

# **National Random Sampling Programme of Fuel Licence Holders and Transport Sector Traders 2018**

Fieldwork conducted in the period January to October 2018, results published May 2019

Any queries in relation to these sampling programmes can be addressed to Revenue's Statistics  
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## **Background and Objectives**

The introduction of a new fiscal marker (Accutrace S10™) for marked mineral oil products in April 2015 was part of a series of initiatives by Revenue to enhance compliance in the fuel trade and combat the trade in illicit fuel. Accutrace is a colourless marker with chemical properties similar to diesel but resistant to conventional dye-washing laundering methods. Since 31 March 2015, Accutrace is required to be added, in addition to the existing mineral oil marker dyes, to any supply of rebated fuel removed from an oil warehouse in the Republic of Ireland or the United Kingdom.<sup>1</sup>

Following a suitable 'bedding-in' period, since 2016 Revenue has conducted an annual national sampling programme to quantify the extent to which illicit fuel (e.g., laundered road diesel) is evidenced among licensed fuel outlets. The programme was extended to include transport sector traders in 2018.

The random sampling programme entails taking samples of road diesel from randomly selected groups of Auto Fuel Trader Licence holders (mostly forecourt retailers and fuel distributors) and transport sector traders and testing each sample for the presence of markers.<sup>2</sup>

The field testing is conducted by Revenue's specialist enforcement teams. The programme, in terms of independent case selection and outcome reporting, is conducted under the auspices of Revenue's Statistics & Economic Research Branch. The project is coordinated by the Excise Working Group in Revenue's Planning Division. Cases were randomly selected and distributed to each Region (with guidelines for conducting the sampling and reporting templates), with sampling conducted in a coordinated nationwide programme over the first ten months of 2018.

This random sampling exercise, conducted on a national level each year, provides a powerful and robust measure of the scale of the selling and use of laundered fuel in the State. Now in its third year, it also gives a benchmark against which to compare outcomes over time.

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<sup>1</sup> The new fiscal marker is a collaboration between Irish Revenue and Her Majesty's Revenue & Customs in the UK.

<sup>2</sup> Revenue enforcement teams use portable analysers (that use micro-gas chromatograph technology) to test for the presence of Accutrace in road diesel. Detection of Accutrace in road diesel, particularly where there is no trace of the other marking agents (i.e., marker dyes), is a clear indication of laundered fuel. However, it should be noted that while a detection of the marker in road fuel empowers Revenue to detain or seize suspect fuel, subsequent prosecutions are only initiated following formal testing and certification of the presence of the marker by the State Laboratory.

## Sampling

For the 2018 programme, the sampling focussed on two categories of cases: licenced fuel traders and transport sector traders (the 2016 and 2017 programmes only included the former group).

### Licensed Fuel Traders

Any trader that produces, sells, deals in, or keeps for sale or delivery road diesel is legally obliged to hold an Auto Fuel Trader Licence ("AFTL"). The total population of AFTL holders (i.e., those holding a valid licence) was 2,583 at the time of sampling. Of these, a random sample of 116 was selected for sampling (4.5 per cent of the total population). A breakdown of the population and sample by Revenue Region is shown in Table 1.

**Table 1: Auto Fuel Trader Licence Sample and Population 2018**

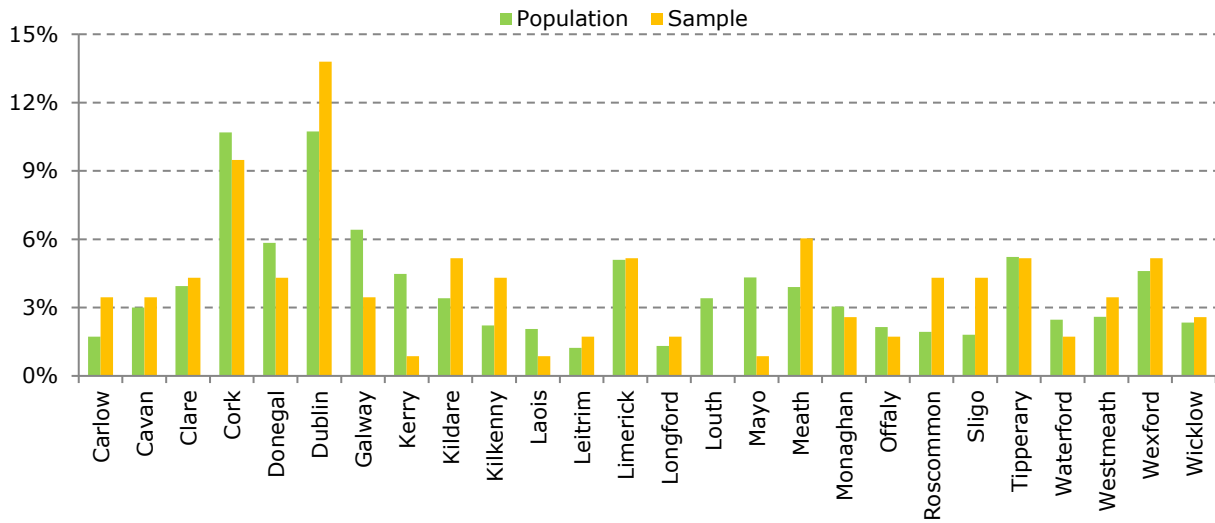
Revenue Region	AFTL Population		AFTL Random Sample	
	Number	%	Number	%
Border, Midland & West	1,024	40%	38	33%
Dublin	275	10%	16	14%
East & South East	666	26%	39	34%
South West	618	24%	23	20%
<b>Total</b>	<b>2,583</b>	<b>100%</b>	<b>116</b>	<b>100%</b>

Source: Revenue analysis.

Revenue enforcement teams tested for the presence of the marker, Accutrace, by taking samples of diesel in the storage tanks of the randomly selected traders. All sampling took place between 3 January 2018 and 26 January 2018.

The purpose of randomly sampling a large number of traders is to ensure representativeness of all national fuel traders in the sample. There are a number of ways to test representativeness, including by comparing distributions of selected characteristics in the sample and the population. For this exercise, geographical location (Figure 1) is used. On the basis of these distributional comparisons and other analysis, the results show a reasonably close match, which provides confidence that the sample is likely to be representative of all AFTL holders in Ireland.

**Figure 1: Auto Fuel Trader Licence Sample and Population by Location 2018**



Source: Revenue analysis.

### Transport Sector Traders

Businesses operating in the transport sector are not required to hold a licence for Excise purposes, therefore unlike AFTL holders there is no overall register of cases from which to draw a random sample. Instead, a query is run against Revenue records to identify traders in the transport sector. A number of criteria are used:

- Assigned to one of the following NACE codes: 4931, 4939, 4941 or 4942; or
- Included in their business description the terms: "haulier" or "transport"; or
- Aailed of the Diesel Rebate Scheme; and
- Are not included on register of licenced hauliers.<sup>3</sup>

This produced a "population" of 9,670 cases. Of these, a random sample of 117 was selected for sampling (1.2 per cent of the total population). A breakdown of the population and sample by Revenue Region is shown in Table 2.

**Table 2: Transport Sector Traders Sample and Population 2018**

Revenue Region	Transport Sector Population		Transport Sector Random Sample	
	Number	%	Number	%
Border, Midland & West	2,636	27	43	37
Dublin	2,215	23	18	15
East & South East	2,787	29	35	30
South West	2,032	21	21	18
<b>Total</b>	<b>9,670</b>	<b>100%</b>	<b>117</b>	<b>100%</b>

Source: Revenue analysis.

<sup>3</sup> Comparison to hauliers register based on name and address matching.

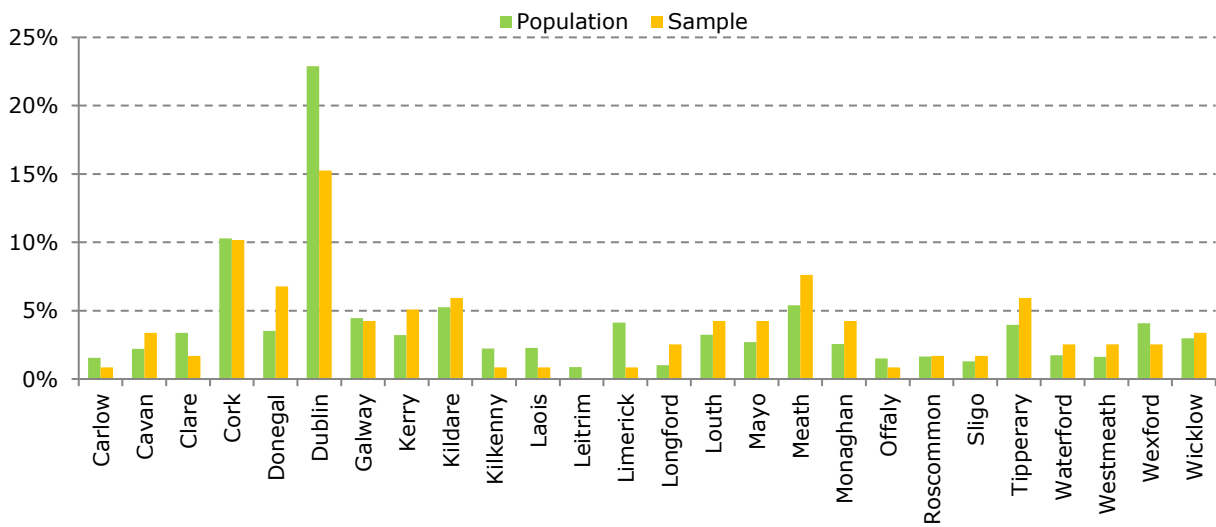
Revenue enforcement teams tested for the presence of standard markers. The intent was to sample fuel from the tank of at least one diesel-propelled vehicle owned by each of the randomly selected traders. Along with testing for the presence of Accutrace, the officers were testing for any identifiable misuse of reduced-rate fuel. To that end the following tests were conducted in all cases sampled:

- A visual check for any dye present;
- A test for the presence of the Euromarker;
- A hydrometer test for the presence of kerosene; and
- A test for the presence of Accutrace.

All sampling took place between February 2018 and October 2018.

Analysis of the sample and population by location (Figure 2) and by other attributes confirms that the sample is likely to be representative of all transport sector traders in Ireland (when the sector is defined as outlined above).

**Figure 2: Transport Sector Traders Sample and Population by Location 2018**



Source: Revenue analysis.

## Results

### Licensed Fuel Traders

Of the random sample of 116 licensed fuel traders, 8 cases were unavailable for testing for a number of reasons, including the trader not being involved in selling road diesel or having gone out of business. This results in an effective sample of 108.<sup>4</sup>

No evidence of Accutrace was found in any of the 108 licensed fuel traders sampled.

**Table 3: Auto Fuel Trader Licence Results 2018**

Revenue Region	Random Sample	Unavailable for Test	Tested	Evidence of Accutrace
Border, Midland & West	38	4	34	0%
Dublin	16	1	15	0%
East & South East	39	2	37	0%
South West	23	1	22	0%
<b>Total</b>	<b>116</b>	<b>8</b>	<b>108</b>	<b>0%</b>

Source: Revenue analysis.

### Transport Sector Traders

Of the random sample of 117 transport sector traders, 27 cases were unavailable for testing for a number of reasons, including the trader having gone out of business or all of the trader's diesel-propelled vehicles being off-site. Officers were requested to re-visit, to a maximum of three visits, those cases where access to a suitable vehicle was not possible on the initial visit. This results in an effective sample of 90.<sup>5</sup>

Evidence of Accutrace or of misuse of reduced-rate fuel was found in 3 (3 per cent) of the 90 transport sector traders sampled. Two of the cases failed the visual check for the presence of the dye, the other failed on one of the three other checks.<sup>6</sup>

**Table 4: Transport Sector Traders Results 2018**

Revenue Region	Random Sample	Unavailable for Test	Tested	Evidence of Accutrace*
Border, Midland & West	43	13	32	0
Dublin	18	3	15	1
East & South East	35	8	27	2
South West	21	5	16	0
<b>Total</b>	<b>117</b>	<b>27</b>	<b>90</b>	<b>3</b>

Source: Revenue analysis. Note: \* Also includes visual check for any dye present, test for the presence of the Euromarker or hydrometer test for the presence of kerosene.

<sup>4</sup> Margin of error on a sample of 108 and population of 2,583 is in the range 0% and 3% (at a 95% confidence interval).

<sup>5</sup> Margin of error on a sample of 90 and population of 9,670 is in the range 1% to 10% (at a 95% confidence interval).

<sup>6</sup> All were using reduced rate fuel and in three cases attempts were made to disguise the fuel as legitimate by laundering out the markers. This laundering process removed the visible dye but failed to remove the Accutrace marker.

## Discussion

This is the third year of Revenue's national random sampling programme in fuel. The first two years focused on licenced fuel traders. The programme was extended to include businesses in the transport sector in 2018, this was done to widen the testing to include a group that are important users of diesel and who could stand to benefit significantly in financial terms from the illegal use of reduced-rate fuel.

No evidence of laundered fuel has been found in any of the three years sampling of licenced fuel traders. In 2018, the first year of sampling transport sector traders, evidence of misuse of reduced-rate fuel was found in 3 traders. Revenue has pursued appropriate follow up action in all cases where necessary.

The results from all three years are summarised in Table 5.

**Table 5: Random Sampling Programmes All Years**

Revenue Region	2016		2017		2018*	
	Traders Tested	Evidence of Accutrace	Traders Tested	Evidence of Accutrace	Traders Tested	Evidence of Accutrace**
Border, Midland & West	75	0	85	0	66	0
Dublin	17	0	18	0	30	1
East & South East	58	0	68	0	64	2
South West	47	0	41	0	38	0
<b>Total</b>	<b>197</b>	<b>0</b>	<b>212</b>	<b>0</b>	<b>198</b>	<b>3</b>

Source: Revenue analysis. Notes: \* 2018 results include both licence fuel traders and transport sector traders; \*\* Includes visual check for any dye present, test for the presence of the Euromarker or hydrometer test for the presence of kerosene.

These random sampling exercises, conducted on a national level over ten months, provide a powerful and robust measurement of the scale of the selling and use of laundered fuel in the State. The samples, nearly one in twenty fuel selling outlets and around one in a hundred users in the transport sector in 2018, are significantly larger than required to provide robust statistical results that can be extrapolated to the full population.

The results represent an authoritative confirmation of the effectiveness of the various measures introduced by Revenue in recent years to enhance compliance in the fuel trade and among users of diesel. With the findings of misuse of reduced-rate fuel in 3 cases among the transport sector trader sample, it is clear the random sampling programme results do not signify the complete elimination of the illicit trade in fuel. However, they do demonstrate that systematic selling of illicit fuel through retail outlets and its use in the transport sector is negligible and close to being fully eliminated.