Building a Sustainable Future:
Polyurethane-Based Insulation Panels Reduce Energy Consumption

WORLDWIDE PARTNER

Objective
Enhance buildings' energy efficiency across Brazil's growing construction sector and reduce greenhouse gas (GHG) equivalents embedded in materials

Challenge
More than 80 percent of the energy used by buildings throughout their life cycle comes from operating them[1]

Solution
Increase sustainability awareness in the Brazilian construction industry and enlist key decision-makers in adopting state-of-the-art insulation systems

As the largest Latin American economy by GDP, Brazil is home to the region's primary construction sector. One of the most resource-heavy industries, with a significant carbon footprint, construction represents a key target for Dow's carbon-mitigation efforts. Designing buildings with better insulation reduces the demand on heating and cooling systems, thereby reducing the buildings' energy consumption during their lifetime.

Dow is engaging with the entire construction value chain on the importance of integrating energy efficiency into decision-making as an essential way of reducing environmental impact and helping property owners lower their energy costs.

In November 2015, Dow launched a program in partnership with the three largest polyurethane-panel producers in Brazil: Dânica, Isoeste and MBP. The campaign runs through Games time and consists of interactive workshops and seminars in the four key construction markets: Recife, Rio de Janeiro, São Paulo and Belo Horizonte. Through these seminars, architects, builders and contractors have an opportunity to learn more about the benefits of efficient insulation and the panels' use and performance, including associated environmental and economic benefits. In the first half of 2016, the program expanded to Argentina with producers Acerolatina, Frio Star, Plaquimet and Sipanel, and to Colombia.

Dow is also partnering with customers in Argentina (Frio Star) and Mexico (Termo Puertas) to convert their foam formulations to blowing agents with a lower global warming potential by developing tailor-made polyurethane systems. By avoiding the release of extremely potent GHGs such as HCFCs[2] or HFCs[3] into the atmosphere, this conversion greatly reduces the GHGs embedded in construction materials such as insulation panels and doors.

Product Formulation
Dow's tailor-made polyurethane systems allow our customers to use blowing agents with lower global warming potential (for example, hydrocarbons or water).

Product Performance
Dow's polyurethane technologies are used in the manufacturing of insulated panels, which help to use less energy for heating and cooling buildings, including warehouses, supermarkets, commercial buildings and airports.

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]Energy Efficiency in Buildings – Business Realities and Opportunities Summary Report; World Business Council for Sustainable Development
[2]Hydrochloroflourocarbons
[3]Hydrofluorocarbons

The Dow Chemical Company

U.S., Canada and Mexico **dow.com**
Toll Free 800 447 4369
Latin America +55 11 5188 9222
Europe
Toll Free +800 3 694 6367*
+32 3 450 2240
Asia Pacific
Toll Free +800 7776-7776*
+60 3 7958 3392
Middle East (Dubai) +971 4 453 7000
North Africa (Cairo) +202 2 480 1466
*Toll-free service not available in all countries

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