# PERFIL



The Plastic

Transformation

and Recycling

Industries in Brazil



The Plastic Transformation and Recycling Industries in Brazil





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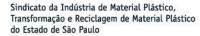














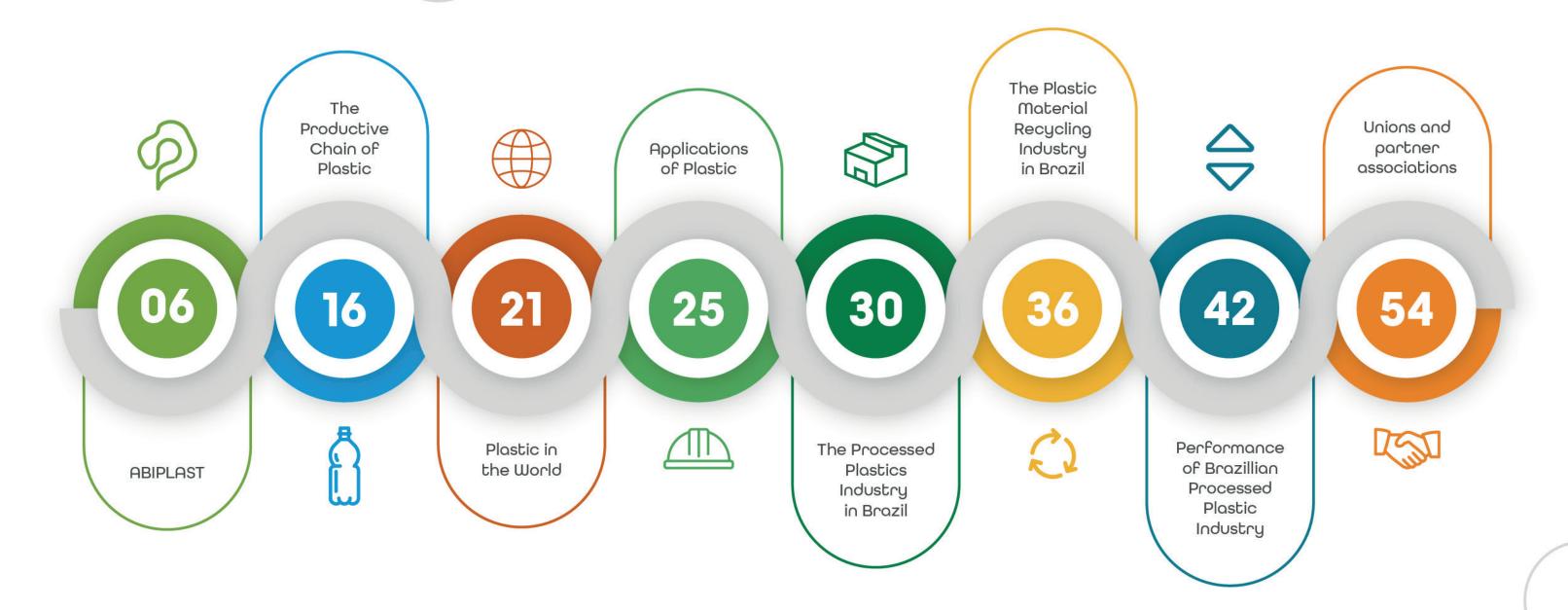








# menu













# A sustentabilidade é parte do nosso DNA

Há mais de 45 anos no mercado e com o propósito de elevar a qualidade de vida, construímos a história de circularidade do plástico por meio da inovação e do desenvolvimento sustentável.

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The Plastic Transformation and Recycling Industries in Brazil

# ABIPLAST





# **ABIPLAST**

The plastic transformation and recycling industries have found national representation and support for more than five decades in the **Brazilian Plastic**Industry Association (ABIPLAST), since the segment began to develop in the country. The work started in 1967, currently accounts for a total of more than 12,000 jobs and almost 360,000 professionals.

To keep this representation strong, the entity relies on the joint and collaborative work of **21 state unions**, which strengthen the sector regionally, and partner associations, which contribute to reiterate the importance of our industry.

The entity, more than defending the interests and providing assistance to the category through various services and initiatives, has the mission of valuing plastic, promoting the sector and its **competitiveness**, as well as **technological advances** with a focus on sustainability. For Brazil, the **progress** of this industrial activity causes a **multiplier** effect and

proves to be important for bringing numerous economic and socio-environmental benefits.

For years, the concrete implementation of the Circular **Economy** in the production chain has been at the top of ABIPLAST's priorities. The entity works in this direction, developing together with its associates, actions that prepare the sector for the current reality, advancing towards effective results. The Circular Economy, conscious production and consumption, demand new applicability of plastic material, which are adding greater value to processed products, leading to innovations both in raw materials and products as well as in processes and business models. Innovation, by the way, has been the beacon that guides the course of ABIPLAST's actions, with the objective of maintaining plastic products - including those that use recycled content - as the best solution for many human needs, integrating plastic material to new demands and market trends.



# We have a duty to increase efforts to meet challenges. May these efforts be integrated with stimulus policies and circular economy concepts, with recycling and innovation being two of its aspects. There is a need to increase solutions aimed at circularity. JOSÉ RICARDO **RORIZ COELHO** PRESIDENT OF THE BOARD OF ABIPLAST

# Word from the PRESIDENT

As every year, **ABIPLAST** continues to work on the development of the plastic transformation and recycling sectors. It is with satisfaction – and with hope – that we see that the good debate has gained momentum and that there are new efforts to enhance the role of industry with concrete measures in national development, guaranteeing a sustainable future for everyone and not just for niches in the productive sector.

Even having experienced a year with several obstacles – which continue to persist in the plastic production chain – it is possible to see more favorable conditions for finding solutions through the sum of efforts of governments and private initiative in Brazil. Thus, this sum will make way for the more than 12 thousand companies in the sector to continue to invest in more efficient production processes and guarantee a more robust growth to fulfill their mission

in the national economic environment. We have a duty to increase efforts to meet this challenge.

May these efforts be integrated with stimulus policies and circular economy concepts, with recycling and innovation being two of its aspects. There is a need to increase solutions aimed at circularity.

All over the world, industrial policies have considered the green economy a national strategy to guarantee a more sustainable future for humanity. The same is happening in Brazil, with the debate on ecological transition and reindustrialization. Support for growth includes the main points to be encouraged: the carbon credit market and the use of renewable energy sources, such as the production of solar panels and the increased participation in exports of products from properly managed forests. Recycling and reverse logistics are no longer an option

and have become mandatory.

We also have new perspectives in public administration. Tax reform returns to the debate with great intensity and, even better, with the possibility of bringing positive news to the economy.

In this context, all the concepts that belong to the circular economy of plastic find room to develop and the topic is at the top of ABIPLAST's priorities. Therefore, finding solutions for everyone to develop is our commitment.

But we can't do it alone. Very similar challenges are faced by different sectors of the Brazilian industry and economy, and that is why we value collaboration and partnership with various stakeholders so that together we can continue to grow in quality and innovation, both linked to the demands of the market and society.

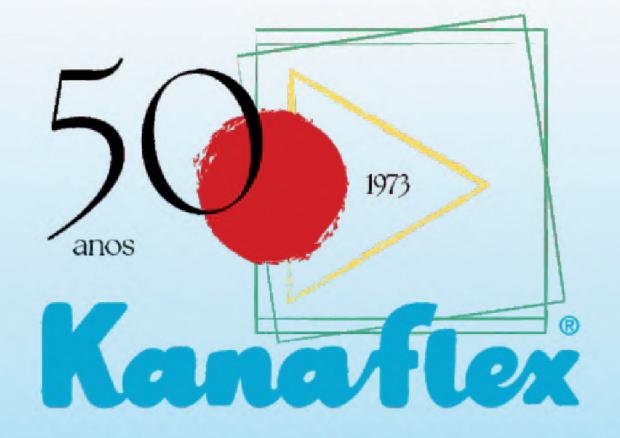
At Profile 2022, we made a point of maintaining all the services made available by the association, as well as updating our projects and initiatives. In addition, we present new content on the circular economy, one of the main topics for dealing with the future.

We continue together, producing goods, generating knowledge and transforming the present to ensure an increasingly promising future for society as a whole.

# José Ricardo Roriz Coelho

President of the Board of ABIPLAST





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# Do you already know ABIPLAST?

ABIPLAST performance in the competitiveness of plastic transformation and recycling industries.



# **Market Access and** Development

With an eye on the Circular Economy, innovation and industry 4.0, ABIPLAST follows Brazilian and international trends and opportunities so that the sector's industries are always aligned with current discussions. In addition, it also monitors lines of financing that allow companies to invest.



# **Economic Advisory and** Market Intelligence

Monitoring te sector and its competitiveness through research and monitoring of data from Brazil and international references, allowing the preparation of materials that support companies in the sector, identifying challenges and opportunities.



# **Technical Advisory**

Monitoring of regulations, technical standards, ordinances and laws in force regarding plastic products in order to ensure that they are up to date with the reality of basic industrial technologies and technological infrastructure in the sector, in addition to advising on implementation in companies.



# **Labor Advisory**

In partnership with SINDIPLAST, the Association monitors the Collective Bargaining tha take place annually, in addition to advising on labor and union areas, advising companies and contributing to a healthy relationship between Capital and Labor.



# Access to Competitive Raw Materials

Search for integration and strengthening of the Brazilian production chain with the international market, targeting new suppliers and/or partners in favor of competitiveness and innovation.



# ABIPLAST performance in the competitiveness of plastic transformation and recycling industries

# Project Management and Solution Development

**ABIPLAST** believes that collaboration and the union of actors allow the execution of projects with great results for the sector. In this way, it has a qualified team available to manage projects for companies in the sector.



# **Tax Claims**

We believe in the importance of tax isonomy in the industrial sector in relation to other sectors of the economy, in addition to work for the tax logic contemplate the circularity dynamics of the new business models.



With the objective of uniting actors and building collectively, **ABIPLAST** works in the institutional and governmental spheres to strengthen the plastic transformation and recycling industries.



# Initiatives FOCUSED ON SUSTAINABILITY



# AGIR - National Alliance for the Management, Recovery and Recycling of Packaging in General and for the Circularity of Waste

**ABIPLAST** and more than 30 Associations and institutions came together to create a transparent and democratic space with the purpose of sharing lessons learned, promoting synergies and, above all, rethinking actions and strategies for greater effectiveness of reverse logistics for packaging in general in Brazil.

Among the actions of **AGIR** are the promotion of studies, research and publications, articulation with bodies of interest, promotion of seminars, technical meetings, promotion of campaigns and other measures that collaborate for the management of waste and facing the climate change, as well as support for the systematization of information from its members.



# Pioneer platform for proving the circularity of plastic.

Tracing plastic waste, from its origin to its reinsertion as raw material in the manufacture of a new product, is the objective of the digital platform developed by **ABIPLAST** and **ABDI – Brazilian Agency for Industrial Development** in partnership with **Central de Custódia**. Recircula Brasil allows the industry to prove the circularity of plastic, valuing the recycled raw material with transparency and technology.

Contact us and learn more: recirculabrasil@abiplast.org.br



To promote the recycling of post-consumer plastic buckets used in civil construction, project **Descarta Aí** allows consumers and self-employed professionals in civil construction to have an environmentally appropriate and easily accessible option for disposing of buckets and their lids after consumption of products. The project started in 2022 and is the result of a partnership between **ABIPLAST** and **COFABI- Sectoral Chamber of Manufacturers of Industrial Buckets**.

The project has PEVs (Voluntary Delivery Points) in São Paulo, Curitiba and Fortaleza.

# Initiatives focused on sustainability



With the aim of making citizens aware of the feasibility of recycling EPS/XPS, the **Isopor® Amigo** program under the management of **ABIPLAST** with various actors, promotes the correct disposal of trays, boxes, lunchboxes and other packaging in these materials. The program, which began at **Perini Business Park** in Joinville - the largest multi-sector business park in South America - allowed this waste to have an average compliance level of 73%, indicating that it is increasingly correctly disposed of waste by the population.

Since the beginning of the project, in 2020, 3.5 tons of Isopor® have been recycled, of which around 300,000 lunchboxes have been recycled, raising the quality level of waste from 23% to 96% in the lunchboxes disposed in the PEVs. In 2022, the program had around 200 hours of actions, including training and visits.

Find out more at: www.isoporamigo.com.br



# Business Models for MSW Management and Reverse Logistics

Aiming to develop partnership models between companies and municipalities with financial sustainability, the project proposed models capable of optimizing the management of urban solid waste (MSW) and contributing to the reverse logistics of products, uniting private and municipal actors.

The initiative is the result of a partnership between ABIPLAST and ABDI - Brazilian Agency for Industrial Development and had the strategic partnership of Rede pela Circularidade do Plástico.



**Rede pela Circularidade do Plástico**(Network for the Circularity of Plastic) is a space for cooperation between actors in the plastic production chain with the objective of proposing solutions and developing projects in favor of the circular economy of the material, with a focus on packaging. The initiative has been mobilized by ABIPLAST since 2018 and is considered a governance case of this chain, as it includes several links, namely petrochemical companies, transformers, recyclers, cooperatives of recyclable material collectors, brand owners, retailers and waste managers.

Among the deliveries in 2022 are "Recicla Guarujá" with more than 30,000 tons of recovered plastic waste, the "Retorna" tool with more than 200 analyzes carried out, the "Reflexível" project, a project for the recovery and reintroduction of post-consumer flexible packaging consumption as a raw material in the production cycle and the Design Guides for Rigid and Flexible Packaging with guidelines for packaging circularity and recycling.

Learn more at: www.redeplastico.com.br

# Initiatives focused on sustainability



In order to demonstrate the use of plastic in a creative and responsible way, **Movimento Plástico Transforma** was created in 2016, the result of a partnership between **ABIPLAST** and **Braskem**. The initiative, which has already impacted thousands of people, develops content, educational and interactive actions, encourages innovation and shows that plastic, combined with technology, creativity and responsibility, brings countless possibilities for our daily lives and for the future.

Among the deliveries in 2022 are "Recicla Orla", a cleaning effort at Leme beach in Rio de Janeiro, the interactive space "Economia Circular do Plástico" at Museu Catavento in São Paulo and the collection and recycling of discarded plastic cups in Saint Silvester Road Race, transformed into new products donated to public entities.

Find out more at: www.plasticotransforma.com.br



**SENAPLAS** is a seal of appreciation for recycling companies and the performance of recycled post-consumer plastic resin. **'SENAPLAS - Company'** identifies and values recyclers who work within the social, environmental and economic criteria required by law. Once this seal has been acquired, the company is able to acquire **'SENAPLAS - Product'** that certifies recycled resin with the aim of adding value to the product and guaranteeing greater quality, based on the methodology of the European certification EuCertPlast.

The seal is the result of a partnership between ABIPLAST and National Chamber of Plastic Material Recyclers.



# Packaging Reverse Logistics System | Sectoral Agreement

In compliance with the **PNRS - National Policy on Solid Waste**, the objective of the **National Program for Packaging Reverse Logistics**, through the General Packaging Sectorial Agreement, is to increase post-consumer recycling rates, one of its initiatives being, for example, structuring investments in sorting recyclable waste.

ABIPLAST, along with other sectorial associations, is a member of Coalizão Embalagens which, since 2015, has been working on the Program.

# separe.

**Sort. Don't Stop.** is one of the initiatives that belong to **Coalizão Embalagens**, to comply with **PNRS**. The Campaign seeks to inform, inspire and mobilize the Brazilian population to properly separate and dispose of domestic waste. With a dedicated portal and an active presence on the main social networks, it delivers exclusive and educational content on a daily basis, helping to create and consolidate the culture of recycling.

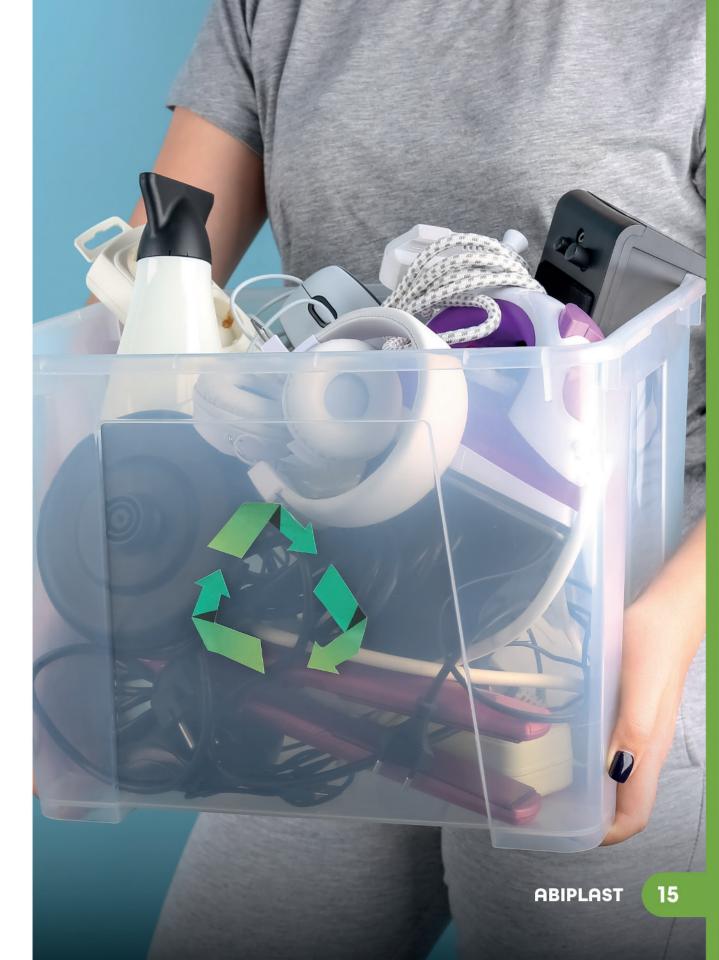
Visit: www.separenaopare.com.br





The objective of the Program is to engage and implement actions in the sector in a continuous action to reduce the loss of pellets in plastic material transformation and recycling plants, including transporters and distributors. **ABIPLAST** was the first licenser of the Operation Clean Sweep - OCS program in 2014, adapting the initiative to the particularities of the Brazilian plastic industry.

**ABIPLAST** has **15 companies** – including transformers, distributors and transporters – and its 27 units implementing the **Zero Pellet Program – PPZ**.



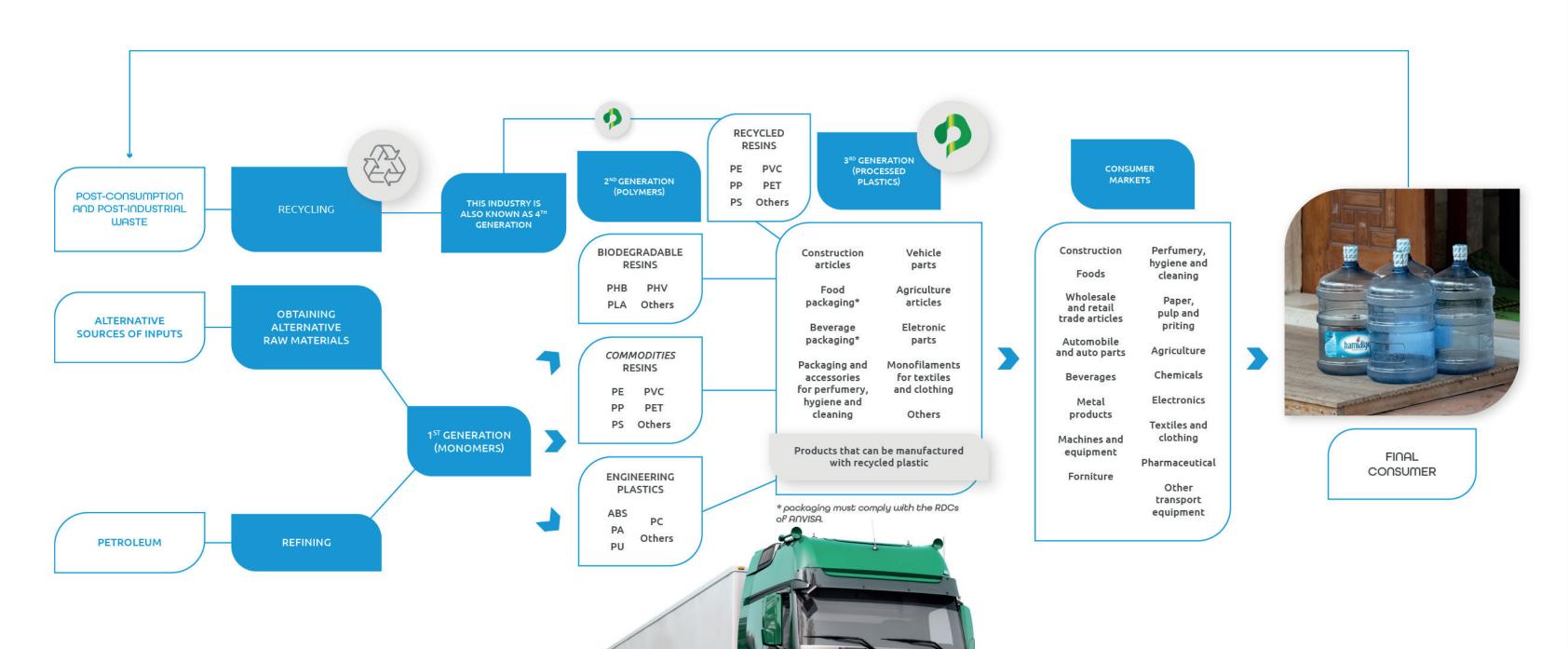


# PRODUCTIVE CHAIN OF PLASTIC IN BRAZIL





# The PRODUCTIVE CHAIN OF PLASTIC in Brazil

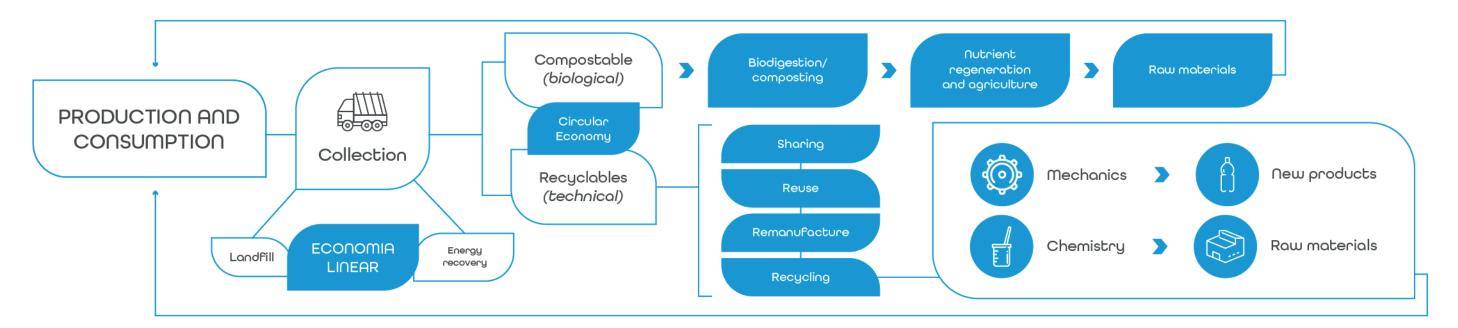


THE PLASTIC TRANSFORMATION AND

RECYCLING INDUSTRIES IN BRAZIL

# The Productive Chain Cycle | Circular x Linear





# Did you know?

Just as we have the **Rs** of conscious consumption, the Circular Economy proposes 9 Rs that must be pursued in order to achieve a successful transition from the Linear to the Circular Economy, namely:

- **1. Reduce** by gaining resource efficiency during manufacturing or using fewer natural resources;
- 2. **Refuse** and abandon the use of features or products that are not needed as long as it does not lose the final function of the product;
- 3. Redesign products or services such as sharing models.

- **4. Reuse** products that are still functioning in their original purpose;
- 5. Repair a product that is not in working order for use in its original purpose;
- 6. Refurbish, restore or upgrade an obsolete product to a standard quality product;
- 7. Remanufacture parts and pieces into a new product by combining parts and pieces of different products;
- 8. Reprocess using a product considered waste giving new use and new function;
- **9. Recycle, recover** waste reprocessing in a new production process to recover the raw material in new products.

SOURCE: UNLOCKING CIRCULAR ECONOMY FINANCE IN LATIN AMERICA AND THE CARIBBEAN. THE CATALYST FOR A POSITIVE CHANGE/ UN ENVIRONMENT PROGRAMME.



# Circular Economy Making it Happen

According to the publication "Innovation at the source: A Guide

to Packaging Solutions" by the Ellen MacArthur

**Foundation**, there are five factors that can be critical to the successful implementation of innovation-at-source solutions.



# What is innovation at the source?

It is about preventing waste from being generated. Another innovation model, according to the Foundation, is innovation at the end of the chain. This includes, for example, the development of new collection, sorting and recycling technologies, therefore relating to a product or material after its initial use.

SOURCE: INOVAÇÃO NA ORIGEM: UM GUIA DE SOLUÇÕES PARA EMBALAGENS/ ELLEN MACARTHUR FOUDATION.













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# The five essential ingredients

# Shared vision and goals

Public communication of a long-term vision, as well as buy-in from the company's senior leadership, is critical in creating the conditions that allow for innovation at the origin of an organization. Starting with internal communication to the company's employees, the established goals permeate the departments, allowing them to become the company's central objectives.

# External contributions

A key ingredient for companies has been to bring in complementary assets, resources, skills and knowledge when needed, for example by partnering with startups, hiring consultants or getting feedback from NGOs.

# Patient capital

Patience and understanding, because truly transformative innovation takes time. It is crucial for success to establish a well-funded innovation process with room for failure and patience to wait for the return on investment.











# Intrapreneurial culture

These are internal change agents with ideas that push boundaries and see ways to create better products or reach new markets. Companies that pioneer innovation at the source support a culture of intrapreneurship.

# **Breaking silos**

An effective team is a fundamental ingredient for the success of any innovation process. For actions at the source, it is important to form a cross-departmental team, as rethinking the packaging, product and business model often involves many different teams or business units within an organization.

SOURCE: INOVAÇÃO NA ORIGEM: UM GUIA DE SOLUÇÕES PARA EMBALAGENS/ ELLEN MACARTHUR FOUDATION.





# PLASTIC INTHE UUORLD





# HISTORY AND EVOLUTION of Plastic



1900 was the year the first commercial form of fully synthetic plastic wascreated, replacing the ivory of elephants and the hooves and horns of bovines.

1900



Between the 1960s and 1980s, the material was used in the production of components for spacecraft, during the space race and also in music, photography and video, as well as toys.

1960 > 1980



From then on, the increase in recycled plastic becomes a trend with the positive gaze of society. On the other hand, in the last decade, the material began to have its image worn down, especially in the packaging and disposable segments. In this scenario, a series of global commitments were made by the major brands to reduce their use, redesign, recycling, in addition to legislation addressing the issue, including bans. In 2020, there was the beginning of the discussion for a Global Compact and, as of 2022, the beginning of the discussion for an international instrument against plastic pollution.



2001 **\*** Atual



# 1900 **\*\*** 1950

As early as 1909, disposable plastic appeared in compliance with American legislation that prohibited the use of community cups on trains, preventing the spread of diseases. Until the 1950s, plastic was used to make clothing and housewares.



# 1990 🐲 2000

Between the years 1990 and 2000, means of transport began to use a greater amount of recycled plastic. In addition, with the emergence of super and hypermarkets came the increased use of plastics in packaging to maintain freshness and shelf life of products. It was also during this period that new techniques were developed to recover and recycle plastic products.



# And what is the future of plastic?

Plastic serves the entire industrial matrix due to its characteristics, such as accessibility, lightness and safety. Therefore, it is necessary to develop the entire production chain in search of new business models and innovative products.

# History and Evolution of Plastic | Examples of innovation



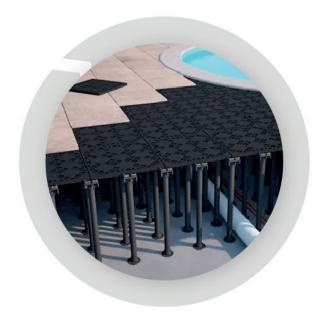
# Sprite Bottler from The Coca-Cola Company: from green to transparent.

**Sprite** - a soft drink brand - changed its iconic green bottle to a clear bottle in order to improve its value during recycling.



# Reuse of plastic from electronics.

The Brazilian company **Sinctronics** specializes in reverse logistics and the reuse of plastics from electronic devices, generating an upcycling process, in which materials are recycled without loss of value and quality when reintroduced into the production chain.



# Raised Floor in recycled polypropylene.

**Remaster** offers an integrated raised floor system that houses electrical network components, facilitating assembly, maintenance and disassembly, and is made with recycled and recyclable plastic plates for the next cycles.

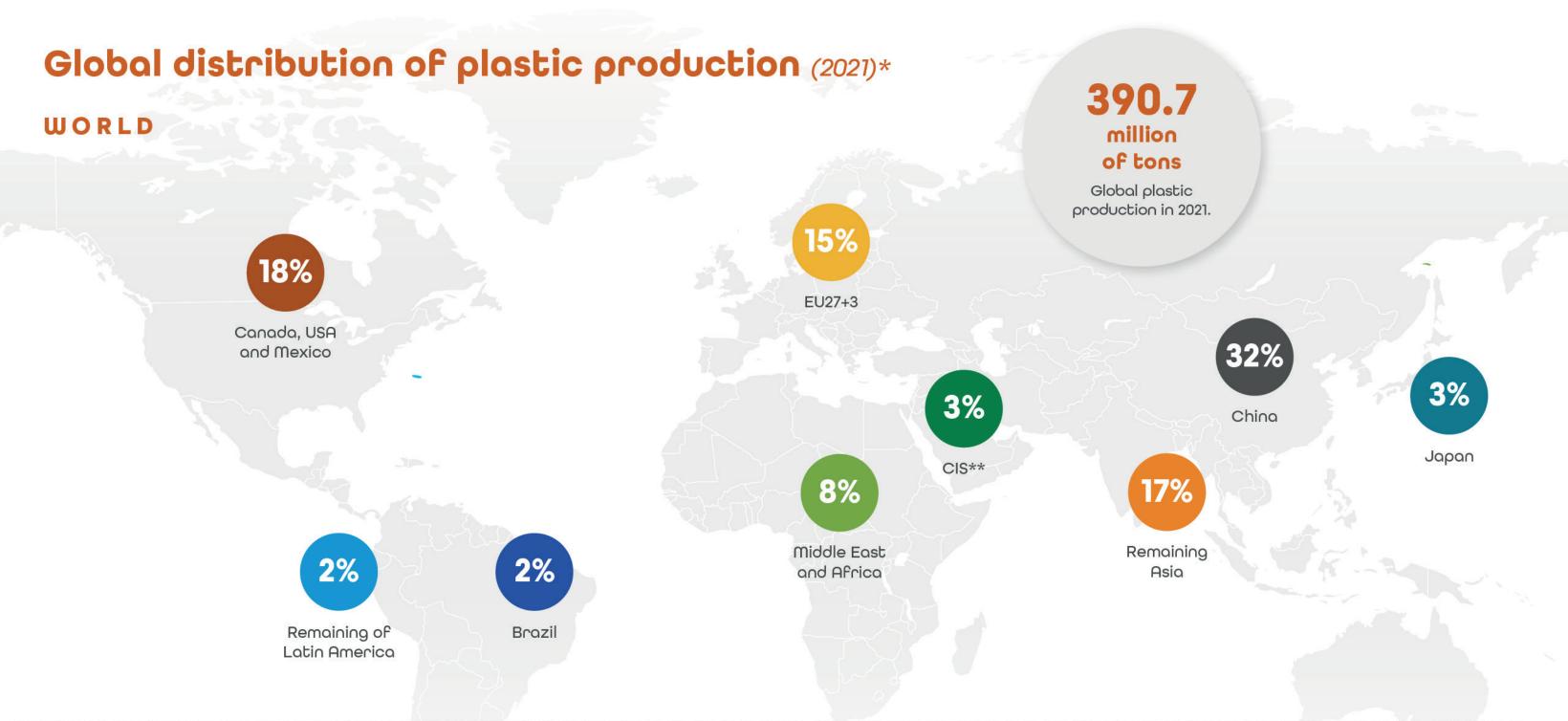


# Vinyl floors with circularity

**Tarkett** is one of the world's leading manufacturers and marketers of flooring and cladding solutions and applies *Cradle to Cradle®* principles across its entire product portfolio (carpet, LVT, wood, etc). Products are intentionally designed for their next use and actively cycled through their intended use cycles.

SOURCES: INOVAÇÃO NA ORIGEM: UM GUIA DE SOLUÇÕES PARA EMBALAGENS/ ELLEN MACARTHUR FOUDATION E 28 ESTUDOS DE CASO - DESIGN E INOVAÇÃO PARA A ECONOMIA CIRCULAR NO BRASIL E NO MUNDO/ IDEIA CIRCULAR.





\*INCLUDING PLASTICS PRODUCTION FROM POLYMERISATION AND PRODUCTION OF MECHANICALLY RECYCLED PLASTICS. POLYMERS THAT ARE NOT USED IN THE CONVERSION OF PLASTIC PARTS AND PRODUCTS (I.E., FOR TEXTILES, ADHESIVES, SEALANTS, COATINGS, ETC.) ARE NOT INCLUDED.

\*\*COMMONWEALTH OF INDEPENDENT STATES: AZERBAIJAN, ARMENIA, BELARUS, KAZAKHSTAN, KYRGYZSTAN, MOLDOVA, RUSSIA, TAJIKISTAN, TURKMENISTAN, UZBEKISTAN AND UKRAINE.

SOURCE: PLASTICS EUROPE





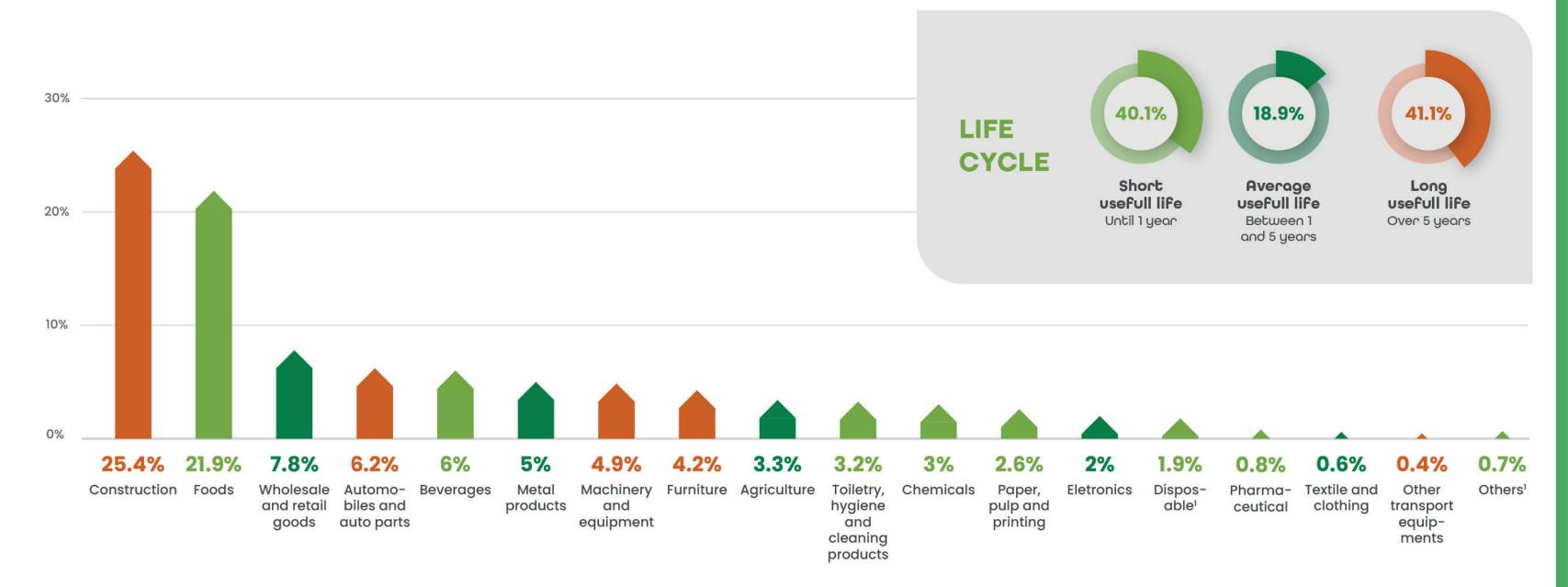
# APPLICATIONS OF PLASTIC





# Consumers sectors (2020)

Sales of processed plastics, in value, by sector.

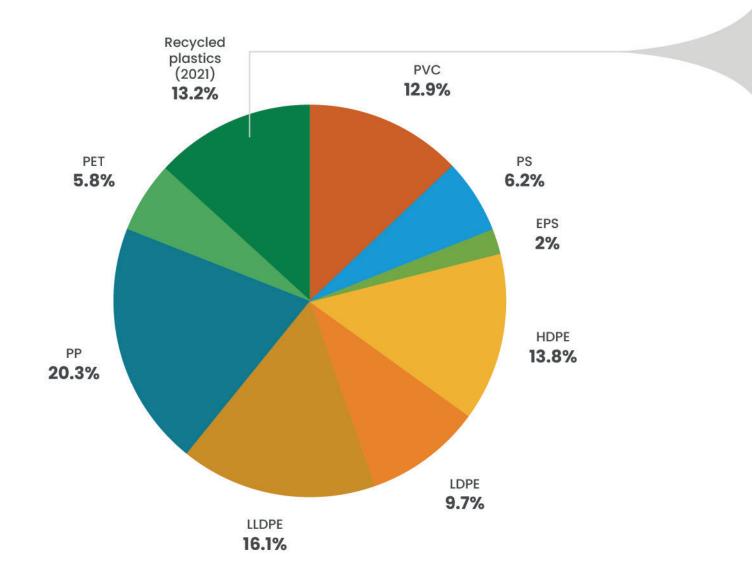


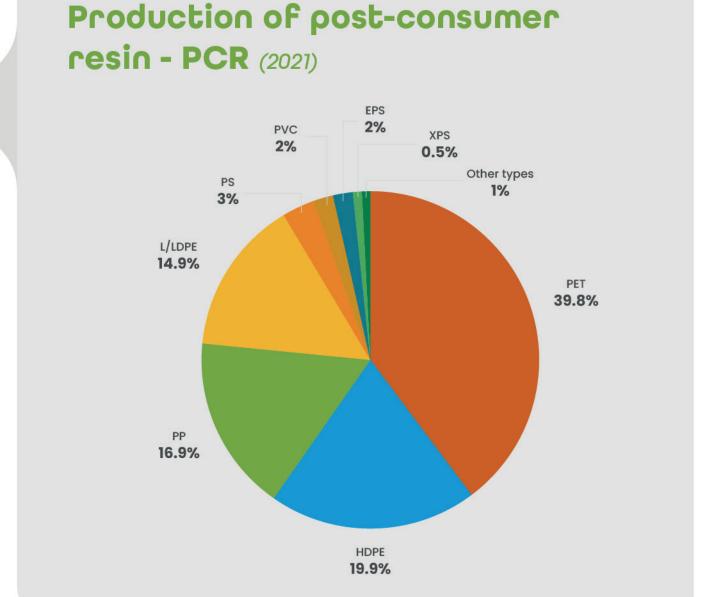
SOURCES: TABLE OF USES OF GOODS AND SERVICES AND ANNUAL INDUSTRIAL SURVEY - PRODUCTS/ IBGE. PREPARED BY: ABIPLAST.

NOTE 1. THE PERCENTAGE OF "DISPOSABLES" IS AN APPROXIMATION USING PRODUCTION DATA FOR CUPS, PLATES, CUTLERY AND THE LIKE, AND STRAWS. THE ITEM "OTHERS" REFERS TO THE EXTRACTION OF INPUTS.



# Main resins consumed in Brazil - % (2022)

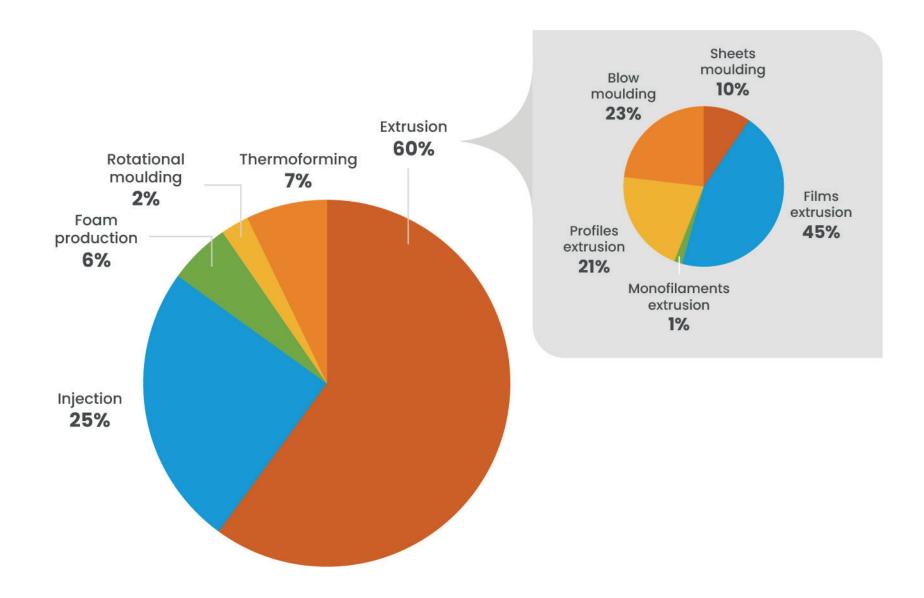




SOURCES: ANNUAL INDUSTRIAL SURVEY - PRODUCT, MONTLHY INDUSTRIAL SURVEY - PHYSICAL PRODUCTION/ IBGE, COMEXSTAT/ MINISTRY OF ECONOMY, BRASKEM EARNINGS RELEASE AND MAXIQUIM/ PICPLAST RECYCLING SURVEY. PREPARED BY: ABIPLAST.



# Productive processes for manufacturing processed plastics (2020)



FONTE: PESQUISA INDUSTRIAL ANUAL - PRODUTO/ IBGE. ELABORAÇÃO: ABIPLAST.

NOTE: THE PERCENTAGES WERE UPDATED IN RELATION TO THE PREVIOUS PROFILE, AS THE FINAL PRODUCTION PROCESS OF EACH PRODUCT CATEGORY WAS CONSIDERED.

# 2022

# Extrusion

Consists of forcing the controlled passage of the cast plastic material through a cylinder and upon its exit, the material is compressed in a matrix into the desired shape of the product. This process is used to make, for instance, sheets, profiles, of films for later finish.

**Blow moulding:** Consists in the extrusion of a "house" commonly known as parison wich is inserted into a mould and by compressed air injected inside forms a hollow product. It is the process used to make bottles, gallons, packaging for foods, cosmetics, cleaning products, and automotive tanks.

**Profiles extrusion:** Used to make pipes, coated cables, wires, and hoses for civil construction.

**Monofilaments extrusion:** To make continuous and fine filaments, such as fishing lines, brush and broom bristles, and when braided they originate products such as ropes, cables, fishing nets, screens in general, etc. Fibres for the textile industry can also be made.

**Sheets extrusion:** Used to make sheets and plates that will be used as input for the production of thermoformed packaging and White line accessories, such as refrigerators and microwave ovens.

**Films extrusion:** Produces very fine, mono and multilayer films that will be later used to make flexible packaging.

# Injection

This process gives very specific details to the products such as threads, holes, and perfect fitting, and is very much used in the auto parts industry (such as car dashboards) making intermediate products that serve as inputs for the automotive industry and also to produce household items intended for the end consumer.

# Rotational moulding

Use to make hollow products such as toy pieces (doll heads and parts) or large parts such as agricultural machine and water tanks.

# Vacuum thermoforming

Process to mould parts by using plates os sheets (made by extrusion). Consists of heating the sheet wich receives vacum to remove the air caught between the sheet and the mould to enable the forming of the final part. This technique is used to manufacture products such as disposable utensils, trays, autoparts, etc.

# Other process

The blown injection is a variation very much used to make PET bottles, combining both injection (pre-mould) and blown (PET bottles) processes in the same machine.





PROCESSED
PLASTICS
INDUSTRY
IN BRAZIL

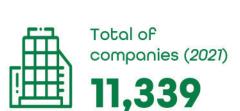




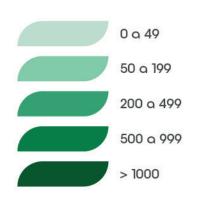


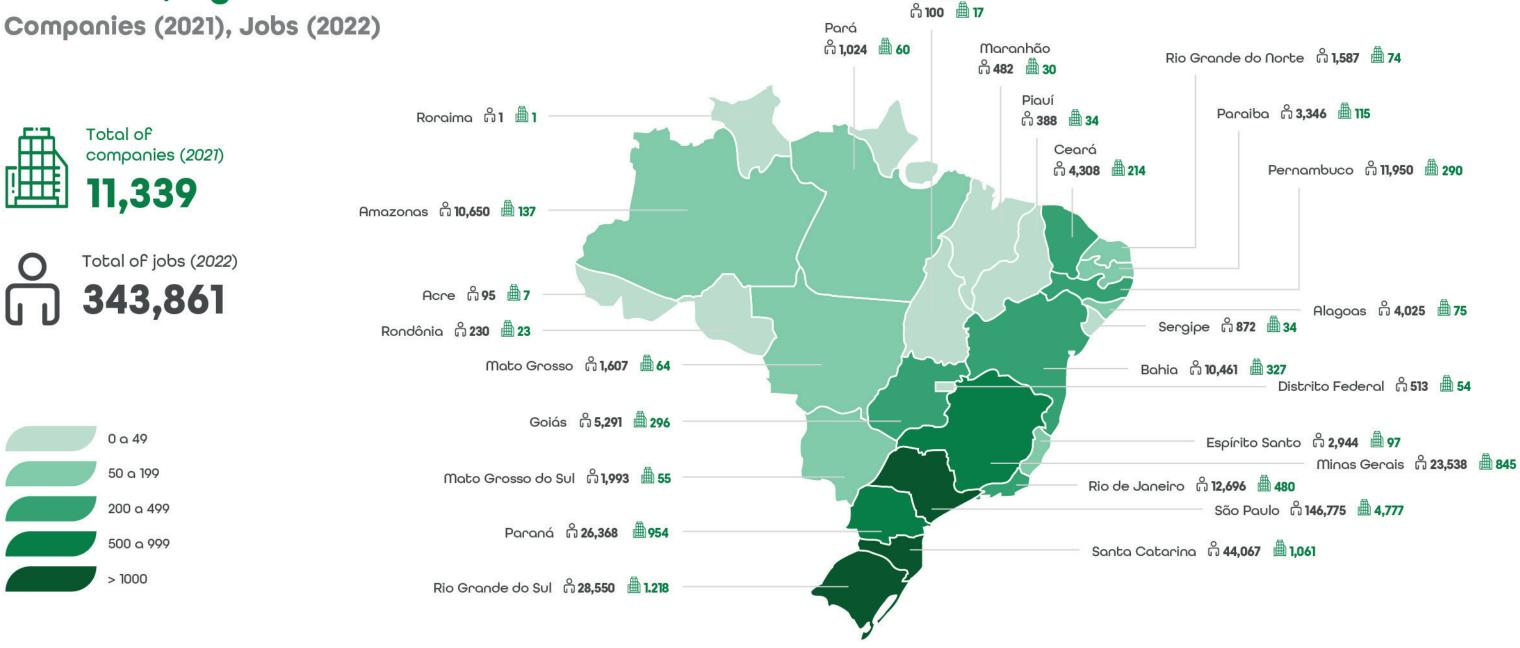
Location of companies and jobs of the processed plastics sector

in Brazil, by state.



Total of jobs (2022) 343,861





Tocantins

FONTE: PORTAL RAIS E CAGED.



# Distribution of companies and jobs of the processed plastics sector, by state.

### COMPANIES



Dari Bari Annonalda International Annonalda (196)		
State	Companies 2021	Participation in Brazil (%)
São Paulo	4,777	42.1%
Rio Grande do Sul	1,218	10.7%
Santa Catarina	1,061	9.4%
Paraná	954	8.4%
Minas Gerais	845	7.5%
Rio de Janeiro	480	4.2%
Bahia	327	2.9%
Goiás	296	2.6%
Pernambuco	290	2.6%
Ceará	214	1.9%
Amazonas	137	1.2%
Paraíba	115	1.0%
Espírito Santo	97	0.9%
Alagoas	75	0.7%
Rio Grande do Norte	74	0.7%
Mato Grosso	64	0.6%
Pará	60	0.5%
Mato Grosso do Sul	55	0.5%
Distrito Federal	54	0.5%
Piauí	34	0.3%
Sergipe	34	0.3%
Maranhão	30	0.3%
Rondônia	23	0.2%
Tocantins	17	0.1%
Acre	7	0.1%
Roraima	1	0.0%

11,339

#### JOBS

**BRAZIL** 



State	Jobs 2022	Participation in Brazil (%)
São Paulo	146,775	42.7%
Santa Catarina	44,067	12.8%
Rio Grande do Sul	28,550	8.3%
Paraná	26,368	7.7%
Minas Gerais	23,538	6.8%
Rio de Janeiro	12,696	3.7%
Pernambuco	11,950	3.5%
Amazonas	10,650	3.1%
Bahia	10,461	3.0%
Goiás	5,291	1.5%
Ceará	4,308	1.3%
Alagoas	4,025	1.2%
Paraíba	3,346	1.0%
Espírito Santo	2,944	0.9%
Mato Grosso do Sul	1,993	0.6%
Mato Grosso	1,607	0.5%
Rio Grande do Norte	1,587	0.5%
Pará	1,024	0.3%
Sergipe	872	0.3%
Distrito Federal	513	0.1%
Maranhão	482	0.1%
Piauí	388	0.1%
Rondônia	230	0.1%
Tocantins	100	0.0%
Acre	95	0.0%
Roraima	1	0.0%

343,861

100%

FONTE: PORTAL RAIS E CAGED.

**BRAZIL** 



# THE PLASTIC TRANSFORMATION AND RECYCLING INDUSTRIES IN BRAZIL

100%

# NASCEMOS PARA OFERECER SOLUÇÕES



#### **ECONOMIA CIRCULAR**

Reutilizamos os resíduos da produção e laminados de PVC usados em produtos como solados para calçados e parabarros para caminhões.



#### VINIBIODIGESTOR

Biodigestores desenvolvidos para a transformação de dejetos e resíduos orgânicos em biofertilizantes, biogás e energia limpa e sustentável.

sociedade mais sustentável.



O plástico é necessário na produção de inúmeros

produtos fundamentais do dia a dia e, com um uso

consciente, torna-se um grande aliado do meio

ambiente. É pensando nisso que a Sansuy busca

desenvolver soluções que possam contribuir com uma

# VINIMANTA

Geomembranas de PVC utilizadas para impermeabilização de canais, lagoas, aterros sanitários e proteção do solo.



#### VINITANK

Tanques para criação de organismos aquáticos e armazenamento de água. Com instalação e operação simples, facilitam a fabricação de adubo biológico.



#### VINISAN

Laminados flexíveis de PVC, impermeáveis, fáceis de limpar e com proteção microbiológica, são desenvolvidos para confecção de cortinas hospitalares.



# VINITUBO

Tubo para irrigação utilizado na condução de água bruta, e vinhaça, por meio gravitacional, proporcionando um uso mais racional dos recursos e evitando perda de água por evaporação.



## VINILIQ ESTACIONÁRIO E VINILIQ PIPA

Reservatórios flexíveis para armazenamento, transporte e captação de água. Práticos, são ideais para atendimento emergencial como no caso de secas ou incêndios.



#### VINIMAZEM

Galpão inflável para armazenar produtos diversos, como grãos. Totalmente desmontável, de fácil transporte e instalação. Possibilita economia de energia, graças à iluminação natural das faixas translúcidas na cobertura e laterais.



#### VINICON

Big-Bag "multi way"
flexível com grande
capacidade volumétrica,
destinados ao transporte
e armazenamento de
produtos à granel de
densidades variadas,
além de reduzir perdas
do produto por rasgos.







# Economic impacts of the sector

§ For each BRL 1 million worth of additional production in the processed plastics sector.

The processed sector generates 29 new jobs;

BRL 1.3 million increase in the Brazilian GDP;

The total production adds BRL 3.35 million to the economy.

SOURCES: MONTHLY INDUSTRIAL SURVEY - PHYSICAL PRODUCTION AND ANNUAL INDUSTRIAL SURVEY - COMPANY AND PRODUCT AND TABLE OF RESOURCES AND USES AND INPUT MATRIX PRODUCT /IBGE. PREPARED BY: ABIPLAST.



Big numbers



Jobs (2022)

343,861



Revenues (2022)

R\$ 117.5 billion



Companies (2021)

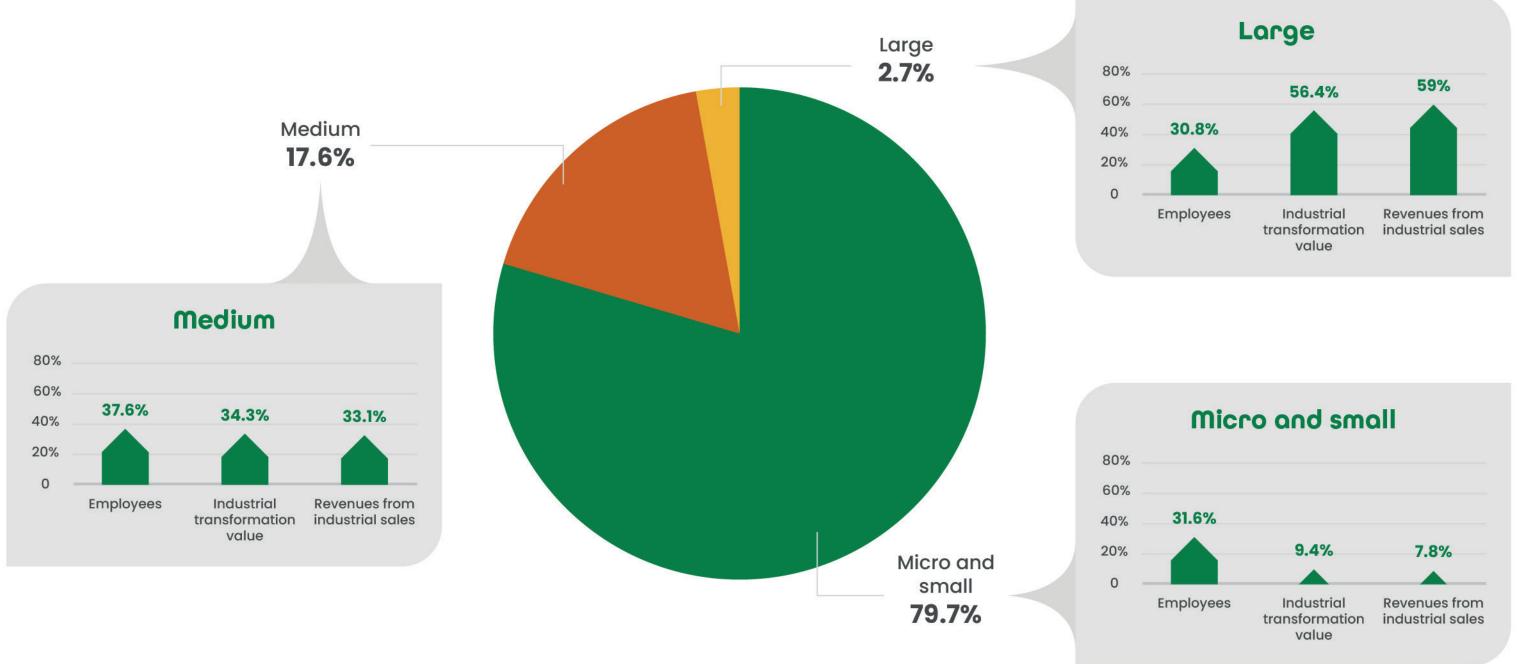
11,339



Physical production (2022)

6.7 million tons

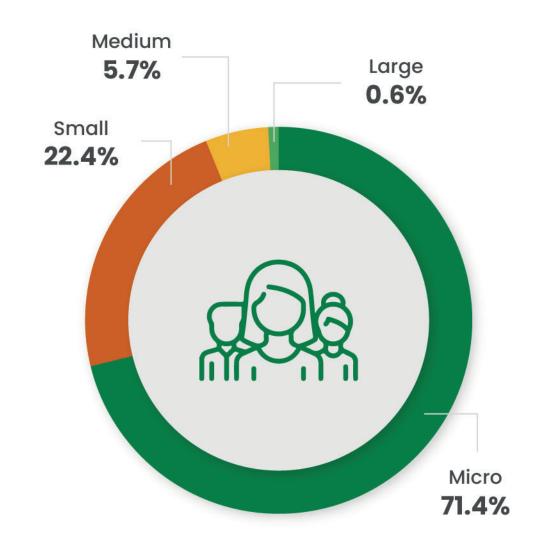
# Distribution of companies by revenues (2020)



SOURCE: IBGE - PREPARED BY: ABIPLAST.

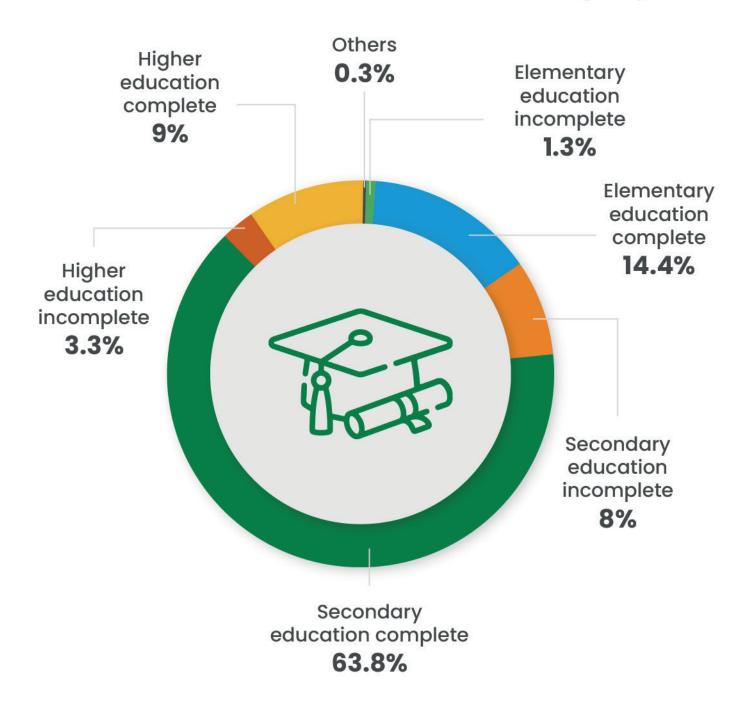


# Distribution of companies by staff hired (2021)



SOURCES: PORTAL RAIS.

# Educational level in the **Processed Plastics Sector** (2021)





THE PLASTIC
MATERIAL
RECYCLING
INDUSTRY
IN BRAZIL







# Location of companies and jobs of the plastic material recycling

sector, by state.

Companies (2021), Jobs (2022)

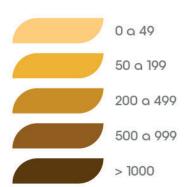


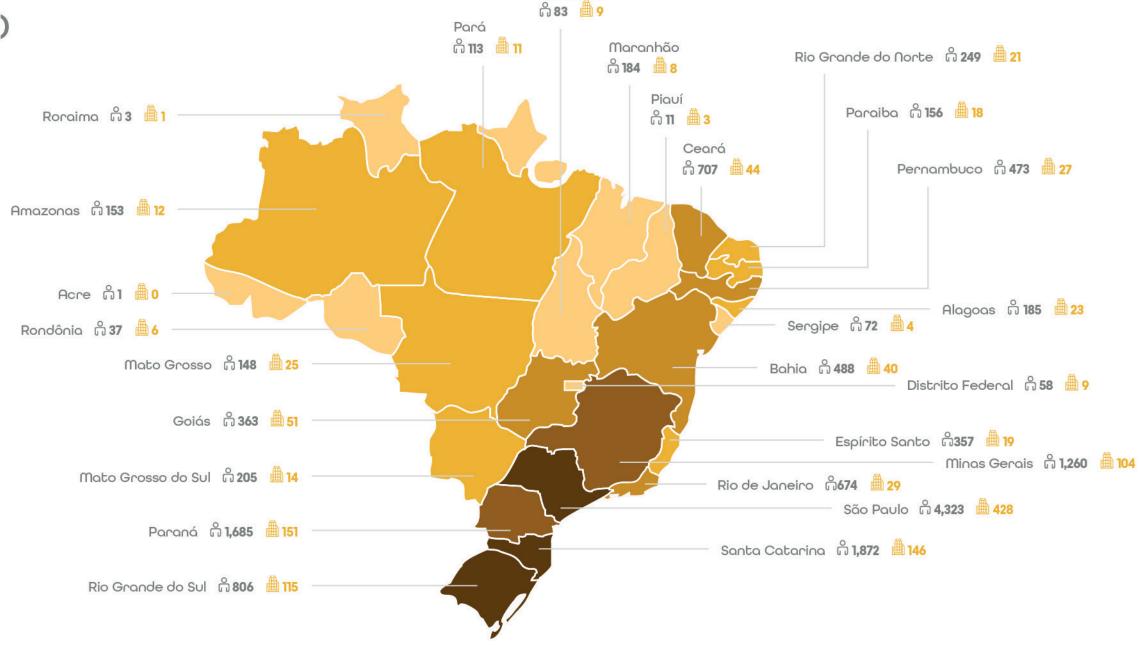
Total of companies (2021)

1,318

Total of jobs (2022)

14,666





Tocantins

SOURCES: PORTAL RAIS E CAGED.



# Distribution of companies and jobs of the plastic recycling sector, by state.

### COMPANIES



	Companies 2021	Participation in Brazil (%)	
São Paulo	428	32.5%	
Paraná	151	π.5%	
Santa Catarina	146	11.1%	
Rio Grande do Sul	115	8.7%	
Minas Gerais	104	7.9%	
Goiás	51	3.9%	
Ceará	44	3.3%	
Bahia	40	3.0%	
Rio de Janeiro	29	2.2%	
Pernambuco	27	2.0%	
Mato Grosso	25	1.9%	
Alagoas	23	1.7%	
Rio Grande do Norte	21	1.6%	
Espírito Santo	19	1.4%	
Paraíba	18	1.4%	
Mato Grosso do Sul	14	1.1%	
Amazonas	12	0.9%	
Pará	11	0.8%	
Tocantins	9	0.7%	
Distrito Federal	9	0.7%	
Maranhão	8	0.6%	
Rondônia	6	0.5%	
Sergipe	4	0.3%	
Piauí	3	0.2%	
Roraima	1	0.1%	

### JOBS



State	Companies 2022	Participation in Brazil (%) 29.5%	
São Paulo	4,323		
Santa Catarina	1,872	12.8%	
Paraná	1,685	11.5%	
Minas Gerais	1,260	8.6%	
Rio Grande do Sul	806	5.5%	
Ceará	707	4.8%	
Rio de Janeiro	674	4.6%	
Bahia	488	3.3%	
Pernambuco	473	3.2%	
Goiás	363	2.5%	
Espírito Santos	357	2.4%	
Rio Grande do Norte	249	1.7%	
Mato Grosso do Sul	205	1.4%	
Alagoas	185	1.3%	
Maranhão	184	1.3%	
Paraíba	156	1.1%	
Amazonas	153	1.0%	
Mato Grosso	148	1.0%	
Pará	113	0.8%	
Tocantins	83	0.6%	
Sergipe	72	0.5%	
Distrito Federal	58	0.4%	
Rondônia	37	0.3%	
Piauí	11	0.1%	
Roraima	3	0.0%	
Acre	1	0.0%	
		886789960	

SOURCES: PORTAL RAIS E CAGED.

Brazil



THE PLASTIC TRANSFORMATION AND RECYCLING INDUSTRIES IN BRAZIL



# sua obra sustentável

Há 18 anos promovemos a **economia circular** pela reciclagem e transformação do plástico em dutos, drenos corrugados e tubos lisos em PEAD, atendendo, com alta qualidade, os segmentos de construção civil, infraestrutura, aterros sanitários, energia, drenagem e mineração. Economizamos energia, água, extração de petróleo e já evitamos a emissão de mais de 135.000 ton de CO<sub>2</sub>e no meio ambiente.



central de vendas: **0800 710 0022** 

www.cimflex.com.br

Tubos PEAD corrugados de parede dupla para drenagem pluvial

### Socio-environmental benefits of plastic recycling

In addition to material recycling, for every 1 ton of recycled plastic produced, jobs are generated for 3.16 collectors who sort this volume of material in the month.

### Big numbers



14,666



Jobs (2022)





Companies (2021)





Physical production of recycled post-consumer resin (2021)





Revenues of post-consumer recycling (2021)



### Mechanical recycling flow of plastic waste













ASSOCIATES AND REPORT BRASKEM 2016. - PREPARED BY: ABIPLAST.



### Mechanical recycling post-consumer plastic mechanics in Brazil (2021)



The data presented in this section are from the MaxiQuim Recycling Survey, requested by PICPlast. This section included the elaboration of ABIPLAST.

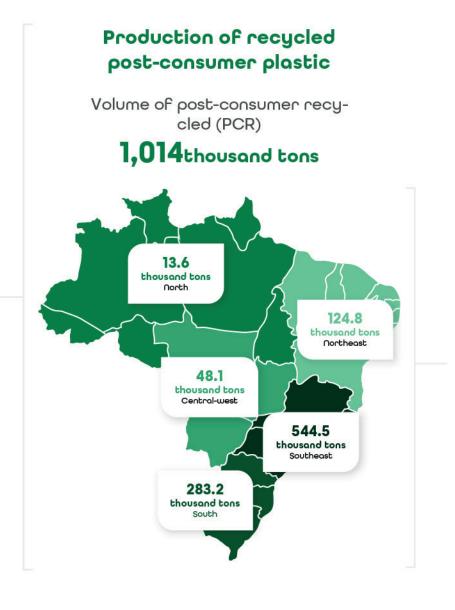
# 4.3 million tons Volume of plastic waste generation Waste Of these, 1.2 million tons Volume of post-consumer Production of post-consumer

This volume comprises rigid and flexible packaging, disposable plastics and "other" which, in turn, includes durable consumer goods such as technical parts, electronic waste, civil construction waste, tubes, among others.

plastic waste

consumed by

recyclers



### Consumer markets



Personal hygiene, cosmetics and domestic cleaning

140 thousand tons



Housewares

106 thousand tons



Beverages

105 thousand tons



Civil construction and infrastructure

101 thousand tons



Agribusiness

thousand tons



Others

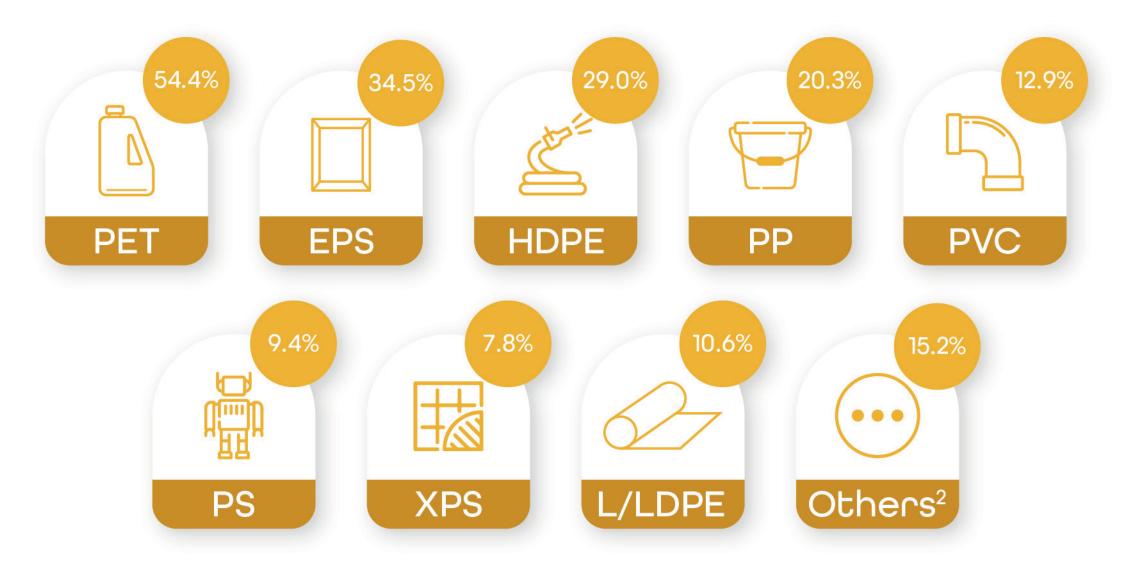
465 thousand tons



recycled plastic

# Recycling Index of Post-Consumer Plastic (2021)

By typs of material



NOTE: THE RECYCLING INDEX IS THE RESULT OF THE METHODOLOGY DEVELOPED BY MAXIQUIM IN ITS RESEARCH.

NOTE 2: OTHER TYPES INCLUDE ABS, PC, POM, PBT, PA, PU, SAN.







# PERFORMANCE OF BRAZILIAN PROCESSED PLASTIC INDUSTRY

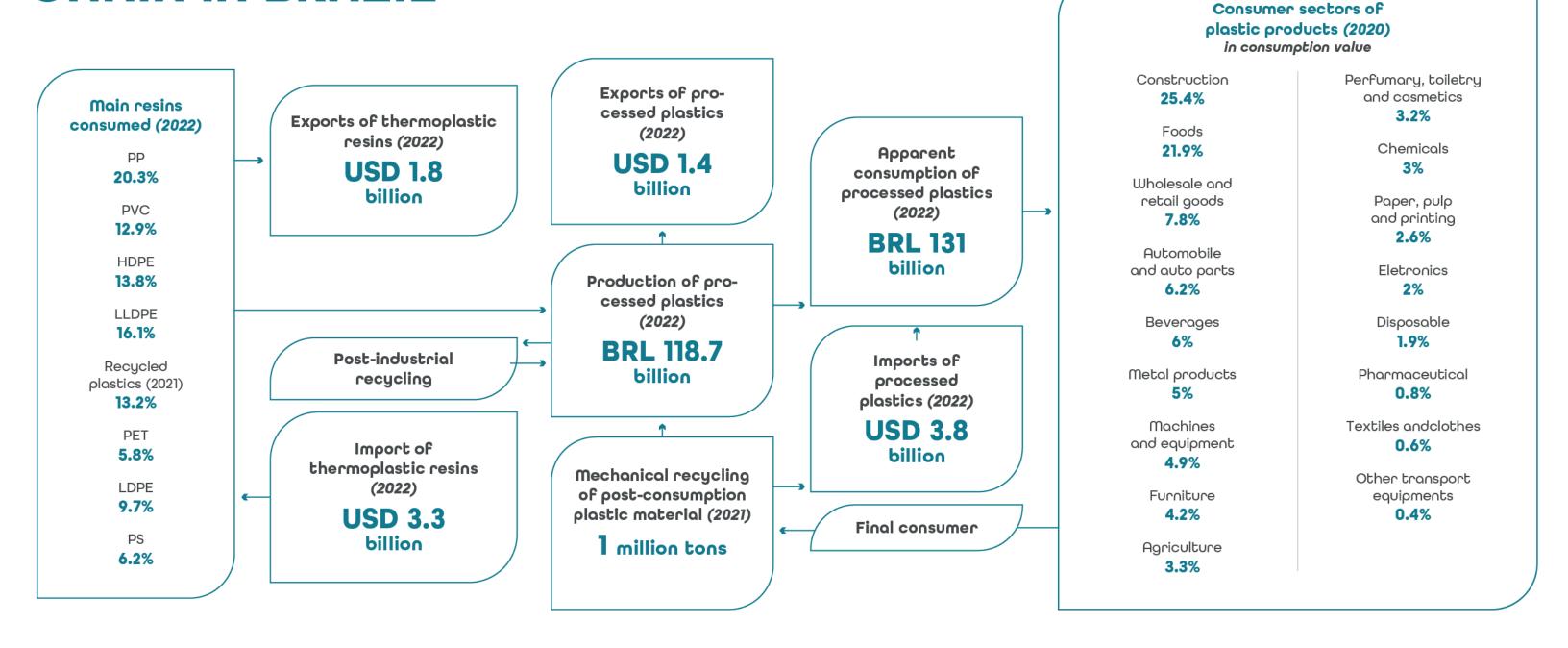






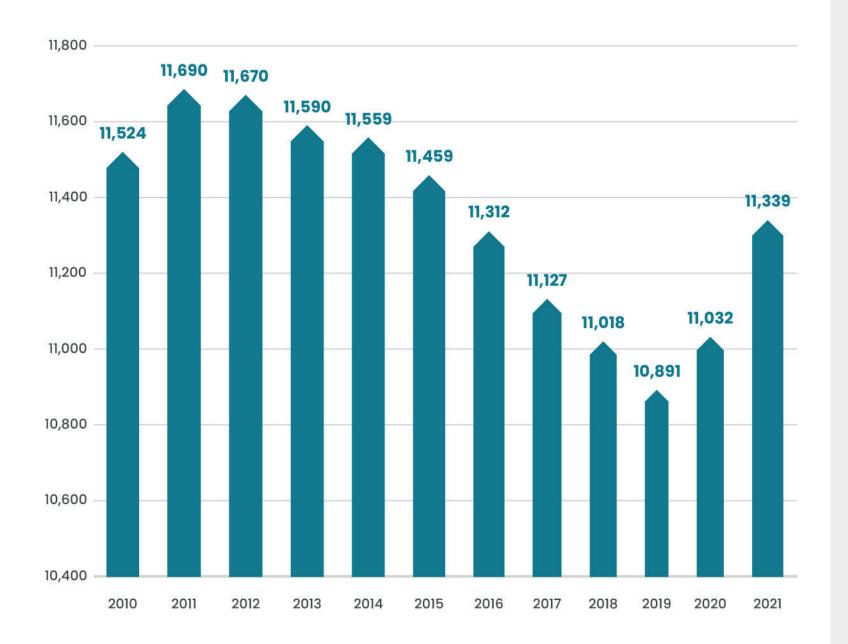
# Summary of the PLASTIC PRODUCTIVE

### CHAIN IN BRAZIL





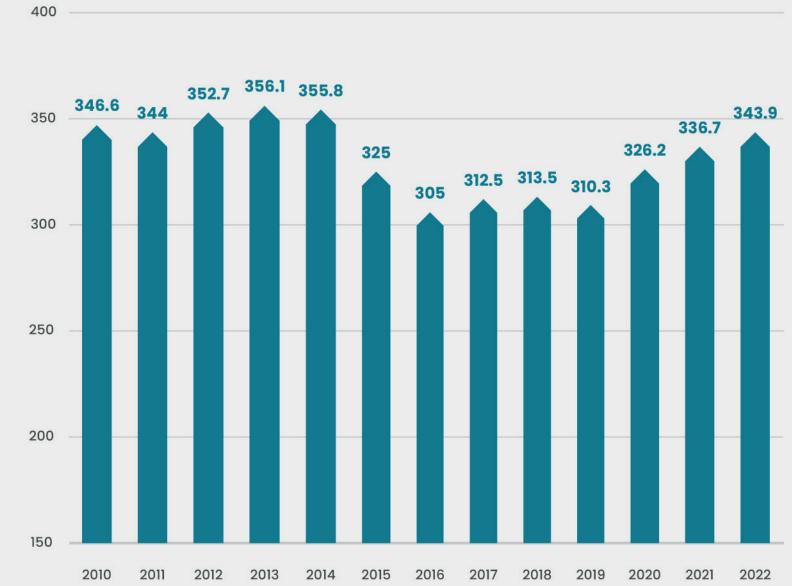
# Companies in the processed plastics sector



SOURCES: PORTAL RAIS E CAGED

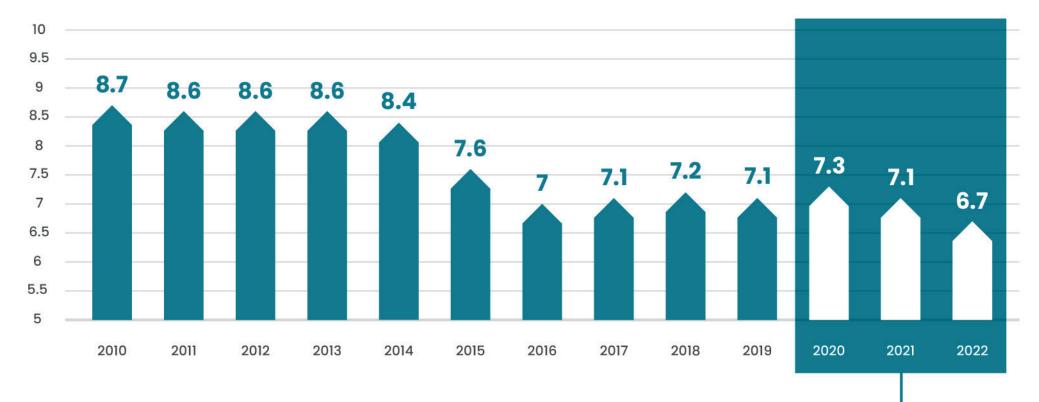
# THE PLASTIC TRANSFORM RECYCLING INDUSTRIES I

# Jobs in the processed plastics sector (in thousand jobs)

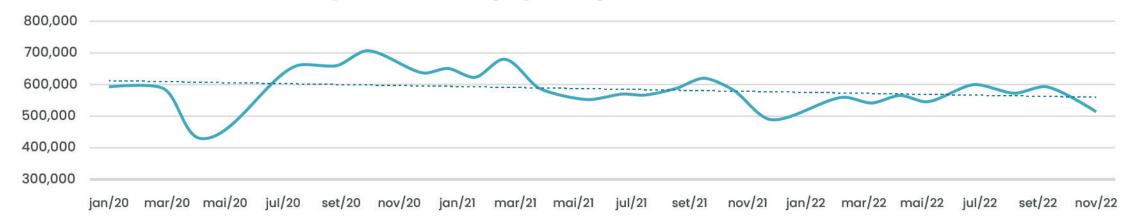


44

### Production of processed plastics (in million tons)



### Monthly evolution of physical production – 2020 to 2022



SOURCES: ANNUAL INDUSTRIAL SURVEY - PRODUCT, MONTHLY INDUSTRIAL SURVEY - PHYSICAL PRODUCTION/ IBGE, RAIS, CAGED/ MINISTRY OF ECONOMY.

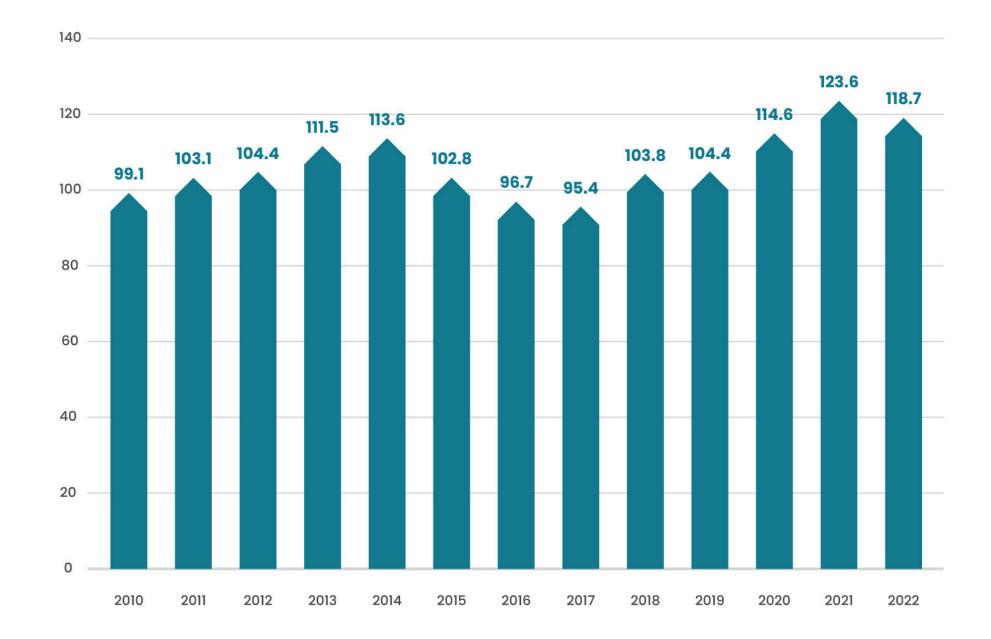
PREPARED BY: ABIPLAST.



As of 2021, the sector began a downward trajectory in its physical production, abandoning the atypical growth of 2020, a reflection of the effects of the covid-19 pandemic. In 2022, the sector recorded growth in the first half, but slowed down again in the last six months of the year. In 2022, the physical production of the sector registered a decrease of (-6.1%) compared to 2021. This trajectory of the sector has not yet been enough to offset losses and reach pre-pandemic performance.

### Production of processed plastics

(in BRL billion at current 2022 prices)

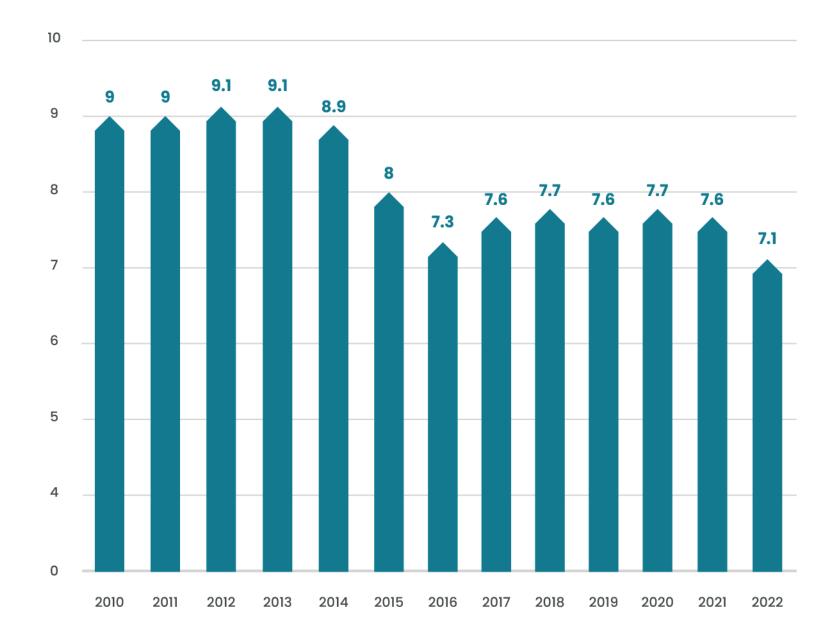


SOURCES: ANNUAL INDUSTRIAL SURVEY - COMPANY/ IBGE. - PREPARED BY: ABIPLAST.



PERFORMANCE OF BRAZILIAN 46 PROCESSED PLASTIC INDUSTRY

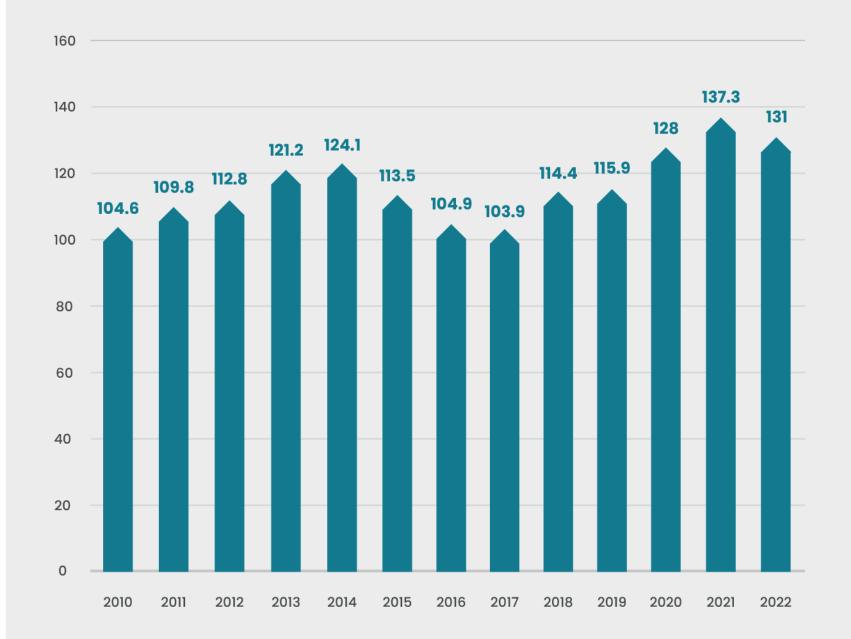
# Apparent consumption of processed plastics (in million tons)



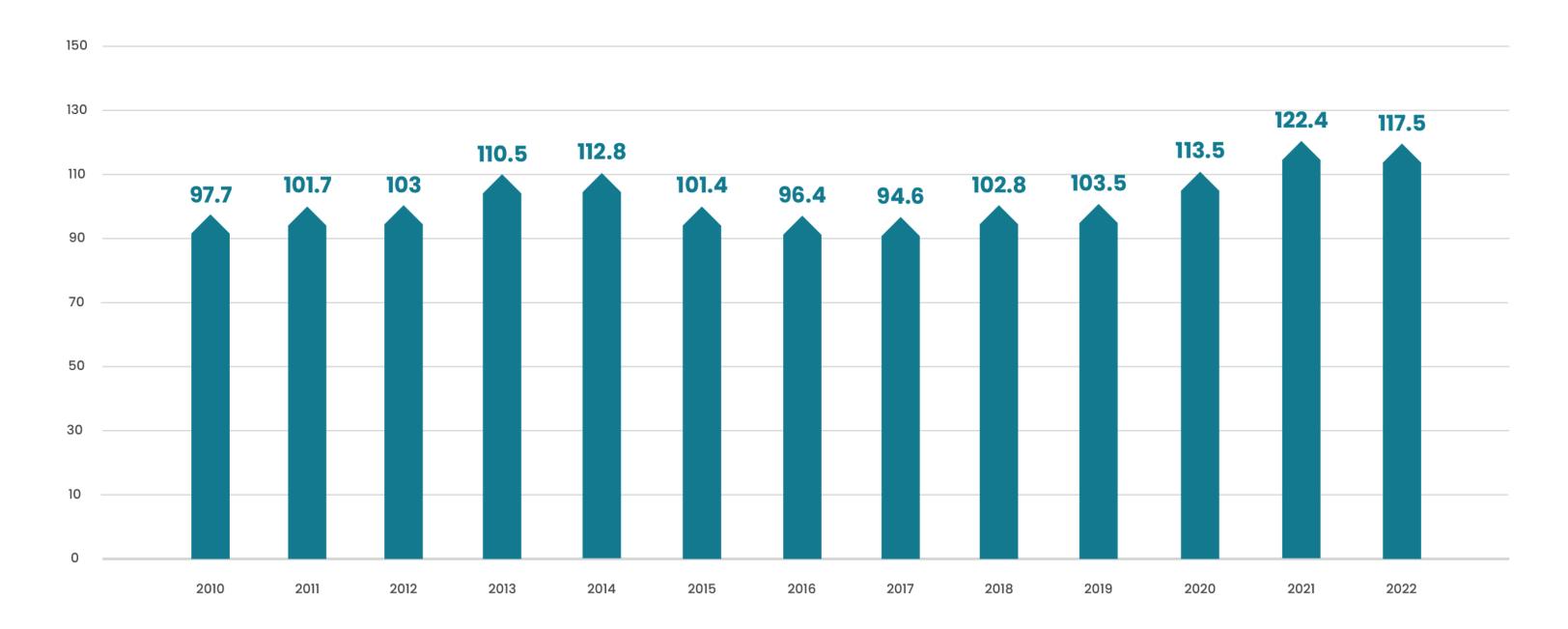
**SOURCES:** ANNUAL INDUSTRIAL SURVEY - PRODUCT, MONTHLY INDUSTRIAL SURVEY - PHYSICAL PRODUCTION/ IBGE, COMEXSTAT/ MINISTRY OF ECONOMY. **PREPARED BY:** ABIPLAST.



# Apparent consumption of processed plastics (in BRL billion at current 2022 prices)



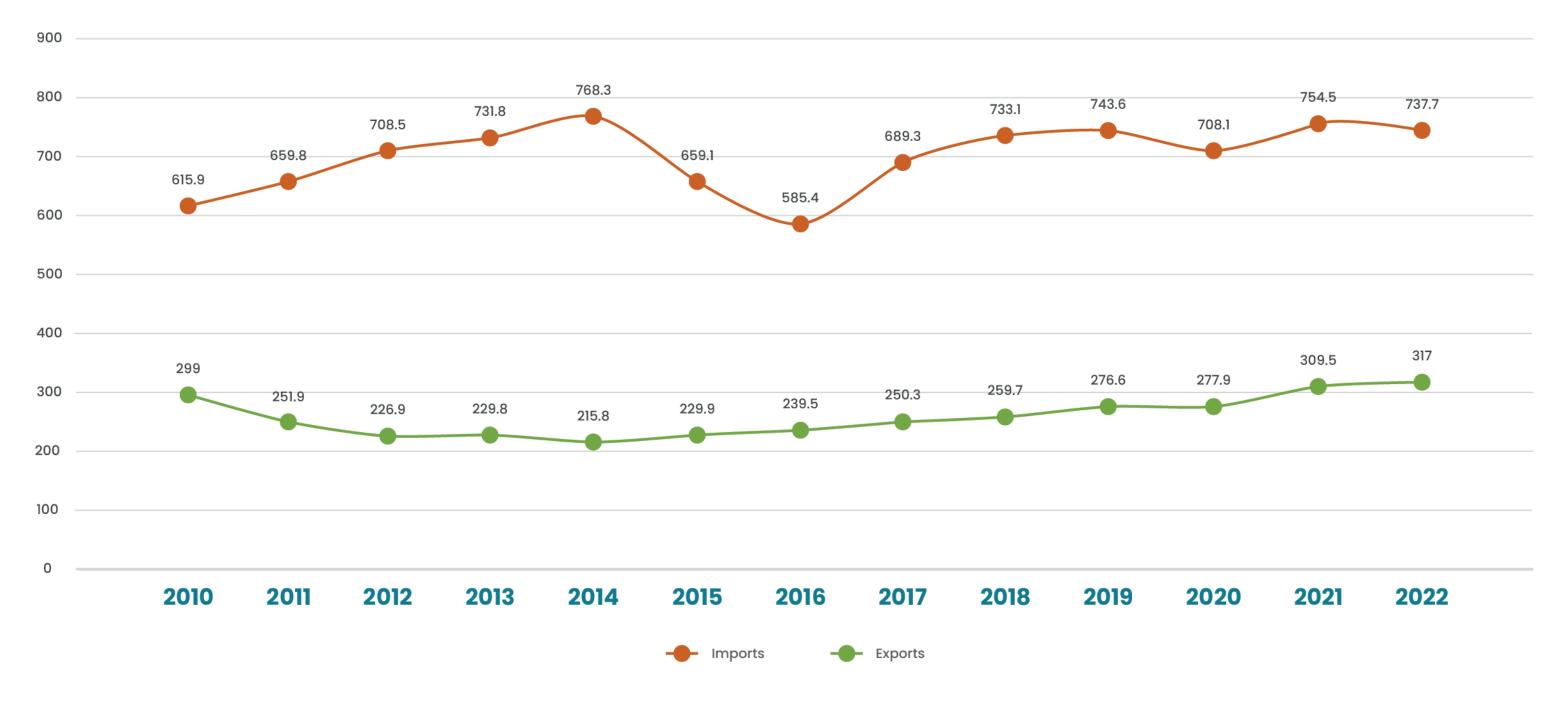
### Revenues of processed plastics (in BRL billion at current 2022 prices)



SOURCES: ANNUAL INDUSTRIAL SURVEY - COMPANY, MONTHLY INDUSTRIAL SURVEY - PHYSICAL PRODUCTION AND IPP-BP/ IBGE. PREPARED BY: ABIPLAST.



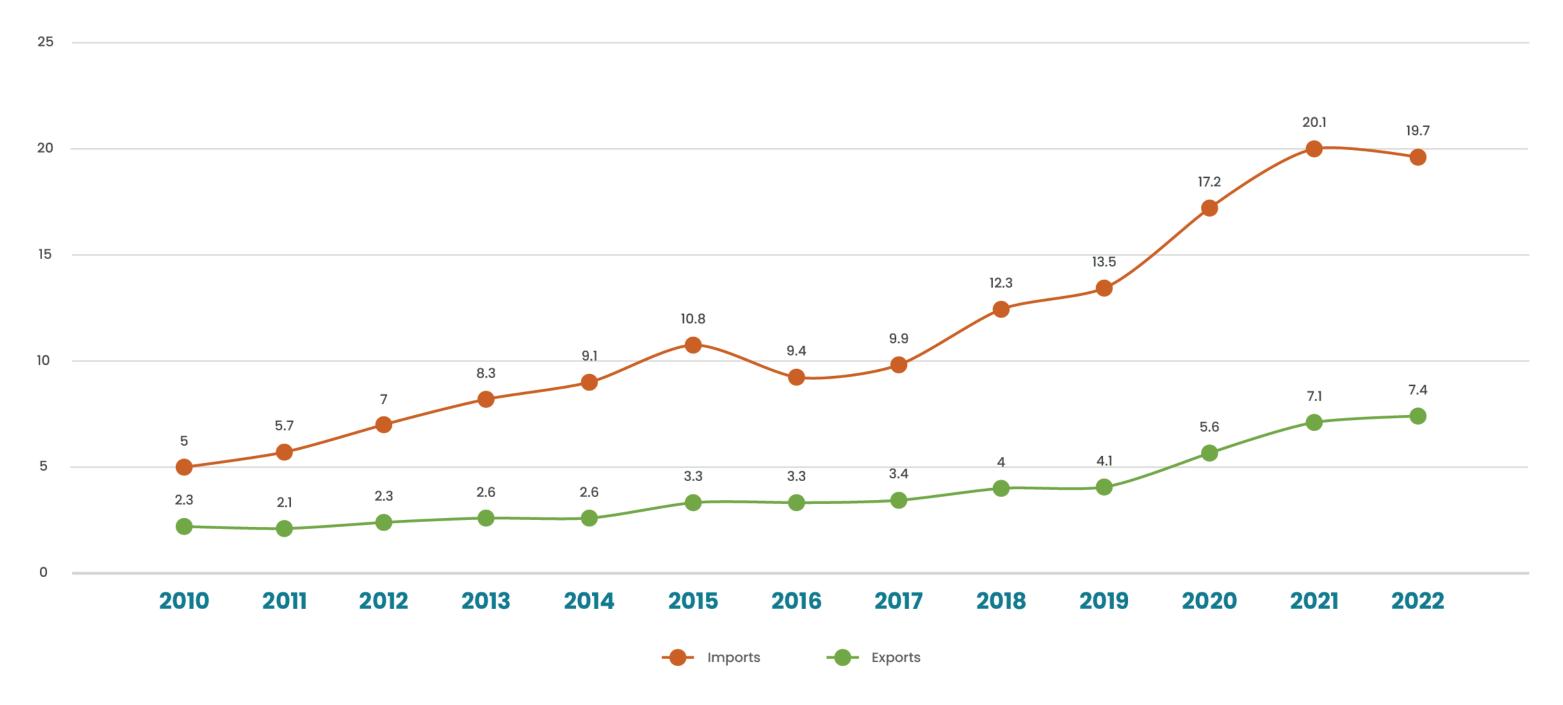
### Processed plastics exports and imports (in thousand tons)



SOURCE: COMEXSTAT/ MINISTRY OF DEVELOPMENT, INDUSTRY, COMMERCE AND SERVICES.



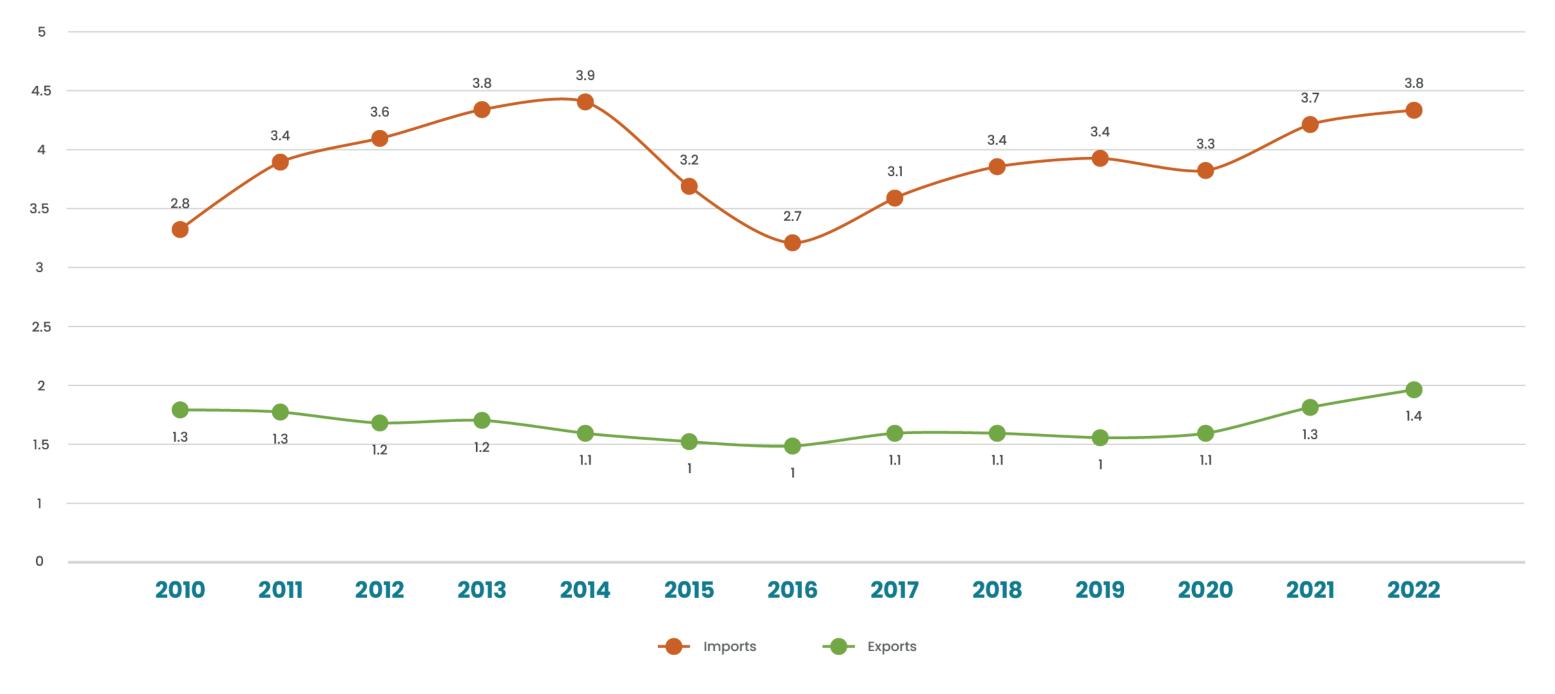
### Processed plastics exports and imports (nominal in BRL billion)



SOURCE: COMEXSTAT/ MINISTRY OF DEVELOPMENT, INDUSTRY, COMMERCE AND SERVICES.



### Processed plastics exports and imports (nominal in USD billion)

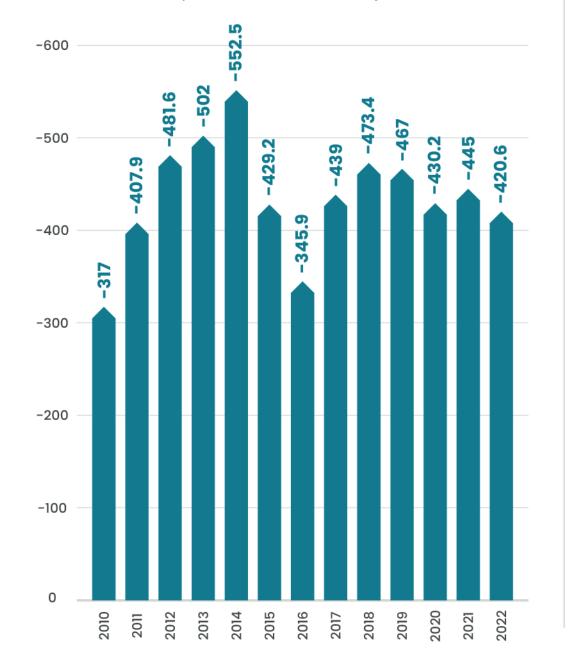


SOURCE: COMEXSTAT/ MINISTRY OF DEVELOPMENT, INDUSTRY, COMMERCE AND SERVICES.



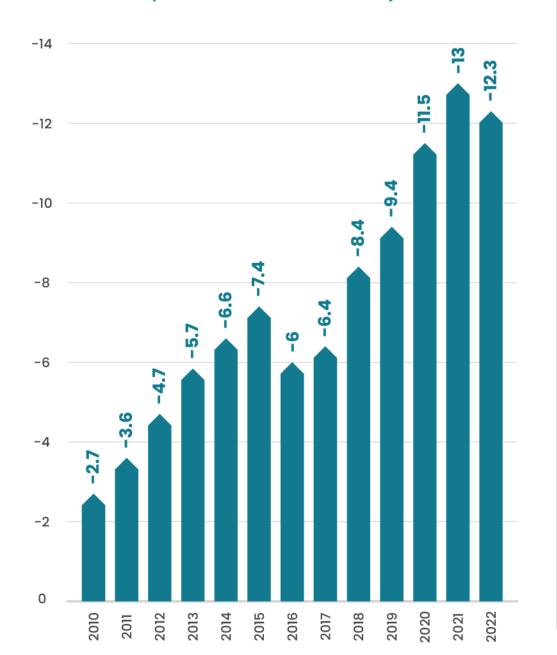
# Commercial balance of processed plastics

(in thousand tons)



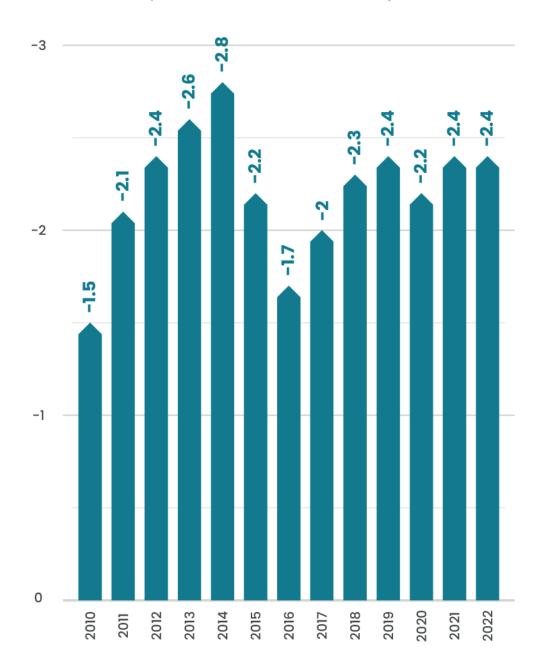
# Commercial balance of processed plastic

(nominal in BRL billion)



# Commercial balance of processed plastic

(nominal in USD billion)



COURCE: COMEXSTAT/ MINISTRY OF DEVELOPMENT, INDUSTRY, COMMERCE AND SERVICES.



# Main destinations of exports of processed plastics

Country	Tons	% t	USD FOB thousand	% USD FOB
Argentina	72,011	22.7%	366,784	25.4%
USA	37,364	11.8%	177,662	12.3%
Chile	34,878	11.0%	138,446	9.6%
Paraguay	30,166	9.5%	121,809	8.5%
Uruguay	23,442	7.4%	87,908	6.1%
Colombia	20,615	6.5%	104,305	7.2%
Mexico	17,533	5.5%	78,739	5.5%
Spain	14,383	4.5%	26,108	1.8%
Bolivia	11,898	3.8%	50,337	3.5%
Peru	5,584	1.8%	33,272	2.3%
Germany	4,800	1.5%	24,157	1.7%
Ecuador	3,806	1.2%	23,934	1.7%
Guatemala	3,357	1.1%	10,983	0.8%
Lithuania	2,533	0.8%	1,137	0.1%
Dominican Republic	2,494	0.8%	9,042	0.6%
Others	32,151	10.1%	186,687	13.0%
TOTAL	317,016	100.0%	1,441,312	100.0%

SOURCE: COMEXSTAT/ MINISTRY OF DEVELOPMENT, INDUSTRY, COMMERCE AND SERVICES.

# THE PLASE RECYCLI

# Main origins of *imports* of processed plastics

Country	Tons	% <b>t</b>	USD FOB thousand	% USD FOB
China	370,760	50.3%	1,256,898	32.9%
USA	34,614	4.7%	476,505	12.5%
India	27,557	3.7%	98,643	2.6%
Germany	24,959	3.4%	251,106	6.6%
South Korea	22,793	3.1%	100,432	2.6%
Israel	19,782	2.7%	93,853	2.5%
Paraguay	17,125	2.3%	65,230	1.7%
Italy	16,550	2.2%	148,740	3.9%
Argentina	14,822	2.0%	76,826	2.0%
Thailand	13,423	1.8%	75,512	2.0%
Vietnam	12,850	1.7%	49,631	1.3%
Colombia	12,631	1.7%	45,878	1.2%
Peru	11,119	1.5%	32,742	0.9%
France	11,093	1.5%	118,745	3.1%
Mexico	10,281	1.4%	82,468	2.2%
Others	117,357	15.9%	851,223	22.3%
TOTAL	737,717	100.0%	3,824,430	100.0%



UNIONS AND PARTNERS
ASSOCIATIONS





# STATE UNIONS of the Plastic Industry

### **ALAGOAS (AL)**

SINPLAST/AL - Sindicato das Indústrias de Plásticos e Tintas do Estado de Alagoas

Avenida Fernandes Lima, 385 - 5° andar - Edifício Casa da Indústria Napoleão Barbosa - CEP: 57055-902 - Maceió - AL

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### **AMAZONAS (AM)**

SIMPLAST - Sindicato das Indústrias de Material Plástico de Manaus

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E-mail: simplast@simplast-am.org.br

Site: www.simplast-am.org.br President: Cláudio António Barrella

### **BAHIA (BA)**

SINDIPLASBA - Sindicato da Indústria de Material Plástico do Estado da Bahia

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Lauro de Freitas - BA Phone: (71) 3379-8066

E-mail: sindiplasba@sindiplasba.org.br

Site: www.sindiplasba.org.br President: Luiz Antonio de Oliveira

### **ESPÍRITO SANTO (ES)**

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Site: www.sindiplastes.org.br

President: Neviton Helmer Gasparini

### GOIÁS (GO)

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President: Luiz Antônio Nogueira

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SIMPLAST - Sindicato das Indústrias de material

Plástico do Estado de Minas Gerais

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Edifício Robson Braga de Andrade - Bairro Funcionários CEP:

30110-028 - Belo Horizonte - MG

Telefone: (31) 3225-6757

E-mail: simplast@simplast.com.br

Site: www.simplast.com.br President: Ivana Serpa Braga

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Praça Frei Eugênio, 365 - São Benedito

CEP: 38010-280 - Uberaba - MG

Phone: (34) 3312-2733 | (34) 3312-1277 E-mail: sindiplastub@fiemg.com.br

President: Delvaníria dos Reis Pires Rezende

### PARAÍBA (PB)

SINDIPLAST/PB - Sindicato da Indústria de Material Plástico e Resinas Sintéticas do Estado da Paraíba

Rua Manoel Gonçalves Guimarães, 195

José Pinheiro – CEP: 58407-363 - Campina Grande - PB

Phone: (83) 3331-5566 Cel: (83) 98754-6318

E-mail: sindiplast.pb@gmail.com

Site: www.sindicatodaindustria.com.br/sindiplastpb

President: Péricles Felinto de Araújo

### PARANÁ (PR)

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Rua João Negrão, 731 – 3° andar - Conjuntos 301/302

CEP: 80010-200 - Curitiba - PR

Phone: (41) 3224-9163

E-mail: simpep@simpep.com.br

simpep@simpep.org.br Site: www.simpep.com.br

President: Eliseu Avelino Zanella

# STATE UNIONS of the Plastic Industry

### SIMPLAS/NP - Sindicato da Indústria de Material Plástico do Norte do Paraná

Rua Pernambuco, 390 - 12° and ar - sala 1208 - CEP:

86020-913 - Londrina - PR Phone: (43) 3337-1390

E-mail: simplas@sercomtel.com.br Site: www.simplasnp.com.br President: Sueli Souza Baptisaco

### PERNAMBUCO (PE)

SIMPEPE - Sindicato das Indústrias do Material Plástico do Estado de Pernambuco

Avenida Cruz Cabuga, 767 - 5° andar sala dos Sindicatos - Santo Amaro CEP: 50040-000 - Recife - PE

Phone: (81) 3412-8523 | Celular: (81) 99972 - 4456

E-mail: simpepe@fiepe.org.br Site:www.simpepe.org.br

President: Gesse Batista Santos

### **RIO DE JANEIRO (RJ)**

SIMPERJ - Sindicato da Indústria de Material Plásticos do Estado do Rio de Janeiro

Rua Santa Luzia, 776 - sala 203 - Centro

CEP: 20030-042 - Rio de Janeiro - RJ Phone: (021) 2220-9726

E-mail: simperj@simperj.org.br Site: www.simperj.org.br

President: Gladstone José dos Santos Junior

### RIO GRANDE DO NORTE (RN)

SINDIPLAST - Sindicato das Indústrias de Material e Laminados Plásticos do Estado do Rio Grande do Norte

Avenida Senador Salgado Filho, 2860 - 2º andar

Edifício Engenheiro Fernando Bezerra "Casa da Indústria"

Lagoa Nova - CEP: 59075-900 - Natal - RN Phone: (84) 3204-6332 | (84) 3204-6168

E-mail: sindplastrn@fiern.org.br

Site: www.sindindustria.com.br/sindiplastrn

President: Maria da Conceição Rebouças Duarte Tavares

### **RIO GRANDE DO SUL (RS)**

SIMPLÁS - Sindicato das Indústrias de Material Plástico do Nordeste Gaúcho

Rua Ítalo Victor Bersani, 1134 - Bairro Jardim América

CEP: 95050-520 - Caxias do Sul - RS

Phone: (54) 3013-8484

E-mail: simplas@simplas.com.br

Site: www.simplas.com.br

President: Orlando Antonio Marin

### SINPLAST - Sindicato das Indústrias de Material Plástico no Estado do Rio Grande do Sul

Avenida Assis Brasil, 8787 - Bloco 3 - Térreo CEP: 91140-001 - Rio Grande do Sul - RS

Phone: (51) 3364 - 4503 E-mail: sinplast@sinplast.org.br Site: www.sinplast.org.br President: Gerson Albano Haas

### SIMPLAVI - Sindicato das Indústrias de Material Plástico do Vale dos Vinhedos

Rua Avelino Luiz Zat, 95, salas 2 e 3 - Bairro Fenavinho

CEP: 95703-365 - Bento Gonçalves - RS

Phone: (54) 3452-3870

E-mail: contato@simplavi.com.br

Site: www.simplavi.com.br

1st vice-president: Airton Capoani

### SANTA CATARINA (SC)

SIMPESC - Sindicato da Indústria de Material Plástico no Estado de Santa Catarina

Rua Abdon Batista, 121 - 13° andar - sala 1302 Centro - CEP: 89201-010 - Joinville - SC

Phone: (47) 3433-2351

E-mail: simpesc@simpesc.org.br

Site: www.simpesc.org.br

President: Fernando Pedro de Oliveira

### SIAPB - Sindicato das Indústrias de

Artefatos Plásticos e Brinquedos de Blumenau

Rua Frei Estanislau Schaette, 111 - Sala 07

CEP: 89037-001 - Blumenau - SC

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President: Ednei Antônio Rodrigues

# STATE UNIONS of the Plastic Industry

### SINPLASC - Sindicato das Indústrias Plásticas do Sul Catarinense

Rua Ernesto Bianchini Góes, 9

Centro Empresarial Acic - Sala 201 - 2º andar - Bairro Próspera -

CEP: 88815-030 - Criciúma -SC

Phone: (48) 3461-0933 | (48) 3442-6344

sindicatospatronais@acicri.com.br

Site: www.sinplasc.com.br

President: Reginaldo José Cechinel

### SINDIPLASC - Sindicato das Indústrias do Material Plástico do Oeste Catarinense

Avenida Getúlio Vargas, 150 - Prédio SESI 3° andar - CEP: 89801-000 - Chapecó - SC

Phone: (49) 3328-9700

E-mail: sindiplasc@gmail.com Site: www.sindiplasc.com.br President: Roger dos Anjos

### **SÃO PAULO (SP)**

SINDIPLAST - Sindicato da Indústria de Material Plástico, Transformação e Reciclagem de Material Plástico do Estado de São Paulo

Avenida Paulista, 2439 - 8º andar - Cerqueira César

CEP: 01311-936 - São Paulo - SP

Phone: (11) 3060-9688

E-mail: sindiplast@sindiplast.org.br

Site: www.sindiplast.org.br

President: José Ricardo Roriz Coelho

### Partners **ASSOCIATIONS**

### **ABIEF**

ABIEF - Associação Brasileira da Indústria de Embalagens Plásticas Flexíveis

Avenida Paulista, 2439 - 8° andar - Cerqueira César

CEP: 01311-936 - São Paulo - SP

Phone: (11) 3032-4092 Site: www.abief.org.br E-mail: abief@abief.org.br President: Rogério Mani

### **ABRAPLA**

ABRAPLA - Associação Brasileira da Indústria de Laminados Plásticos e Espumas Flexíveis

Avenida Paulista, 2439 - 8° andar - Cerqueira César

CEP: 01311-936 - São Paulo - SP

Site: www.abrapla.org.br E-mail: nivio@abrapla.com

President: João Batista Matulja Júnior

### INP

INP - Instituto Nacional do Plástico

Avenida Chedid Jafet, 222 - Bloco C - 4° andar

CEP: 04551-065 - São Paulo - SP

Phone: (11) 2148-4779 Site: www.inp.org.br E-mail: inp@inp.org.br

President of the Deliberative Council:

José Ricardo Roriz Coelho





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### **GLOSSARY**

**ABDI - Brazilian Agency for Industrial Development;** 

ABIPLAST - Brazilian Association of the Plastic Industry;

**ABNT - Brazilian Association of Technical Standards**;

ABS - Acrylonitrite-Butadiene-Styrene;

**ACV** - Life Cycle Assessment;

**CAGED -** General Register of Working and Unemployed Citizens;

CORPLAS - National Chamber of Plastic Material Recyclers;

**COMEXSTAT - Foreign Trade Statistics**;

**COFABI - Sectorial Chamber of Industrial Plastic Bucket Manufacturers;** 

**EPS** - Expanded polystyrene;

**EUA -** United State of America;

**EVA -** Ethylene - Vinyl - Acetate;

IBGE - Brazilian Institute of Geography and Statistics;

IPEA - Institute of Applied Economic Research;

**NBR** - Regulatory Brazilian Standard;

**PCR -** Post-consumer recycled resin;

**HDPE** - High density polyethylene;

**LDPE** - Low density polyethylene;

**LLDPE -** Linear low density polyethylene;

PET - Poly (ethylene terephthalate);

PHV - Poly(hydroxyvalerate);

PNRS - National Solid Waste Policy;

PICPlast - Plastic Chain Incentive Plan;

PLA - Poli (ácido láctico);

**PP -** Polypropylene;

**PS** - Polystyrene;

**PU -** Polyurethane;

**PVC -** Poly (vinyl chloride);

RAIS - Annual List of Social Information;

RDC - Resolution of the Collegiate Board;

RSU - Urban Solid Waste;

t - Tons:

SAN - Styrene Acrylonitrile;

SENAPLAS - National Seal of Recycled Plastics;

XPS - Extruded polystyrene.







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