Microfoaming with Macro Impact:
Packing Production Technology for a Lighter World

WORLDWIDE PARTNER

Objective
Reduce greenhouse gas (GHG) emissions and accelerate the adoption of smarter packaging technologies in Brazil and Latin America

Challenge
Reduce the environmental footprint of packaging and contribute to reduction of plastic waste

Solution
Dow Plastics' proprietary microfoaming technology for plastic films with an enhanced sustainability profile

Global food waste generates more than 3.3 billion tons of GHG emissions annually.[1] Food packaging plays an important role in helping minimize this waste. Over the past decade, the packaging industry has become more efficient, with Dow at the forefront as a global leader in flexible packaging. As research and new innovation continue to reduce film thickness, Dow is looking to further reduce the environmental footprint of packaging.

As the Official Carbon Partner of Rio 2016, Dow has introduced innovative microfoaming technology to the packaging industry in Latin America. Microfoaming reduces density in coextruded films through a physical foaming process. The result is more packaging material developed with the same amount of resin. The carbon benefits come from using less resin in the packaging process.

Key product benefits offered by microfoaming include:

- Improved packaging performance, such as superior sealing integrity and damage resistance
- Differentiated optical properties that deliver characteristics of premium packaging
- A lower environmental footprint compared to traditional packaging
- Reduced carbon emissions from transportation of packaged products

Light and versatile, microfoamed packaging is ideal for the food industry. The technology can also be used to develop flexible packaging for collation shrink, cosmetic, hygiene and cleaning sectors, for applications that include stand-up pouches and more. Additional uses include reduced-pigment-load films, FFS (fill, form and seal) packaging, heavy-duty shipping sacks, soft good overwrap packaging and detergent pouches.

In 2016, the project was rolled out in partnership with manufacturers located in Brazil (Valfilm), Argentina (Petropack), Mexico (Folmex), Colombia and Guatemala (Plastilene), as well as MuCell Extrusion LLC, an equipment manufacturer for extrusion solutions and Dow's exclusive collaborator for the foamed film technology. This collaboration will ensure broad application of the technology throughout all of Latin America. As part of the carbon mitigation program for Rio 2016, Dow is working with these partners to qualify the technology and achieve third-party verification of the resulting greenhouse gas emissions.

Delivering Tangible Results

As the Official Carbon Partner of the first Olympic Games in South America, Dow has committed to delivering third-party-verified primary climate benefits of 500,000 tons of CO_2e by 2026 to address the owned emissions of the Organizing Committee. Together, we are using the Olympic Games as an opportunity to implement energy-efficient and low-carbon technologies across major sectors of the Brazilian economy, demonstrating the power of innovation to reduce carbon emissions.

Working with NatureBank as our carbon consultant, we developed the Dow Climate Solutions Framework, quantified the emission reductions associated with our projects and demonstrated how these emission reductions are beyond business as usual. NatureBank specializes in advisory, technology and project investment services with a primary focus on carbon.

We selected Environmental Resources Management (ERM) to provide third-party validation of the Project Plans against the Dow Climate Solutions Framework and verify GHG emission reductions. In addition, ERM conducts an assessment of forecasted generation of climate benefits based on verified evidences.

Leaving a Lasting Legacy

Through a comprehensive portfolio of solutions and our deep heritage and relationships in the region, we are working with customers in food packaging, construction, agriculture and industrial processes to increase awareness and adoption of energy-efficient and low-carbon technologies. Ultimately, the portfolio is designed to impact key sectors in Brazil and Latin America and will enable industries to do more with less, switch to lower-carbon energy sources and conserve energy through efficient solutions. These projects push beyond normal operations to achieve more innovation, overcome real or perceived barriers and catalyze long-term change in market practices.

Commitment to the Future

Dow and Rio 2016 are also collaborating to enable an additional 1.5 million tons of CO_2e in climate benefits to compensate for emissions beyond the direct control and influence of the Organizing Committee, such as those caused by travel, lodging and other activities.

To broaden awareness of climate change and related issues, we are also partnering with Rio 2016 through the *Transforma* program to reach more than 7 million students in Brazil with science, technology, engineering and math (STEM) curricula in 2016. This program uses the Games to demonstrate the applicability and relevance of the sciences, and as an opportunity to teach sustainable practices that students can use in their everyday lives.

To Learn More

Go to dow.com/carbonmitigation to learn more about Dow's carbon mitigation program with the Rio 2016 Organizing Committee and to view its results.

[1]Food Wastage Footprint – Impacts on Natural Resources Summary Report; Food and Agriculture Organization of the United Nations

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Form No: 812-XXXXXX-0616 BBI