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**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL**

**Quality of petrol and diesel fuel used for road transport in the European Union
Eleventh annual report
(Reporting year 2012)**

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Quality of petrol and diesel fuel used for road transport in the European Union: Eleventh annual report (Reporting year 2012)

1. INTRODUCTION

This report represents a consolidation of the eleventh year of Member States' submissions under Directive 98/70/EC¹ (the "Directive"), summarising the quality of petrol and diesel used for road transport in the EU for 2012. Specifications for petrol and diesel sold for road transport in the EU are included in the Directive: the first specifications entered into force on 1 January 2000; the second on 1 January 2005 and the third on 1 January 2009 which limited the sulphur content of all automotive road fuels in the EU to 10 ppm. Additional requirements are defined in the European Standard for fuel quality monitoring systems ("FQMS"), EN 14274:2012, required from 2004.

The Directive also stipulates that Member States are required to report summaries of the quality of fuels sold in their territories. The original reporting format for this was laid out in Commission Decision 2002/159/EC of 18 February 2002². The requirements of the Directive have evolved with the introduction of new fuel specifications and reporting requirements. All Member States receive a reporting template in order to include all pertinent details to enable a European wide analysis and comparison of the results of the fuel quality monitoring undertaken in Member States. The template follows the reporting requirements outlined in Commission Decision 2002/159/EC and is annually reviewed and agreed by the Commission.

In 2012, all Member States have complied with the fuel specifications that require road fuels to contain less than 10 ppm sulphur content. In addition, Member States have begun to report fuels with added ethanol, which is a reporting requirement from 1 January 2011.

All Member States submitted their report in the template provided. Of the 27 annual FQMS reports, 19 were received within the reporting deadline of 30 June, six were received less than one week late and the last two reports were submitted within two months of the original deadline. There is a clear improvement on the submissions of reports received within the deadline compared with 2009 and 2010, but a slight decline regarding 2011, when 21 Members States reported on time.

2. FUEL SALES IN EUROPE

Fuel sales in the EU in 2012 were heavily weighted toward diesel with 242 829 million litres of diesel fuel sold compared to 109 328 million litres of petrol fuel sales.

Since 2004 petrol sales have continued to decline and 2012 saw another year when petrol sales were less than in the previous year. In terms of fuel grades, RON 91 continues to lose

¹ O.J. L 350 of 28.12.1998, p. 58

² O.J. L 53 of 23.2.2002, p.30

market share and currently is only sold in small amounts; 2012 sales were 456 million litres. RON 98 sales totalled 4 418 million litres, RON 95=<to<98 14 622 million litres whilst RON 95 represented the majority of petrol fuel sales with 89 832 million litres.

Diesel also declined for the third year in a row, with the B7 grade representing the majority of sales with 219 769 million litres sold (90%). B5, B+ and regular diesel sales totalled 23 061 million litres (2 720, 137 and 20 204 million litres respectively).

Figure 1: evolution of fuel sales in the EU from 2001 to 2012

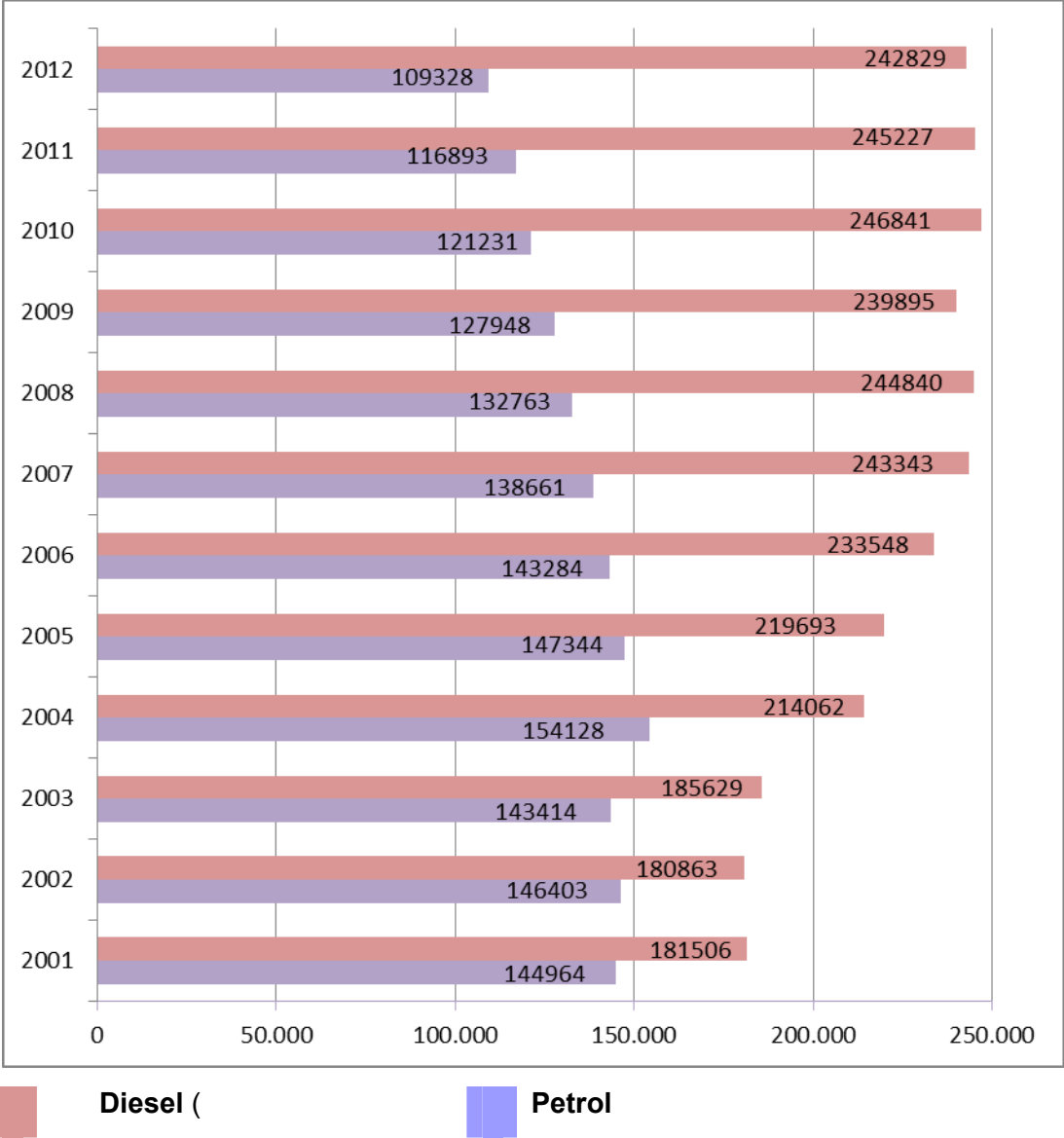
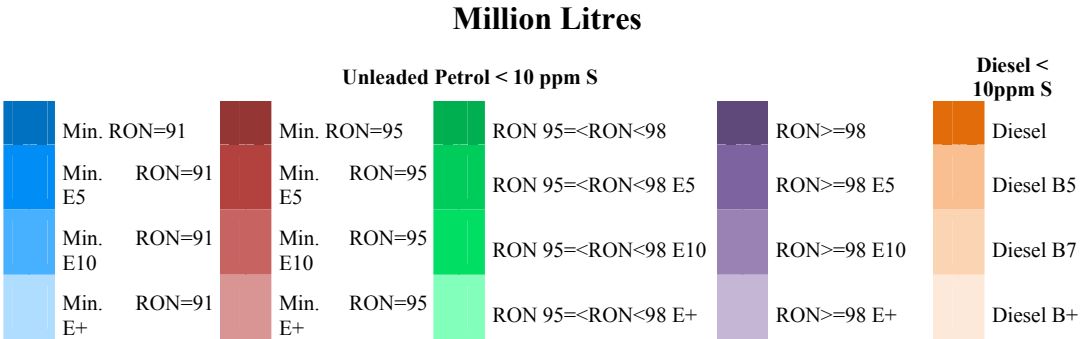
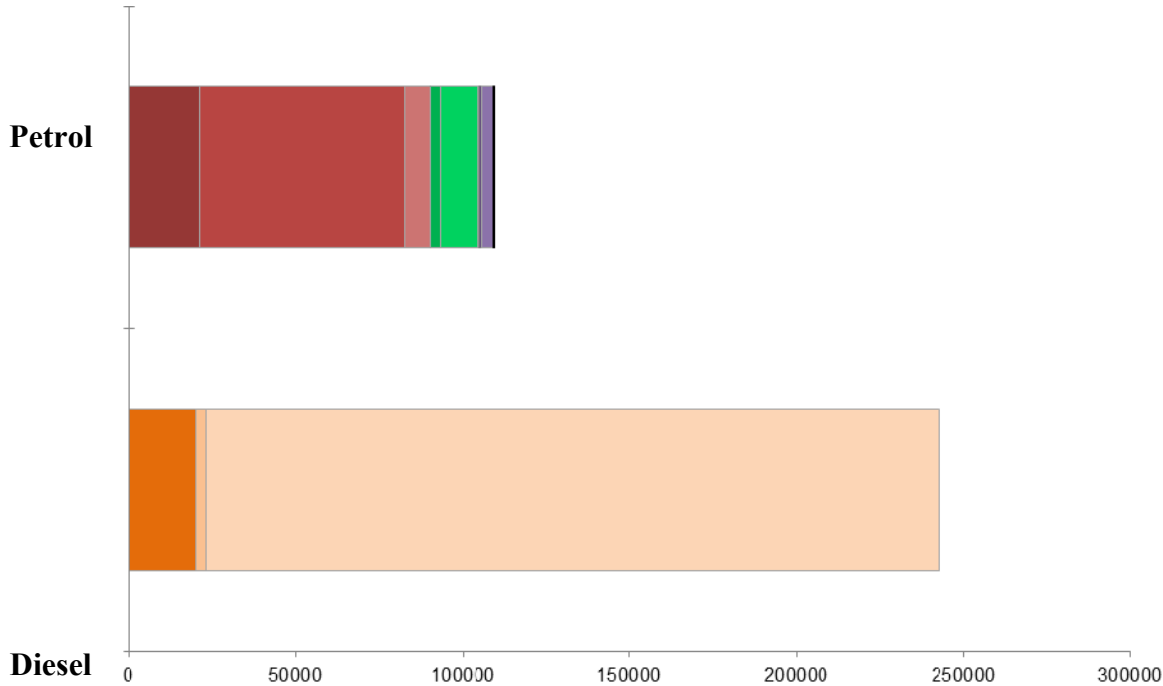


Figure 2: EU fuel sales by fuel type in 2012



Total fuel sales in 2012 were less than sales in 2011 seeing a decrease in both petrol (reduction of 7 565 million litres) and diesel (reduction of 2 398 million litres) sales resulting in an overall total decrease of 9 963 million litres of automotive road fuels sold.

2.1 Fuel availability 2012

One of the main facts of 2012 is that RON 91 has almost disappeared from the market, now only being sold in four countries, with Denmark alone having any significant presence.

E10 is only sold in three Member States: France, Finland and Germany.

Table 1 illustrates the quantities and types of fuels sold by Member State.

Table1: 2012 EU27 fuel sales by type

Fuel Type	Petrol Sales				Diesel Sales	
	(million litres)				(million litres)	
Member State	min. RON=91	min. RON=95	min. RON=98	RON \geq 98	Total Petrol	Total Diesel
Austria	41	-	2,215	49	2,305	7,294
Belgium	-	1,385	-	297	1,682	8,317
Bulgaria	-	691	-	36	727	2,049
Cyprus	-	-	471	31	502	365
Czech Republic	16	2,195	62	-	2,273	4,865
Denmark	349	1,531	2	-	1,882	3,205
Estonia	-	-	312	28	340	719
Finland	-	1,144	-	948	2,092	2,843
France	-	9,666	-	-	9,666	40,378
Germany	50	23,479	-	1,502	25,031	40,232
Greece	-	3,831	52	102	3,985	2,506
Hungary	-	1,541	-	42	1,583	3,121
Ireland	-	1,684	-	-	1,684	2,630
Italy	-	9,750	-	-	9,750	27,445
Latvia	-	274	21	-	295	852
Lithuania	-	300	-	7	307	1,342
Luxembourg	-	347	-	77	424	2,001
Malta	-	-	98	-	98	119
Netherlands	-	5,436	59	-	5,495	7,512
Poland	-	4,690	-	412	5,102	13,555
Portugal	-	-	1,403	110	1,513	5,268
Romania	-	-	2,418	205	2,623	6,602
Slovakia	-	649	-	7	656	1,227
Slovenia	-	-	607	78	686	2,270
Spain	-	-	6,170	487	6,657	25,111
Sweden	-	3,738	125	-	3,863	5,273
UK	-	17,501	607	-	18,108	25,728

On the basis of Table 1 some general points can be noted:

- Diesel dominates the market in all but two Member States; petrol fuels represent a 61.4% share of Greek fuel sales and 57.9% of Cypriot fuel sales.
- Belgium, on the other hand, demonstrates the heaviest dependence on diesel fuel: Belgian diesel fuel sales have an 83.2% share of the market – the highest proportion of all Member States.

- The greatest volume of fuel sales in 2012 took place in Germany, with 18.5% of total EU fuel sales; the petrol/diesel sales ratio was 38.4% / 61.6%. The next biggest market was France with a 14.2% share of EU petrol and diesel fuel sales; their petrol/diesel sales ratio was 19.3% / 80.7%. UK fuel sales totalled 12.4% of all fuel sales with a ratio of 41.3% / 58.7% for petrol/diesel.
- In most countries the tax rate for diesel is lower than for petrol (sometimes significantly). This, coupled with the higher efficiency of diesel vehicles (against petrol equivalents) and improvements to diesel cars, has been a key driver in the shift to increasing diesel use in the EU. In the UK the duty rates for petrol and diesel per litre of fuel are the same, which partly explains the lower relative share of the fuel compared to other EU countries due to the lower fuel cost savings for cars.
- There is still a low market penetration of E10 in Europe, with only currently three countries (Germany, France and Finland) selling it. In these countries the market situation is very different: in Finland E10 has a share of 54.7% of petrol sales, in France the volume of sales is 24.1% while in Germany E10 accounts for 14.2% of the petrol market.

3. FUEL QUALITY MONITORING 2012

3.1 Description of systems used by different Member States

A number of different approaches have been used to implement the FQMS across the EU. Although consistency between Member States has improved slightly year on year, approaches range from those based on European Standard EN 14274³, with sampling at a range of fuel retail stations, through to national systems.

Alternative monitoring systems are permitted by the Directive, provided such systems ensure the results are of an equivalent confidence to EN 14274, although the criteria for assessing this are not specified. It is therefore not clear whether the existing systems not based on EN 14274 meet this criterion.

In 2012, the majority of Member States have provided additional information about their selection of a monitoring system (if using a statistical model from EN 14274) or have provided information about the selection of a national monitoring system.

Of the 27 Member State Fuel Quality Monitoring Systems used in 2012:

- Five have opted to use EN 14274 statistical model A (Austria, Finland, Greece, Italy and Spain)
- Five have used EN 14274 statistical model B (France, Germany, Poland, Bulgaria and Romania)
- Nine have opted for EN 14274 statistical model C (Ireland, Portugal, Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Slovakia and Slovenia) and;

³ EN 14274:2003 - Automotive fuels - Assessment of petrol and diesel quality - Fuel Quality Monitoring System (FQMS).

- The remaining eight have used a national monitoring system

3.2 Sampling and reporting

One of the key points in the assessment of the fuel quality is the how fuels are sampled. This sampling must done in accordance with requirements laid down in EN 14274.

This standard indicates the number and location of samples to be taken and reported in Member States' fuel quality reports. The standard also specifies the minimum number of samples per fuel grade in each of the winter and summer periods. Table 2 provides a breakdown of individual Member States' sampling and reporting in 2012. The total minimum samples required is calculated where the Member State has used a statistical model as outlined in EN 14274 such that the minimum sample requirement is known for each model (A, B and C).

Table 2 also provides a breakdown of the total sample numbers taken and the sampling carried out at service stations. All Member States provided this breakdown in 2012. As EN 14274 specifies that the minimum sampling requirement should be taken from fuel dispensing sites – which are defined as a “*site, retail or commercial where fuel is dispensed into road vehicles for propulsion*” any sampling taken at distribution terminals or refineries should be taken in addition to those from service stations in order to meet minimum sampling requirements.

In this context it should be noted that Bulgaria is reporting data one year in arrears. This fact has been pointed out to the Member State and the Commission hopes that this situation will be addressed for reporting in 2013.

Non-compliance of individual sample tests with the petrol fuel standard EN 228 have increased slightly in 2012 compared to 2011, with non-compliance for diesel against EN 590 also slightly increasing in 2012. The full report can be found in EU Fuel Quality Monitoring – 2012 Summary Report – Final report to the European Commission DG Climate Action, available on webpage of DG Climate Action.

Table 2 Summary of Member State sampling and reporting in relation to the requirements of Directive 98/70/EC and of European Standard EN 14274

MS	FQMS Model (1)	Size (2)	Separate S&W? (3)	Samples per grade per period (4)	Total samples required (5)		Samples Taken (6)		Samples Taken at Service Stations (7)		Sampling Compliance (8)	
					Pet	Dsl	Pet	Dsl	Pet.	Dsl.	Pet.	Dsl.
Austria	A	S	✓	50	106	100	106	100	106	100	✓	✓
Belgium	N	S	✓	(50)	200	100	2239	6036	2239	6036	(✓)	(✓)
Bulgaria	B	S	✓	100	212	204	453	496	428	473	✓	✓
Cyprus	C	S	✓	50	108	100	328	173	328	173	✓	✓
Czech Republic	C	S	✓	50	106	104	1294	1468	1294	1468	✓	✓
Denmark	N	S	✓	(50)	202	100	43	21	43	21	(×)	(×)
Estonia	C	S	✓	50	110	100	350	215	350	210	✓	✓
Finland	A	S	✓	50	200	100	235	122	235	122	✓	✓
France	B	L	✓	200	800	400	473	408	473	408	×	✓
Germany	B	L	✓	200	826	400	602	415	602	415	×	✓
Greece	A	S	✓	50	106	102	116	106	73	53	×	×
Hungary	C	S	✓	50	104	100	120	120	120	120	✓	✓
Ireland	C	S	✓	50	100	100	201	194	160	161	✓	✓
Italy	A	L	✓	100	200	200	200	200	200	200	✓	✓
Latvia	N	S	✓	(50)	112	200	158	244	119	126	(✓)	(✓)
Lithuania	C	S	✓	50	104	100	106	100	92	89	×	×
Luxembourg	N	S	✓	(50)	200	100	80	82	80	82	(×)	(×)
Malta	N	S	✓	(50)	100	100	36	37	27	27	(×)	(×)
Netherlands	N	S	✓	(50)	100	100	50	50	50	50	(×)	(×)
Poland	B	S	✓	200	434	400	279	204	279	204	×	×
Portugal	C	S	✓	50	108	100	200	100	200	100	✓	✓
Romania	B	S	✓	100	208	200	244	243	221	223	✓	✓
Slovakia	C	S	✓	50	102	100	149	118	149	118	✓	✓
Slovenia	C	S	✓	50	200	100	154	162	154	162	×	✓
Spain	A	L	✓	100	230	200	780	396	0	0	×	×
Sweden	N	S	✓	(50)	104	100	631	717	0	0	(×)	(×)
UK	N	L	✓	(100)	208	200	1682	2535	437	263	(✓)	(✓)

#	Column	Explanatory notes
(1)	FQMS Model	N = National Fuel Quality Monitoring System (FQMS) A = EN 14274 Statistical Model A

		B = EN 14274 Statistical Model B C = EN 14274 Statistical Model C
(2)	Size – Country size	S = Small (total automotive road fuel sales < 15 million tonnes pa) L = Large (total automotive road fuel sales > 15 million tonnes pa)
(3)	Separate S & W?	✓ Separate summer & winter reporting × indicates full year sample results reporting only.
(4)	Samples per grade per period	EN 14274: There are reduced sampling requirements for grades comprising of less than 10% total sale. For Member States using a national FQMS, estimated equivalent minimum samples (based on fuel sales) are shown in brackets ().
(5)	Total samples required	Calculation of the EN 14274 minimum sample total required according to FQM model and country size. The minimum sample requirement is to be taken from the ‘point of use’ at fuel dispensing sites. For Member States using a national FQMS, estimated equivalent minimum samples (based on fuel sales) are shown in brackets ().
(6)	Samples Taken	The total number of samples taken per fuel type at all locations (service stations, terminals and refineries).
(7)	Samples taken at Service Stations	The total number of samples taken at service stations; fuel dispensing sites (public and commercial). This is reported separately in the standard reporting template; where samples taken at service stations do not match overall samples taken, this is due to differences in the original report submission (in particular France and the Czech Republic, where samples taken at service stations is greater than samples taken).
(8)	Sampling Compliance	✓ indicates compliance with EN 14274 Sampling Number requirement and × indicates non-compliance. Note that this indicates overall sampling compliance across all fuel grades; see Member State report for sampling compliance for each fuel grade individually. Where a national FQM system is used, estimated compliance to demonstrate equivalence with EN14274 is shown in brackets (). Where Member States have not provided a breakdown of sampling location, it is not possible to assess sampling compliance.
	Pet.	Petrol
	Dsl	Diesel

4. COMPLIANCE WITH THE DIRECTIVE’S LIMIT VALUES

4.1 Petrol reporting

In 2012, all Member States provided full information about petrol sample compliance. In order to determine compliance, it is necessary to know which test method has been used to test for some parameters (because reproducibility and tolerance levels differ according to test method). Provision has been made for Member States to give this information within the reporting template.

The parameters found to be out of specification most frequently within the EU in 2012 were:

Summer vapour pressure was exceeded 175 times in 2012.

However, it is becoming apparent that many exceedances are the result of transitional periods when suppliers swap the summer specification fuel for winter specification fuels and vice versa.

RON/MON samples found to be out of specification in 2012 totalled 61 samples within the EU.

Some Member States did not provide full details of samples found to be out of compliance with tolerance limits.

4.2 Diesel reporting

In 2012, some Member States did not provide full details of samples found to be out of compliance with tolerance limits. Of the six parameters required to be tested for diesel in 2012, parameters found to be out of specification were:

The sulphur content maximum of 10ppm was exceeded by a total of 144 samples.

However the average sulphur content for all Member States remains below the mandatory limit of 10ppm at 7.42 ppm.

A total of 22 samples tested for distillation limits were found to be out of specification.

4.3 Summary

Table 3 summarises the compliance of Member States with the Directive for 2012 reporting in terms of the results of the analysis of samples against Tolerance Limits and the reporting format and content. Amendments to the Directive included the insertion of a paragraph stating *“Member States shall determine the penalties applicable to breaches of the national provisions adopted pursuant to this Directive. The penalties determined must be effective, proportionate and dissuasive.”* Some Member States have provided an explanation of the remedial action and penalties imposed by national authorities where samples are found to be out of specification. These and other notes pertinent to the Member States' monitoring systems are provided in more detail in the individual Member State chapters of the EU Fuel Quality Monitoring – 2012 Summary Report – Final report to the European Commission DG Climate Action, available on webpage of DG Climate Action.

In general, of the 11 365 samples tested for petrol in 2012, 322 were found to be out of specification with tolerance limits for one or more parameters, which represents a non-compliance rate of 2.8%. Of the 15 039 samples tested for the six mandatory parameters for diesel in 2012, 237 were found to be non-compliant with specified limits, representing 1.6% of all samples reported.

The proportion of samples found to be out of specification is reliant on the number of samples taken, which should be dependent (within each Member State) on the fuel sales volume, and supply sources. However, with Member States using national systems that may not demonstrate equivalence with statistical models A, B or C and using statistical models that may not be the most suitable, it is necessary to also consider non-compliance within the EU weighted by volume and by sample numbers.

Table 3: summary of Member State compliance for 2012 reporting

MS	Non-compliance with limit values non-compliant samples (NC) / total samples				Incomplete reporting parameters not measured (NM) / total				Late report
	(1)				(2)				(3)
	Petrol		Diesel		Petrol		Diesel		(months)
	NC	Total	NC	Total	NM	Total	NM	Total	
AT	2	106	1	100	0	19	0	6	On time
BE	104	2239	102	6036	0	19	0	6	On time
BG	9	453	32	496	1	19	0	6	On time
CY	29	328	0	173	2	19	0	6	On time
CZ	21	1293	21	1413	0	19	0	6	On time
DK	0	43	0	21	0	19	0	6	On time
EE	8	350	2	215	1	19	0	6	< 1 month
FI	18	235	1	122	1	19	1	6	On time
FR	16	473	28	408	0	19	0	6	< 1 month
DE	5	602	1	415	0	19	0	6	<2 months
EL	0	116	0	106	6	19	0	6	On time
HU	5	120	0	120	0	19	0	6	On time
IE	10	201	4	194	0	19	0	6	On time
IT	6	200	3	200	4	19	0	6	< 1 month
LV	0	158	0	244	0	19	0	6	< 1 month
LT	0	106	0	100	0	19	0	6	On time
LU	8	80	0	82	0	19	0	6	On time
MT	4	36	8	37	0	19	0	6	On time
NL	0	50	>1	50	2	19	0	6	< 1 month
PL	12	279	7	204	1	19	0	6	On time
PT	33	257	4	132	1	19	0	6	On time
RO	6	244	6	243	1	19	0	6	< 1 month
SK	8	149	8	118	0	19	0	6	On time
SI	4	154	4	162	1	19	0	6	On time
ES	0	780	0	396	0	19	0	6	<2 months
SE	0	631	0	717	6	19	1	6	On time
UK	14	1682	4	2535	0	19	0	6	On time
No. Countries									27

(1) Non-compliance with limit values (95% confidence limits) It is not possible to confirm whether limit values have been respected in all samples, where reporting data is incomplete. Where it has not been possible to establish from submissions the number of samples exceeding the limit value a '>' symbol indicates that the number of samples exceeding limits is a minimum and might be greater.

(2) Incomplete reporting Some parameters may be sampled in smaller quantities, however all parameters should be sampled to accurately assess fuel quality. Member States should make it clear when sample results have been obtained and provide sample results.

(3) Late report Directive 98/70/EC states that Member States should submit monitoring reports by no later than 30 June each year

Another important part of the assessment of fuel quality is its compliance with specific parameters that need to be monitored.

Currently in some Member States some parameters are not fully measured. In the full report for 2012 EU Fuel Quality Monitoring – 2012 Summary Report, in the *Table relating to the Summary of parameters not reported by Member States for each fuel grade*, it is indicated, by Member State the number of parameters that are not measured will be available on the webpage of DG Climate Action.

Even considering that this situation does not pose a problem for the assessment of the overall fuel quality in Europe, the Commission will insist with the Member States that this situation need to be improved in 2013.

5. CONCLUSIONS

The monitoring of fuel quality in 2012 shows that the specifications for petrol and diesel laid down in Directive 98/70/EC are in general met and very few deviations from the relevant provisions were identified.

Even if there is an improvement in the way Member States meet their reporting and monitoring obligations and in their fuel quality monitoring systems, in some cases they are still not attaining the expected level sampling.

The Commission will address this issue with those Members States concerned in due course.

As cases of non-compliance are relatively rare and Member States generally take action to remove non-compliant fuel from sale, the Commission is not aware of any negative repercussions on vehicle emissions or engine functioning due to these exceedances.

The Commission urges Member States to continue to take action to ensure full compliance so that such problems do not arise in the future.