

## Circular economy model for reuse of plastic in eco-efficient production of building materials

Modelo de economía circular para reutilización del plástico en producción ecoeficiente de materiales de construcción

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### ABSTRACT

Plastic waste is causing severe environmental impact to the terrestrial and marine ecosystem. Establish the influence of the circular economy model for the incorporation of plastic waste in the production of raw materials (blocks or bricks) for the construction sector. Descriptive, quali-quantitative, field study, using survey and interview. The findings obtained showed that it is possible to use recycled plastic waste products in the manufacture of construction materials, due to the quality requirements and the lower costs generated by this eco-efficient option, adjusted to the circular economy model, in the construction sector. The use of construction materials with recycled plastic waste content is associated with the circular economy model, promoting the economic reactivation of the construction sector and the economic and social development of the nation.

**Keywords:** circular economy, plastic waste, recycling, eco-efficiency, construction materials

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JOURNAL OF BUSINESS  
and entrepreneurial  
**studies**

ISSN: 2576-0971



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Journal of Business and entrepreneurial  
October - December Vol. 7 - 4 - 2023  
<http://journalbusinesses.com/index.php/revista>  
e-ISSN: 2576-0971  
journalbusinessentrepreneurial@gmail.com  
Receipt: 05 December 2022  
Approval: 06 July 2023  
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## RESUMEN

Los desechos plásticos están ocasionando severo impacto ambiental al ecosistema terrestre y marino. Establecer la influencia que tiene el modelo de economía circular para la incorporación de los desechos plásticos en la elaboración de materias primas (bloques o ladrillos) para el sector de la construcción. Descriptiva, cuali-cuantitativa, de campo, con uso de la encuesta y la entrevista. Los hallazgos obtenidos evidenciaron que es posible utilizar los desechos de productos plásticos reciclados, en la fabricación de materiales de la construcción, por los requisitos de calidad y el abaratamiento de costos que genera esta opción ecoeficiente y ajustada al modelo de economía circular, en el sector de la construcción. El uso de materiales de construcción con contenido de desechos plásticos reciclados, se asocia al modelo de la economía circular, impulsando la reactivación económica del sector de la construcción y el desarrollo económico y social de la nación.

**Palabras clave:** economía circular, desechos plásticos, reciclaje, ecoeficiencia, materiales de construcción

## INTRODUCTION

Climate change affects every country in the world, today, therefore, a global effort is required from the rulers of each of the member countries of the United Nations Organization (UN, 2018), to ensure the minimization of environmental pollution and meet the objectives embodied in the 2030 Development Agenda, demonstrating that management strategies can achieve the highest standards of sustainable production.

In this regard, economic activities have generated pollution of marine ecosystems, making this problem one of the major concerns of the UN and its member organizations: In view of this, Molina et al. (2021)(2021), referred to the latest report of this institution, which reports millions of tons of plastic at the bottom of the seabed that, in addition to

degrading the sea, also affect the species that live in this habitat, without having been able to stop this conflictive situation.

In addition, Grover et al. (2020) states that there has been an exponential growth in the pollution of the marine ecosystem, due to the dumping of waste plastic products in the oceans, whose main cause is due to an increase in the production of manufactured articles based on plastic resins, worldwide, where almost all manufacturing sectors have included this type of raw materials in their industrial processes.

Continuing, Bollaín and Vicente (2020) estimated an annual production volume of 400 million tons of plastic products, including food storage utensils, hygiene articles, toys, the automotive industry, whose manufacturers have introduced polyethylene, polystyrene, PVC, polypropylene, PET and other similar, as part of the resources that are part of tubs, containers, doors, drawers, pens, covers, sanitary supplies, packaging, computer cases, car parts, whose waste, in 80% of the cases, rest in the sea.

In view of this assertion, the UN (2021) urged countries not to neglect the activity of recycling waste plastics, especially because in the year 2020 there was a greater manufacture of plastics, but the recycling of their waste was reduced, because the pandemic led to increased production of gloves, masks and other inputs for personal protection against COVID-19, doubling the use of goods manufactured based on these resins, which went from 52 to 110 tons per day of processing in Tehran and 1.470 tons per month in Singapore, to give practical examples that allow us to perceive the problem of contamination with these solid wastes that, according to the same entity, at least 70% of them will go to the oceans.

Although the recycling of plastic products has been promoted for more than 30 years, however, Vidal et al. (2021) points out that more than two thirds of plastic cannot be recycled because they are difficult to reuse in industry, which weakens solid waste management. Consequently, plastic waste accumulates in the form of garbage, which is first expelled into the soil, but as erosion progresses, it reaches the mangroves and the seas, where this waste is consumed by some marine species that do not metabolize it and become intoxicated, maximizing the mortality rate of some aquatic species, in addition to invading the natural habitat of different varieties of birds, fish and other animals that live or depend on the seabed.

On the other hand, the construction industry was one of the most affected during the pandemic, not only because of the fall in demand, but also because several of the inputs used in this economic sector, increased their costs, some even doubled their prices, as in the case of rolled steel coils, which increased their costs by 129%, while other steel

pipes and profiles increased their prices by more than 70% between 2020 and 2022, as a consequence of the COVI-19 restrictions, the container crisis and the war conflict between Ukraine and Russia (Gutiérrez & López, 2007). (Gutiérrez & López, 2022)..

For these reasons, the circular economy has emerged as an alternative that seeks to solve these problems, according to Ojeda and Mercante (2020): first, implementing the principles of sustainability in the construction industry, to ensure the conservation of natural resources and the protection of marine and terrestrial ecosystems, through recycling and reuse of waste plastic products, to reduce pollution of these habitats of aquatic and terrestrial species; second, to mitigate the problem of the rising cost of inputs used by professionals in the construction sector, who can reduce the costs of their work, with the development of alternative raw materials, from the use of recycled waste plastic and produce in an eco-efficient manner.

In this regard, Porcelli and Martinez (2018) considered that the circular economy consists of a continuous cycle, where the waste from the production of a good or service, becomes the input of the next process, emulating the biological processes that occur in nature, where there is no waste, because everything is renewed from the waste generated in a corresponding phenomenon of nature. In this way, natural resources are preserved, in addition to minimizing costs by reducing the purchase of inputs, managing renewable flows that are adapted to the principles of environmental sustainability of the Sustainable Development Goals (SDGs), as set out in the text of the 2030 Agenda.

For this reason, it is important to write this article, the main purpose of which is to alert experts and relevant organizations to massify the use of recycled plastic waste as raw material for the production of inputs for the construction sector, through the application of the circular economy model, in order to reduce the parameters of environmental pollution.

Meanwhile, the theoretical justification for the use of the circular economy as a management model to promote sustainable and eco-efficient production in the construction industry is supported according to Carrillo and Pomar (2021) Theoretical basis for the use of the circular economy as a management model to promote sustainable and eco-efficient production in the construction industry is based, according to Carrillo and Pomar (2021), on the principles of the 2030 Development Agenda, which has sought to direct production and consumption towards the protection of resources, given that industry is one of the sectors that generates the most pollution. Muyulema agrees with these assertions. (2018)who explains that the circular economy is an alternative to use the waste derived from the production of plastics, to minimize the problem of pollution generated by them, when they become waste, on the one hand, but on the other hand,

it can contribute to the reduction of costs in certain industries, as in the case of construction, making their processes more eco-efficient.

In addition, the construction industry contributes 6% to 12% of the gross domestic product of the global economy. Therefore, the application of the circular economy in this economic sector that, achieves the cheapening of raw materials required by companies in this area, can generate greater eco-efficiency and competitiveness of this industrial branch, which will be of great benefit for the development of the people (Cortés, 2018). For example, Yagual et al. (2018) states that, in Ecuador, construction participates with 10% of the national GDP and due to the number of job sources it provides, it requires strengthening, therefore, the application of the principles of circular economy, can contribute to its competitive empowerment and to be a tool that generates progress.

For this reason, the construction industry can make use of the tools made available by the circular economy, because according to Sarabia et al. (2018) they allow the use of cheap and eco-efficient raw materials to enhance the productivity of the processes carried out in civil works, in addition to reducing costs, increasing the profitability and competitiveness of this sector, one of the largest sources of employment in the different Latin American and Ecuadorian populations.

In view of the above, the development of the article is justified because it seeks to find options to promote eco-efficiency in the construction industry, applying the circular economy model to ensure the reuse of recycled plastic product waste as an input for the manufacture of construction materials, such as blocks or bricks, for example, which can reduce the costs of these raw materials, while reducing the environmental pollution generated by plastic and minimizing the use of energy and water required for the production of these materials, as well as in mortar mixtures in civil works. With this, the aim is to direct the activities of this economic sector to comply with the SDGs of the 2030 Agenda, constitutional principles, legal requirements and standards in force, both nationally and internationally.

In summary, it is noted that, among the beneficiaries of this research are the industry itself that manufactures materials for the construction sector, also benefiting together with its customers, i.e. the builders and the public that hires them to carry out civil works, with an impact on the plastics industry, which aspires to maintain high standards of sustainable production, while also expecting an increase in sources of employment and greater economic development in the locality and in the national environment.

The general objective of the study is to establish the influence of the circular economy model for the incorporation of plastic waste in the production of raw materials (blocks or bricks) for the construction sector, so that the criteria of the representatives of the construction industry on this subject should be known, as well as the opinion of experts on the importance of this eco-efficient model in this productive sector.

The fundamental or independent variable is the circular economy model, while the dependent variable is the eco-efficient production of materials for the construction industry.

For a better identification of the variables in question, the following state of the art has been detailed:

Dobón's research (2019) raised the objective of establishing the importance of the use of raw materials based on recycled and reused waste, for the development of sustainable architecture, observing in this context the PET brick of 12cm x 18cm x 33cm that, has been quality certified since 2008 and has been manufactured by CEVE2 based on cement and recycled plastic as an ideal substitute for the element called fine aggregate, to which a chemical additive was added to enhance the adhesion of recycled plastic resins of polyethylene, PET, polystyrene or PVC, with the cement.

Then, we reviewed the article by Aranzales (2020) who obtained as the most important finding, that the proportion of 25% PEAR, 60% PVC, 15% PET and 5% fique fiber, was the one that obtained the most favorable results in the mechanical field, with higher resistance to breakage, because it has the ability to deform under bending, compression and tension, but does not break, which enhances its ductility capacity to be considered plastic, as a viable element to be part of the brick or block used in the construction of civil works.

In the meantime, Ojeda and Mercante (2020) in their article collected seven samples of different recycled plastic resins, including polypropylene, high and low density polyethylene, in whose analysis they showed that only two of them met the requirements for the manufacture of mortars, due to their good breaking strength and high flexibility; however, the remaining five could be mixed together to improve their granulometry and could also be used in the manufacture of construction materials.

In the meantime, Cuello and Arrauth (2019) stated that the experiments carried out by science have confirmed the suitability of plastic product waste to be incorporated in the manufacture of construction materials, which, in addition to contributing to eco-efficient and sustainable architecture, allows reducing costs, preserving resources and generating

more sources of employment, by gaining competitiveness, including offering an opportunity for low-income population sectors to access cheap housing.

Also Mendoza et al. (2020) referred to the value chain of recycled plastic, where he estimated its importance to serve as raw material for the manufacture of construction materials, such as bricks or blocks, which can be used in sustainable architecture and become an option to combat poverty.

In addition, Ojeda et al. (2020) referred to the properties of recycled PET and polyamide plastic, which can be used as raw material in the manufacture of construction materials such as blocks, for example, highlighting its high tensile strength, which according to their experiments, was 35% higher and 13 times higher than the tenacity of mortar, which is why it is an important distinctive feature to be part of the inputs used in civil works.

All this research is based on the circular economy model, as a system of production and consumption that is responsible, durable and protects nature, and is part of the eco-efficient industry. (Coba, 2022).

For this reason, the present research is based on the importance of recycling discarded plastic products for their reuse in the industry dedicated to the manufacture of construction materials, so that, through the application of the circular economy, a sustainable and eco-efficient construction model can be achieved.

## **MATERIALS AND METHODS**

The methodology applicable to this study consists of the qualitative-quantitative approach, conceived by Solórzano (2020). (2020) as the one that supports the results of the study in measurable figures, in order to then go deeper into these findings. In effect, quantities are used to express the influence of the circular economy on the sustainability of the industry that manufactures construction materials, as well as to deepen these findings through the criteria of experts.

The non-experimental design is also applied, as defined by Arispe et al. (2020) as the one where there is alteration of the phenomenon, because in effect, it is not required to modify the current situation of the problem, but only to analyze and interpret it, to show the benefits that the circularity of recycled plastic can generate, in the eco-efficiency of the manufacture of materials for construction.

In addition, the description, defined by Carhuancho et al. (2019) as that which characterizes a phenomenon from each of its variables, because in effect, the characteristic features of recycled plastic waste are indicated, according to the selected sample, to establish its influence on the eco-efficient production of building materials.

Therefore, field research is required, i.e., as Cohen and Gómez put it (2019) Therefore, construction professionals will be approached about the feasibility of using recycled plastic as an input for the production of construction materials.

Therefore, the population of the study concerns the professionals of the construction sector, in this case, the 6,000 Civil Engineers belonging to the Guayaquil City Association, for their opinion on their willingness to use construction materials manufactured from recycled plastics.

The population sample is calculated as follows:

$$n = \frac{N \times Z_a^2 \times p \times q}{d^2 \times (N - 1) + Z_a^2 \times p \times q}$$

Where:

N: universe (6,000 Civil Engineers)

Z: confidence level (95% or 1.96)

P: probability of success (50%).

Q: probability of failure (50%).

D: error (5%).

Resolving:

$$n = \frac{6,000 \times (1.96)^2 \times (0.5) \times (0.5)}{(0.05)^2 \times (6,000 - 1) + (1.96)^2 \times (0.5) \times (0.5)}$$

Consequently, it is obtained:



n = 361 Civil Engineers

The population sample amounts to 361 Civil Engineers, to which 3 experts in the field of circular economy are added.

The techniques to be used are: the survey, defined by Feria et al. (2020)(2020), as the tool that allows quantitative values to be obtained through research on the members of the sample, by means of a questionnaire with closed questions; and the interview, defined by Villarreal and Cid (2022)(2022), as a qualitative technique that allows to deepen through dialogue between researchers and expert informants, on the problems generated by plastic waste and how it favors its circularity, for its recycling, reuse and contribution to the eco-efficiency of the production of materials for construction.

The results are processed through the tabulation and statistical processing of the survey data, as well as the elaboration of matrices to record the experts' opinions.

Therefore, it is necessary to use triangulation as a method for the discussion of the results, since, according to Solórzano (2022) this method facilitates the linkage between the findings, the contribution of the referents cited which, in turn, serve as a basis for the interpretation of the authors, strengthening the quality of the results for the benefit of the discipline of economics, in the subject inherent to the circular economy of plastic product waste and the eco-efficient production of construction materials.

## RESULTS

It is observed that 8 out of 10 civil engineers considered that recycled plastic waste can be used as a material for the manufacture of blocks and bricks; only 2 out of 10 construction professionals said the opposite, so there is agreement that recycled plastic can be a fundamental raw material in the manufacture of construction materials. Similar results were also seen in these questions, whose answers showed that 8 out of 10 civil engineers are willing to use construction materials made of recycled plastics, corroborating the results of the previous question.

It was also found that 75 out of every 100 civil engineers believe that the principles of sustainability can be strengthened with the use of construction materials made from recycled plastic waste products; only a quarter of those surveyed said the opposite. Therefore, there is an awareness of moving towards sustainability in the construction sector.

Meanwhile, 74 out of 100 civil engineers consider that the use of construction materials made from recycled plastic waste stimulates the application of the circular economy model, with only a quarter of those surveyed questioning it. Therefore, the use of this type of materials in construction works is associated with the circular economy.

To corroborate these precepts, Spearman's coefficient test was applied, but, first, the following hypotheses were put forward:

- Ho: The use of recycled plastic in the manufacture of construction materials is not associated with the circular economy model.
- H1: The use of recycled plastic in the manufacture of construction materials is associated with the circular economy model.

Subsequently, the following results were obtained by applying Spearman's coefficient to the study data:

**Table I.** Degree of correlation between the use of building materials based on recycled plastics and the circular economy model.

Parameters	Figures
Spearman's Coefficient	0,98
Sig. bilateral	0,001
Number of valid cases	361

Note: Data obtained from the survey applied to Civil Engineers of Guayaquil.

The data obtained corroborated the correlation between the variables, i.e., the hypothesis that the use of recycled plastic in the manufacture of construction materials is directly associated with the circular economy model is ratified.

However, the results of this article with a mixed approach have been complemented with the findings of the interview with the experts, where the following are presented:

Interviewee: Mgr. Nancy Rocío Castillo Castro, who is studying a PHD in Economics of natural resources and sustainable development at the Universidad Nacional Agraria La Molina in Peru.

What is the economic advantage of using building materials made from recycled plastic?

In accordance with the results obtained in various investigations, a reduction in production costs in the construction sector has been evidenced by the use of materials containing recycled plastic resins from waste products, which obviously represents an advantage, both for professionals and workers in the construction sector, as well as for citizens who want to obtain a house or hire this type of professionals, at affordable prices.

How does the use of these building materials contribute to the circular economy?

The circular economy lies in reusing the waste of a productive sector, such as, for example, that generated by the plastics industry and users who use plastic products and discard them, to reuse them in another productive process which, in this case, is referred to the manufacture of materials for the construction sector, then, The same process that occurs in nature is simulated, where the waste is absorbed to carry out another process and continue with the natural cycle of the ecosystems, so that the pollution generated by plastic waste is avoided, taking advantage of this solid waste for the manufacture of economic construction materials, for the benefit of the community.

Can plastic building materials compete with blocks and bricks from the point of view of quality and price of construction works?

Yes, because the production costs of these materials for construction are more economical, because plastic is an economical raw material, worth the redundancy, at the same time, its quality is not minimized, according to the experiences of experts, the quality parameters of the materials for construction manufactured based on recycled plastic, Therefore, it is estimated that by lowering the amount of production costs and increasing the quality of these materials, the price of construction works should also decrease, offering economic houses to improve the housing conditions of the population and supplying this need that has been unsatisfied in the population for many years.

Interviewee: Byron Loor Alcívar Mgr., who is pursuing his Ph.D. at the Benito Juárez University of Mexico.

Why can recycled plastic serve as a raw material for the manufacture of building materials?

Because the characteristics of plastic make it a very consistent and at the same time flexible material, due to its hardness and consistency. In addition, research that has been carried out on this material, suggests that, indeed, plastic offers protection against corrosion, is a durable material and can insulate the temperature, whether cold or heat,

but also because it is cheap, all of us who are immersed in the construction sector, We recognize that the materials have risen, cement, block, brick, among others, while plastic offers a cheaper alternative, so that works such as housing or improvement of the same, are more accessible in places where it is necessary to bring more development.

How should one work with this type of plastic-based building materials?

It is necessary to work considering the measurements to the traction, to the breakage, because the brick or block to which a percentage of recycled plastic has been added, is equal to the conventional block or brick, then, there is no reason to change the processes, except special specifications, of course, but its minimum resistance to the compression must be verified, to assure the resistance of these materials and to offer a security to the client that, the work carried out is of high quality.

Can plastic building materials compete with blocks and bricks in terms of the quality of construction work?

Yes, because they offer similar advantages to conventional bricks and blocks, even in some developed countries such as the United States, Germany, China, they are testing blocks and bricks built with recycled plastics and you will see that in these countries there is no poverty as there is in Latin America, in Africa, however, they conduct their experiments because they are trying to produce resources that are not harmful to the environment, that is, environmentally friendly building materials and this new paradigm will gradually reach Ecuador as well.

Interviewee: Blgo. Vallardo Villegas, Master in Project Management.

Why can recycled plastic serve as a raw material for the manufacture of building materials?

Yes, because according to research studies published in high impact journals, recycled plastic, due to its characteristics of hardness, flexibility and resistance, can even be used to replace certain construction materials, such as blocks or bricks, for example.

How does the use of these building materials contribute to the circular economy?

Look, eventually all construction materials will undergo changes, motivated by the 2030 Agenda, which requires all professionals and companies to work, respecting the rights of nature, then, the block, the brick, at some point other building materials, will have to adapt to this new paradigm, so I believe that both civil engineers, architects,

environmental managers and other productive sectors, will have to align to these policies and sustainable development goals (SDG number 12: sustainable production).

How does eco-efficiency play a role in the use of building materials made from recycled plastic?

He intervenes that, by using recycled plastic, the contamination of the marine and terrestrial ecosystem is being avoided, mainly, but in addition, the existing contamination in the construction sector would also be minimized, because the waste of these materials cannot be thrown in the collection cart, but they have another treatment, but plastic, on the other hand, can continue to be recycled, it is a durable, sustainable, resistant material that can be reused many times, due to its consistency, therefore, it is eco-efficient, without any doubt.

The principles of sustainability in production that emanate from SDG 12 of the 2030 Agenda, in addition to the industry's shift towards climate change control through respect for the rights of nature, are generating paradigm shifts in the manufacturing of building materials, such as blocks and bricks.

In this regard, according to the research findings, there is a consensus on the part of Civil Engineers, on the availability for the acquisition and use of blocks and bricks made with plastic material content, for use in construction works, because it meets the requirements of quality standards, in addition, it can lower the costs in the construction sector works, to facilitate access to housing and cheap works, to the population of scarce resources.

Regarding this result, it should be noted that Molina et al. (2021) and Grover et al. (2020)(2020) stated that options are required for the reuse of waste plastic, which is currently polluting the seas and soil and degrading the ecosystem of aquatic and terrestrial species.

Meanwhile, Gutiérrez and López (2022) agreed on the importance of providing viable solutions to reduce the cost of construction materials, which have suffered an increase in their prices as a result of the pandemic and the war between Russia and Ukraine. In the same way, Cortés (2018) states that there is a need to reduce costs in the materials used by the construction industry, so that the economic reactivation of this sector can take place.

In view of this, Dobón (2019) proposed the manufacture of the PET brick, a building material made from PET waste, a type of plastic commonly used in this industry.

Aranzales (2020) also agreed with this premise, using waste products made from PVC, PET, PEAR, for the manufacture of high quality blocks and bricks.

This finding was also confirmed by Ojeda et al. (2020) when they conducted an experiment in which they found that the tenacity of the mortar used to manufacture bricks and blocks was 13 times higher in those construction materials with plastic resin content than in conventional ones, with 35% greater flexibility and tensile and compressive strength.

Therefore, it is clear that the expressions of the Civil Engineers, in agreeing with the use of construction materials manufactured with plastic resins, is in accordance with the current reality of this economic sector, where several advantages are obtained, such as cost reduction, access to housing and civil works by the citizens, improvement of the quality of construction works, as well as the promotion of the economic reactivation of this important branch of the productive matrix.

In addition, it was learned that the use of construction materials manufactured with a percentage of recycled plastic waste content by professionals in the construction sector has a direct impact on strengthening the principles of sustainability and eco-efficiency, because the circular economy model is applied, which is to use the waste of a process in another productive activity, to avoid overexploitation of natural resources, as in this case, those minerals used for the manufacture of blocks and bricks.

These findings are consistent with those of Mendoza et al. (2020) who referred that the supply chain of recycled plastic can be extended to avoid its disposal as waste, because by recycling it, it can be reused in other industries, for example, in the manufacture of construction materials (bricks or blocks), which can be used in sustainable and eco-efficient architecture and engineering.

Also Yagual et al. (2018) considers that, if recycled waste plastic is reused, in the industry dedicated to the manufacture of construction materials, it would be applying the principles of sustainability and eco-efficiency in this productive sector which, is of great relevance for the construction sector, enhancing in turn, the circular economy model in this economic sector, very important for the development of GDP and the national economy.

For her part, Muyulema (2018) considers that, by reusing plastic as raw material for the production of blocks and bricks, it is gaining in productivity, transforming into an eco-efficient industry, because the circular economy model allows lower costs, by reusing recycled waste plastic, as raw material for the elaboration of other processes,

consequently also, lowering costs, increasing the quality of the product and civil works, to generate economic, ecological and social development, in the communities.

Finally, it has been possible to defend the idea that the use of waste plastic, previously recycled, can serve as an economic raw material for the manufacture of construction materials, favoring the circular economy model, because plastic waste resources are used to take advantage of another industry that can take advantage of them, lowering costs, improving the quality of civil works, increasing access to cheap housing for the population and promoting the reactivation of the construction sector, for the generation of economic, social and environmental development in the nation.

## CONCLUSIONS

It was concluded that professionals in the construction sector have the availability to use blocks and bricks that include plastic resins in their interior, to acquire them as raw materials for the execution of their construction works, because they meet the requirements of the quality standards, but, above all, because it can lower the production costs of the service in reference.

In addition, experts in economy and eco-efficiency have stated that construction materials manufactured with plastic resins allow the use of waste plastic products to avoid polluting the environment and introduce them into other production processes, true to the circular economy model, ensuring sustainability and eco-efficiency in the construction industry.

In other words, the use of recycled plastic waste can be very useful for its use as an economic raw material for the manufacture of construction materials, adhering to the circular economy model, by taking advantage of plastic waste, to take advantage of it in another industry, also having an impact, This will also reduce costs and comply with quality standards in the construction of civil works, facilitating access to housing for the low-income population and promoting the reactivation of the construction industry, in order to achieve greater economic and social prosperity, while respecting the rights of nature.

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