

Changing the Way We Recycle Polystyrene in South Africa

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ABSTRACT

The Polystyrene packaging industry has through the Polystyrene Packaging Council (PSPC) established the recycling of Polystyrene in South Africa. The challenges of recycling this versatile product has been addressed and with sustainable recycling projects identified, we believe that we are moving into a new era of recycling.

The projects identified are solutions for the recycling of each Polystyrene product in South Africa. The sustainable end markets include the traditional picture frames, seedling trays (the very successful Breadtags for Wheelchairs), Tutudesks, Wonderbags and Bean Bags and the innovative post consumer Polystyrene recycled into construction panels. These projects all speak to the huge job creation and housing shortages in our country, while others encourage consumers to recycle and make a difference in someone's life.

The development of a web-based application Polynet enables the industry to effectively recycle Polystyrene but to also ensure that statistics for the recycling are available and progress is therefor measureable.

The Polystyrene Packaging Council (PSPC) is now in a position to take the recycling of Polystyrene to the next level by implementing these plans and making it sustainable.

1. INTRODUCTION

1.1 The forming of the Polystyrene Packaging Council (PSPC)

The Polystyrene Packaging Council (PSPC) was formed in 2007 with the aim of increasing education and awareness of Polystyrene and implementing recycling initiatives countrywide making the recycling of Polystyrene a sustainable and viable option in South Africa. Our primary objectives is to coordinate the efforts of the various industry players in order to demonstrate a commitment to the environment through collection and recycling, and to communicate the safety, health and hygiene attributes of polystyrene packaging to consumers. The Polystyrene Packaging Council (PSPC) aims to minimize the environmental impact of post consumer and post industrial Polystyrene by: Recycling all packaging Polystyrene through recycling projects.

We are passionate about being an industry sector that makes a real difference to the socio-economic fibre of our country by contributing to job creation, economic growth and providing convenience to the consumer. There are currently 4 Polystyrene recycling projects underway throughout South Africa that have a strong undercurrent of being "charity projects" in that they touch the lives of the poor and the vulnerable and can involve communities in the collection process. These include:

Breadtags for Wheelchairs

Tutudesk Project

Beads, Beanbag and Wonderbag

Construction

2. RECYCLING PROJECTS

2.1. Breadtags for Wheelchairs

Currently in its fifth year, the project encourages consumers around the country to collect their breadtags (which is made from high density Polystyrene) and taking them to drop off sites throughout South Africa. Once enough breadtags are collected, they are used to "purchase" wheelchairs for people who need them, but are unable to afford them due to financial difficulties.

Because it is important to ensure that the right wheelchair is purchased when seating people, the Polystyrene Packaging Council (PSPC) has formed a working relationship with the Quadraplegic Association of South Africa and CE Mobility, a local wheelchair manufacturer, who has agreed to give us a preferential rate and will also be servicing the wheelchairs to ensure that the wheelchairs donated by the Polystyrene Packaging Council (PSPC) stays in a good condition.

2.2. Tutudesk

Approximately 95 million children in Sub-Saharan Africa do not have access to classroom desks which impacts on their handwriting, performance and concentration. In some cases children receive their lessons under trees or in classrooms without desks, requiring them to balance their work on the floor, their laps or on their chairs. The Tutudesk Campaign, a campaign that is aimed at improving the classroom learning experience for these children, through its innovative lap desk creation, known as the Tutudesk. The Tutudesk is a portable desk made from a combination of virgin material and recycled high impact Polystyrene, which is the same type of plastic used to make yoghurt tubs.

The Tutudesk campaign has partnered with the Polystyrene Packaging Council (PSPC) to assist with the collection of yoghurt tubs, plastic cutlery and other high impact polystyrene material, for the Tutudesk campaign.

To date, over 1 million desks have been distributed across Africa to disadvantaged schools.

The campaign is not limited to South Africa but all of Africa, focusing on the most disadvantaged communities. The campaign objective is to distribute 20 million desks to 20 million children by the year 2020.

2.3. Beads for Wonderbags and Beanbags

The Polystyrene Packaging Council (PSPC) has recently developed a unique network that facilitates the trading of Polystyrene beads online.

The demand for recycled Polystyrene beads has increased dramatically due to the high prices of virgin material. These lightweight beads are tiny bits of expanded polystyrene that are widely used in the crafting industry as fillers for a variety of different products, such as beanbags, pillows and chairs and the locally developed Wonderbags used for cooking.

To this end, the Polystyrene Packaging Council (PSPC) has partnered with Isowall, supplier of protective Polystyrene to the industry, by having a hammermill installed at the company's Gauteng premises.

2.4. Construction

Until recently, the Polystyrene Packaging Council (PSPC) has been struggling to develop markets for used, post-consumer Polystyrene. One of the biggest headaches we faced when talking to recycling companies and converters, was the need to wash and dry the contaminated Polystyrene – typically used in the manufacture of takeaway hamburger clamshells or disposable coffee cups or food trays.

However, the high cost of electricity and water in our country did not make it a viable financial option for smaller recycling plants to invest in infrastructure that would mechanize this entire process, resulting in much of the used polystyrene either being sent to landfills or exported to countries such as China and India for recycling.

Research, design and development that have been done where post consumer separated at source Polystyrene containers are hammer milled and mixed into a cement mixture for the building industry. First series of demonstration homes have already been built and undergone extensive testing, yielding positive results all around.

2.5. Picture frames, cornices and skirtings

Various companies collect and recycle clean white Polystyrene into picture frames, cornices and skirtings in South Africa.

3. WASTE TO ENERGY

Recently there has been a surge in the growth of this sector. Polystyrene being the plastic with the highest calorific value sees a large future for our waste Polystyrene into this industry.

4. POLYSTYRENE RECYCLING STATISTICS WITH POLYNET

The Polystyrene Packaging Council (PSPC) is going *high tech* with the collection of high impact polystyrene. A new application (app) for SmartPhones and computers, called PolyNet, has been developed specifically for the Council to automate the entire process between the project coordinators, collectors and recyclers.

The collection of the various types of polystyrene for our many different recycling projects has grown to the point where technology is needed to help manage the process effectively.

Instead of spending almost entire days trying to manually put collectors and recyclers in contact with each other and to arrange collections, the entire process is now automated and simplified – allowing us to focus our attention growing the recycling of Polystyrene even more in South Africa.

The application flags a local collector of the material who is instructed to do the collection and even works out the logistics with the recyclers such as Zibo Containers (previously Groplast) who recycles breadtags into seedling trays and MFI Mouldings who recycles them into picture frames.

We have recently installed the software at various schools as a pilot phase to coordinate the collection of breadtags in the country and will soon be rolling out the software to the rest of the country during the next six months. The same technology will also be employed by the Polystyrene Packaging Council (PSPC) to coordinate the collection of yoghurt tubs from more than 20 Eco-Schools around the country which gets recycled into Tutu Desks, as well as the contaminated post-consumer Polystyrene for use in construction projects.

CONCLUSION

Polystyrene continues to be used as the packaging material of choice for fast food and convenience food retailers now that people have become aware of the burgeoning market that exists in South Africa for recycled Polystyrene.

The Polystyrene Packaging Council (PSPC) is in a position to offer solutions to many of South Africa's most pressing needs, namely the need for safe, affordable and sustainable, low cost housing, the need for community-based employment, assisting in education and providing wheelchairs – all while diverting valuable and recyclable materials away from the country's landfill sites.

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