

Recycling Styrofoam into rigid plastic

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Mexican entrepreneurs designed the first machine in the nation capable of recycling Styrofoam (expanded polystyrene) and transforming it into a raw material used in the manufacture of transparent hard plastic.

The founder of Rennueva, Hector Ortiz, said that each hour the [recycling](#) machine, called Reps-01, transforms 100 kg of styrofoam into

97 kg of small plastic beads, better known as pellets, which are used to create other items of rigid plastic .

This development emerged as an ecological response to the garbage problem in the country. Currently in Mexico, 60 thousand tons of Styrofoam are produced annually, which is why recycling this material represents a very affordable source of inputs.

At the production level, there is a small 3 percent loss. But when recycled, the difference is remarkable. The 100 kg of Styrofoam occupies the equivalent space of a small apartment, but after processing the volume is drastically reduced.

"The Styrofoam has a very high potential for recycling, but the problem is the lack of formal gathering practices, as well as the lack of Mexican technology for this purpose. So, with the support of Dart Mexico (a company dedicated to packaging food), we decided to develop this project and make it a useful tool for companies and governments that make intensive use of this material," said the businessman.

This tool uses a recycling process based on heat known as thermodensification to extract the raw material from the [styrofoam](#) products, which are composed of 95 percent air and only five percent of polystyrene.

To transform Styrofoam, in any presentation, it is first crushed and compressed by means of a screw, then heated to plasticize. When a rigid polystyrene plate forms, it is allowed to cool and is cut to obtain pellets.



For now, in the first stage of the company, they were able to manufacture three machines, one acquired by the Ministry of Science, Technology and Innovation of Mexico City (Seciti), while the other two belong to a private company in landfills of the southern Caribbean states of Yucatan and Quintana Roo.

Now the company has sought to extend its services to scale production, so they have formed a partnership with the Center for Advanced Technology in Queretaro, in order to be manufacture between 12 and 18 units before the end of the next year.

The development of the first machine required nearly a year to design, plus six months of manufacture. Developers used their own capital and

received help from angel investors, finally developing a product worth 25 thousand dollars.



Provided by Investigación y Desarrollo

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