

Materials Facility Reporting Portal Q4 2019 – Commentary

Key points

- This is the twentieth publication of data under the Environmental Permitting (England and Wales) Regulations 2016 (Schedule 9), relating to the reporting period, October – December (Q4) 2019, and represents over 5 years of data reporting by MF operators.
- The average percentage (by weight) of target material received by responding MFs in Q4 2019 was 83.4% for England and 88.3% for Wales. The figure for England has decreased by 1.0% since the last quarter, and there has been a 1.5% decrease for Wales.
- The lowest average percentage (by weight) of target material in the output material streams is for plastic in England (89.3%) and for glass in Wales (93.5%).

Background

The MF Portal displays the input and output sampling data required by the Regulations for qualifying MFs¹. It does not display all data recorded by the facilities. The sampling of input tonnage is only for mixed dry recycling and is recorded for each supplier. The sampling of output waste is focused on the specified output material streams (grades of glass, paper, metal and plastic). Therefore, the Portal does not include tonnes for all other input and output waste and materials from the facilities.

Facilities have been sampling and reporting for 63 months. The Regulators (Environment Agency and Natural Resources Wales) are continuing their annual programme of announced and unannounced visits to each site. The visits enable the Regulator to advise operators on the statutory sampling and reporting requirements and assess compliance with them, as well as provide advice on best practice as set out in the WRAP guidance.

¹ A qualifying MF is defined as a regulated facility that receives mixed waste material in order to separate it into specified output material (SOM) for the purpose of selling it, or transferring it to other facilities or persons to enable that material to be recycled by those facilities or persons. To qualify, a facility must receive 1,000 tonnes or more of mixed waste material in a 12-month period.

Any potential adjustments a facility might make to their sampling arrangements following feedback and guidance from the Regulator, may not be seen immediately in their reported data on the portal due to timescales involved in reporting and publishing on the Portal (which could be up to 6 months).

The MF Portal is a transparent display of data provided by the facilities. The data is available for waste suppliers (such as local authorities or businesses) and reprocessors to use and to inform feedback and discussions with their MF. For local authorities it can provide information on the quality of the material they are getting from their residents. Users should be aware that any queries raised during the Regulators' validation processes are reported back to the facilities, but the data entries are not always rectified in response. This means the Portal will include data for facilities where there is an outstanding validation issue.

During preparation of the 2019 Q2 returns, Environment Agency (EA) staff identified a number of data errors in the database figures, which were carried over into in the MF quarterly reports and Reporting Portal, a website managed by Waste and Resources Action Programme (WRAP). These data errors resulted in the duplication of some figures inputted into the EA database. This was due to a fault in the IT system as opposed to reporting procedure undertaken by the individual facilities. The errors on the system were not large enough to change the results, but mean that the reporting from 2019 Q2 onwards no longer lines up with previously reported quarters. EA has now taken steps to correct errors in their database.

General observations for Q4 2019

The data displayed in the MF Portal and summarised here is the latest supplied by the facilities for Q4 2019. Since the MF Portal displays the data as provided by the facility, submitted data that appears extreme has not been removed or adjusted. The summary statistics presented in this commentary are intended to be representative of the MFs who have submitted the quarterly return.

In England 85 facilities notified the Regulator (in accordance with the Regulations) for October – December 2019, of which all 85 submitted a quarterly data return. In Wales, 12 facilities notified the Regulator, of which all 12 submitted returns.

MF input stream analysis

MF Input stream analysis England

The waste supplied to the responding MFs in England was attributed directly to 200 local authorities (LAs) and 155 other named suppliers (such as waste management companies or other waste facilities)².

The total tonnage of mixed material entering the MFs in Q4 2019 was 849,842 tonnes which is 2,791 tonnes or 0.3% less than the previous quarter. The MFs provided data based on a total of 9,382 samples totalling just under 653 tonnes.

Table 1 shows that the average percentage (by weight) of target material received by responding MFs in Q4 2019 was 83.4%, which is 1.0% less than the previous quarter.

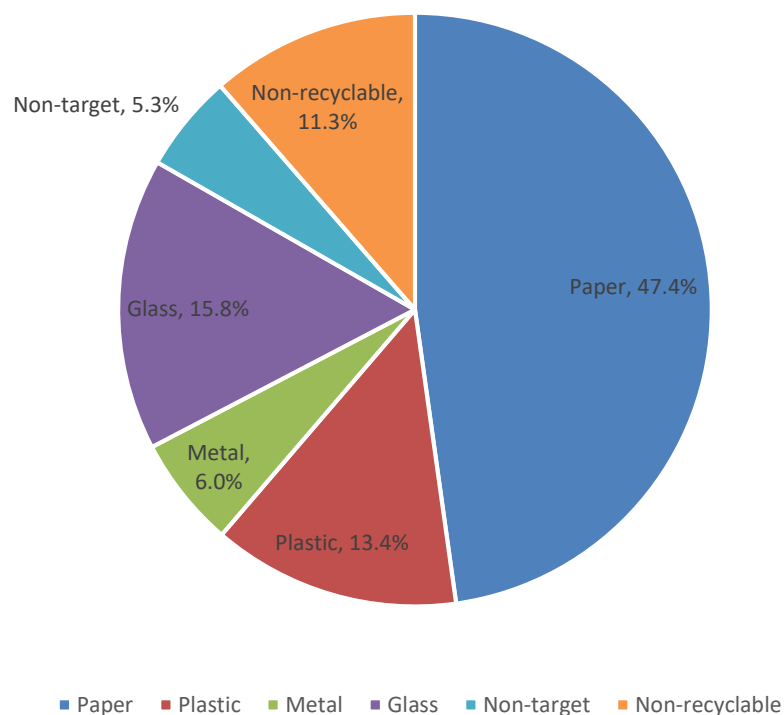


Figure 1: Average composition of sampled input material, Q4 2019 (England)

² Listed as either “other supplier” or “Another MF or Waste Facility” in the waste return.

Table 1: Breakdown of samples from waste received by responding MFs, split by material type, Q4 2019 England

Material Type	Percentage of waste received
Target material	83.4% ³ (Inter-quartile range ⁴ 75.8% – 88.9%)
Of which:	
• Paper	47.4%
• Plastics	13.4%
• Metals	6.0%
• Glass	15.8%
Non-target recyclable material ⁵	5.3%
Non-recyclable material ⁶	11.3%
All material received	100%

Time series of input stream analysis: England

Table 2 and Figure 2 show that since Q1 2016 input tonnes have varied by 86,731 between the highest tonnage of 897,816 in 2016 Q2 and lowest of 811,085 in Q3 2017. There have been several fluctuations in the input tonnes throughout the reported quarters, with a fall of input tonnes by 2,791 between the previous (Q3 2019) and current quarter (Q4 2019).

Table 2: Total input tonnes in England Q1 2016 – Q4 2019

Quarter	Total input tonnage
2016 – Q1	880,307
2016 – Q2	897,816
2016 – Q3	852,397
2016 – Q4	884,406
2017 – Q1	855,900
2017 – Q2	826,312
2017 – Q3	811,085
2017 – Q4	823,499
2018 – Q1	884,711
2018 – Q2	860,708
2018 – Q3	838,894
2018 – Q4	842,099
2019 – Q1	865,531
2019 – Q2	840,950
2019 – Q3	852,633
2019 – Q4	849,842

³ Average is weighted by the total sample tonnage of each MF-supplier pairing

⁴ The inter-quartile range shows the distribution of the middle 50% of the sample.

⁵ Material that is capable of being recycled but is not a target material for that facility.

⁶ Waste material that is not capable of being recycled (e.g. disposable nappies).

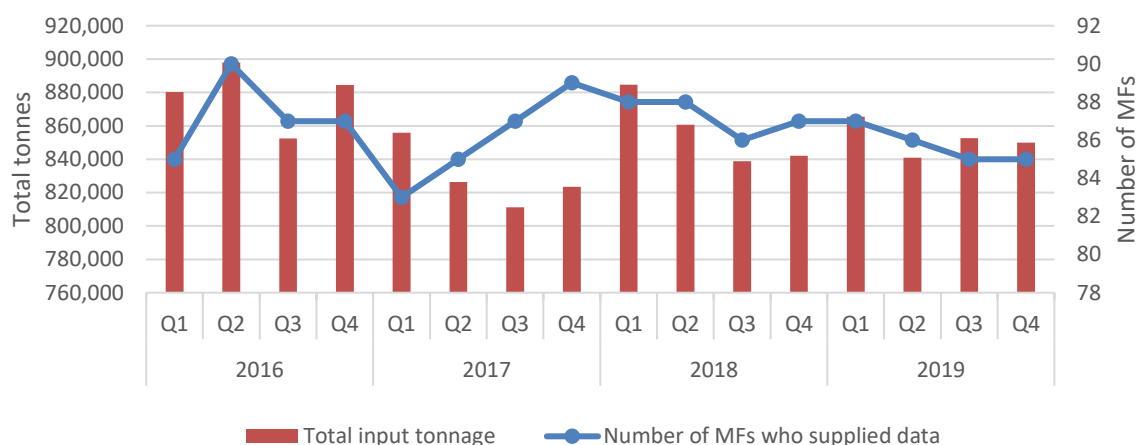


Figure 2: Changes in input tonnes in England Q1 2016 - Q4 2019

Table 3 and Figure 3 show there has been little change in target waste received since Q1 2016. The highest level of target material was 87.2% in Q2 2016, with the lowest at 83.4% in the current quarter (Q4 2019). The largest fluctuation of target material between two consecutive quarters took place between Q3 2016 and Q4 2016, with a decrease of 1.2%. Target material saw a fall of 1.0% in Q4 2019 to the lowest levels reported since Q1 2016. This dip in target material corresponds with an increase in the percentage of non-recyclable material, which for Q4 2019 reached the highest level since recordings began in Q4 2014. This shift towards larger proportions of non-recyclable material reflects a general trend over the last two years of reporting since Q4 2017.

Table 3: Breakdown of samples from input streams in England Q1 2016 - Q4 2019

	Average percentage of composition		
	Target material	Non-target material	Non-recyclable material
2016 - Q1	86.1	4.6	9.2
2016 - Q2	87.2	4.7	8.1
2016 - Q3	87.1	5.0	7.9
2016 - Q4	85.9	5.7	8.3
2017 - Q1	86.0	5.9	8.1
2017 - Q2	85.5	5.8	8.5
2017 - Q3	85.5	7.4	7.0
2017 - Q4	85.6	5.3	9.0
2018 - Q1	84.9	5.5	9.6
2018 - Q2	84.8	5.9	9.3
2018 - Q3	84.2	6.0	9.7
2018 - Q4	83.9	5.8	10.2
2019 - Q1	84.0	5.7	10.3
2019 - Q2	83.9	5.9	10.2
2019 - Q3	84.4	5.6	10.0
2019 - Q4	83.4	5.3	11.3

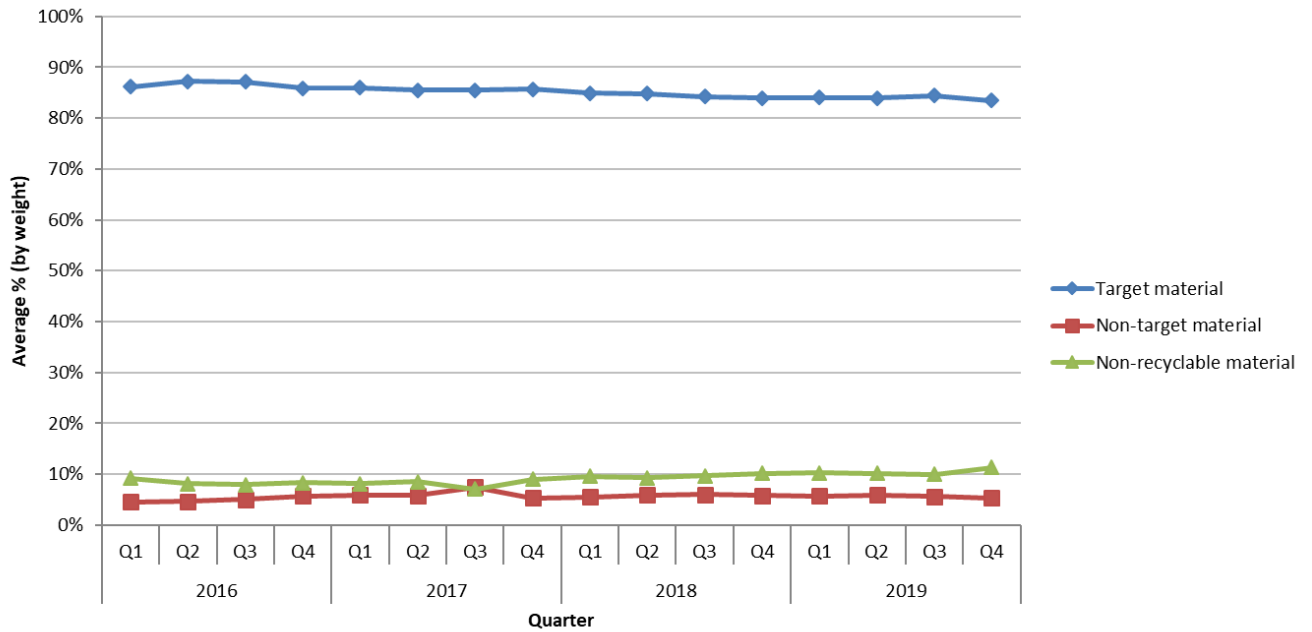


Figure 3: Fluctuations in input stream samples in England Q1 2016 – Q4 2019

MF Input stream analysis: Wales

The total tonnage of mixed material entering the MFs in Q4 2019 was 65,379 tonnes. 535 samples were taken which amounted to approximately 36 tonnes.

Table 4 below shows that the average percentage of target material received by responding MFs in Q4 2019 was 88.3%, which is a 1.5% decrease from the previous quarter (89.8%).

Table 4: Breakdown of samples from waste received by responding MFs split by material type, Q4 2019 Wales

Material Type	Percentage of waste received
Target material	88.3%
Of which:	
• Paper	50.4%
• Plastics	13.0%
• Metals	6.6%
• Glass	16.5%
Non-target recyclable material	4.8%
Non-recyclable material	6.9%
All material received	100%

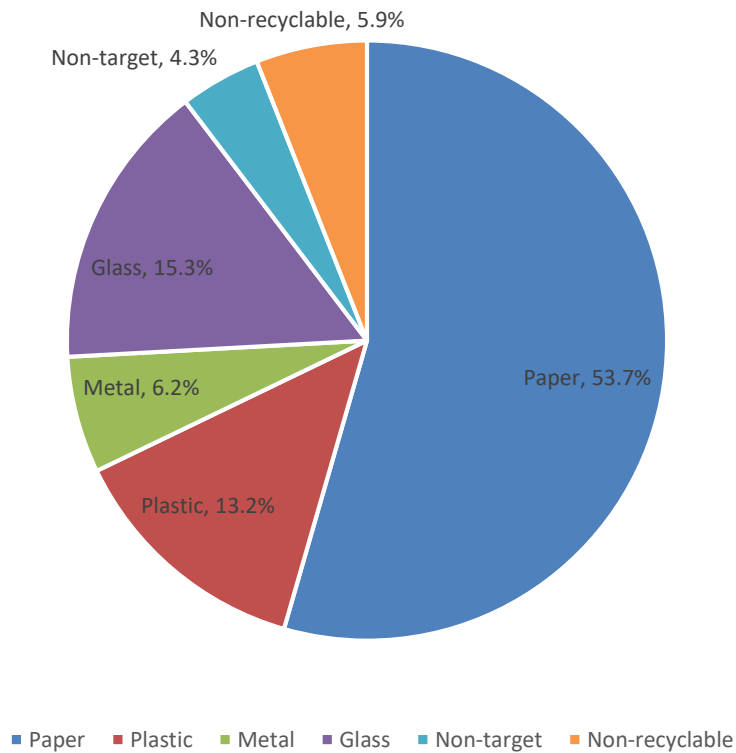


Figure 4: Average composition of sampled input material Q4 2019 (Wales)

Time series of input stream analysis: Wales

Figure 5 and Table 5 show there has been a small amount of variation in input tonnes in Wales since Q1 2016 – 24,046 tonnes between the lowest input tonnage of 59,490 in Q3 2018, and the highest of 83,536 in Q1 2016. In Q1 2018 input tonnes dipped below 70,000 tonnes for the first time since Q2 2015, with tonnage levels fluctuating over recent quarters. The current quarter (Q4 2019) shows a small decrease in tonnes (1,632) from the previous quarter bringing it to 65,379 tonnes.

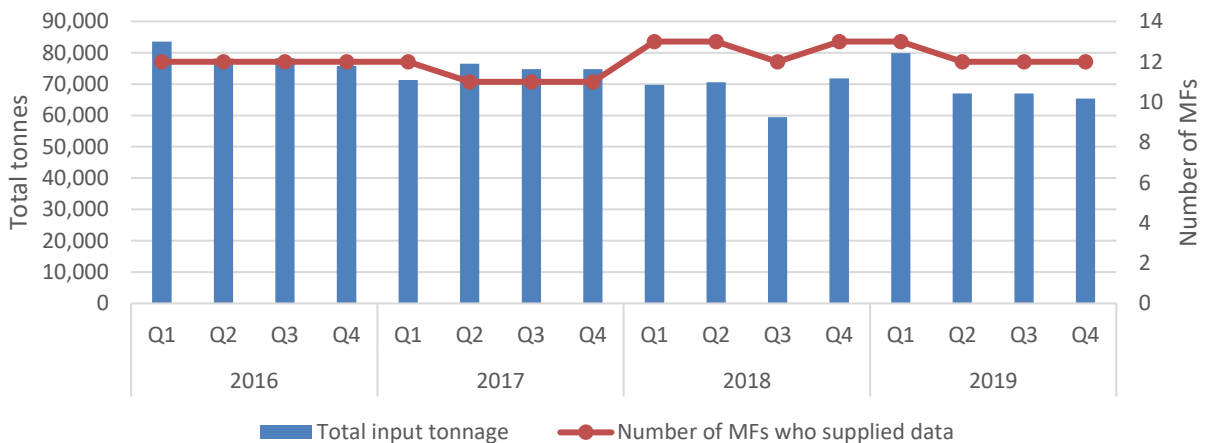


Figure 5: Changes in input tonnes in Wales Q1 2016 – Q4 2019

Table 5: Total input tonnes in Wales Q1 2016 – Q4 2019

Quarter	Total input tonnage
2016 – Q1	83,536
2016 – Q2	78,089
2016 – Q3	78,199
2016 – Q4	75,795
2017 – Q1	71,269
2017 – Q2	76,461
2017 – Q3	74,738
2017 – Q4	74,779
2018 – Q1	69,769
2018 – Q2	70,615
2018 – Q3	59,940
2018 – Q4	71,839
2019 – Q1	79,891
2019 – Q2	66,979
2019 – Q3	67,011
2019 – Q4	65,379

Table 6 and Figure 6 show that there has been a decrease in the percentage of target material (1.5%), corresponding with an increase in non-target (0.5%) material and non-recyclable (1.0%) material since the last reporting period (Q3 2019). Since Q1 2016, there has been a 2.9% difference in target material received by MFs in Wales, between the highest level in Q1 2019 (89.8%) and the lowest level in Q4 2017 (86.9%). In Q3 2017, the percentage of non-recyclable material received exceeded that of non-target material for the first time. This has been seen in every quarter since, including Q4 2019.

Table 6: Breakdown of samples from input streams in Wales Q1 2016 – Q4 2019

	Average percentage of composition		
	Target material	Non-target material	Non-recyclable material
2016 – Q1	88.1	8.1	3.8
2016 – Q2	87.6	8.2	4.2
2016 – Q3	88.9	6.7	4.4
2016 – Q4	89.7	6.3	4.0
2017 – Q1	88.5	6.9	4.7
2017 – Q2	88.2	6.2	5.6
2017 – Q3	87.8	5.7	6.5
2017 – Q4	86.9	5.1	8.0
2018 – Q1	87.5	5.1	7.4
2018 – Q2	87.4	6.1	6.4
2018 – Q3	89.0	4.7	6.3
2018 – Q4	88.3	5.6	6.1
2019 – Q1	88.5	5.0	6.5
2019 – Q2	89.4	4.7	5.9
2019 – Q3	89.8	4.3	5.9
2019 – Q4	88.3	4.8	6.9

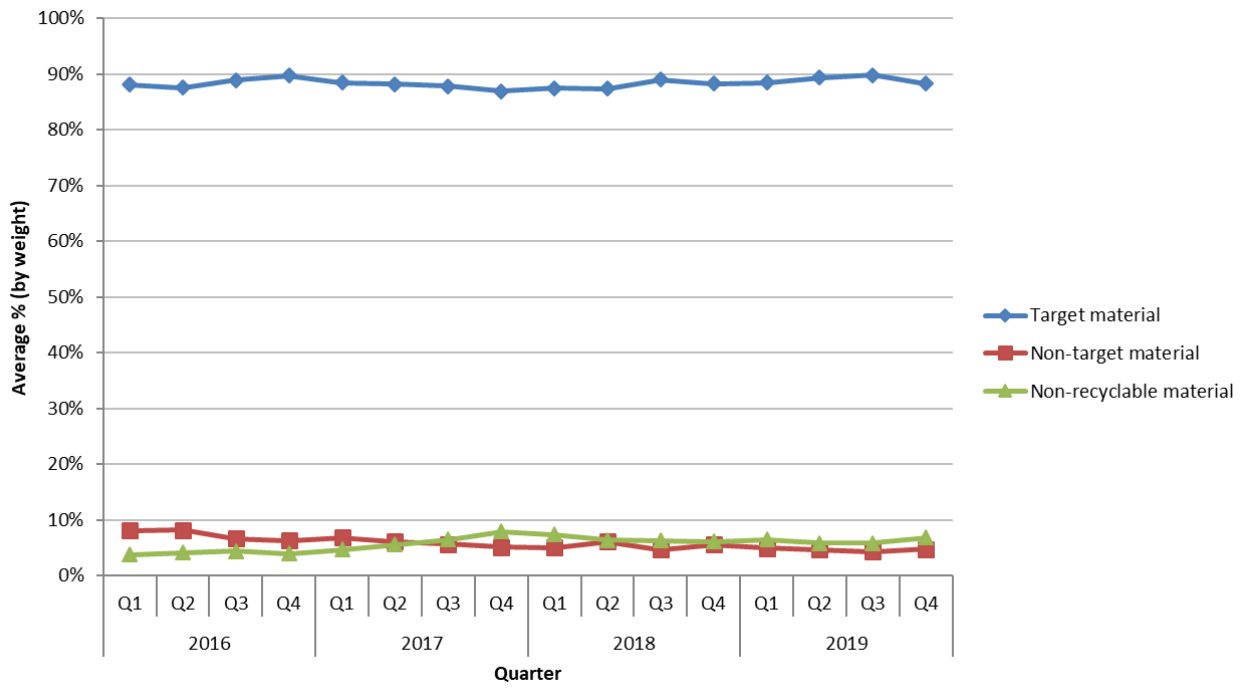


Figure 6: Fluctuations in input stream samples in Wales Q1 2016 – Q4 2019

MF Output stream analysis

MF Output stream analysis: England

The total tonnage of Specified Output Material (SOM) leaving the responding MFs in Q4 2019 was 604,199 tonnes. This is a decrease of 119,662 tonnes compared to the previous quarter. The MFs provided data based on a total of 20,060 samples totalling just under 741 tonnes which shows a decrease of 4,699 samples from the last quarter.

SOM produced by MFs contain some materials that are non-target and non-recyclable. Table 7 below is based on the sampling data of outputs and shows that the average percentage of target material of responding MFs is 89.3% or higher for all of the four main SOM. Figure 7 displays the target material percentage and inter-quartile range for each material. There has been a decrease in the average percentage of glass by 1.0% and paper by 0.4%. For plastic and metal, there has been a small increase in by 0.4% each. The variability across samples as indicated by the inter-quartile range is lowest for metal and highest for plastic.

Table 7: Summary of samples taken of Specified Output Materials (SOM) produced by responding facilities, Q4 2019 England (data for Q3 2019 in brackets)

SOM	Grades included	Weighted mean average % targeted material in output⁷	Inter-quartile Range
Paper	Cardboard, Newspapers and Magazines, Paper – Mixed	97.2% (97.6%)	94.2%-99.0% (95.1%-99.1%)
Plastic	Hard Plastic, HDPE Bottles – Clear, HDPE Bottles – Coloured, HDPE Bottles – Mixed, Household Plastic Film, LDPE Film – Clear, LDPE Film – Coloured, Mixed Plastic, Mixed Plastic Bottles, Mixed Rigid Plastic, PET Bottles – Clear, PET Bottles – Coloured, PET Bottles – Mixed, Polypropylene (PP), Pots, Tubs and Trays (PTT)	89.3% (88.9%)	87.2%-98.1% (86.4%-98.0%)
Metal	Aluminium, Scrap metal, Steel	94.6% (94.2%)	93.0%-97.7% (93.3%-97.7%)
Glass	Glass – Clear, Glass – Brown, Glass – Green, Glass – Mixed (Aggregate/Glass Sand), Glass – Mixed (Container / Glass fibre)	91.4% (92.4%)	91.0%-96.2% (91.3%-97.0%)

⁷ Average weighted by total tonnage of each MF-SOM grade combination.

Figure 7: Inter-quartile range of target material from output samples, Q4 2019 (England)

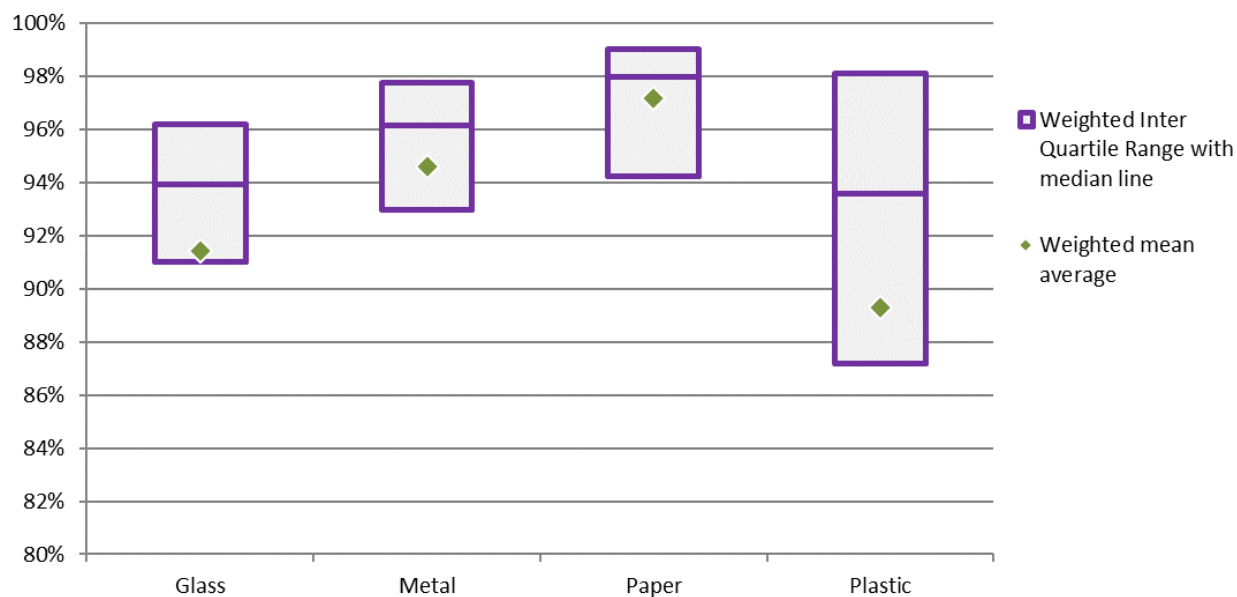


Table 8: Percentage Target Material from sampling data of Specified Output Materials (SOM) Q2 2019 – Q4 2019 England

	Target material (%)			
	Glass	Metal	Paper	Plastic
2019 Q2	91.7	94.1	97.6	90.1
2019 Q3	92.4	94.2	97.6	88.9
2019 Q4	91.4	94.6	97.2	89.3

MF Output stream analysis: Wales

The total tonnage of SOM leaving the responding MFs in Q4 2019 was 45,553 tonnes which is 4,383 tonnes less than Q3 2019.

SOM produced by MFs contain some materials that are non-target and non-recyclable. Table 9 below is based on the sampling data of outputs and shows that the average percentage of target material in the outputs of responding MFs is 93.5% or higher for all the four main SOM. The weighted mean average for glass decreased by 1.4% and paper decreased by 0.3%. Plastic increased by 2.0% and metal increased by 0.4% since the last quarter (Q3 2019).

Table 9: Summary of samples taken of Specified Output Materials (SOM) produced by responding facilities, Q4 2019 Wales (data for Q3 2019 in brackets)

SOM	Grades included	Average % targeted material
Paper	Cardboard, Newspapers and Magazines, Paper - Mixed	98.2% (98.5%)
Plastic	Hard Plastic, HDPE Bottles – Clear, HDPE Bottles – Coloured, HDPE Bottles – Mixed, Household Plastic Film, LDPE Film – Clear, LDPE Film – Coloured, Mixed Plastic, Mixed Plastic Bottles, Mixed Rigid Plastic, PET Bottles – Clear, PET Bottles – Coloured, PET Bottles – Mixed, Polypropylene (PP), Pots, Tubs and Trays (PTT)	96.1% (94.1%)
Metal	Aluminium, Scrap metal, Steel	98.0% (97.6%)
Glass	Glass – Clear, Glass – Brown, Glass – Green, Glass – Mixed (Aggregate/Glass Sand), Glass – Mixed (Container / Glass fibre)	93.5% (94.9%)

Time series of output stream analysis: Wales

Figure 9 shows that in Wales there has been some variation in the average percentage of targeted materials since Q1 2016. Glass has shown the greatest variation in target material, with a difference of 13.4% between the lowest percentage of 81.9% in Q1 2016 and highest percentage of 95.3% in Q2 2019. Metal has shown the least variation, with a difference of 2.4% between lowest percentage of 95.7% Q2 2016 and highest percentage of 98.1% in Q2 2019. Glass reached the lowest level of any material in Q1 2016 (81.9%) and plastic the highest of 98.8% in Q3 2018. Fluctuations for Wales are largely due to the small sample size and the numbers of facilities that notify over time.

Table 10: Percentage Target Material from sampling data of Specified Output Materials (SOM)
Q1 2016 – Q4 2019 Wales

	Target material (%)			
	Glass	Metal	Paper	Plastic
2016 Q1	81.9	96.6	94.8	96.0
2016 Q2	85.1	95.7	96.4	97.6
2016 Q3	88.5	98.0	97.0	93.8
2016 Q4	90.4	97.1	97.3	97.3
2017 Q1	91.6	96.9	97.3	97.6
2017 Q2	90.1	97.8	98.2	97.8
2017 Q3	89.8	95.8	97.5	98.5
2017 Q4	85.7	98.1	95.9	98.4
2018 Q1	91.3	97.3	98.4	96.7
2018 Q2	89.0	96.9	98.3	98.0
2018 Q3	93.3	97.4	98.6	98.8
2018 Q4	91.6	97.6	98.5	96.0
2019 Q1	93.6	97.8	98.4	95.9
2019 Q2	95.3	98.1	98.4	95.4
2019 Q3	94.9	97.6	98.5	94.1
2019 Q4	93.5	98.0	98.2	96.1

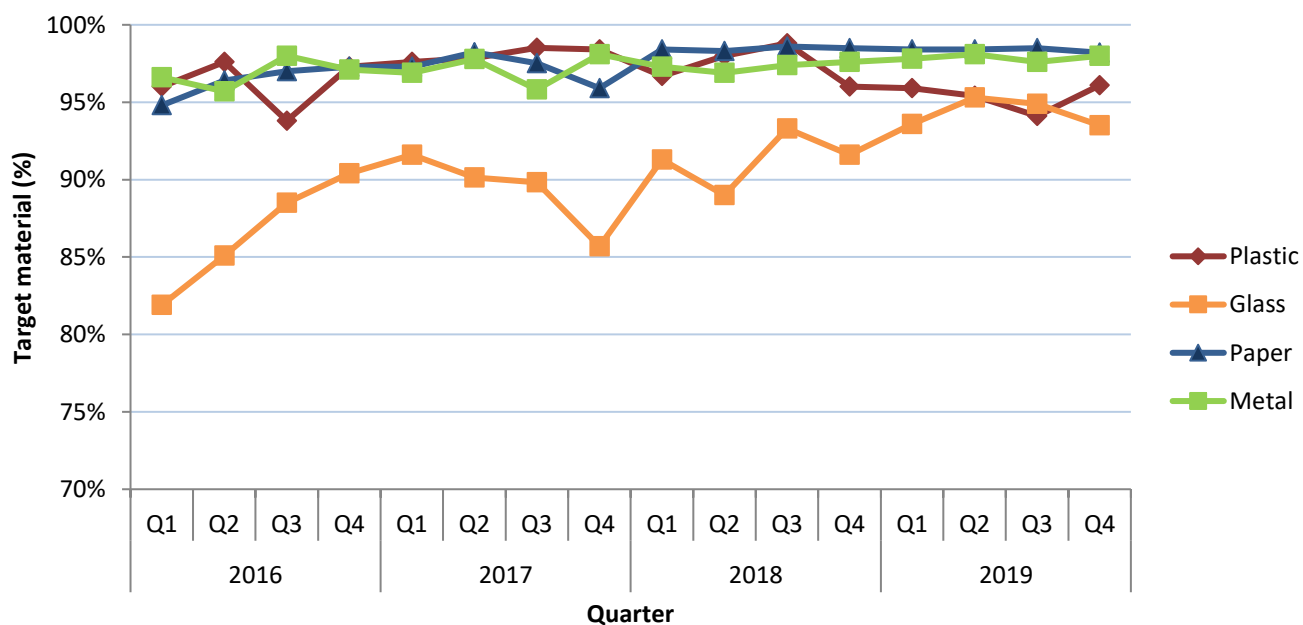


Figure 9: Variation in Target Material (%) from sampling data of Specified Output Materials (SOM)
Q1 2016 – Q4 2019 Wales

Date of next release

The release of January – March 2020 data is expected later in 2020. There will be a commentary on the data at this time.

Date of analysis – 30/06/20

This analysis uses data that were current on this date. The October – December 2019 quarterly data may get updated in future quarters.

Annex - The Portal and the MF Regulations

The Regulations require qualifying Materials Facilities (MFs)⁸ to provide quarterly details of the mixed waste tonnage received from each supplier and the output tonnage despatched by four specified material streams. Under the Regulations MFs are also required to take samples of the input and output material and identify the average percentage of target, non-target and non-recyclable material. This data will enable the market to obtain a greater understanding of recycling quality, through the transparency of data in this area.

Transitional sampling arrangements changed on 1 October 2016. For mixed waste inputs samples must be taken for every 125 tonnes received from each supplier (except where the mixed waste is being transferred to another MF for separating into specified output material). For specified output material (SOM) the sampling frequency for paper SOM changed to 1 sample for every 60 tonnes produced and for plastic SOM sampling, frequency changed to 1 sample for every 15 tonnes produced.

The online Materials Facility Reporting Portal ([The Portal](#)) was developed to provide a simple way for users across the sector to display and interrogate the sampling data returned by the MFs to the Regulators. Where a facility has responded to queries from The Regulator by resubmitting its return, the data displayed in The Portal reflects the update. Where no response to queries has been received, the data shown is the original supplied by the MF. There is no distinction in the Portal to whether there has been a response from the facility. All data is included to promote transparency.

MF Input streams

The Portal displays the following input stream data for each MF-supplier pairing⁹:

- Tonnes of mixed waste material entering facility;
- Number of samples taken;
- Total sample weight;

⁸ A qualifying MF is defined as a regulated facility that receives mixed waste material in order to separate it into specified output material (SOM) for the purpose of selling it, or transferring it to other facilities or persons to enable that material to be recycled by those facilities or persons. To qualify, a facility must receive or expect to receive 1,000 tonnes or more of mixed waste material over a 12-month period

Mixed waste is defined as material that:

- (a) originates
 - (i) from households; or
 - (ii) from other sources but is similar to household waste in terms of its nature or composition; and
- (b) consists in the largest proportion of two or more of the following kinds of target materials mixed together:
 - (i) glass
 - (ii) metal
 - (iii) paper
 - (iv) plastic

⁹ Sampling is required where the input tonnage from the supplier reaches the sampling thresholds as stated in The Regulations. for mixed waste being separated into SOM (rather than transferred to another MF for separating)

- Average percentage composition of non-recyclable material.¹⁰

Further detail around the sampling regime, definitions of terms and the calculations on the data required by MFs can be found in the MF Sampling Guidance¹¹.

MF Output streams

Each MF submitted the following data for each grade of Specified Output Material (SOM) that it produces:

- Tonnes of material leaving facility;
- Number of samples;
- Total sample weight;
- Target material;
- Average percentage composition of the target material;
- Standard deviation of the average percentage composition levels for the target materials found in samples
- Standard error of the mean, and 95% confidence interval of total target percentage composition¹²;
- Average percentage composition of non-target material; and
- Average percentage composition of non-recyclable material.

¹⁰Waste material that is not capable of being recycled (e.g. disposable nappies).

¹¹ <http://www.wrap.org.uk/sites/files/wrap/MF%20Sampling%20Guidance%20April%202014.pdf>

¹² Standard error of the mean and 95% confidence intervals are calculated by WRAP.

While we have tried to make sure this report is accurate, we cannot accept responsibility or be held legally responsible for any loss or damage arising out of or in connection with this information being inaccurate, incomplete or misleading. This material is copyrighted. You can copy it free of charge as long as the material is accurate and not used in a misleading context. You must identify the source of the material and acknowledge our copyright. You must not use material to endorse or suggest we have endorsed a commercial product or service. For more details please see our terms and conditions on our website at www.wrap.org.uk

www.wrap.org.uk/mfrportal

