Information sheet

Materials Facility Reporting Portal Q3 2017 – Commentary

Key points

- This is the twelfth publication of data under the Environmental Permitting (England and Wales) Regulations 2016 (Schedule 9), relating to the reporting period, July - September (Q3) 2017, and represents 3 full years of data reporting by MF operators.

- The average percentage (by weight) of target material received by responding MFs in Q3 2017 was 85.5% for England and 87.8% for Wales. The figure for England is the same as the last quarter, and there has been a 0.4% decrease for Wales.

- The lowest average percentage (by weight) of a specified target material in the output material streams is for plastic in England (90.6%), and glass for Wales (89.8%).

Background

The MF Portal displays the input and output sampling data required by the Regulations for qualifying MFs[1]. 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 tonnages for all other input and output waste and materials from the facilities.

Facilities have been sampling and reporting for 36 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. 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 then 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.

General observations for Q3 2017

The data displayed in the MF Portal and summarised here is the latest supplied by the facilities for Q3 2017. 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 88 facilities notified the Regulator (in accordance with the Regulations) for Jul-Sep 2017 and 87 submitted a quarterly data return. The facility which did not submit has ongoing mitigating issues. In Wales, 12 facilities notified the Regulator, and 11 submitted data.

MF Input stream analysis

MF Input stream analysis: England

The waste supplied to the responding MFs in England was attributed directly to 220 local authorities (LAs) and 290 other suppliers (such as waste management companies or other waste facilities)[2].

The total tonnage of mixed material entering the MFs in Q3 2017 was 811,085 tonnes which is around 13,611 tonnes or 1.7% less than the previous quarter. The MFs provided data based on a total of 8,754 samples totalling around 815 tonnes.

Table 1 below shows that the average percentage (by weight) of target material received by responding MFs in Q3 2017 was 85.5% which is the same as the previous quarter.

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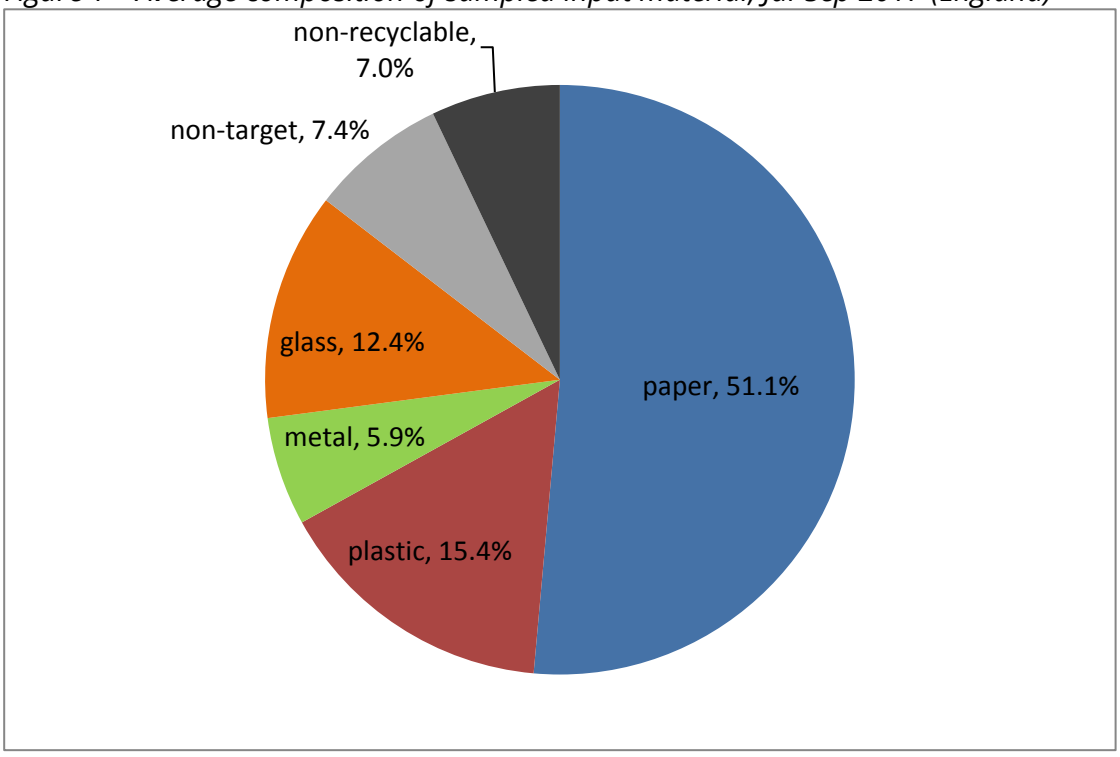
[1] *A qualifying MF is defined as a regulated facility that receives mixed waste material in order to separate it into specified output material (SOM) for the purpose of selling it, or transferring it to other facilities or persons to enable that material to be recycled by those facilities or persons.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

[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*, Q3 2017 England*

Material Type	**Percentage of waste received**
Target material	**85.5%**[3] (Inter-quartile range[4] 80.1% – 90.8%)
Of which:	
• Paper	51.1%
• Plastics	15.4%
• Metals	5.9%
• Glass	12.4%
Non-target recyclable material[5]	**7.4%**
Non-recyclable material[6]	**7.0%**
All material received	100%

Figure 1 – Average composition of sampled input material, Jul-Sep 2017 (England)



MF Input stream analysis: Wales

The total tonnage of mixed material entering the MFs in Q3 2017 was 74,738 tonnes. Eleven of the 12 of the notified facilities submitted data. 601 samples were taken which amounted to nearly 50 tonnes.

[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.*

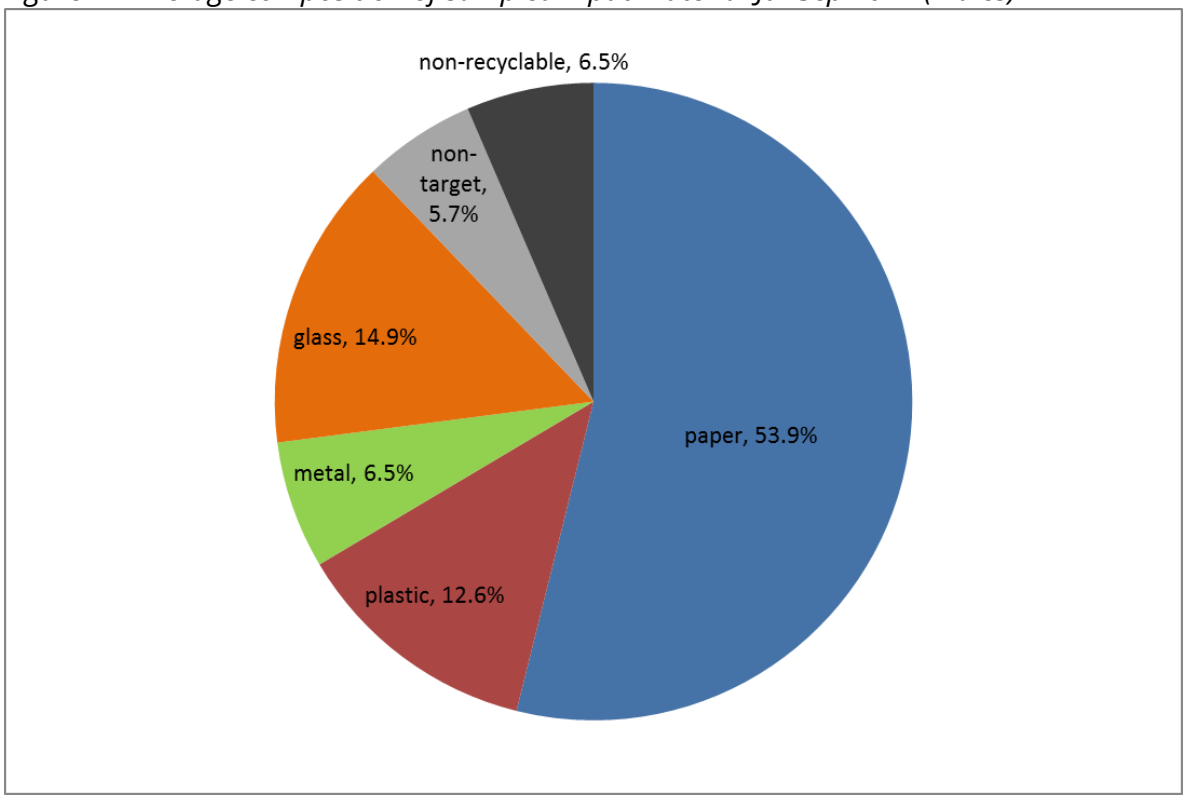
[6] *Waste material that is not capable of being recycled (e.g. disposable nappies).*

Table 2 below shows that the average percentage of target material received by responding MFs in Q3 2017 was 87.8%, which is a 0.4% decrease from the previous quarter (88.2%).

Table 2: Breakdown of samples from waste received by responding MFs, split by material type*, Q3 2017 Wales*

Material Type	**Percentage of waste received**
Target material	**87.8%**
Of which:	
• Paper	53.9%
• Plastics	12.6%
• Metals	6.5%
• Glass	14.9%
Non-target recyclable material	**5.7%**
Non-recyclable material	**6.5%**
All material received	100.0%

Figure 2 – Average composition of sampled input material Jul-Sep 2017 (Wales)



Time series of input stream analysis

Time series of input stream analysis: England

Table 3 and Figure 3 show there has been some variation in input tonnages since reporting started in Q4 2014. Input tonnages have declined for the last four quarters, with a fall of 73,321 tonnes since Q4 2016. The current quarter (Q3 2017) shows the lowest input tonnage since Q2 2015.

Table 3 Total input tonnages in England Q4 2014 – Q3 2017

	2014 Q4	**2015 Q1**	**2015 Q2**	**2015 Q3**	**2015 Q4**	**2016 Q1**	**2016 Q2**	**2016 Q3**	**2016 Q4**	**2017 Q1**	**2017 Q2**	**2017 Q3**
Total input tonn-age	789, 395	876, 744	817, 779	817, 851	886, 511	880, 307	897, 816	852, 397	884, 406	855, 900	824, 697	811, 085

Figure 3 Changes in input tonnages in England Q4 2014 – Q3 2017

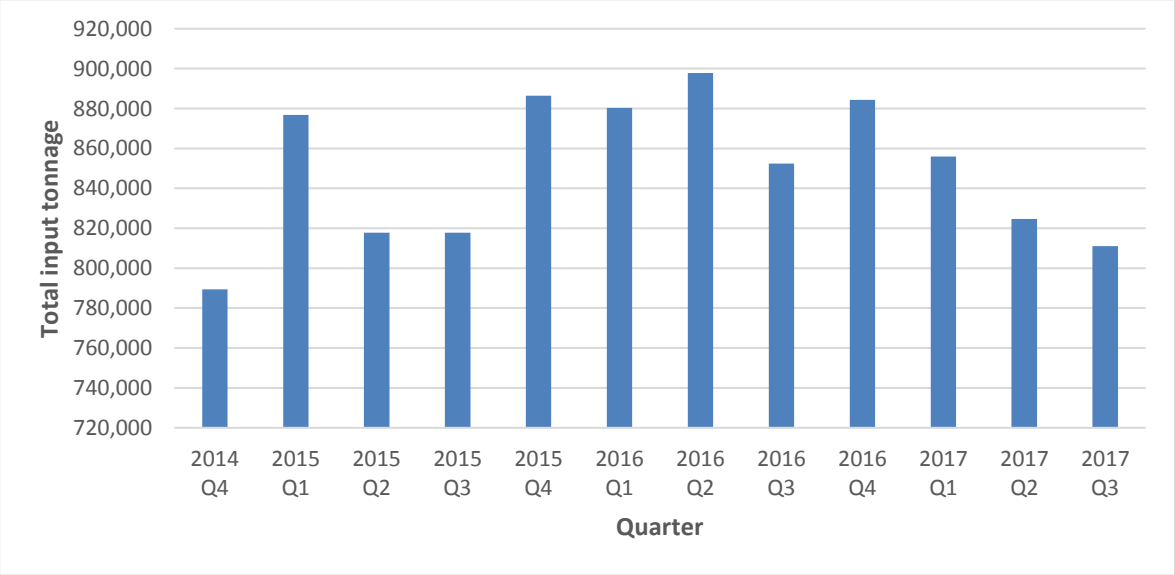
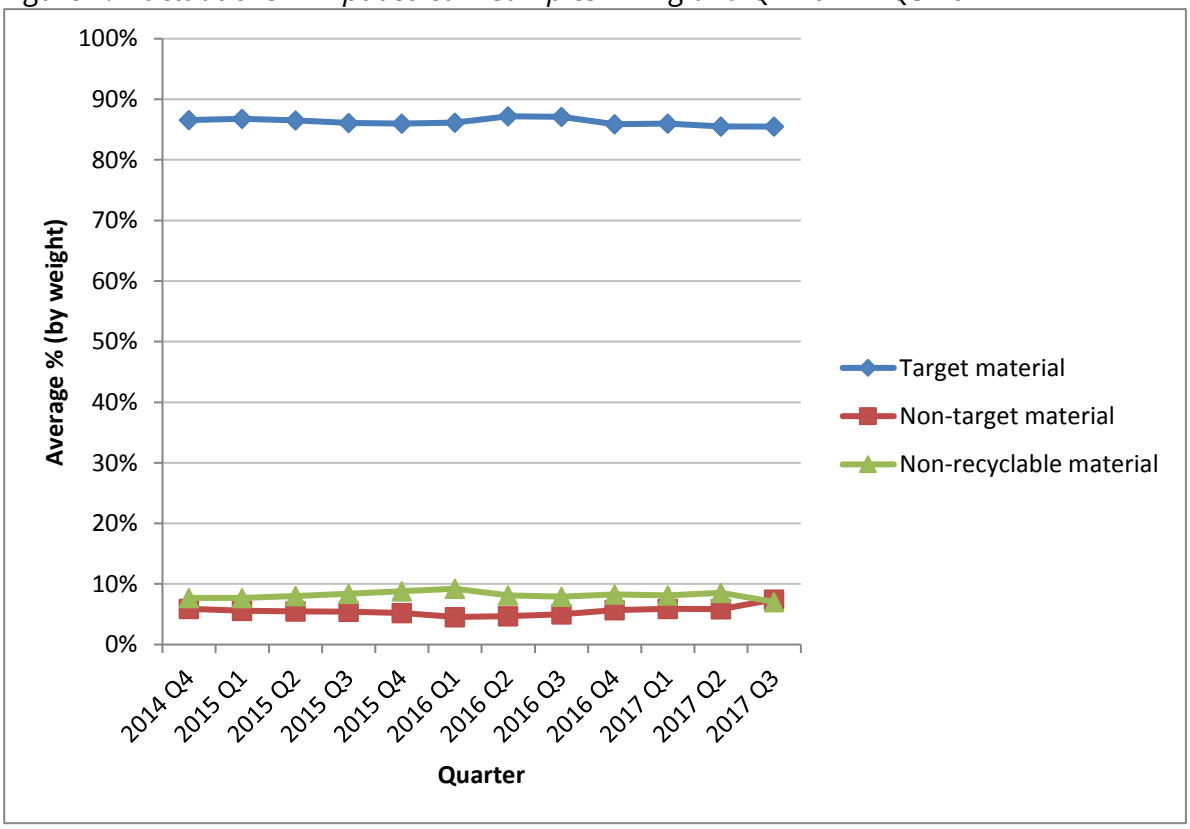


Table 4 and Figure 4 show there has been little change in target waste received since reporting started in Q4 2014. The largest fluctuation of target material between two consecutive quarters took place between Q4 2016 and Q3 2016, with a decrease of 1.2%. For the first time since reporting began, non-target waste received is now above that of non-recyclable waste. If this trend continues in the future, it would be worth further investigation.

Table 4: Breakdown of samples from input streams in England Q4 2014 – Q3 2017

Material Type	Average percentage of composition											
	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3
Target material	86.6	86.8	86.5	86.1	86.0	86.1	87.2	87.1	85.9	86.0	85.5	85.5
Non-target material	5.9	5.6	5.5	5.4	5.2	4.6	4.7	5.0	5.7	5.9	5.8	7.4
Non-recyclable material	7.7	7.7	8.0	8.4	8.8	9.2	8.1	7.9	8.3	8.1	8.5	7.0

Figure 4: Fluctuations in input stream samples in England Q4 2014 – Q3 2017



Time series of input stream analysis: Wales

Table 5 and Figure 5 show there has been a small amount of variation in input tonnages in Wales since reporting started in Q4 2014. Figures have stayed above 70,000 tonnes since Q2 2015.

Table 5 Total input tonnages in Wales Q4 2014 – Q3 2017

	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3
Total input tonnage	63,128	74,473	49,541	74,995	83,410	83,536	78,089	78,199	75,795	71,269	76,461	74,738

Figure 5 Changes in input tonnages in Wales Q4 2014 – Q3 2017

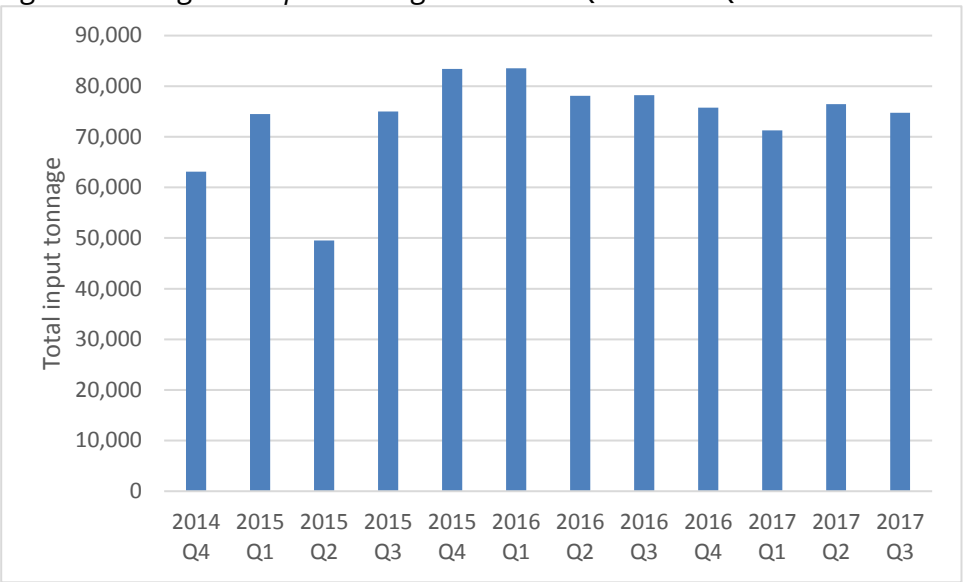
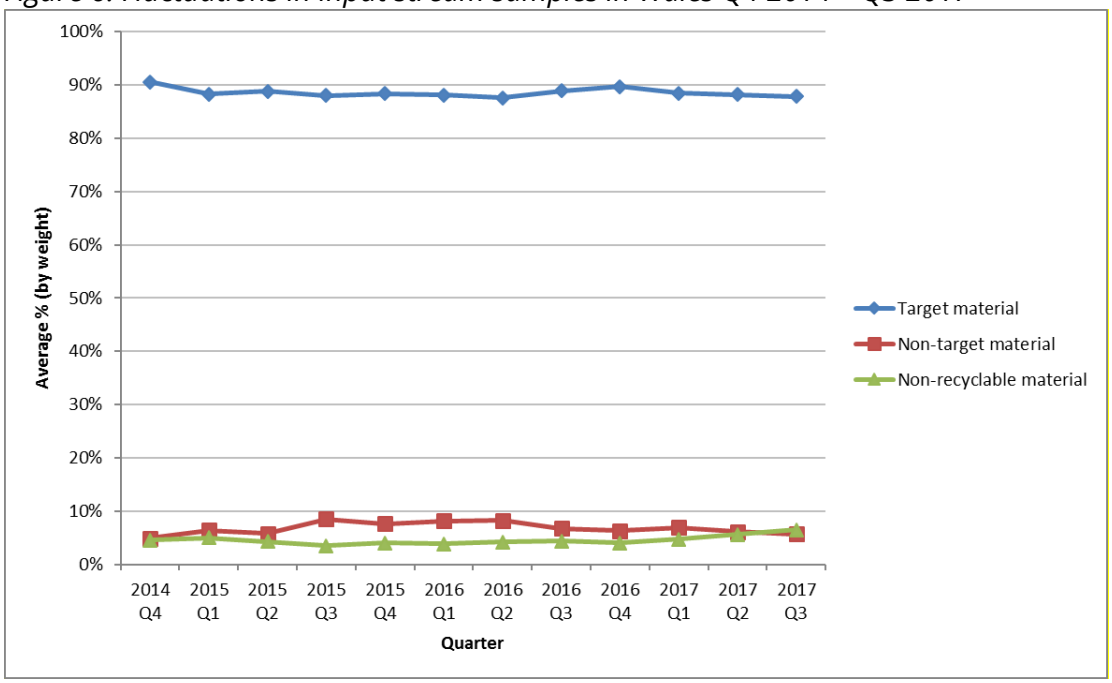


Table 6 and Figure 6 show there has been a small change in target material (0.4% decrease), non-target (0.5% decrease) and non-recyclable (0.9% increase) material since the last reporting period (Q2). There has been little change in target, non-target and non-recyclable waste received by MFs in Wales since reporting started in Q4 2014. The largest fluctuation of target material between two consecutive quarters took place between Q4 2014 and Q1 2015, with a decrease of 2.3%.

Table 6: Breakdown of samples from input streams in Wales Q4 2014 – Q3 2017

Material Type	**Average percentage of composition**											
	2014 Q4	**2015 Q1**	**2015 Q2**	**2015 Q3**	**2015 Q4**	**2016 Q1**	**2016 Q2**	**2016 Q3**	**2016 Q4**	**2017 Q1**	**2017 Q2**	**2017 Q3**
Target material	90.6	88.3	88.8	88.0	88.4	88.1	87.6	88.9	89.7	88.5	88.2	87.8
Non-target material	4.9	6.4	5.8	8.5	7.6	8.1	8.2	6.7	6.3	6.9	6.2	5.7
Non-recyclable material	4.5	5.0	4.3	3.5	4.0	3.8	4.2	4.4	4.0	4.7	5.6	6.5

Figure 6: Fluctuations in input stream samples in Wales Q4 2014 – Q3 2017



MF Output stream analysis

MF Output stream analysis: England

The total tonnage of Specified Output Material (SOM)[7] leaving the responding MFs in Q3 2017 was 630,679 tonnes. This is a decrease of 5,568 tonnes compared to the previous quarter. The MFs provided data based on a total of 18,903 samples totalling 735 tonnes which shows an increase from the last quarter.

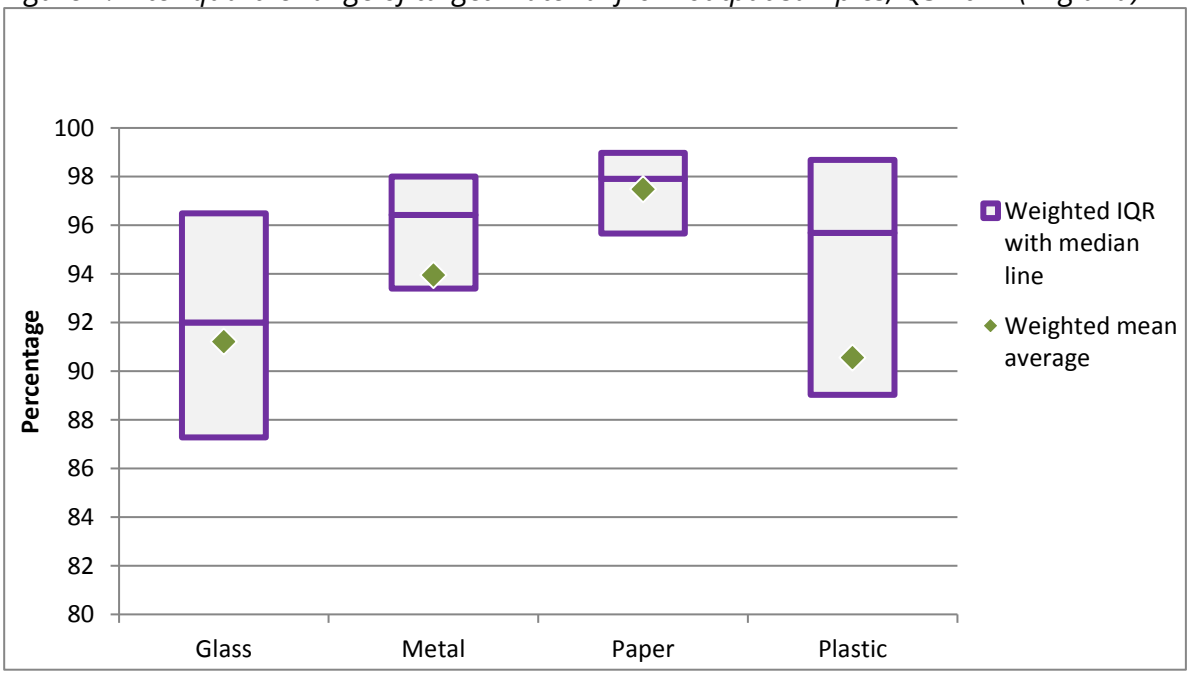
SOM produced by MFs contain some materials that are non-target and non-recyclable. Table 7 below is based on the sampling data of outputs and shows that the average percentage of target material of responding MFs is 90.6 % or higher for all of the four main SOM. Figure 7 displays the target material percentage and inter-quartile range for each material. There has been an increase of 0.1% in the average percentage of target material for metal. Glass has decreased by 0.8%, plastic by 0.3% and paper by 0.2%. The variability across samples as indicated by the inter-quartile range is lowest for paper and highest for plastic, which is the same as the previous five quarters.

[7] *Paper (including card), metal, plastic and glass*

Table 7: Summary of samples taken of Specified Output Materials (SOM) produced by responding facilities, Q3 2017 England (data for Q2 2017 in brackets)

SOM	Grades included	Weighted mean average percentage targeted material in output[8]	Inter-quartile Range
Paper	Cardboard, Newspapers and Magazines, Paper – Mixed	97.5% *(97.6%)*	95.7%-99.0% (95.5%-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)	90.6% *(90.8%)*	89.0%-98.7% *(87.9%-98.6%)*
Metal	Aluminium, Scrap metal, Steel	93.9% *(93.8%)*	93.4%-98.0% *(94.0%-98.2%)*
Glass	Glass – Clear, Glass – Brown, Glass – Green, Glass – Mixed (Aggregate/Glass Sand), Glass – Mixed (Container / Glass fibre)	91.2% *(92.0%)*	87.3%-96.5% *(90.6%-96.7%)*

Figure 7: Inter-quartile range of target material from output samples, Q3 2017 (England)



[8] *Average weighted by total tonnage of each MF-SOM grade combination.*

MF Output stream analysis: Wales

The total tonnage of SOM leaving the responding MFs in Q3 2017 was 55,371 tonnes which is 802 tonnes less than Q2 2017. Eleven of the 12 notified facilities provided data.

SOM produced by MFs contain some materials that are non-target and non-recyclable. Table 8 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 89.8% or higher for all the four main SOM. The weighted mean average for plastic increased by 0.7% since the last quarter (Q2). Glass has seen a decrease of 0.3%, metal has decreased by 2% and paper by 0.7%.

Table 8: Summary of samples taken of Specified Output Materials (SOM) produced by responding facilities, Q3 2017 Wales (data for Q2 2017 in brackets)

SOM	**Grades included**	**Average percentage targeted material**
Paper	Cardboard, Newspapers and Magazines, Paper - Mixed	97.5% *(98.2%)*
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)	98.5% *(97.8%)*
Metal	Aluminium, Scrap metal, Steel	95.8% *(97.8%)*
Glass	Glass – Clear, Glass – Brown, Glass – Green, Glass – Mixed (Aggregate/Glass Sand), Glass – Mixed (Container / Glass fibre)	89.8% *(90.1%)*

The smaller number of facilities compared to England make the calculation of inter-quartile ranges for the specific materials less meaningful and therefore these are not included in the table above.

Time series of output stream analysis

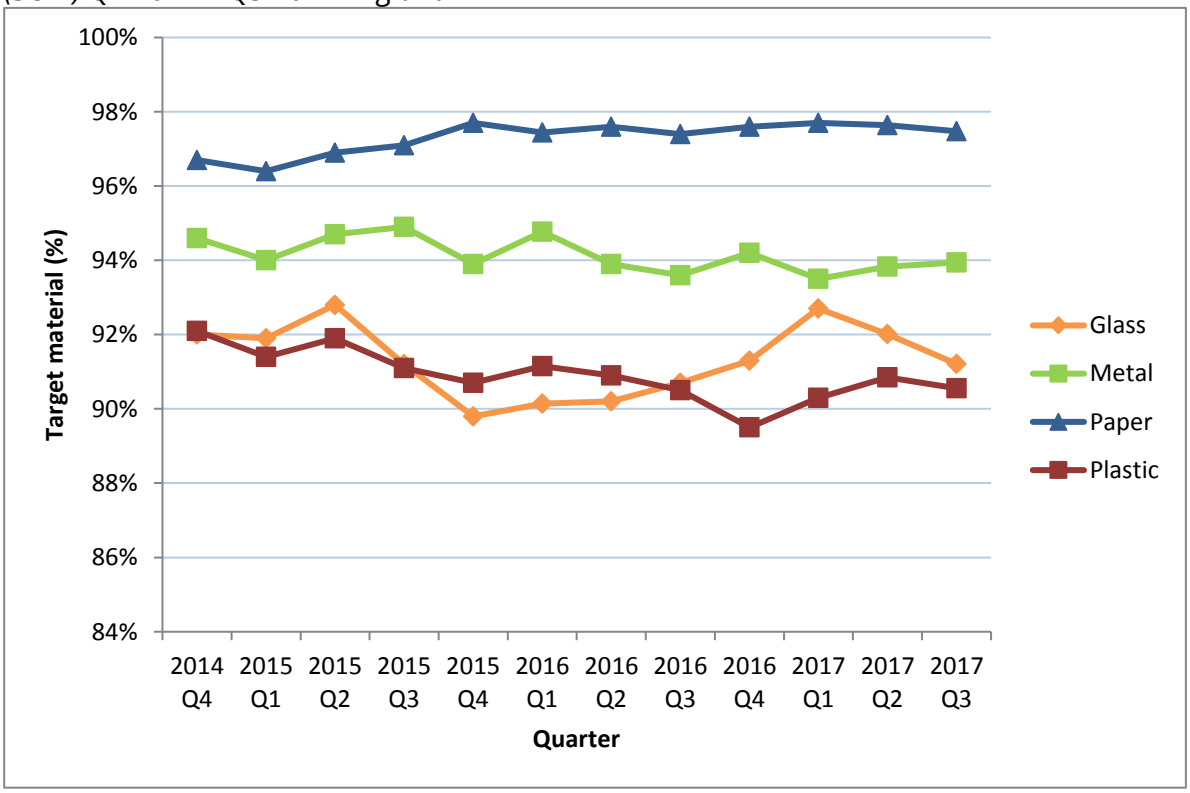
Time series of output stream analysis: England

Figure 8 shows that in England there has been some variation in the average percentage of targeted materials over the last twelve quarters since recording started. The average percentage of glass has shown the greatest variation with a reduction of 3% between Q2 2015 and Q4 2015, followed by an increase of nearly 3% back to over 92% of SOM by Q1 2017, then more recently decreased by around1.5% down to 91.2%.

Table 9: Percentage Target Material from sampling data of Specified Output Materials (SOM)Q4 2014 – Q3 2017 England

SOM	Target material (%)											
	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3
Glass	92.0	91.9	92.8	91.2	89.8	90.1	90.2	90.7	91.3	92.7	92.0	91.2
Metal	94.6	94.0	94.7	94.9	93.9	94.8	93.9	93.6	94.2	93.5	93.8	93.9
Paper	96.7	96.4	96.9	97.1	97.7	97.4	97.6	97.4	97.6	97.7	97.6	97.5
Plastic	92.1	91.4	91.9	91.1	90.7	91.2	90.9	90.5	89.5	90.3	90.8	90.6

Figure 8: Variation in Target Material (%) from sampling data of Specified Output Materials (SOM) Q4 2014 – Q3 2017 England



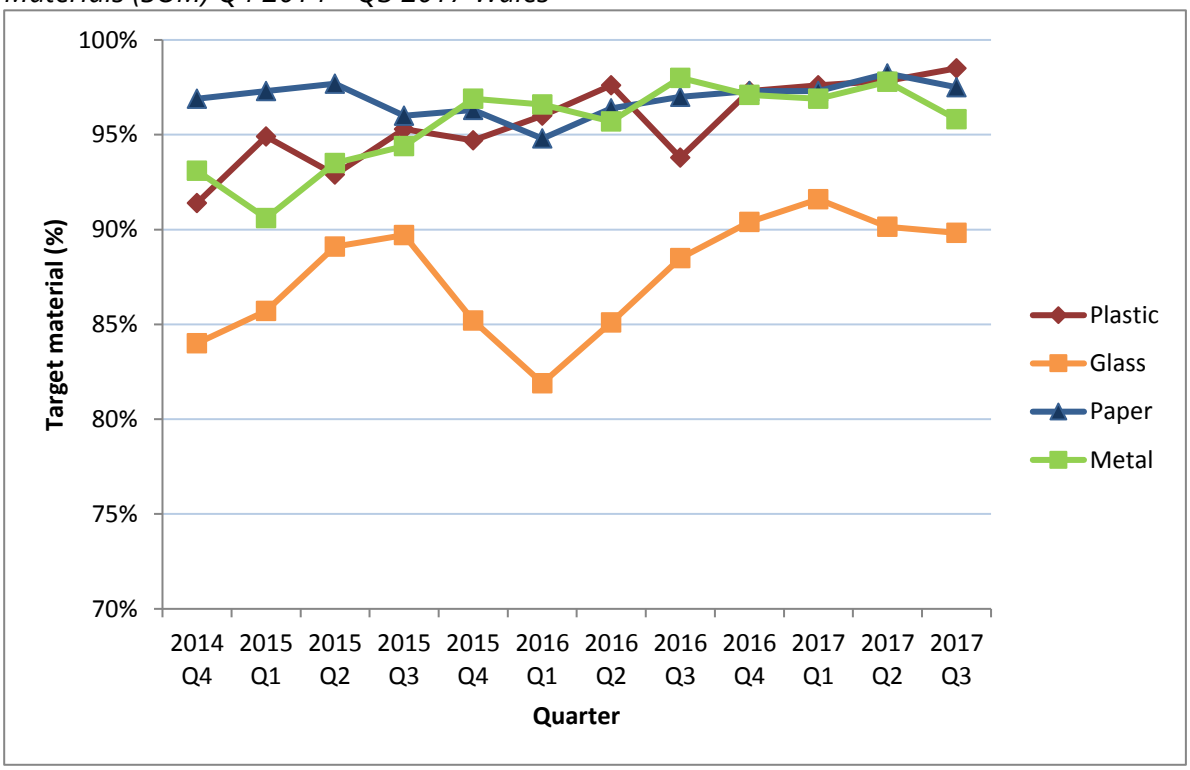
Time series of output stream analysis: Wales

Figure 9 shows that in Wales there has been some variation in the average percentage of targeted materials over the last twelve quarters. Glass has shown the greatest variation, rising by 9.7% between Q1 2016 and Q1 2017. After a decline of 3.8% between Q2 2016 and Q3 2016, plastic has since increased again by 4.7%. Metal is now at the lowest percentage of target material since Q2 2016. 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) Q4 2014 – Q3 2017 Wales

SOM	Target material (%)											
	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3
Glass	84.0	85.7	89.1	89.7	85.2	81.9	85.1	88.5	90.4	91.6	90.1	89.8
Metal	93.1	90.6	93.5	94.4	96.9	96.6	95.7	98.0	97.1	96.9	97.8	95.8
Paper	96.9	97.3	97.7	96.0	96.3	94.8	96.4	97.0	97.3	97.3	98.2	97.5
Plastic	91.4	94.9	92.9	95.3	94.7	96.0	97.6	93.8	97.3	97.6	97.8	98.5

Figure 9: Variation in Target Material (%) from sampling data of Specified Output Materials (SOM) Q4 2014 – Q3 2017 Wales



Date of next release
The release of October-December 2017 data is expected for May 2018. There will be a commentary on the data at this time.

Date of analysis – 23/01/18
This analysis uses the data that was current on this date. The July-September 2017 quarterly data may get updated in future quarters.

The data for April – June 2017 (Q2) has been updated at the time of this release.

Annex - The Portal and the MF Regulations

The Regulations require qualifying Materials Facilities (MFs)[9] 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 pairing[10]:

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

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[9] *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

[10] *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 target material[11], broken down (where targeted) by:
    - Paper
    - Plastic
    - Metal
    - Glass
- 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 composition[12];
- Average percentage composition of non-target material[13]; and
- Average percentage composition of non-recyclable material.[14]

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 Guidance[15].

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 composition[16];
- Average percentage composition of non-target material; and
- Average percentage composition of non-recyclable material.

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[11] A material that is identified by the operator of a Materials Facility as destined to be separated out from Mixed Waste Material in order to produce bulk quantities of that identified material.

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

[13] Material that is capable of being recycled but is not a target material for that facility.

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

[15] http://www.wrap.org.uk/sites/files/wrap/MF%20Sampling%20Guidance%20April%202014.pdf

[16] Standard error of the mean and 95% confidence intervals are calculated by WRAP.