. Sampling is performed by the legal entity that is certified in accordance with HR EN ISO/IEC 17020 and HR EN ISO/IEC 17025.

National legislation that transposed the Fuel Quality Directive
The Fuel Quality Directive was transposed to Croatian legislation in 2013 and implemented from the 5 September 2013 by the Regulation on the quality of liquid petroleum fuels (Official Gazette of the Republic of Croatia, No 113/2013, No 76/2014 and No 56/2015).

Reporting periods
Seasonal periods in Croatia are as follows:

- summer period — from 1 May to 30 September;
- winter period — from 1 October to 30 April.

Samples were taken and tested regardless of the transition periods and analysis results were reported 'normally' throughout the year in 2014.

4.4.3 Sales

Table 4.10 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) (RON 95)		670 822 440.82	506 470.94	70	58	19 of 19
Unleaded petrol (min. 95 ≤ RON < 98) (RON 98)		18 301 636.85	13 817.74	1	1	19 of 19
Unleaded petrol (min. RON ≥ 98) (RON 100)		11 894 415.00	8 980.28	2	2	18 of 19
Total petrol		**701 018 492.67**	**529 268.96**	**73**	**61**	
Diesel fuel B7 (B7)		1 740 410 154.64	1 470 646.58	79	103	6 of 6
Total diesel		**1 740 410 154.64**	**1 470 646.58**	**79**	**103**	

Note: S, summer; W, winter.

4.4.4 Exceedences of the fuel quality limits

Petrol fuel grades

Table 4.11 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.11 Unleaded petrol (min. RON = 95) (RON 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	52	62.2	2	70
Benzene	% v/v	< 1	0.13	1.32	1	128

Diesel fuel grades

Table 4.12 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.12 Diesel (B7)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Cetane number	-	> 51	49.7	55.2	N/A	182
Density at 15 °C	kg/m^3	< 845	822.9	842.4	N/A	182
Distillation -- 95-%-Point	°C	< 360	337.3	362.2	N/A	182
Polycyclic aromatic hydrocarbons (PAH)	% (m/m)	< 8	0.5	5.1	N/A	182
Sulphur content	mg/kg	< 10	0	10.5	N/A	182
FAME Content	% v/v	< 7	0	6.5	N/A	174

Note: N/A, not applicable.

4.5 Cyprus

4.5.1 Country details

Responsible organisations:	Energy Service, Ministry of Service, Commerce, Industry and Tourism
Country size:	Small
Summer period:	16 April to 15 October
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Petrol stations, the depot at Larnaca, including the Cyprus Petroleum Storage Company farm, cars and other private installations of large consumers

4.5.2 Fuel quality monitoring service

Sampling

Samples of all fuel grades were taken from petrol stations, the depot at Larnaca, including the Cyprus Petroleum Storage Company (CPSC) farm, cars and other private installations of large consumers by the Energy Service inspectors on a daily basis. The number of samples taken from the Larnaca depot was determined by the number of petroleum shipments imported. All petroleum products held by the CPSC were tested in order to secure their compliance with the EU specifications. However, only samples from retail sites are included in the statistical and analytical results of the 2014 FQMS report. The mobile laboratory of the Energy Service carried out almost all the tests required for monitoring fuel quality in 2014 at petrol stations. The CPSC laboratory conducted only a limited number of tests, namely for verification reasons.

Fuel Quality Monitoring System administration

The Energy Service of the Ministry of Energy, Commerce, Industry and Tourism is the competent authority for monitoring the quality of fuels marketed in the government-controlled area of Cyprus. Retail site (petrol stations) samples were taken by the inspectors of the Energy Service on a daily surveillance programme prepared by the Chief Inspector and/or his Assistant. Where non-compliant samples are discovered, the Chief Inspector, who is appointed by the Minister of Energy, Commerce, Industry and Tourism, is responsible for forbidding the sale of off-specification fuels from retail sites, or the use of off-specification fuels from private installations, and for enacting the prosecution of the person who is responsible for the tank. Cyprus is considered a single region. The supply of petroleum products is carried out by three companies and distribution and retail are carried out by the six marketing companies. Cyprus has no refinery.

National legislation that transposed the Fuel Quality Directive

The provisions of the FQD that correlate with fuel specifications were transferred into national law by Decrees K.D.P442/2011 and K.D.P.330/2012.

Reporting periods

The summer period is from 16 April to 15 October and the winter period is from 16 October to 15 April. The transition period from summer to winter and vice versa is set at 6 weeks. Samples are taken and tested during the transition period. The modifications in vapour pressure within the transition period are monitored (to ensure that the results comply with the seasonal specifications) and are reported in the annual fuel quality report.

4.5.3 Sales

Table 4.13 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. 95 ≤ RON < 98) (Unleaded petrol RON 95)		441 091 520	324 332	75	61	18 of 19
Unleaded petrol (min. RON ≥ 98) (Unleaded petrol RON 98)		24 511 280	18 023	74	55	18 of 19
Total petrol		**465 602 800**	**342 355**	**149**	**116**	
Diesel fuel B7 (Eurodiesel)	7%	300 387 600	250 323	76	64	6 of 6
Total diesel		**300 387 600**	**250 323**	**76**	**64**	

Note: S, summer; W, winter.

4.5.4 Exceedences of the fuel quality limits

Petrol fuel grades
Tables 4.14 and 4.15 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.14 Unleaded petrol (min. 95 ≤ RON < 98) (Unleaded petrol RON 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	54.1	65.6	6	75

Table 4.15 Unleaded petrol (min. RON ≥ 98) (Unleaded petrol RON 98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	54.5	68.8	7	74
Sulphur content	mg/kg	< 10	3.1	11.1	2	127

Diesel fuel grades
Table 4.16 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.16 Diesel fuel B7 (Eurodiesel)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Sulphur content	mg/kg	< 10	3	184.9	2	139

4.6 Czech Republic

4.6.1 Country details

Responsible organisations:	Ministry of Trade and Industry
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Service stations

4.6.2 Fuel quality monitoring service

Sampling
The FQMS is coordinated by the Ministry of Industry and Trade (MIT) of the Czech Republic for the whole country. The Czech Trade Inspection Authority (CTIA), which comes under the jurisdiction of the MIT, performed the sampling of liquid and gas fuels at service stations, in cooperation with the Accredited Inspection and Certification Authority SGS for the laboratory testing of all samples used in transport over the year 2014. The fuel samples were tested monthly throughout 2014. The controlling process of all fuel samples was carried out in accordance with European standards EN 228 and EN 590 and also the amendments of Czech standards ČSN EN 228:2013 and ČSN EN 590:2014.

Fuel Quality Monitoring System administration
Fuel sampling was performed in accordance with the requirements of national and European legislation and the standards of the FQMS in general. The FQMS is used as a controlling system in accordance with Czech standard ČSN EN 14274:2013 and its versions of European Standards EN 228:2012 and EN 590:2013 for petrol and diesel, namely ČSN EN 228:2013 and ČSN EN 590:2014. If the Czech Trade Inspection Authority controller finds exceedences in the fuel

quality at the service station, the sale of fuels is banned until the exceedences are rectified. There is also the possibility of a financial sanction in accordance with Act No 311/2010 Coll. for fuels and petrol stations. The national legislation is transposed by the rules and obligations of FQD. The CTIA is an administrative government institution, which comes under the jurisdiction of the MIT. The collected annual data from the fuel quality monitoring of the previous calendar year are provided by CTIA in the form of an annual report to the coordinating office, the MIT, Department of Gas Industry and Liquid Fuels. This department is responsible for the corresponding working agenda and for reporting to the EC. In the Czech Republic, the System of Fuel Quality Monitoring has been carried out since 2001 under the management of the Department of Gas Industry and Liquid Fuels at the MIT, which also evaluates controlled monitoring data.

In 2014, there were two refineries in the Czech Republic and about 31 distribution terminals. The annual fuel analysis data from service stations, which sold to the Czech trade market in the previous year, were provided by the Department of Raw Material and Energy Security of MIT in cooperation with the Czech Statistical Office.

National legislation that transposed the Fuel Quality Directive

The FQD is transposed by national legislation in accordance with Air Protection Act No 201/2012 Coll. and national energetic legislation. Fuel quality has been monitored by Decree No 133/2010 Coll. on requirements for fuels, monitoring of fuel composition and fuel quality and their records as amended, combined with Act No 311/2006 Coll. for fuels and petrol stations, as amended, in accordance with Trade Licensing Act No 455/1991 Coll., as amended, and Act No 353/2003 Coll. on Excise Duties, as amended.

The MIT is responsible for the implementation of Directive 98/70/EC as subsequently amended and for the coordination of all work monitored at the national level in 2014, as shown below.

Reporting periods

In 2014, 2663 samples were checked at service stations across the whole country. In total, there were 421 samples of petrol and 539 samples of diesel checked in the summer period and 586 samples of petrol and 658 samples of diesel plus 5 samples of arctic diesel checked in the winter period. The results of sampling of the transition periods were included in two basic seasonal periods.

4.6.3 Sales

Table 4.17 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Regular unleaded petrol (min. RON = 91) E5 (Special BA–91)	3.55	3 371 462	2 520	4	9	19 of 19
Unleaded petrol (min. RON = 95) E5 (Super BA–95)	4	2 036 631 212	1 522 280	400	551	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (Super Plus BA–98)	0.25	38 664 793	28 900	17	26	19 of 19
Unleaded petrol (min. RON ≥ 98) E+ (E85)	78	31 275 167	23 300			
Total petrol		**2 109 942 637**	**1 577 000**	**421**	**586**	
Diesel fuel B7 (Motorová nafta)	4.82	5 005 316 289	4 189 700	539	658	6 of 6
Diesel fuel B+ (> 7% FAME ≤30%) (Směsná motorova nafta)	31	181 579 657	148 100	0	4	6 of 6
Diesel fuel B+ (FAME > 30%) (FAME)	100	24 789 522	21 200	0	0	
Total diesel		**5 211 685 469**	**4 359 000**	**539**	**662**	

Note: S, summer; W, winter.

4.6.4 Exceedences of the fuel quality limits

Petrol fuel grades
Tables 4.18–4.20 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.18 Regular unleaded petrol (min. RON = 91) E5 (Special BA–91)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	93.1	96.4	N/A	13
Motor Octane Number	-	> 85	83	85.2	N/A	13
Vapor Pressure	kPa	< 60	60	66.4	N/A	4
Oxygen content	% (m/m)	< 2.7	1	2.88	N/A	13
Sulphur content	mg/kg	< 10	4.2	12.9	N/A	13

Note: MON (Motor Octane Number); N/A, not applicable.

Table 4.19 Unleaded petrol (min. RON = 95) E5 (Super BA–95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapor Pressure	kPa	< 60	54	61.6	N/A	400
Aromatics	% v/v	< 35	15.9	37	N/A	951
Oxygen content	% (m/m)	< 3.7	0.13	5.57	2	951
Ethanol	% v/v	< 10	0.1	15.1	2	951

Note: N/A, not applicable.

Table 4.20 Unleaded petrol (min. RON ≥ 98) E5 (Super Plus BA–98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Aromatics	% v/v	< 35	32.8	37	N/A	43

Note: N/A, not applicable.

Diesel fuel grades
Table 4.21 summarises the parameters for which exceedances were reported for the diesel fuel grades measured.

Table 4.21 Diesel fuel B7 (Motorová nafta)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Cetane number	-	> 51	41.8	65	1	1 202
Density at 15 °C	kg/m^3	< 845	813.9	863.9	3	1 202
Distillation -- 95-%-Point	°C	< 360	332.2	370.1	1	1 202
Sulphur content	mg/kg	< 10	3.4	14.7	1	1 202
FAME Content	% v/v	< 7	0.3	60	4	1 202

4.7 Denmark

4.7.1 Country details

Responsible organisations:	Danish Environmental Protection Agency
Country size:	Small
Summer period:	1 June to 31 August
FQMS used:	National system
Location of sampling:	Service stations

4.7.2 Fuel quality monitoring service

Sampling
Sampling and analysing is carried out by an accredited laboratory for the Danish Petroleum Association. The results are sent to the Danish Environmental Protection Agency (EPA). The laboratory is accredited in accordance with EN 14274 and EN 14275. Sampling takes place at service stations. Sampling is carried out three times a year, in spring, summer and autumn. Sampling in spring and autumn covers the winter period. Approximately 50% of the samples are taken east of the Great Belt and about 50% west of the Great Belt. The populations east and west of the Great Belt are approximately the same. The laboratory sends a proposal to sampling places to approval at the Danish EPA. The Danish EPA makes sure that sampling takes place at all petrol companies and all over the country.

Fuel Quality Monitoring System administration
The Danish EPA is responsible for the implementation of articles relating to the FQMS in the Danish legislation. There are 18 terminals and 2 refineries in Denmark. More than 99% of the fuels used for road transport in Denmark are distributed from the two Danish refineries or from terminals owned by members of the Danish Petroleum Association which have to meet the Association's Exchange specifications. These specifications are in accordance with DS/EN 228 for petrol and DS/EN 590 for diesel and the current Danish Statutory Order regarding the quality of petrol and diesel fuel. More than 99% of the fuels used for road transport in Denmark are delivered from terminals, which are certified in accordance with ISO 9000 or equivalent quality-management systems. More than 99% of the fuels used for road transport in Denmark are distributed from terminals where 'certificates of quality' exist for every import/batch approved according to DS/EN 228 for petrol or DS/EN 590 for diesel and the current Danish Statutory Order regarding the quality of petrol and diesel.

In 2014, some samples were not analysed for RON, Motor Octane Number (MON), oxygen and oxygenates, because of their small impact on the environment, and lead was not analysed because it has not been added to Danish petrol for many years.

National legislation that transposed the FQD
Part of the Directive is implemented in Danish Statutory Order No 1311 of 4 December 2014.

Reporting periods
Denmark was granted the 'arctic' derogation in Article 3(4) and (5).

4.7.3 Sales

Table 4.22 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Regular unleaded petrol (min. RON = 91) E5 (Oktan 92 unleaded)	5%	291 151 000	218 363	4	2	19 of 19
Unleaded petrol (min. RON = 95) E5 (Oktan 95 unleaded)	5%	1 510 955 000	1 133 216	14	16	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (Oktan 99 unleaded)	5%	([a])	([a])	1	2	19 of 19
Total petrol		**1 802 106 000**	**1 351 579**	**19**	**20**	
Diesel fuel B7 (Miljødiesel (< 0,01 % S))	7%	3 065 449 000	2 574 977	10	10	6 of 6
Total diesel		**3 065 449 000**	**2 574 977**	**10**	**10**	

Note: ([a]) In Denmark there is only one company marketing petrol with RON > 98. For competitive reasons, the sale of RON 99 is included in the sale figures for RON 95. RON 99 form < 10% of the total petrol sales in Denmark.

S, summer; W, winter.

4.7.4 Exceedances of the fuel quality limits

Petrol fuel grades
No exceedances of the petrol fuel quality limits were measured.

Diesel fuel grades
Table 4.23 summarises the parameters for which exceedances were reported for the diesel fuel grades measured.

Table 4.23 Diesel fuel B7 (Miljødiesel (< 0.01 % S))

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
FAME Content	% v/v	< 7	0	7.8	1	20

4.8 Estonia

4.8.1 Country details

Responsible organisations:	Ministry of Environment, Estonian Environmental Research Centre
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Fuel stations

4.8.2 Fuel quality monitoring service

Sampling
Sampling is undertaken in accordance with standard EN 14275 by the Estonian Environmental Research Centre, which is also responsible for the analysis and reporting of results. Samples are taken only from retail fuel stations. Sampling points are selected so that most of the refuelling stations are covered within a period of two years. Sampling is undertaken so that summer/winter period samples are evenly distributed throughout a particular period.

Fuel Quality Monitoring System administration
The Estonian Ministry of Environment is responsible for managing and implementing the FQD. Fuel sampling and analysis is contracted privately to the Estonian Environmental Research Centre and the annual report deadline is 30 May each year. When non-compliant samples occur, the public bodies responsible for taking action are the Estonian Environmental Inspectorate and the Estonian Tax and Customs Board. These two bodies are informed immediately by e-mail and by post. If necessary, new samples are taken by the Tax and Customs Board. The system was designed in 2004–2005 using EN 14274 Model C.

National legislation that transposed the Fuel Quality Directive
Elements of the FQD requirements are described in the Ministry of the Environment Regulation No 45 of 21 June 2013.

Reporting periods

- Winter period — 1 December to 28/29 February.
- Summer period — 1 May to 30 September.

Transition periods are 1 October–30 November and 1 March–30 April. No samples were taken during the transition periods in 2014.

4.8.3 Sales

Table 4.24 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Regular unleaded petrol (min. RON = 91)		1 100 671	820			
Unleaded petrol (min. 95 ≤ RON < 98) E5	3.56%	298 569 804	223 166	90	92	19 of 19
Unleaded petrol (min. RON ≥ 98) E5	1.3%	21 788 748	16 286	85	84	19 of 19
Total petrol		**321 459 224**	**240 272**	**175**	**176**	
Diesel fuel B7		754 656 313	628 757	110	99	6 of 6
Total diesel		**754 656 313**	**628 757**	**110**	**99**	

Note: S, summer; W, winter.

4.8.4 Exceedances of the fuel quality limits

Petrol fuel grades

Tables 4.25 and 4.26 summarise the parameters for which exceedances were reported for the petrol fuel grades measured.

Table 4.25 Unleaded petrol (min. 95 ≤ RON < 98) E5

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Motor Octane Number	-	> 85	84.1	86.1	20	182
Vapour pressure	kPa	< 60	62.2	92.2	N/A	182

Note: N/A, not applicable.

Table 4.26 Unleaded petrol (min. RON ≥ 98) E5

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	52.4	90.4	N/A	169
Aromatics	% v/v	< 35	4.8	36.2	1	169

Note: N/A, not applicable.

Diesel fuel grades

No exceedances of the diesel fuel quality limits were measured.

4.9 Finland

4.9.1 Country details

Responsible organisations:	Finnish Customs Laboratory
Country size:	Small
Summer period:	1 June to 31 August
FQMS used:	EN 14274 Statistical Model A
Location of sampling:	Retail sites

4.9.2 Fuel quality monitoring service

Sampling

According to the agreement (38/481/2001) between Finnish Customs and the Ministry of Environment, Customs is responsible for fuel sampling and the analysis and reporting of results. Sampling was undertaken in 2014 across the whole country according to the sampling plan following the guidelines of standard EN 14274:2003 Model A. The country was divided into three macro-regions with about the same sales volume and variability factors (see Regional Sampling sheets). In 2014, there were 2 refineries and 19 terminals in operation. The number of retail sites in each macro-region was about 640, 740 and 480, making a total of about 1 860. The sampling places were selected randomly, however, to ensure that all distribution chain companies were included. All samples were taken in retail sites. The division of the consumption per macro-region is based on the total annual consumption of 95 (95 E10) and 98 (98 E5) octane grades. Diesel fuel consumption figures per macro-region are for the whole year as well. The sampling was split into winter and summer periods in order to obtain minimum sample amounts in both periods.

In 2014, the Customs Laboratory took part in the Round Robin Finland testing, which performs national inter-laboratory fuel examinations and proficiency tests organised by the Institute of Interlaboratory Studies. The results of the parameters measured in the tests (sulphur content, density, distillation, vapour pressure, lead, olefins contents, benzene, oxygenates and oxygen) were acceptable. In the period 2001–2013, the laboratory also took part in these tests with acceptable results.

Fuel Quality Monitoring System administration

The Ministry of the Environment is responsible for transposition of the FQD into national legislation, and approves plans and gives general guidance. Finnish Customs is responsible for the practical implementation of fuel quality monitoring, as explained under 'Sampling' in section 4.9.2. In the case of non-compliant samples, the analyses are repeated as soon as possible. If non-compliance is confirmed, Customs contacts the fuel supplier/oil company to obtain a detailed account. If no clear reason for non-compliance is found, if there are no signs of intentional offending action, and if the case is not a serious one, a written procedure is often considered appropriate and sufficient. When non-compliant samples are repeatedly found, remarks or formal complaints may also be given. According to Paragraph 175 (Rectification of a violation or negligence) of the Environmental Protection Act 527/2014 (previously 86/2000), a supervisory authority may prohibit a party from continuing or repeating a procedure that violates existing regulations or may order a party to fulfil its duty in some other way. The Ministry of the Environment is informed of any actions taken. If there is a risk that non-compliant fuel may cause damage to the vehicle (lead, sulphur) and the fuel is still on the market, it is possible to order the fuel supplier to remove the product from the market. According to Paragraph 183 (Decision to prohibit or require action on substances, preparations, products, equipment and machines) the Ministry of the Environment may prohibit the manufacturer, importer or other market supplier from continuing operations that contradict existing regulations, may prohibit the trading, sale or other supply of products that are in violation of the existing regulations and may require the offender to bring the product into compliance with the regulations or otherwise meet its obligations. If a product has been placed on the market, the Ministry may require the party that is contravening the existing regulations to remove the product from the market.

National legislation that transposed the Fuel Quality Directive

The supervision of fuel quality is based on Environmental Protection Act 527/2014 (previously 86/2000), the Government Decree on the quality requirements for petrol and diesel fuel (1206/2010) and an agreement between the Ministry of the Environment and Finnish Customs (38/481/2001). According to the agreement, Finnish Customs prepares a yearly sampling plan, which is to be approved by the Ministry of the Environment. Finnish Customs is in charge of the practical realisation of the supervision. Customs' national district organisation takes liquid fuel samples in accordance with the sampling plan, and the samples are analysed at the Customs laboratory or by subcontractors whose competence is confirmed. The supervision aims to comply, when applicable, with the requirements of standard EN 14274:2003 Model A for three macro-regions (see Regional sampling sheets).

Reporting periods

An 'arctic' derogation was granted in 2011. The summer period runs from 1 June to 31 August, during which time the maximum vapour pressure allowed is 70 kPa.

For details, see Commission decisions K(2011) 714 final and K(2011) 3772 final and the Finnish notification letter on Fuel Quality Vapour pressure Derogation (original notification dated 17 February 2010, supplementary information 26 June 2010 and 6 September 2010). The sampling is split into winter and summer periods in order to take minimum sample amounts in both periods. The results of samples taken during the transition period are reported within the annual fuel quality report.

4.9.3 Sales

Table 4.27 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E10 (Moottoribensiini 95 E10)	max. 10% v/v	1 215 870 000	911 903	61	54	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (Moottoribensiini 98 E5)	max. 5% v/v	795 253 000	596 440	60	50	19 of 19
Total petrol		**2 011 123 000**	**1 508 343**	**121**	**104**	
Diesel fuel B7 (Dieselöljy)	FAME max. 7% v/v	2 870 909 000	2 425 918	62	55	6 of 6
Total diesel		**2 870 909 000**	**2 425 918**	**62**	**55**	

Note: S, summer; W, winter.

4.9.4 Exceedances of the fuel quality limits

Petrol fuel grades

Tables 4.28 and 4.29 summarise the parameters for which exceedances were reported for the petrol fuel grades measured.

Table 4.28 Unleaded petrol (min. RON = 95) E10 (Moottoribensiini 95 E10)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	94.1	96.9	2	32
Motor Octane Number	-	> 85	84.4	86.5	1	32
Distillation — evaporated at 100 °C	% v/v	> 46	42.9	66.5	1	115
Aromatics	% v/v	< 35	21.4	36.8	1	114

Table 4.29 Unleaded petrol (min. RON ≥ 98) E5 ([a]) (Moottoribensiini 98 E5)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Distillation — evaporated at 100 °C	% v/v	> 46	41.3	62.1	7	109
Aromatics	% v/v	< 35	22.9	36.9	1	109

Note: ([a]) petrol with 5% (v/v) or less ethanol content.

Diesel fuel grades

No exceedances of the diesel fuel quality limits were measured.

4.10 France

4.10.1 Country details

Responsible organisations:	Ministry of Ecology, Sustainable Development and Energy Directorate General for Energy and Climate
Country size:	Large
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model B
Location of sampling:	Service stations

4.10.2 Fuel quality monitoring service

Sampling
The provider who performs sampling and analysis on behalf of the Directorate General for Energy and Climate (DGEC) is Intertek OCA France, which was selected by European tender.

Intertek OCA France, which is in charge of monitoring and analysis, is audited once a year by DGEC. DGEC is responsible for reporting on the basis of data supplied by the provider. The controls are carried out throughout the country and concern petrol fuels ('supercarburants' in French) and diesel fuel ('gazole' in French). The objective of the controls is to verify that fuels meet regulatory requirements.

The controls are carried out at service stations. Service stations are drawn by DGEC from a list of French service stations, which is updated every year.

Fuel Quality Monitoring System administration
DGEC is responsible for the implementation of the European Directives on fuel quality and the sulphur content of marine fuels as well as for the implementation of the FQMS.

Intertek OCA France, which was selected by a European call for tenders, is responsible for the collection and analysis of samples on behalf of the DGEC, The objective of the controls is to verify that fuels meet regulatory requirements, as close in the chain to the customers as possible. When non-compliance in a fuel sample is detected, DGEC notifies the retailer and asks for an explanation and for corrective and preventative actions to be taken. If necessary during a campaign, DGEC may expressly request additional sampling and analyses.

Under Articles 3.2.2 and 5.3.3 of EN 14274:2003, France is ranked as a large country and corresponds to Model B. Indeed, the annual fuel sales are > 15 million tonnes. Model A was not chosen because the geographical layout of refineries and oil depots does not define macro-regions that contain a number of supply sources in very close proximity, as required by the standard. Controlled areas are the 22 metropolitan administrative regions and administrative French overseas territories: Martinique, Guadeloupe, French Guiana and Reunion.

In 2014, France had 10 refineries (including one in Martinique), nine of which were in operation. In the same year, France had 191 oil depots with a capacity of over 400 m^3.

National legislation that transposed the Fuel Quality Directive
Requirements for fuel quality, defined in the FQD 2009/30/EC, amending 98/70/CE, have been implemented in ministerial orders relating to the characteristics of fuel (a specific ministerial order for each fuel) and in decisions setting out the test methods for fuel characteristics/parameters. Ministerial orders and decisions are modified as necessary according to the development of Directive 98/70/EC (Directive 2011/63/CE is the latest version of Directive 98/70/EC).

Reporting periods

- Summer period — 1 May to 30 September.
- Winter period — 1 October to 30th April.

For diesel fuel, there is no regulatory transition period between summer and winter. For petrol, the regulatory transition periods (inter-season) are as follows: from 16 March to 30 April and from 1 to 31 October.

4.10.3 Sales

Table 4.30 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (SP 95)	5% v/v max	4 430 290 800	3 344 869	208	200	19 of 19
Unleaded petrol (min. RON = 95) E10 (SP 95-E10)	10% v/v max	3 006 528 400	2 269 929	33	35	19 of 19
Unleaded petrol (min. RON = 95) E+ (E 85)	85% v/v max	81 081 200	63 892			
Unleaded petrol (min. RON ≥ 98) E52 (SP 98)	5% v/v max	1 849 771 800	1 396 579			
Total petrol		**9 367 672 200**	**7 075 268**	**241**	**235**	
Diesel fuel B7 (gazole)	7% v/v max	40 486 383 700	34 210 994	208	200	6 of 6
Total diesel		**40 486 383 700**	**34 210 994**	**208**	**200**	

Note: S, summer; W, winter.

4.10.4 Exceedences of the fuel quality limits

Petrol fuel grades

Tables 4.31 and 4.32 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.31 Unleaded petrol (min. RON = 95) E5 (SP 98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	52.8	89.1	7	408
Benzene	% v/v	< 1	0.25	1.12	2	408
Sulphur content	mg/kg	< 10	1	10.6	1	408

Table 4.32 Unleaded petrol (mi RON = 95) E10 (SP 95-E10)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	55.2	88.4	2	68

Diesel fuel grades

Table 4.33 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.33 Diesel fuel B7 (gazole)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Sulphur content	mg/kg	< 10	2	12.6	3	408
FAME Content	% v/v	< 7	0.19	9.2	11	408

4.11 Germany

4.11.1 Country details

Responsible organisations:	Federal Environment Agency (UBA)
Country size:	Large
Summer period:	1 May to 20 September
FQMS used:	EN 14274 Statistical Model B
Location of sampling:	Refuelling stations

4.11.2 Fuel quality monitoring service

Sampling
The organisations responsible for fuel sampling at regional level are the 16 governments of the federal states. The results of the regional sampling are forwarded to the Federal Environment Agency (UBA), where data are collected and subsequently consolidated into a report. The sampling was carried out at refuelling stations only in 2014. Selection of the sampling points is the responsibility of each federal government and differs from state to state. The quality of petrol and diesel fuels is tested by the competent authorities of the states. The overall monitoring of fuel quality also falls within the responsibilities of the competent state authorities, which are district administrations, lower administrative authorities, districts and non-district or independent municipalities. The method for selecting fuel stations may be rotation, random selection or an alternative, taking into account population distribution and regional aspects.

Fuel Quality Monitoring System administration
The competent authorities of the state monitor the quality of petrol and diesel fuels and are responsible for fuel quality monitoring in general. These authorities include district administrations, lower administrative authorities, districts, non-district municipalities and independent towns.

DIN EN 14274 (Annex C) lays out that Model B applies to Germany (non-macro-region): Germany is divided into 16 political regions (Bundesländer), which do not comply with fuel distribution patterns. As Germany is categorised as a large country with regard to the FQMS, the minimum number of samples is 200 per fuel and period (summer or winter). The share in sampling for the various regions and the resulting number of samples is stipulated in the General Administrative Regulation on the Tenth BImSchV, Annex 20. For the fuels with a < 10% market share, DIN EN 14274–2003 (D) defines a smaller number of samples. The states have to convey their results to the UBA by 30 April of the year following sampling, when a general report is produced. The UBA passes this report on to the Federal Ministry for the Environment to the European Commission. The governments of the German states and/or the lower-ranking government agencies are responsible for taking action in case of non-compliant samples. The design of the system was defined in DIN EN 14274–2003 (D). It was adopted into legislation by the German Tenth BImSchV in 2008. The number of refineries in Germany in 2014 was 13. The number of refuelling stations in Germany at the end of 2014 was 14 562.

National legislation that transposed the Fuel Quality Directive
The elements of the directive have been transposed into the German Tenth Ordinance Implementing the Federal Immission Control Act (Tenth BImSchV).

Reporting periods
For petrol, the summer period is from 1 May to 30 September. The winter period is from 16 November to 15 March. Transition periods are from 1 October to 15 November and from 16 March to 30 April. For diesel, the summer period starts on 15 April and ends on 30 September. The winter period starts on 16 November and ends on 28 February. Transition periods are from 1 October to 15 November and from 28/29 February/1 March to 14 April. Samples may be taken during the whole year, preferably in the summer or winter period.

4.11.3 Sales

Table 4.34 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 91) E5 (Normal)		2 690 481	2 011	0	0	-
Unleaded petrol (min. RON = 95) E5 (Super)	max. 5%	19 595 314 737	14 646 518	212	172	19 of 19
Unleaded petrol (min. RON = 95) E10 (Super E10)	max. 10%	3 756 319 509	2 816 864	178	133	19 of 19
Unleaded petrol (min. RON ≥ 98) E10 (Super Plus)	max. 5%	1 415 178 024	1 061 242	29	2	19 of 19
Total petrol		**24 769 502 751**	**18 524 624**	**419**	**307**	
Diesel fuel B7 (Dieselkraftstoff)		42 548 937 086	35 587 080	216	178	6 of 6
Total diesel		**42 548 937 086**	**35 587 080**	**216**	**178**	

Note: S, summer; W, winter.

4.11.4 Exceedences of the fuel quality limits

Petrol fuel grades

Tables 4.35 and 4.36 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.35 Unleaded petrol (min. RON = 95) E5 (Super)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	54.5	77.5	7	212
Oxygen content	% (m/m)	< 2.7	0.87	3.28	1	257
Ethanol	% v/v	< 5.2/5.3 (a)	0.00	8.7	3	384

Note: (a) Based on national limits

Table 4.36 Unleaded petrol (min. RON = 95) E10 (Super E10)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	44.9	74.2	7	178
Oxygen content	% (m/m)	< 3.7	2.08	4.13	2	243
Ethanol	% v/v	< 10	4.9	10.48	1	311
Sulphur content	mg/kg	< 10	0	12.7	1	311

Diesel fuel grades

Table 4.37 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.37 Diesel fuel B7 (Dieselkraftstoff)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
FAME Content	% v/v	< 7	0	7.7	1	394

4.12 Greece

4.12.1 Country details

Responsible organisations:	General Chemical State Laboratory, Directorate of Energy Industrial and Chemical Products
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model A
Location of sampling:	Refuelling stations

4.12.2 Fuel quality monitoring service

Sampling

Greece is classified as a small country under the criteria in Article 3.2 of the Hellenic Organization for Standardization (ELOT) EN 14274, taking into account fuel sales levels. Model A applies to Greece. In this model, in order to plan fuel sampling activities, the country is divided into three geographical regions.

- Region A — Attica;
- Region B — Thessaly, Macedonia, Epirus, Thrace and Thessaloniki;
- Region C — Sterea Ellada, Evia, the Ionian Islands, the Peloponnese, Crete and the Aegean Islands.

For Region A, the competent body for taking fuel samples is the Fuel Distribution and Storage Inspectorate of the Ministry of Reconstruction of Production, Environment and Energy. For Regions B and C, the competent bodies for taking fuel samples are the mixed inspection teams of chemists and other qualified personnel of General Secretariat of Public Revenue of the Greek Ministry of Finance.

Refuelling stations are used as sampling locations. Sampling locations are chosen at random.

Based on the sales percentage of various grades of fuels in each region, the Directorate of Energy Industrial and Chemical Products of the General Chemical State Laboratory sets the minimum number of fuel samples to be taken from refuelling stations in the area. Care is taken to ensure that samples are taken in a uniform manner across an entire year.

Fuel Quality Monitoring System administration

The competent authority for the system of monitoring fuel quality (automotive petrol and diesel) is the Directorate of Energy Industrial and Chemical Products of the General Chemical State Laboratory. The system was designed using Model A of ELOT EN 14274, taking into account fuel sales levels. ELOT has adopted EN 14274 without making any changes. The system was implemented in Greece with State Supreme Chemical Council Decision No 316/2010, (Government Gazette 501/B/2012). Fuel sampling is carried out by public authorities. Where non-compliant samples are discovered, the sampling authority is responsible for taking action. Failure to comply with the provisions of the legislation result in the sanctions specified in Article 10 of State Supreme Chemical Council Decision No 316/2010 (Government Gazette 501/B/2012). In Greece, at the end of 2014, there were 4 refineries and approximately 4 500 refuelling stations.

National legislation that transposed the Fuel Quality Directive

FDQ 2009/30 (with the exception of Article 7(a) to 7(e) of Directive 98/70/EC as amended by Article 1 of Directive 2009/30/EC) was transposed into Greek law with State Supreme Chemical Council Decision No 316/2010 (Government Gazette 501/B/2012).

Reporting periods

The monitoring system is implemented twice a year, once for the summer period (from 1May to 30 September) and once for the winter period (from 1 October to 30 April). No arctic derogation has been granted.

4.12.3 Sales

Table 4.38 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) (95 RON)	0	3 175 535 168	2 365 773.70	50	50	19 of 19
Unleaded petrol (min. 95 ≤ RON < 98) (LRP (96 RON))	0	5 757 651	4 289.45	3	3	19 of 19
Unleaded petrol (min. RON ≥ 98) (super unleaded (100 RON))	0	116 580 040	86 852.13	4	4	19 of 19
Total petrol		**3 297 872 859**	**2 456 915.28**	**57**	**57**	
Diesel fuel B7		2 806 613 466	2 341 445.35	50	50	6 of 6
Total diesel		**2 806 613 466**	**2 341 445.35**	**50**	**50**	

Note: S, summer; W, winter.

4.12.4 Exceedences of the fuel quality limits

Petrol fuel grades

Table 4.39 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.39 Unleaded petrol (min. RON = 95) (95 RON)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Oxygen content	% (m/m)	< 2.7	0.3	3.5	1	74
Sulphur content	mg/kg	< 10	1.2	18.6	1	100

Diesel fuel grades

Table 4.40 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.40 Diesel fuel B7

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
FAME Content	% v/v	< 7	5.7	8.4	19	98

4.13 Hungary

4.13.1 Country details

Responsible organisations:	AMEI Petroleum Products Quality Inspection Company
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Refuelling stations

4.13.2 Fuel quality monitoring service

Sampling
The organisation responsible for sampling, analysis and reporting is AMEI Petroleum Products Quality Inspection Company, which has a contract with the Ministry of National Development. Samples were taken from refuelling stations in 2014. Refuelling stations to be sampled were randomly selected from the list of refuelling stations (there were 1 980 refuelling stations in Hungary in 2014). The list was made by the National Tax and Customs Administration.

This system is equivalent to the system proposed by the European Committee for Standardization (CEN) and accounts for all parameters requested by the FQD.

Fuel Quality Monitoring System administration
In Hungary, the Ministry of National Development is responsible for managing and implementing the FQD.

Fuel sampling has been managed and carried out by AMEI Petroleum Products Quality Inspection on the basis of a contract with the Ministry of National Development. The company provides annual data for the Ministry by 31 March each year.

The public body is responsible for taking action where non-compliant samples are discovered. In such cases, AMEI have to inform the Ministry, the National Custom and Tax Administration and Hungarian Authority for Consumer Protection.

During design and implementation, the system used Model C (small country).

There is 1 refinery and 17 distribution terminals in Hungary. Because the levels of 'private' import are high, filling stations only were sampled in 2014.

National legislation that transposed the Fuel Quality Directive
There is a decree on fuel quality requirements in Hungary (30/2011.NFM) (valid from 28 June 2011). This decree is based on the FQD.

Reporting periods
In Hungary the transition periods are: from 1 March to 30 April, and from 1 October to 14 November. During these periods, no samples are taken.

4.13.3 Sales

Table 4.41 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (ESZ-95)	max. 5%	1 593 140 000	1 186 890	50	50	19 of 19
Unleaded petrol (min. RON ≥ 98) 52 (ESZ-98)	max. 5%	47 580 000	35 450	10	10	19 of 19
Total petrol		**1 640 720 000**	**1 222 340**	**60**	**60**	
Diesel fuel B7 (Diesel)		3 505 200 000	2 944 370	60	60	6 of 6
Total diesel		**3 505 200 000**	**2 944 370**	**60**	**60**	

Note: S, summer; W, winter.

4.13.4 Exceedences of the fuel quality limits

Petrol fuel grades
No exceedences of the petrol fuel quality limits were measured.

Diesel fuel grades
Table 4.42 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.42 Diesel fuel B7 (Diesel)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
FAME Content	% v/v	< 7	0.1	7.3	2	120

4.14 Ireland

4.14.1 Country details

Responsible organisations:	Department of Environment, Community & Local Government
Country size:	Small
Summer period:	1 June to 31 August
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Service stations

4.14.2 Fuel quality monitoring service

Sampling
Samples of petrol and diesel are taken by the Irish Petroleum Industry Association and are analysed by ITS Testing Services (UK) Ltd. Reporting is the responsibility of the Department of the Environment, Community and Local Government. Samples are taken from refuelling stations. Selection of sampling points is on a random basis and is carried out throughout the given year. In 2014, for petrol samples, the following test methods were used: RON: EN ISO 5164, MON: EN ISO 5163; vapour pressure at 100 °C and 100 °C: ISO3405; olefins and aromatics: ASTM D1319; benzene: EN238; other oxygenates, methanol, ethanol, isopropanol, isobutanol, tertbutanol, ethers (five or more carbon atoms) and other oxygenates: EN13132; sulphur content: IP 490; lead: EN237. For diesel samples, the following methods were used: cetane number: EN ISO 5165; density at 15 °C: EN ISO 12185; distillation 95%: ISO3405; polycyclic aromatics: EN 12916; sulphur content: IP 490; FAME: BS EN 14078.

Fuel Quality Monitoring System administration
The Department of Environment, Community and Local Government is responsible for managing and implementing the FQD. Samples of petrol and diesel are taken by the Irish Petroleum Industry Association and are analysed by ITS Testing Services (UK) Ltd. Reporting is the responsibility of the Department of the Environment, Community and Local Government. Samples are taken from refuelling stations. The selection of sampling points is on a random basis and is carried out throughout a given year. Annual data are provided by the Irish Petroleum Industry for the winter period in January of each year and for the summer period in September of each year. When non-compliant samples are discovered, it is the responsibility of the Department of Environment, Community and Local Government to report, manage and monitor the non-compliance. All non-compliances are reported on the annual Fuel Quality Monitoring Data Report and follow-up action is also reported. Ireland uses EN 14274 Statistical Model C as a small country. Whitegate Oil Refinery in County Cork is Ireland's only refinery. There are five distribution terminals in Ireland. There are no reasons why the annual Fuel Quality Monitoring Data Report cannot be provided by the annual deadline of 30 June.

National legislation that transposed the Fuel Quality Directive
European Communities Act, 1972 (Environmental Specifications for Petrol, Diesel Fuels and Gas Oils for use by non-road mobile machinery, including waterway vessels, agricultural and forestry tractors, and recreational craft) Regulations 2011 (SI No 155 of 2011) transposed the FQD.

Reporting periods
The summer period is from June to August. The winter period is from September to May. An arctic derogation has been granted.

4.14.3 Sales

Table 4.43 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5		1 730 296 341	1 293 310	50	50	19 of 19
Total petrol		**1 730 296 341**	**1 293 310**	**50**	**50**	
Diesel fuel B7		2 928 595 238	2 460 020	50	50	6 of 6
Total diesel		**2 928 595 238**	**2 460 020**	**50**	**50**	

Note: S, summer; W, winter.

4.14.4 Exceedences of the fuel quality limits

Petrol fuel grades
Table 4.44 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.44 Unleaded petrol (min. RON = 95) E5

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	94.4	96.8	1	100
Vapour pressure	kPa	> 85	62.2	73.1	13	50

Diesel fuel grades
Table 4.45 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.45 Diesel fuel B7

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Sulphur content	mg/kg	< 10	3.1	17.6	2	100
FAME Content	% v/v	< 7	0.09	7.4	1	99

4.15 Italy

4.15.1 Country details

Responsible organisations:	Ministry of Environment, Land and Sea
Country size:	Large
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model A
Location of sampling:	Refuelling stations

4.15.2 Fuel quality monitoring service

Sampling
Samples were taken monthly in each winter and summer period (summer period for petrol: 1 May to 30 September) in 2014. The 2014 monitoring system was set up using Statistical Model A of EN 14274 (large country framework, five macro-regions). A total of 200 petrol samples and 200 diesel fuel samples were analysed. The distribution of samples throughout the national territory was: 29.25% north-west; 17.25% north-east; 24.5% centre; 18% south; and 11% islands.

The test methods required for fuel quality monitoring were performed by laboratories that regularly participate in one or more national inter-laboratory proficiency testing schemes, and that are accredited according to EN ISO 17025 or certified according to ISO 9000 standards. The proficiency testing schemes include all test methods listed in the FQMS. In accordance with the requirements of EN 14274, analytical results for petrol and diesel fuel were reported separately for each season and for each grade.

Fuel Quality Monitoring System administration
Italy established a FQMS, in accordance with the requirements of European standard EN 14274:2003, by a decree of 3 February 2005.

The 2014 national report was drawn up on the basis of a monitoring system at sale outlets distributed throughout the Italian territory.

The monitoring system (sampling and measurements) was carried out by independent supervisory bodies on behalf of the main oil companies.

National legislation that transposed the Fuel Quality Directive
The FQD was transposed by national law by the Legislative Decree of 21 March 2005, No 66.

Reporting periods

- Summer period — 1 May to 30 September.
- Winter period — 16 November to 15 March.

4.15.3 Sales

Table 4.46 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) (Unleaded petrol (< 10 ppm sulphur))		10 602 684 564	7 899 000	100	100	19 of 19
Total petrol		**10 602 684 564**	**7 899 000**	**100**	**100**	
Diesel fuel B7 (Diesel Fuel (< 10 ppm sulphur))		27 299 476 114	22 824 000	100	100	6 of 6
Total diesel		**27 299 476 114**	**22 824 000**	**100**	**100**	

Note: S, summer; W, winter.

4.15.4 Exceedences of the fuel quality limits

Petrol fuel grades

Table 4.47 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.47 Unleaded petrol (min. RON = 95) (Unleaded petrol (≤10 ppm sulphur))

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	94.1	97.4	3	200
Vapour pressure	kPa	< 60	45	63.7	4	84

Diesel fuel grades

Table 4.48 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.48 Diesel fuel B7 (Diesel Fuel (< 10ppm sulphur))

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Sulphur content	mg/kg	< 10	4.4	17.3	2	200

4.16 Latvia

4.16.1 Country details

Responsible organisations:	Ministry of Economics of the Republic of Latvia
Country size:	Small
Summer period:	1 June to 31 August
FQMS used:	National system
Location of sampling:	Terminals and refuelling stations

4.16.2 Fuel quality monitoring service

Sampling
Organisation(s) responsible for the sampling, analysis and reporting of fuel quality are the Ministry of Economics of the Republic of Latvia and the State Revenue Service.

Location(s) of sampling: terminals and refuelling stations.

Time/frequency of sampling: samples were taken in every month throughout the year in 2014.

Test methods: in compliance with Directive 98/70/EC.

Fuel Quality Monitoring System administration
The Ministry of Economics of the Republic of Latvia is responsible for managing and implementing the FQD.

The State Revenue Service is responsible for the supervision of the fuel market in accordance with Article 24 of Consumer Rights Protection Law, Article 15 of Cabinet Regulation No 332, adopted on 26 September 2000 ('Requirements for Conformity Assessment of Petrol and Diesel Fuel') and Article 27 of Cabinet Regulation No 772, adopted on 18 October 2005 ('Regulations Regarding Requirements for Biofuel Quality, Conformity Assessment, Market Supervision and Procedures for Consumer Information').

The fuel circulation supervision institutions supervise the fuel conformity in accordance with the test methods specified in standard EN 228:2013 'Automotive fuels - Unleaded petrol – Requirements and test methods' and EN 590:2014 'Automotive fuels — Diesel — Requirements and test methods' as well as the requirements of Cabinet Regulation No 332.

Fuel circulation supervision institutions, which perform the supervision of the fuel market within their competence in accordance with regulatory enactments, must submit information regarding detected infringements to the State Revenue Service once a month. If the State Revenue Service needs additional information for ensuring the supervision of fuel market, it shall be provided upon written request by the State Revenue Service.

The importer, producer, wholesaler or retailer shall present documents attesting conformity to fuel quality standards upon the request of the fuel circulation supervision institution.

National legislation that transposed the Fuel Quality Directive
Republic of Latvia Cabinet Regulation No 332 adopted 26 September 2000 ('Requirements for Conformity Assessment of Petrol and Diesel Fuel') determines the technical specifications, on health and environmental grounds, for fuels that are placed on the Latvian market to be used with positive ignition and compression-ignition engines of motor vehicles, non-road mobile machinery (including inland waterway vessels when not at sea), agricultural and forestry tractors, and recreational craft when not at sea, taking account of the technical requirements of those engines.

Republic of Latvia Cabinet Regulation No 772, adopted 18 October 2005 ('Regulations Regarding Requirements for Biofuel Quality, Conformity Assessment, Market Supervision and Procedures for Consumer Information') prescribes the quality requirements for biofuel, the procedures by which the conformity assessment of biofuel and the transfer thereof for processing shall be carried out, the procedures by which the production of biofuel and blending thereof with fossil fuel shall be controlled, the procedures by which biofuel not conforming to quality requirements shall be destroyed and the procedures by which consumers shall be informed regarding the content of biofuel present at points of sale and the conformity thereof with quality requirements.

Republic of Latvia Cabinet Regulation No 545, adopted 5 July 2011, outlines the sustainability criteria for biofuels and bioliquids and the procedure by which they shall be supervised and monitored.

Reporting periods
According to Directive 98/70/EC, Member States with low ambient summer temperatures are Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden and the United Kingdom.

Summer period: arctic = 1 June to 31 August.

There is no transition periods between summer and winter grade fuels. Samples were taken every month throughout 2014.

4.16.3 Sales

Table 4.49 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) (A-95)	0%	19 608	15			
Unleaded petrol (min. RON = 95) E5 (A-95 E5)	4.5-5%	240 230 065	183 776	6	35	19 of 19
Unleaded petrol (min. RON = 95) E10 (A-95 E10)	9.5-10%	0	0			
Unleaded petrol (min. RON = 95) E+ (E85)	70-85%	67 004	53			
Unleaded petrol (min. 95 ≤ RON < 98) (A-98)	0%	25 411 765	19 440	3	26	19 of 19
Total petrol		265 728 442	203 284	9	61	
Diesel fuel (DD)	0%	544 367 665	454 547	7	63	6 of 6
Diesel fuel B7 (DD B5)	4.5-5%	408 875 449	341 411	36	50	6 of 6
Diesel fuel B+ (> 7% FAME ≤ 30%) (B30)	30-30.5%	0	0			
Total diesel		**953 243 114**	**795 958**	**43**	**113**	

Note: S, summer; W, winter.

4.16.4 Exceedences of the fuel quality limits

Petrol Fuel Grades
Tables 4.50 and 4.51 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.50 Unleaded petrol (min. RON = 95) E5 (A-95 E5)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	93.1	97	2	41

Table 4.51 Unleaded petrol (min. 95 ≤ RON < 98) (A-98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Aromatics	% v/v	< 35	26.3	36.9	2	29
Benzene	% v/v	< 1	0.3	1.1	1	29

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.17 Lithuania

4.17.1 Country details

Responsible organisations:	Ministry of Energy
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Refuelling stations

4.17.2 Fuel quality monitoring service

Sampling
The organisation responsible for the sampling and analysis of fuel is the State Non-Food Products Inspectorate under the Ministry of Economy.

The organisation responsible for reporting is the Ministry of Energy. A total of 102 samples of petrol A-95 (A-98) were taken at service stations in 2014.

Fuel Quality Monitoring System administration
Fuel sampling is carried out by the State Non-Food Inspectorate under the Ministry of Economy, which is also responsible for taking action where non-compliant samples are discovered. The system has been designed using Statistical Model C.

National legislation that transposed the Fuel Quality Directive
Standards EN 228 for petrol and EN 590 for diesel are transposed to national legal acts.

All acts are related to the research of parameters of fuel and diesel samples and are fully transposed to the Lithuanian legislation.

Reporting periods
Samples are taken during transition periods, as there are no filtering and cloud temperatures in provided reports and the indicators mentioned are also suitable for the winter period. Samples from 1 October to 30 November and from 1 March to 30 April are also covered by data from the winter period.

4.17.3 Sales

Table 4.52 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (A-95 (RON 95))	4.7%	263 032 000	197 800	50	50	19 of 19
Unleaded petrol (min. RON ≥ 98) (A-98 (RON 98))		5 851 000	4 400	3	3	19 of 19
Unleaded petrol (min. RON ≥ 98) E+ (A-98 (RON 98))	15%	6 383 000	4 800			
Total petrol		**275 266 000**	**207 000**	**53**	**53**	
Diesel fuel (Diesel)		465 000 000	393 000	50	50	6 of 6
Diesel fuel B7 (Diesel)		1 006 000 000	850 000			
Total diesel		**1 471 000 000**	**1 243 000**			

Note: S, summer; W, winter.

4.17.4 Exceedences of the fuel quality limits

Petrol fuel grades
No exceedences of the petrol fuel quality limits were measured.

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.18 Luxembourg

4.18.1 Country details

Responsible organisations:	Environmental Administration of Luxembourg
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	National system
Location of sampling:	Depots and public refuelling stations

4.18.2 Fuel quality monitoring service

Sampling
For 2014, the sampling, analysis and reporting of fuel quality was managed by three organisations. The samples were taken at depots and public refuelling stations. The sampling points were selected by a random generator. Test methods are those specified in EN 228 and EN 590.

The samples were taken in accordance with the methods described in the European standards:

- EN 14275, if taken at fuel stations;
- EN ISO 3170, if taken at terminals.

The number of samples was determined by a national system based on European standard EN 14274.

Fuel Quality Monitoring System administration
Fuel quality monitoring falls under the responsibility of the Environmental Administration of Luxembourg, which is part of the Department of Environment of the Ministry of Sustainable development and Infrastructures.

Fuel sampling, analyses and reporting were each carried out by an agreed organisation in 2014. Within one week the results of the analysed parameters were transmitted to the Environmental Administration of Luxembourg.

In the case of non-compliant samples, the agreed organisation had to inform the Environmental Administration of Luxembourg at once. After a written warning by the Environmental Administration of Luxembourg, the provider or operator had 48 hours to take the necessary measures. The provider or operator had to inform the Environmental Administration of Luxembourg of the measures undertaken at once. A new sample then had to be taken within three working days of the written warning.

National legislation that transposed the Fuel Quality Directive
Directive 98/70/CE amended by Directive 2009/30/CE was entirely transposed into national law by the Grand-ducal ordinance of 16 May 2012 concerning the quality of petrol and diesel fuels and the sustainable use of biofuels.

Reporting periods
The summer period lasts from 1 May to 30 September and the winter period lasts from 1 October to 30 April. An arctic derogation has not been granted. The transition periods are regulated by the Grand-ducal ordinance: 'Règlement grand-ducal du 16 mars 2012 concernant la qualité de l'essence et des carburants diesel et l'utilisation durable des biocarburants'. The winter period extends from 1 October to 15 April and the summer period extends from 1 May to 15 September. During the transition periods in 2014, there were no samples either taken or tested.

4.18.3 Sales

Table 4.53 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (Euro 95)	5%	342 274 592.21	253 283.20	26	30	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (Euro 98)	5%	71 867 148.65	53 900.36	6	7	19 of 19
Total petrol		**414 141 740.86**	**307 183.56**	**32**	**37**	
Diesel fuel B7 (Diesel)	7%	1 985 039 183.34	1 667 432.91	35	51	6 of 6
Total diesel		**1 985 039 183.34**	**1 667 432.91**	**35**	**51**	

Note: S, summer; W, winter.

4.18.4 Exceedences of the fuel quality limits

Petrol fuel grades

Table 4.54 summarises the parameters for which exceedences were reported for the petrol fuel grades measured

Table 4.54 Unleaded petrol (min. RON = 95) E5 (Euro 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Oxygen content	% (m/m)	< 2.7	0.01	2.9	1	56

Diesel fuel grades

No exceedences of the diesel fuel quality limits were measured.

4.19 Malta

4.19.1 Country details

Responsible organisations:	Malta Resources Authority
Country size:	Small
Summer period:	N/A
FQMS used:	National system
Location of sampling:	N/A

4.19.2 Fuel quality monitoring service

Sampling
For 2014, there were no changes from the 2013 report except for the increase in samples as described below (FQMS administration).

Fuel Quality Monitoring System administration
In 2014, there was no additional information reported from the 2013 report, except for the following point: Malta used to report 15 samples per fuel grade per period (i.e. a total of 60 samples). As of October 2014 (i.e. for the last quarter of 2014), Malta increased its samples to 25 per fuel grade per quarter. Therefore, it is planned that in 2015, Malta will collect a total of 200 samples, as required by Statistical Model C.

National legislation that transposed the Fuel Quality Directive
No additional information from the 2013 report was provided.

Reporting periods
Samples are taken and tested during the transition period in 2014. These are reported and not excluded but are marked as transitional.

4.19.3 Sales

Table 4.55 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. 95 ≤ RON < 98) (EN 228)	0%	98 149 742.55	72 703.51	21	40	19 of 19
Total petrol		**98 149 742.55**	**72 703.51**	**21**	**40**	
Diesel fuel B7 (EN 590)	up to 7% FAME	121 918 138	102 885	21	44	6 of 6
Total diesel		**121 918 138**	**102 885**	**21**	**44**	

Note: S, summer; W, winter.

4.19.4 Exceedences of the fuel quality limits

Petrol fuel grades
No exceedences of the petrol fuel quality limits were measured.

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.20 Netherlands

4.20.1 Country details

Responsible organisations:	Human Environment and Transport Inspectorate
Country size:	N/A
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model A
Location of sampling:	Fuel service stations

4.20.2 Fuel quality monitoring service

Sampling
The Netherlands has 12 provinces. In 2014, it was decided that samples would be taken at the fuel service stations of various oil companies. Samples were taken in each province based on the population and the number of fuel stations in each province. This resulted in a total of 100 checks, divided between the summer and winter periods.

Fuel Quality Monitoring System administration
This information was not provided.

National legislation that transposed to the Fuel Quality Directive
This information was not provided.

Reporting periods
This information was not provided.

4.20.3 Sales

Table 4.56 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5		5 071 000	3 790	50	48	17 of 19
Unleaded petrol (min. 95 ≤ RON < 98) E5		266 239	199	0	0	-
Unleaded petrol (min. RON ≥ 98) E5		60 000	45	2	0	17 of 19
Total petrol		**5 131 000**	**4 034**	**52**	**48**	
Diesel fuel B7		6 684 000	5 582	50	50	6 of 6
Diesel fuel B+ (> 7% FAME ≤ 30%)		334 076	279	0	0	-
Total diesel		**6 684 000**	**5 861**	**50**	**50**	

Note: S, summer; W, winter.

4.20.4 Exceedences of the fuel quality limits

Petrol fuel grades
Table 4.57 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.57 Petrol fuel

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Motor Octane Number	-	> 85	84.3	87.6	N/A	98
Vapour pressure	kPa	< 60	48.4	73.3	N/A	50
Aromatics	% v/v	< 35	20.9	36.1	N/A	98

Note: N/A, not applicable.

Diesel fuel grades
Table 4.58 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.58 Diesel Fuel

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Distillation -- 95-%-Point	°C	< 360	344.6	380.2	N/A	100

Note: N/A, not applicable.

4.21 Poland

4.21.1 Country details

Responsible organisations:	Office of Competition and Consumer Protection
Country size:	Large
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model B
Location of sampling:	N/A

4.21.2 Fuel quality monitoring service

Sampling
This information was provided in the national language in the accompanying 2014 report.

Fuel Quality Monitoring System administration
This information was provided in the national language in the accompanying 2014 report.

National legislation that transposed to the Fuel Quality Directive
This information was provided in the national language in the accompanying 2014 report.

Reporting periods
This information was not provided.

4.21.3 Sales

Table 4.59 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) (RON 95)	5%	4 318 120 805	3 217 000	203	203	17 of 19
Unleaded petrol (min. RON ≥ 98) (RON 98)	5%	473 825 503	353 000	61	61	18 of 19
Total petrol		**4 791 946 309**	**3 570 000**	**264**	**264**	
Diesel fuel (ON)	7%	13 010 987 429	10 847 000	201	202	6 of 6
Total diesel		**13 010 987 429**	**10 847 000**	**201**	**202**	

Note: S, summer; W, winter.

4.21.4 Exceedences of the fuel quality limits

Petrol fuel grades
Tables 4.60 and 4.61 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.60 Unleaded petrol (min. RON = 95) (RON 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	90.6	96.8	3	406
Motor Octane Number	-	> 85	83.1	87.7	1	406

Table 4.61 Unleaded petrol (min. RON ≥ 98) (RON 98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Oxygen content	% (m/m)	< 2.7	1.49	2.95	1	122

Diesel fuel grades
Table 4.62 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.62 Diesel fuel (ON)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Distillation -- 95-%-Point	°C	< 360	330.8	391.8	2	402
Sulphur content	mg/kg	< 10	3.2	228	4	395

4.22 Portugal

4.22.1 Country details

Responsible organisations:	DGEG
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Service stations

4.22.2 Fuel quality monitoring service

Sampling
Owing to the transfer of competencies for the execution of the FQMS to the National Authority for the Oil Market and the need to launch a new tender for conducting quality control tests in 2014, the FQMS programme began only in September. Because of this, the number of samples in service stations in 2014 was less than the minimum required. Of the 138 analyses conducted at service stations, 92 corresponded to summer and winter periods and 46 tests corresponded to the intermediate period (April/October) and were not considered in the FQMS.

The report contains 92 samples (40: RON.95; 10: RON.98; and 42: diesel).

The methods of analysis used are those contained in Directive No 2009/30/EC. The method used for each parameter can be found in the 'Test methods and analyses' Reporting Results tables, where the number of values exceeded and their values indicated in the corresponding row of the method of analysis used.

Fuel Quality Monitoring System administration
The body responsible at national level for the FQMS is the Ministry of Environment Spatial Planning and Energy, and the Directorate General for Energy and Geology coordinates, prepares and submits the annual reports. Analyses are performed by entities selected through public tender.

The consumption or marketing of fuels that do not meet the specifications in force constitutes an infraction punishable by fine, which involves reporting to the authority responsible for the prosecution; non-compliant samples are thus reported to the Food Safety and Economic Authority.

There are two refineries that supply the market, one of them in the north (Matosinhos Refinery) and the other in the south (Sines Refinery) of the country.

National legislation that transposed the Fuel Quality Directive
The transposition of FQMS is set out in Articles 13 and 14 of Decree-Law No 142/2010 of 31 December 2010.

Reporting periods

- Summer period — 1 May to 30 September. Winter period — 1 November to 31 March.
- Transition periods — April and October.

Analyses were performed at filling stations in transitional periods and were not considered for the purposes of the FQMS for 2014.

4.22.3 Sales

Table 4.63 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. 95 ≤ RON < 98) (Eurosuper)		1 352 496 671	1 008 963	13	27	19 of 19
Unleaded petrol (min. RON ≥ 98) (Super plus)		106 334 165	80 176	5	5	19 of 19
Total petrol		**1 458 830 836**	**1 089 139**	**18**	**32**	
Diesel fuel B7 (Gasóleo rodoviário)		4 976 109 382	4 179 932	13	29	6 of 6
Total diesel		**4 976 109 382**	**4 179 932**	**13**	**29**	

Note: S, summer; W, winter.

4.22.4 Exceedences of the fuel quality limits

Petrol fuel grades
No exceedences of the petrol fuel quality limits were measured.

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.23 Romania

4.23.1 Country details

Responsible organisations:	Ministry of Energy, Small Enterprises and Business Environment
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model B
Location of sampling:	Service stations

4.23.2 Fuel quality monitoring service

Sampling

- SGS ROMANIA SA and SC ROMPETROL QUALITY CONTROL SRL
- Sampling was performed at fuel stations (from fuel pumps) in 2014.
- Random selection of sampling points, from all regions, was undertaken.
- Sampling was performed in accordance with SR EN 14275 'Automotive fuels. . .Sampling from retails site pumps and commercial site fuel dispensers' and Ministry Order No 2459/2012 approving system of monitoring quality fuels. Tests were performed in accordance with SR EN 228:2013 (EN 228:2012) and SR EN 590:2014 (EN 590:2013) methods (reference norms valid during 2014).

Fuel Quality Monitoring System administration

- The Ministry of Energy, Small and Medium Sized Enterprise and Business Environment is responsible for managing and implementing the FQD.
- Fuel sampling is carried out by private contractors, and the Ministry of Energy, Small and Medium Sized Enterprise and Business Environment sets the minimum annual number of samples, the place and time of sampling and the recognised body for carrying out sampling.
- The National Authority for Consumer Protection and the National Tax Administration are responsible for taking action where non-compliant samples have been discovered.
- Monitoring fuel quality is now implemented by Order of the Minister of Economy, Trade and Business Environment No 2459/12.11.2012. It applied EN 14274 Statistical Model B in accordance with the dimension and fuel consumption of the country.
- The numbers of national refineries and fuel stations in 2014 were 10 and 2 640, respectively.

National legislation that transposed the Fuel Quality Directive

The following national legislation transposed the FQD:

- Government Decision No 928/12.09.2012 establishing the conditions for the marketing of gasoline and diesel and introducing a mechanism to monitor and reduce emissions of greenhouse gases and Government Decision No 935/11.10.2011 on the promotion of biofuels and bioliquids: both decisions were modified by Government Decision No 1308/27.12.2012 and Government Decision No 1121/18.12.2013;
- Order of the Minister of Economy, Trade and Business Environment No 2458/12.11.2012 approving the form of presentation of information regarding gasoline and diesel quantities on the market, detailed types and Romanian development regions, by producers, importers and final distributors of gasoline and diesel;
- Order of the Minister of Economy, Trade and Business Environment No 2459/12.11.2012 approving a monitoring system for gasoline and diesel quality.

Reporting periods

For 2014, sampling covered only the winter period, because the negotiation was contested by ROMCONTROL SA and the term of solving it exceeded the summer period.

4.23.3 Sales

Table 4.64 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. 95 ≤ RON < 98)		1 613 401 342	1 201 984		79	18 of 19
Unleaded petrol (min. RON ≥ 98)		93 821 477	69 897		21	18 of 19
Total petrol		**1 707 222 819**	**1 271 881**		**100**	
Diesel fuel B7		4 796 691 801	4 007 636		100	6 of 6
Total diesel		**4 796 691 801**	**4 007 636**		**100**	

Note: S, summer; W, winter.

4.23.4 Exceedences of the fuel quality limits

Petrol fuel grades
No exceedences of the petrol fuel quality limits were measured.

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.24 Slovakia

4.24.1 Country details

Responsible organisations:	VURUP, a.s. (Accredited Testing Laboratories and Accredited Inspection Body)
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	N/A

4.24.2 Fuel quality monitoring service

Sampling

Heavy fuel oil
An inspection of the general conditions of operation was carried out in 2014 in the following companies:

- Slovnaft, a.s. Bratislava
- KONZEKO, spol. s.r.o. Markušovce
- DETOX, s.r.o. Banská Bystrica.

These inspections were carried out by the Slovak Environmental Inspectorate with regard to Directive 1999/32/EC of the European Parliament and of the Council and no breach of the Slovak air protection legislation was found. Samples were taken to enable an analysis of the average sulphur content of heavy fuel oils in the abovementioned companies. The results of the heavy fuel oils analyses prove that the duties established by Directive 1999/32/EC were not breached.

The total number of samples tested by fuel type: heavy fuel oil — 4 samples.

The corresponding quantity of fuel used: 7 649 250 litres.

The calculated average sulphur content: 0.68%.

Gas oil
An inspection of the general conditions of operation was carried out in 2014 in the following companies:

- Castor & Polux, a.s. Bratislava
- MILENIUM TRADING, a.s. Lučenec.

These inspections were carried out by the Slovak Environmental Inspectorate with regard to Directive 1999/32/EC of the European Parliament and of the Council and no breach of the Slovak air protection legislation was found. Samples were taken for an analysis of the average sulphur content in gas

oil in the abovementioned companies. The results of the gas oil analysis prove that the duties established by Directive 1999/32/EC were not breached.

The total number of samples tested by a fuel type: gas oil — two samples.

The corresponding quantity of fuel used: 36 000 litres.

The calculated average sulphur content: 0.005%.

Fuel Quality Monitoring System administration
This information was not provided.

National legislation that transposed to the Fuel Quality Directive
This information was not provided.

Reporting periods
This information was not provided.

4.24.3 Sales

Table 4.65 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (Super 95)	max. 5.1%	877 199 649	658 251	60	60	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (SuperPlus 98)	max. 1%	8 873 547	6 668	16	16	19 of 19
Total petrol		**886 073 196**	**664 919**	**76**	**76**	
Diesel fuel B7 (Diesel)	max. 8.7%	1 795 763 654	1 507 364	60	60	6 of 6
Total diesel		**1 795 763 654**	**1 507 364**	**60**	**60**	

Note: S, summer; W, winter.

4.24.4 Exceedences of the fuel quality limits

Petrol fuel grades
Tables 4.66 and 4.67. summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.66 Unleaded petrol (min. RON = 95) E5 (Super 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Research Octane Number	-	> 95	93.2	98	1	120
Motor Octane Number	-	> 85	83.1	87.5	3	120
Vapour pressure	kPa	< 60	55.1	61.7	1	60
Olefins	% v/v	< 18	6.1	22.6	1	120
Aromatics	% v/v	< 35	25.6	37.9	1	120

Table 4.67 Unleaded petrol (min. RON ≥ 98) E5 (SuperPlus 98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	55.9	68	1	16

Diesel fuel grades
Table 4.68 summarises the parameters for which exceedences have been reported for the diesel fuel grades measured.

Table 4.68 Diesel fuel B7 (Diesel)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
FAME ontent	% v/v	< 7	5.2	8.7	2	120

4.25 Slovenia

4.25.1 Country details

Responsible organisations:	Slovenian Environment Agency
Country size:	Small
Summer period:	1 May to 30 September
FQMS used:	EN 14274 Statistical Model C
Location of sampling:	Depots and refuelling stations

4.25.2 Fuel quality monitoring service

Sampling
The fuel quality monitoring system in Slovenia is based on European Standard EN 14274:2003, using Statistical Model C (small country).

The Environment Agency of the Republic of Slovenia receives 3-monthly and annual reports from two independent inspection bodies. They are responsible for the sampling plan, they carry out the sampling and analysis of fuel, and they collect and process the data. They are accredited by Slovenian Accreditation as inspection bodies according to EN ISO/IEC 17020:2004. The analyses of samples are carried out by testing laboratories accredited in accordance with EN ISO/IEC 17025:2005.

The test methods for 2014 were in compliance with the FQD specifications, except for the determination of cetane number. Validation and traceability of the cetane number method was provided in accordance with EN ISO/IEC 17025:2005.

In 2014, methylcyclopentadienyl manganese tricarbonyl (MMT) was still not included in the monitoring of liquid fuel quality. An amendment to the Slovenian manual for monitoring the physical and chemical properties of liquid fuels was adopted in July 2014.

Fuel Quality Monitoring System administration
This information was not provided.

National legislation that transposed to the Fuel Quality Directive
This information was not provided.

Reporting periods
Samples of petrol fuels, diesel fuel and gas oil were taken each month throughout the year at refuelling stations and depots.

4.25.3 Sales

Table 4.69 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. 95 ≤ RON < 98) E10 (NMB 95)	1.93%	562 988 079.47	425 056	51	57	18 of 19
Unleaded petrol (min. RON ≥ 98) E10 (NMB 98)	4.69%	31 237 086.09	23 584	13	14	18 of 19
Total petrol		**594 225 165.56**	**448 640**	**64**	**71**	
Diesel fuel B7 (B7)	1.68%	1 633 349 112.43	1 380 180	72	79	6 of 6
Total diesel		**1 633 349 112.43**	**1 380 180**	**72**	**79**	

Note: S, summer; W, winter.

4.25.4 Exceedences of the fuel quality limits

Petrol fuel grades
Table 4.70 summarises the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.70 Unleaded petrol (min. 95 ≤ RON < 98) E10 (NMB 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Sulphur content	mg/kg	< 10	0	11.6	N/A	108

Note: N/A, not applicable.

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.26 Spain

4.26.1 Country details

Responsible organisations:	Ministry of Industry, Energy and Tourism
Country size:	Large
Summer period:	Diesel: 1 April to 30 September Gasoline: 1 May to 30 September
FQMS used:	EN 14274 Statistical Model A
Location of sampling:	Terminals and service stations

4.26.2 Fuel quality monitoring service

Sampling
In 2014, samples were taken at terminals and at service stations (point of delivery to final consumers).

Terminals
Samples were taken from around 30 terminals covering the whole country.

Samples were taken from storage tanks at atmospheric pressure, in accordance with ISO 3170:2004, at or near atmospheric pressure.

Service stations
Samples were taken from service stations in different regions of the country.

Fuel Quality Monitoring System administration
Statistical Model A is used, as Spain is considered a large country (> 15 million tonnes of automotive road fuel sales per year).

The country was divided into regions for 2014 reporting, considering both the refineries and the terminals. In some regions, there was greater potential variability owing to products coming in by ship cargo.

There were nine refineries in Spain in 2014. Samples were taken at terminals across the whole country, including samples from every refinery. Where fuels entered the country by ship, this was taken into account.

Samples taken from service stations cover a large part of the country.

National legislation that transposed the Fuel Quality Directive
Fuel quality specifications were transposed in Spanish law in Royal Decree 61/2006, dated 31 January 2006.

Sampling and analysis were transposed in Article 7 of RD 61/2006.

Reporting periods
Samples from transition periods were taken and reported in 2014. Summer and winter periods were different for diesel and gasoline.

Diesel: winter from 1 October to 30 March; summer from 1 April to 30 September.

Gasoline: winter from 1 October to 30 April; summer from 1 May to 30 September.

4.26.3 Sales

Table 4.71 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. 95 ≤ RON < 98) E5 (Gasolina 95)		5 751 960 666	4 299 303	100	100	19 of 19
Unleaded petrol (min. RON ≥ 98) E5 (Gasolina 98)		421 316 476	314 913	100	100	19 of 19
Total petrol		**6 173 277 142**	**4 614 216**	**200**	**200**	
Diesel fuel B7 (Gasoleo A)		24 951 458 582	20 904 332	100	100	6 of 6
Total diesel		**24 951 458 582**	**20 904 332**	**100**	**100**	

Note: S, summer; W, winter.

4.26.4 Exceedences of the fuel quality limits

Petrol fuel grades
Tables 4.72 and 4.73 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.72 Unleaded petrol (min. 95 ≤ RON < 98) E5 (Gasolina 95)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	55.8	78.2	N/A	186
Sulphur content	mg/kg	< 10	1	10.9	N/A	191

Note: N/A, not applicable.

Table 4.73 Unleaded petrol (min. 95 ≤ RON < 98) E5 (Gasolina 98)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	55.7	79.6	1	196

Diesel fuel grades
Table 4.74 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.74 Diesel fuel B7 (Gasoleo A)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Cetane number	-	> 53.6	50.6	56.1	1	160

4.27 Sweden

4.27.1 Country details

Responsible organisations:	The Swedish Petroleum and Biofuels Institute (SPBI)
Country size:	Small
Summer period:	South Sweden: 1 May to 15 September; North Sweden: 16 May to 31 August
FQMS used:	National System
Location of sampling:	Terminals and depots

4.27.2 Fuel quality monitoring service

Sampling
The Swedish fuel quality monitoring model is based on a National system. The Swedish Petroleum and Biofuels Institute compile the data at the depots (stockages) for the annual Fuel Quality Monitoring Report. The Swedish Transport Agency sends, after verification, the report to the EC. The quality assessment system at the terminals (stockages) consists of the compilation of quality data of all fuel batches produced in Sweden as well as all import batches for the Swedish market. In 2014, there were 486 samples of unleaded petrol 95, 66 samples of unleaded petrol 98 and 684 samples of diesel at the terminals. Unleaded petrol 98 represents only about 3.5% of the total sales of petrol in Sweden. The reported data from the depots represents > 98% of the 2014 sales of petrol and diesel in Sweden.

In December 2014, The Swedish Transport Agency, as an assessment of the national monitoring system's equivalency to the CEN system (cross-checking), carried out sampling at fuel dispensing sites with the help of an accredited test laboratory. Five samples of unleaded petrol 95 and five samples of diesel were taken at five fuel dispensing sites in five cities across Sweden. The fuel dispensing sites also represented five different fuel companies. The samples from the fuel dispensing sites were then analysed according to the same test methods as in the FQD standard template for reporting. The samples from the fuel dispensing sites showed good equivalency with this report for both petrol and diesel based upon quality data of the deliveries to the depots.

Fuel Quality Monitoring System administration
The Swedish Transport Agency is responsible for managing and implementing most parts (including fuel quality) of the FQD, except for the parts that deal with GHG emission reductions and sustainability criteria for biofuels (i.e. Article 7(a)–(d)). The Swedish Energy Agency is responsible for Article 7(a)–(d) of the FQD. This FQMS report falls, in other words, under the responsibility of the Swedish Transport Agency. The Swedish Petroleum and Biofuels Institute assist the Swedish Transport Agency in the compilation of quality data for the annual FQMS report. Sampling and subsequent analysis for the additional assessment of the national monitoring is carried out by accredited test laboratories.

Sweden has chosen a national system owing to the considerable costs associated with the extensive sampling in a large, sparsely populated Member State with large geographical distances between sites. There are also substantial annual costs associated with the analysis of the large number of samples per fuel grade required by the statistical models of EN 14274:2003. This is now in accordance with an agreement between the EC, Directorate-General Climate Action and the Swedish Ministry of the Environment and Energy, of October 2014, by means of EU-pilot 6321/14/CLIM.

In 2014, the number of national refineries in Sweden producing automotive fuels was 3. The number of distribution terminals was 32.

National legislation that transposed the Fuel Quality Directive
The specific fuel quality legislation of FQD 98/70/EC has in Sweden been transposed into national law and regulations from the Swedish Transport Agency. The latter demands the provision of appropriate information to consumers concerning biofuel, in particular the FAME content of diesel fuel in Article 4.1 of the FQD. This is in accordance with EU-pilot 6321/14/CLIM. An amendment is also under way to incorporate the limit of 2 mg per litre of MMT in diesel fuel.

Swedish law contains fuel specifications. In Sweden, there are two environmental classes for petrol. Sweden also has three environmental classes for diesel.

Reporting periods
Sweden, as per the definition in Article 2.5 of the FQD, belongs to the group of Member States with low ambient summer temperatures and has applied for and been granted a vapour pressure derogation for the placing on the market of petrol with a maximum vapour pressure of 70 kPa during the summer period, in accordance with Article 3.5 of the FQD.

Transition periods for petrol between summer and winter grades vary between the north and south parts of Sweden. The summer and winter periods are regulated in national law (Drivmedelslag (2011:319) and the transition periods were taken into account in the 2014 Fuel Quality Monitoring Report.

Sweden has the same quality of diesel fuel the whole year around. There are no winter and summer periods for diesel and no transition periods between winter and summer. The 2014 reported data for diesel are therefore only an administrative allocation to facilitate comparison between Member States.

4.27.3 Sales

Table 4.75 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (Blyfri 95)	up to 5%	3 408 885 000	2 525 711	244	242	12 of 19
Unleaded petrol (min. RON ≥ 98) E5 (Blyfri 98)	up to 5%	117 796 000	87 979	42	24	12 of 19
Total petrol		**3 526 681 000**	**2 613 690**	**286**	**266**	
Diesel fuel B7 (Diesel Mk1)	up to 7%	5 533 097 000	4 513 513	349	335	5 of 6
Total diesel		**5 533 097 000**	**4 513 513**	**349**	**335**	

Note: S, summer; W, winter.

4.27.4 Exceedences of the fuel quality limits

Petrol fuel grades
No exceedences of the petrol fuel quality limits were measured.

Diesel fuel grades
No exceedences of the diesel fuel quality limits were measured.

4.28 United Kingdom

4.28.1 Country details

Responsible organisations:	Department for Transport
Country size:	Large
Summer period:	1 June to 31 August
FQMS used:	National system
Location of sampling:	Refineries, terminals and refuelling stations

4.28.2 Fuel quality monitoring service

Sampling
Sampling is undertaken at refineries, terminals and refuelling stations. Samples are taken routinely throughout the year and across all regions of the United Kingdom; the data for each month for petrol and diesel are shown on the sheets showing the test results. The test methods used are in accordance with EN 228 and EN 590.

Fuel Quality Monitoring System administration
The Department for Transport manages the UK fuel quality system. The UK FQMS makes use of industry quality analyses on batches of fuel produced in, or imported into, the United Kingdom, plus samples taken at distribution terminals and forecourts (to check for contamination in the distribution network). Owing to the very large number of samples involved, this approach provides an equivalent or greater degree of confidence to EN 14274. There were six operational fuels refineries and approximately 50 distribution terminals within the United Kingdom in 2014.

National legislation that transposed the Fuel Quality Directive
The FQD was transposed into UK law under the Motor Fuel (Composition and Content) Regulations 1999 (SI No 3107) with amendments in 2001, 2003, 2007, 2010 and 2012.

Reporting periods
The United Kingdom has a derogation for vapour pressure in petrol during the summer period. The summer period for petrol is from 1 June to 31 August, during which time the maximum vapour pressure for fuel is 70 kPa.

4.28.3 Sales

Table 4.76 Total sales and sample number

Fuel grade (name)	Bioethanol content	Total sales		Samples		Parameters measured
		Litres	Tonnes	S	W	
Unleaded petrol (min. RON = 95) E5 (Premium)	max. 5%	16 271 243 784	11 868 157	1024		19 of 19
Unleaded petrol (min. 95 ≤ RON < 98) E5 (Super)	max. 5%	619 950 564	457 866	258		19 of 19
Total petrol		**16 891 194 348**	**12 326 023**			
Diesel fuel B7 (Diesel)	max. 7%	27 051 675 335.57	22 675 335	2361		6 of 6
Total diesel		**27 051 675 335.57**	**22 675 335**			

Note: S, summer; W, winter.

4.28.4 Exceedences of the fuel quality limits

Petrol fuel grades

Tables 4.77 and 4.78 summarise the parameters for which exceedences were reported for the petrol fuel grades measured.

Table 4.77 Unleaded petrol (min. RON = 95) E5 (Premium)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	56.2	72.9	5	465
Aromatics	% v/v	< 35	15.9	38.1	1	1 007
Oxygen content (a)	% (m/m)	< 2.7	0	3.04	9	921

Note: (a) Petrol with 5% (v/v) or less ethanol content.

Table 4.78 Unleaded petrol (min. 95 ≤ RON < 98) E5 (Super)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Vapour pressure	kPa	< 60	54.1	75.7	2	67
Aromatics	% v/v	< 35	24.3	37.9	22	251
Oxygen content (a)	% (m/m)	< 2.7	0	3.06	4	249

Note: (a) petrol with 5% (v/v) or less ethanol content

Diesel fuel grades

Table 4.79 summarises the parameters for which exceedences were reported for the diesel fuel grades measured.

Table 4.79 Diesel fuel B7 (Diesel)

Parameter	Unit	Limit value	Min. value measured	Max. value measured	No of samples outside TL	Total No of samples
Density at 15 °C	kg/m^3	< 845	821.5	855	1	2 361
FAME Content	% v/v	< 7	0	8.7	2	2 279

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