THE ADVISORY COMMITTEE ON PACKAGING

REVIEW OF GLASS PACKAGING RECYCLING

October 2013

EXECUTIVE SUMMARY

INTRODUCTION

The volume of glass packaging reported as being reprocessed or exported for processing during the first 3 quarters of 2012 was significantly lower than figures for previous years. This led to a dramatic and unexpected increase in PRN prices towards the end of the year which has continued into 2013. Fortunately the last quarter of 2012 reported record reprocessing tonnages and so UK business targets were met, but producers were faced with significantly higher compliance costs than they had expected.

As a result, the ACP was asked by the Minister to investigate the causes for this situation and make recommendations to mitigate the effects and prevent it from happening in the future.

To assist with this work, in April 2013, WRAP commissioned Valpak Consulting (subsequently referred to as Valpak) to carry out a detailed study into glass packaging flows (GlassFlow 2012). Valpak presented their preliminary results to the ACP on 23rd July 2013. This report summarises the ACPs recommendations to the Minister, Defra, the Environment Agency and others as a result of this work.

VALPAK REPORT

The study carried out by Valpak involved a detailed reappraisal of the previous assumptions for glass packaging production and flow on to the market. It also looked at the corresponding impact of this on recycling levels, targets and potential compliance costs to producers.

The study was carried out in detailed consultation with the industry concerned. In particular there was close collaboration with a number of key representative trade associations including British Glass, British Soft Drinks Association, British Beer and Pub Association, Wine and Spirit Trade Association, British Retail Consortium, and the Food and Drink Federation as well as Environment Agency and Defra officials.

KEY FINDINGS

The key findings of GlassFlow are that the previous assumptions on glass packaging flowing on to the UK market were overstated and that the growth assumptions used to project them forward were also over stated.

In addition, previous estimates included an allowance for glass packaging which was illegally imported into the UK to avoid alcohol import duties.

As a result of these two factors, the tonnage of glass packaging on the market is now estimated to be some 350kt per year less than previously understood, and not expected to grow significantly for the foreseeable future.

SUMMARY OF RECOMMENDATIONS

1. The Government should use new Glass flow tonnage estimates for material placed on the market of approximately 2,400kt per year both to calculate statutory business recycling targets and as the basis for reporting to Europe (Action – Defra)

2. Illegal imports should be excluded from future estimates for material placed on the market and calculations for statutory business recycling targets (Action – Defra)

3. Defra should revise statutory business recycling targets for 2014 and beyond to a level which provides a reasonable cushion above the national target, but minimises cost to business. The ACP initially suggests aiming for a national achievement of 63% to 64% in 2014 which would require a business target of approximately 77% (Action – Defra)

4. In view of the urgency, Defra should develop a timetable to enable making the amendments to business targets as early as possible in 2014. This should include issuing appropriate communications to industry during 2013 and 2014 to inform them of the likelihood of a change so that expectations can be set. (Action – Defra)

5. The ACP should implement a timely and regular process for monitoring quarterly glass reprocessing data to demonstrate transparency and to pick up potential market shortfalls at an earlier stage. The EA should provide the ACP with information in advance of publication so the ACP can prepare and make public comments immediately the figures are published. (Action EA to ACP)

6. ACP would like the EA to consider how to quantify more of the recycled material which is not accounted for in the PRN system, particularly by encouraging processors who currently do not issue PRNs to register. (Action – EA)

7. Producers should be briefed before the start of the next compliance year on the market principles behind the PRN system (Action – Compliance schemes)

8. ACP to monitor and keep Defra up to date on trends, data etc (Action – ACP)

9. EA should prioritise the elimination of fraud from the system (Action – EA)

THE ACP'S CONSIDERATIONS ON GLASS RECYCLING PERFORMANCE

Background

In the last quarter of 2012 the costs of compliance relating to recycling of glass packaging waste increased dramatically due to an unexpected reduction in supply of cullet. This prompted glass reprocessors to draw from stockpiles of mixed glass which increased processing costs. The price of PRNs followed the expected trajectory in such a shortfall situation. Obligated companies had no option other than to meet the higher PRN prices in order to avoid fines. This unexpected spike in the cost of compliance gave rise to a series of questions;

Was it possible to see the price rise coming?
Why did no one give prior notice to producers?
Where was all the recycled glass?
What were the key reasons for the shortfall in Q1 to Q3 2012?
Was this a "one off" or is there a more fundamental issue?
How can it be addressed in future?
What steps can be taken to avoid sudden and unexpected price spikes?
Is enough data readily available and in a timely manner?

Questions were also asked in the House of Commons and Government asked the ACP to provide a statement on the situation, recommendations for action and to ensure close monitoring in 2013. This report is in response to that request.

Statement of the 2012 situation

The table below shows the information available during 2012 as provided by the conventional sources the Packaging Recycling and Recovery Data Reports (NPWD) and British Glass

Category	Q1	Q2	Q3	Q4	TOTAL
export	72,226	68,960	61,943	108,462	311,591

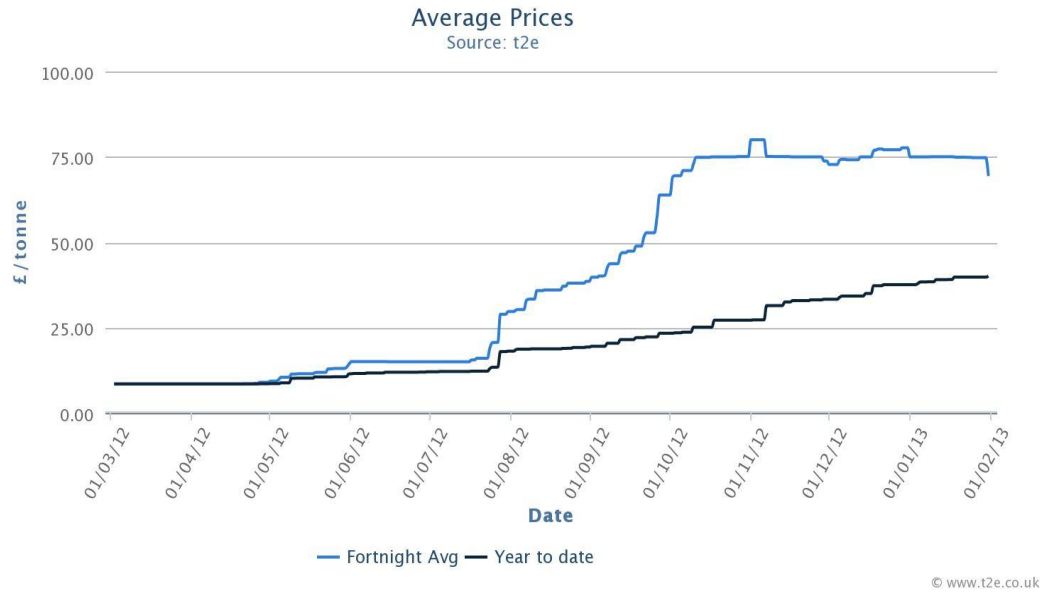
Remelt container	152,230	144,015	143,567	136,625	581,437
Remelt non container	44,542	38,320	43,832	78,364	205,058
Non remelt	93,611	99,242	101,692	238,071	550,616
totals	362,609	350,537	351,034	561,522	1,648,702

The % recycling rate for 2012 calculated using previous assumptions on total flow was just under the EU target of 60 %

The underlined figures in the table above show that there was a substantial amount of activity in the last quarter. The shortfall resulted in increased PRN prices and a higher cost of compliance to obligated organisations. Despite this, compliance with the EU target was narrowly missed

PRN prices for glass were relatively steady throughout the first three quarters of 2012 at sub £15 per tonne. In the last quarter, prices increased dramatically reaching £70 to £80 per tonne.

Average PRN prices in £ per tonne for glass during 2012 are illustrated below.



Analysis of 2012 outcomes

The Root Cause

No one saw the price rise coming. PRN prices are not directly related to the costs of recycling although they are intended to contribute to net costs. Like any market, when there is scarcity the price will rise. This occurred from the end of Q3 last year as producers and compliance schemes attempted to procure PRNs to ensure that their obligated recycled tonnage was met.

Since the PRN system was introduced and until 2010, glass PRN prices have generally been quite stable and predictable. In 2010 and 2011, following the introduction of flat targets by the new Government and higher than expected reprocessing tonnages, prices for glass (as well as most other materials) fell to below £10 per tonne. During 2011 however, the Environment Agency discovered fraudulent activity where PRNs were being sold without material being processed. The amount of fraud was significant, over 100,000 tonnes, and once this level had been removed from the reprocessed figures, more material had to be obtained and processed in order to comply with the targets. This was the trigger for the price rise. When it was realised that the targets might not be achieved prices increased because producers made a frantic effort to procure PRNs.

Fortunately, a number of reprocessors had material stockpiled but not processed and in Q4 they were able to use this to help meet the shortfall. The stockpiled material was predominantly low-quality mixed glass, which as PRN prices increased, became economical to sort and process.

Uncertainty and Timeliness of Data

The ACP was concerned about the lack of certainty and potential inaccuracy in the recorded figures. It is imperative that the statistics upon which the targets are set are robust especially as there is a need for more material to be processed to meet targets in the future. It is therefore critical that monitoring data is both timely and accurate. There are concerns about the accuracy of data at the moment and with data being reported quarterly there is a time lag which may mean that signs of changes are not being picked up in a timely fashion. However, the reporting of data depends on reprocessors making accurate and timely returns and entering it on the EA database. Some of the data is also considered to be commercially confidential and is thus not for general sight. This means that it could take more than three months to detect variances.

In the past, sudden variances were unusual, which may have given rise to a false sense of security.

Published data is of benefit to those organisations who register as reprocessors to issue PRNs. Reprocessors have to weigh up the benefits of registering to issue PRNs - and the

consequent administrative costs involved - against the level of potential income. If PRN prices are generally low some companies may not consider it worthwhile registering.

It is therefore possible that some processing that took place in 2012 was not recorded. The ACP has asked the EA to review all companies that have registered previously to see if they are still processing material. If this is so the question arises *how to capture the data of recycled material outside of the PRN system.*

Spikes in PRN prices have occurred in other materials since the compliance system was introduced but these have always been directly attributable to specific and visible events or circumstances. In the 2012 case of glass the main contributory factor was not immediately obvious to the supply chain. This review has been able to pinpoint the principal causal factor but only some time after the event

Actions initiated by the ACP in 2013

Improving data flow

The ACP has asked the EA to consider, subject to considerations of commercial confidentiality, providing the ACP with advanced notification of quarterly data so that the committee can prepare and make an appropriate statement when the data is released publically. This will help to contribute to the smooth operation of the market system. The EA are consulting with the industry and their legal advisors to develop a means of providing better information to help monitor supply of material. A separate meeting was held in Scotland to look at the Scottish situation and in particular to consider the needs of the distillery industry.

Combating fraud

The EA and others have reviewed the material routinely placed on the market so far in 2013 in order to confirm that

(a) fraud has been eliminated from the system

(b) there is a means to account for material stockpiled, and

(c) there is a mechanism for identifying the amount of material processed by non-accredited reprocessors

Raising awareness of the PRN system

It is no immediate consolation to those who experienced such a high rise in costs last year that the UK compliance scheme is low cost compared with the rest of Europe. Since its

establishment in the late 1990s the PRN system has delivered compliance at a cost, which according to Valpak, has been some 2.5 times lower than the average EU scheme. However there is no indication that there will be an early return to the low glass PRN prices experienced prior to 2012. Prices in 2013 so far are holding up at a higher than previous average price.

There appears to be a need to communicate to key organisations and people in the supply chain to ensure there is full awareness of the PRN system and how it operates according to market principles. There are also practical measures producers, or Producer Compliance Schemes on their behalf, could do, for example, buy a proportion of their PRN obligation each quarter, or ensure suitable contingency to cover market fluctuations. Furthermore, the ACP will monitor figures at each of its meetings formally but will also receive briefings from the EA as appropriate.

GlassFlow - an improved methodology for data capture, reporting and interpretation

As a result of the glass PRN price spike, the ACP became concerned that there was a lack of confidence in the data being used to set targets and the recording of outcomes.

It was clear there was a need for a more accurate method to identify the quantity of packaging glass flowing in and out of the UK market. The first task was to ensure that all potential stakeholders could be engaged in developing such a methodology and better systems to ensure the UK meets its targets going forward.

The ACP was also keen to investigate whether the UK would meet its recycling targets in 2013 and for subsequent years until 2017. At the time of writing, in 2013, the UK has recycled and recovered 337K tonnes (Q1) and 410K tonnes (Q2) giving a total figure of 747K tonnes for the first half of the year. This means the UK has achieved 47% of the projected total obligated target of 1,584K tonnes for 2013

WRAP and Valpak were asked to conduct a more detailed review of all the above points with a view to the following key outputs:

- An assessment of the total quantity of glass broken down by colour and format being placed onto both the UK, Scottish (and potentially Welsh) markets;
- An assessment of quantity of glass being collected, and collection method, both for the UK, Scottish (and potentially Welsh) markets;
- An assessment of the quantity of glass PRNs and PERNs against the quantities of glass being collected both now and historically;
- Projections for consumption and collection of glass until 2017 and compliance implications;
- If compliance gaps are identified, highlight the steps that need to be taken in order to bridge them;

- Undertake a stakeholder engagement and reporting exercise to identify current end market issues and future trends within the UK, making distinctions for the Scottish (and potentially Welsh) markets; and
- Wider market analysis of the glass industry to improve market transparency for glass recovery and recycling.

This GlassFlow report has now been completed and published by WRAP and Valpak Consulting and is available at http://www.wrap.org.uk/. The report is the first substantial analysis of the situation and shows the methodology for collating information along the supply chain. It has gone back to first principles and produced a new estimate of glass packaging waste arisings based on a thorough and detailed analysis of the glass market. It has been an inclusive review, engaging all organisations with a stake in resolving the way forward. The ACP has used the key findings in this document and is very grateful to WRAP and Valpak for their thorough analysis.

Key findings of the GlassFlow Report

A detailed supply chain analysis has been undertaken by WRAP and Valpak. This work shows what volumes of material are placed on the market and the calculations of obligated tonnage to be recovered. Besides imports and exports it also estimates illegal amounts placed on the market. The work confirms that the UK is a net importer of glass packaging. In 2012 the UK imported 1,221k tonnes of glass packaging (excluding cullet but including packaging around goods and illegal imports) but only exported 891k.

GlassFlow produced figures for the UK as a whole, but in order for the devolved administrations of Scotland and Wales to review their own statistics they were also provided with separate figures. In this report only the UK figures are used. From this work the ACP considers that there are several key factors that have and will impact on future recycling.

(1) Improved data collection methodology

The method of data collection is now more reliable and it is clear that the amount of glass placed on the market was previously overestimated. This affects the amount obligated and thus the targets for recycling. Some of this is due to the better method of data gathering but it also reflects a difference in assumptions about growth. The report highlighted that glass consumption has been very steady rather than grown as was previously believed. The GlassFlow report has concluded that the previous figures derived from Packflow data, whilst they may have been the best available at the time, have overestimated the amount of glass consumption by some 350kt per annum in 2012.

(2) Estimate of illegal imports

Also there is an estimated 100k tonnes of illegal imports, although the exact figure is very difficult to quantify. Illegal imports are products brought into the country without having been declared through customs thereby avoiding excise duty. The ACP believes that this tonnage should not be included in any target calculations or national reporting.

Adjusting for the lower amount of glass now known to be on the market and deduction of the illegal imports, the 2013 tonnage targets are now more accurate.

The lower total means that the amount needed to reach the recycling target is also lower, which gives high confidence that the UK will be able to meet its targets in the years ahead.

(3) Market impact of processing

The amount collected was also considered in depth as more local authorities collect glass co-mingled with other materials for recycling, rather than glass being separated at the kerbside either mixed or colour separated. This has had an impact on the quality of material supplied to reprocessors from material recycling facilities (MRFs) and reduces the price paid. Thus downstream sorting and reprocessing facilities have had to ensure that they can process delivered material and deal with the lower quality inputs. To obtain higher quality means more sortation and greater processing costs. The amount of preprocessing that has to be undertaken before the material is of the quality required by the market has also contributed to higher PRN prices.

The industry aim is to return as much recovered material as possible for recycling and thus there is a demand for the appropriate quality. The GlassFlow report also contains an analysis of the market impact and energy implications of reprocessing.

Currently, PRNs for glass cullet going into the re-melt sector are issued at the end of that recycling chain by the accredited reprocessor undertaking the re-melt activity. The new end of waste criteria for glass cullet may lead to the issuing of PRNs at an earlier point in that recycling chain. The impact of this is not expected to be known until the end of 2014 however the ACP will monitor the situation.

(4) Distribution of PRN revenues

There is continuing pressure to improve the transparency of the PRN system. Table A in the appendix shows how much revenue was in the system in 2012 and how it was reported to be distributed. In order to determine if there are any trends in PRN/PERN revenue investment, the 2012 data was compared with 2008 data, the last year where comparable data was complied. This indicates that collection systems received the greatest proportion of PRN/PERN revenue investment in 2012 at 35%. However, this is much lower than the position in 2008 when collections received 73% of the available funding. This may be due to

the collection infrastructure now being mature or it may be linked to the trend for co-mingling glass on collection which is less supported by the industry.

Conclusions:

More reliable forecasting proposals based on GlassFlow

GlassFlow has provided a new estimate of glass packaging waste arisings based on a thorough and a detailed analysis of the glass market. There is now a more reliable and robust basis for determining obligated tonnages and targets.

Combined with more frequent market reports from the EA, this should give all parts of the chain more confidence in the system.

Vision for a future state

The following measures would further enhance confidence in the system:

- elimination of fraud,
- exclusion of illegal shipments,
- low levels of annual carry over
- low levels of stockpiling
- An industry based growth forecast that reflects actual production
- collections systems and MRF reprocessing aimed at meeting the remelt targets
- Markets for non remelt products.

The ACP feels that it will take a while for this state to be reached but the journey towards it would give the supply chain renewed confidence in the system.

The ACP also believes that this ideal future scenario will promote stable PRN prices. However, as noted above, at this time it is not clear what the impact of the End of Waste legislation will have on the issuing of PRNs as the point in the supply chain where PRNs are raised may change.

From PackFlow to GlassFlow

The current analysis suggests that the amount of UK glass packaging placed on the market is l**ower** than currently estimated. So the ACP has concluded that the original base figures (i.e. PackFlow) should not be used now that a detailed and thorough analysis has been undertaken in the GlassFlow report. **The ACP recommends that the figures in Table B (in the Appendix) will provide a more robust basis on which to set obligated tonnages and targets.**

Adopting the more realistic flow figures displayed in Table B provides greater security in the UK meeting its EU directive target of 60%.

However, it is expected that more material will be collected co-mingled; nearly 900kt by 2017 (Table C in the Appendix). This will mean that more investment will have to go into downstream sorting processes to enable the target for remelt to be met.

Key Findings and recommendations

(1) Briefing producers

During the recent discussions it is apparent that a number of producers and /or producer trade associations are not fully conversant with the mechanics of the PRN system. Some would prefer a static tax which could be budgeted for, and may have seen the use of membership of a compliance scheme in the same vein. Thus, there was not such a need to be aware of the market mechanisms in detail as this could be left to the compliance scheme. It is clear that producers need more certainty about annual expenditure and to be able to budget without the volatility experienced in 2012.

The ACP was surprised at the general level of unawareness and recommends that producers would benefit from being briefed before the start of the next compliance year on the workings of the system and the way the market works in order to be better informed and to prepare for likely fluctuations.

(2) Improving data flow

It is clear that more vigilance is going to be needed by all sections of the supply chain in future. This will ensure more timely production of management /financial data and the ability to see movement in material flow throughout the system to make it more economically effective.

The ACP recommends that it is provided with advanced notification of quarterly data in order to pick up at an earlier stage any potential market shortfalls and so that appropriate communications can be issued when the data is published.

(3) Combating fraud and addressing other anomalies

Fraudulent activity in the PRN market has been pinpointed as the main cause of the instability experienced by the glass industry in 2012.

The ACP has agreed with the EA that attention should be focused on these issues in order to provide more stability and predictability to PRN transactions.

(4) Using revised flow data

GlassFlow has provided a more robust estimate of glass packaging waste arisings, which should form the basis of future projections.

The ACP recommends from 2012 and onwards that the figures for material placed on the market be based on the revised assumptions in GlassFlow, and not the PackFlow data.

(5) Illegal imports

In 2012 glass consumption excluding the estimated illegal imports is 2,399,235 tonnes, and 2,503,895 tonnes including the estimated illegal imports. Both figures are substantially lower than the PackFlow 2017 estimate of 2,753,500. Glass packaging around illegal imports could account for up to 4% of total UK consumption of glass packaging. It was estimated that 105k tonnes of filled glass packaging was illegally imported into the UK in 2012.

The ACP recommends that the figures for illegal imports be removed from the core data as these are volumes over which producers have no control or responsibility.

(6) Amending compliance targets for business

Using the lower estimate of material placed on the market excluding illegal imports the actual UK recycling performance in 2012 was at least 68% which is adequately above the EU target of 60%. Based on the revised lower estimate of consumption, an obligated business target of 77% (much lower than the 81% used) of consumption would have delivered UK compliance at approximately 64%.

The ACP recommends that Defra consider amending the business targets to a new apportionment of 77% sufficient to allow for a cushion to ensure compliance which should be used as the determinate for obligated tonnage and thus targets

Conclusion

This ACP report has analysed the reasons why the glass PRN prices increased dramatically at the end of 2012 and as a result has put forward recommendations which it recommends to Government to ensure that the situation going forward is more robust and stable and recycling targets are met. The recommendations take into account the detailed analysis undertaken within the WRAP/Valpak GlassFlow report, and have industry support.

Investment in infrastructure and capacity looks set to continue in 2013 with announcements by some of the UK's largest reprocessors such as the new recycling plants in Swanscome, Knottingley and South Kirkby. PRN revenue will increasingly be spent on this part of the supply chain as substantial investment has already gone into collection systems which may by now be considered to be mature or may also reflect the reduced costs of collecting the glass through co-mingled services which places more requirements on downstream processing.

The ACP will monitor the situation closely and will keep Defra up to date with any need for further interventions.

Appendix

All tables are reproduced from the Glassflow report

Table A: PRN Revenue Spend (2012)

Material	Infrastructure and capacity	Funding collection	Reduction in price and developing new markets	Costs of complying with the regulations	Retained for future investment	Developing communication strategies	TOTAL
Glass (Rep) (£k)	4,266	8,680	9,463	680	3,564	247	£26,900
Glass (Exp) (£k)	3,278	6,969	3,761	104	3,728	6	£17,847
Total (£k)	**7,543**	**15,650**	**13,224**	**784**	**7,292**	**254**	**£44,747**
	17%	**35%**	**30%**	**2%**	**16%**	**1%**	**100%**

Table B: Reduced Level of material placed on the market Recycling Rates

	2012	2013	2014	2015	2016	2017
PackFlow Mid Point	2,753,500	2,781,000	2,809,000	2,837,000	2,865,500	2,894,000
Recycling Rate	*59%*	*60%*	*61%*	*62%*	*63%*	*63%*
Revised Flow (1% annual growth)	2,399,235	2,423,227	2,447,460	2,471,934	2,496,653	2,521,620
Recycling Rate	*68%*	*69%*	*70%*	*71%*	*72%*	*73%*
Revised Flow inc illegal imports (1% annual growth)	2,503,895	2,528,934	2,554,223	2,579,765	2,605,563	2,631,619
Recycling Rate	*65%*	*66%*	*67%*	*68%*	*69%*	*70%*
Revised Flow (no growth)	2,399,235	2,399,235	2,399,235	2,399,235	2,399,235	2,399,235
Recycling Rate	*68%*	*70%*	*72%*	*73%*	*75%*	*76%*
Revised Flow inc illegal imports (no growth)	2,503,895	2,503,895	2,503,895	2,503,895	2,503,895	2,503,895
Recycling Rate	*65%*	*67%*	*69%*	*70%*	*72%*	*73%*

Revised Flow (BBPA Projection)	2,399,235	2,363,482	2,328,262	2,293,567	2,259,389	2,225,720
Recycling Rate	*68%*	*71%*	*74%*	*77%*	*79%*	*82%*
Revised Flow inc illegal imports (BBPA Projection)	2,503,895	2,466,583	2,429,826	2,393,618	2,357,949	2,322,811
Recycling Rate	*65%*	*68%*	*71%*	*73%*	*76%*	*79%*

Table C: Anticipated trend in commingled collections of glass

	2013	2014	2015	2016	2017
Collection	1,673,153	1,716,491	1,756,828	1,794,370	1,829,312
Consumer Collection	1,252,225	1,284,661	1,314,849	1,342,947	1,369,098
Commingled	*582,297*	*657,853*	*731,330*	*802,813*	*872,382*
Mixed Colour	*223,500*	*204,773*	*186,561*	*168,844*	*151,601*
Colour Separated	*33,785*	*27,488*	*21,364*	*15,406*	*9,607*
Non-Consumer Collection	420,928	431,831	441,979	451,423	460,214