Survey of the South African Plastics Recycling Industry in 2014, conducted by Plastix 911 for Plastics|SA

EXECUTIVE SUMMARY

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Introduction

To provide information to its members, government and the wider community, Plastics|SA collects data annually on plastics manufacturing, imports, local processing and exports for reprocessing through the Plastics Recycling Survey. In 2015, Plastix 911 was commissioned by Plastics|SA to conduct the survey for the 2014 calendar year.

The survey continues to give an excellent picture of the flow of plastics products in South Africa, the state of the plastics recycling industry and the recyclate markets. The survey is seen as a valuable tool for the promotion and knowledge of the industry, forward planning and informs policy development. It also supports product stewardship commitments and assists in setting targets for end-of-life solutions.

Key findings

The key findings of the 2014 Plastics|SA Plastics Recycling Survey are as follows:

- A total of 1 400 000 tons of plastics from domestic production and imported materials were converted in South Africa in 2014. The total amount is the same as that of 2013 although individual materials have increased and others decreased in tonnages.

- A total of 315 600 tons of plastics were diverted from landfill in 2014. This is an increase of 9 % from 2013.

- The diversion from landfill rate was 22.5%, increasing from 20.0 % in 2013.

- Of the 315 600 tons of plastics diverted from landfill, 284 520 tons (90.2 %) were mechanically recycled in South Africa and 31 087 tons (9.8 %) were exported for recycling elsewhere. The proportion of plastics recycled in South Africa has decreased from 97.6 % in 2009 to 90.2 % in 2014. Domestic plastics recyclers are concerned about the tonnages exported from South Africa.
Post consumer materials still provide the most recyclables. 62.7% of all materials recycled originated from post-consumer sources and a further 17.2% originated from post-industrial sources.

Formal employment has increased by 34% to 6037 workers. Informal employment increased to 47 420 bringing the total number of jobs sustained through plastics recycling to 53 457 – an increase of 11.4 % since 2013.

The majority of plastics that were recycled in South Africa continue to be used locally to manufacture new products, mainly films (packaging, building and industrial) and pipes.

Plastics going to landfill decreased in 2014 by 3.2 %.

Total domestic plastics consumption and recycling

The figures for total annual domestic consumption and total annual plastics recycling from 2009 to 2014 are presented in the following table:

| Table 1: Annual South African plastics consumption and recycling from 2009 to 2014 |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Total tons converted           | 1 280 000                       | 1 312 700                       | 1 300 000                       | 1 370 000                       | 1 400 000                       | 1 400 000                       |
| % growth (conversion)          | 2.6%                            | -1.0%                           | 5.4%                            | 2.2%                            | 0.0%                            |
| Total tons locally recycled    | 215 199                         | 228 101                         | 230 111                         | 254 054                         | 260 930                         | 284 521                         |
| % growth (recycled)            | 6.0%                            | 0.9%                            | 10.4%                           | 2.7%                            | 9.0%                            |
| Recycling rate                 | 16.8%                           | 17.4%                           | 17.7%                           | 18.5%                           | 18.6%                           | 20.3%                           |
| Waste exported                 | 5 575                           | 9 054                           | 9 758                           | 14 744                           | 18 919                           | 31 087                           |
| % growth (waste exported)      | 62.4%                           | 7.8%                            | 51.1%                           | 28.3%                           | 64.3%                           |
| Total tons diverted from landfill | 220 774                        | 237 155                         | 239 869                         | 268 798                         | 279 849                         | 315 607                         |
| Diversion from landfill        | 17.2%                           | 18.1%                           | 18.5%                           | 19.6%                           | 20.0%                           | 22.5%                           |
| Tonnages landfilled            | 1 059 226                       | 1 075 545                       | 1 060 131                       | 1 101 202                       | 1 120 151                       | 1 084 393                       |
| % growth (landfill)            | 1.5%                            | -1.4%                           | 3.9%                            | 1.7%                            | -3.2%                           |

The stagnation in domestic consumption is probably due to the decline in economic activity and the shift from local manufacturing to the importation of finished and semi-finished plastics products.
Materials diverted from landfill

The data for the total diversion from landfill is presented in the following graph. Overall diversion rates increased last year and the share of local recycling declined slightly since 2013.

![Graph showing annual South African plastics diverted from landfill from 2009 to 2014](image)

**Figure 1: Annual South African plastics diverted from landfill from 2009 to 2014**

Source of Recycled Plastics

The 284 520 tons of plastics recycled locally in 2014 were sourced from both pre-consumer and post-consumer sources.

![Pie chart showing recycling by material source in 2014](image)

**Figure 2: Recycling by material source in 2014**
Materials Recycled

The total quantities of locally recycled plastics by polymer type, from all sectors, are presented in the following graph. PE-LD/LLD is the most recycled material, followed by PE-HD, PP and PET.

![Graph showing materials recycled in South Africa from 2009 to 2014.](image)

**Figure 3: Materials recycled in South Africa from 2009 to 2014**

Employment in plastics recycling industry

Both formal and informal jobs sustained by plastics recycling are included in the graph below. The overall productivity is measured against formal labour and was 47.1 ton per employee; down from 57.9 % in 2013. (Only 60 % of the recyclers were surveyed in 2013 and their data was extrapolated, whereas 2014 is actual reported figures from 221 recyclers, i.e. more smaller recyclers included.) There are 2.3 times more men

![Graph showing formal jobs in plastics recycling in South Africa.](image)

**Figure 4: Formal jobs in plastics recycling in South Africa**
employed than women. The nature of the job requires physical strength. However, the women make better sorters.

![Figure 5: Formal and Informal jobs sustained through plastics recycling](image)

**Market applications for recycled materials**

Applications are many and varied. Wherever the quality of the recyclate is such that it can be used to produce a satisfactory end product, at a lower cost than using virgin material, it will be used. The criteria are whether the final product will have the necessary strength, aesthetics and lasting qualities required for a specific application. The variety of market applications are illustrated in the graph below.

![Figure 6: Market applications for plastics recyclate in South Africa in 2014](image)
Recommendations on the Way Forward

The plastics recycling industry will need to rethink certain aspects and actions, for example:

- Pay more for recyclables – as more money moves down the value chain, it becomes more feasible to pick up waste, volumes increase and the local recyclers will be able to compete with export parity prices.

- Improve and measure the quality of the recyclate – the converter will be able to pay more for recyclate as the origin and properties of the material puts him in a better position to utilize it in the best possible application at a reduced risk.

- Charge more for good quality recyclate – where the properties of the product are known, the product is in demand and meets expectations, the free market principle needs to be applied. Recyclate needs to earn better revenue for the manufacturer to enable him to access resources and produce better quality, allowing the industry to create its own momentum.

- Think and behave like professional raw material suppliers – give the product a specific name, package a superior product that is in demand in packaging that reflects the contents, inform the buyer and meet the needs of the user. Participate in industry activities and live up to the ethics of professional businessmen.

- Communicate recycling requirements to brand owners and product designers, listen to their needs and try to accommodate each other.

- Establish collection networks and assist with separation at source projects – without good networking, good volumes of good quality post-consumer recyclables will not increase in volume and will not be retrievable from the solid waste stream.

- Research alternative recycling technologies – not all products can be made from one material, one layer and be perfectly recyclable. Plastics have high calorific values and can successfully be used as fuel, but only once all other avenues have been investigated. Keep plastics ‘plastics’ for as long as possible.

- Invest in more energy efficient equipment, especially wash plants and water treatment facilities – water and electricity are not going to get any cheaper or any more abundant
and it is an essential component in the recycling process. Make the best of what is available, measure the usage and act upon facts and figures.

- Live the talk – BE the largest polymer supplier in Southern Africa.

The complete Plastics Recycling Survey report is available from Plastics|SA at R500 per copy. Contact us on +27 11 314 4021 or via www.plasticsinfo.co.za