2022 Greenhouse Gas Emissions Inventory Findings Report

Prepared for:

Grupo Rotoplas S.A.B. de C.V.

Developed by:

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Introduction

Grupo Rotoplas, S.A.B. de C.V. (heceforth, Rotoplas), is the leading company in the development and sale of water solutions, with nearly 4 years of experience and a culture of innovation and sustainability. The company is involved in all stages of the water cycle, offering individual and integrated solutions for water storage, waterflow and improvement.

The purpose of this pre-verification of its 2022 GHG emissions inventory, scopes 1 and 2, is the review and recalculation to ensure that the data estimated by Rotoplas is correct, in addition to providing recommendations for estimating and reporting emissions as defined in the GHG Protocol standard. Likewise, a tolerable materiality threshold was established as defined by the Mexican National Emissions Registry (RENE, for its Spanish acronym) and its Regulations.

Scope 1 included emissions related to Rotoplas' direct operations, divided into stationary and mobile sources, using natural gas, LP gas, diesel and gasoline as fuels. Scope 2 considers the indirect emissions generated by the electric energy production plants as a result of Rotoplas' consumption for the performance of the activities.

1. General company inventory data

No.	Pre-verification data	Answer	
1	**Company name**	Grupo Rotoplas, S.A.B. de C.V.	
2	**Year of inventory to be pre-verified**	2022	
3	**GHG inventory reporting standard**	ISO:14064-1:2015	( )
		ISO:14064-1:2018	( )
		RENE	( )
		GHG Protocol	(X)
4	**Do you estimate Scope 1 emissions (direct emissions)?**	Yes (X)	No( )
4.1	**Amount of Scope 1 emissions reported (tCO_2e)**	22,331.92	
5	**Do you estimate Scope 2 emissions (indirect emissions)?**	Yes (X)	No ( )
5.1	**Amount of Scope 2 emissions reported (tCO_2e)**	22,693.74	

2. Objective of the pre-verification

To evaluate compliance of GHG emissions reporting with the reporting standards established by the Greenhouse Gas Protocol (GHG Protocol), using its main reference: "*A Corporate Accounting and Reporting Standard*", through the controls associated with the information system and the data corresponding to the GHG emissions reported by Rotoplas, taking as a reference the documentary information received.

3. Verification Criteria

- The GHG Protocol Corporate Accounting and Reporting Standard.
- Agreement that establishes greenhouse gases or compounds that are grouped together for emissions reporting purposes, as well as their warming potentials.
- Agreement that establishes the technical particulars and formulas to apply methodologies for calculating greenhouse gas or compound emissions.
- List of fuels and their calorific values (National Commission for the Efficient Use of Energy, CONUEE for its Spanish acronym) to be used for reporting to RENE 2023.
- Criteria for the verification of Greenhouse Gas and Compound Emissions Reports in the framework of the National Emissions Registry.

4. Scope of the Verification

The pre-verification was based on GHG Protocol standards, and the materiality threshold was established in accordance with the National Emissions Registry (RENE, for its Spanish acronym), which includes the types of GHGs emitted, energy used, production generated and technology installed for pollutant control in the corresponding reporting period.

Scope						
Emissions:	Direct: Scope 1 (X) Indirect: Scope 2 (X) Direct from stationary sources and industrial processes (X)					
Types of GHGs in the emissions report (CO_2,CH_4,N_2O, HFC, PFC,SF_6, Compounds):	CO_2	CH_4	N_2O	HFC	PFC	SF_6
Materiality threshold:	5%					

The activities associated with the pre-verification of documents included the following:

1) Review and analysis of the 2021 GHG emissions inventory report prepared by Rotoplas;
2) Review and analysis of the 2021 GHG emissions calculation tool, developed by Rotoplas;
3) Reproduction of emission calculations considering the following variables: - Emission factors,
   - Global warming potentials,
   - Conversion factors,
   - Calorific values.

The documentation was provided through Raul Maganda Mendez as *ESG Environmental Head* and Guillermo Punzo Suazo as Head of Sustainability; the documentation presented is listed below:

Name of the document
Summary of environmental indicators 2022.xlsx
CO_2 EMISSION FACTOR ENERGIA INFRA 2021.pdf
Rotoplas Anual Report.pdf
Executive Summary Energia Infra_Rotoplas_December 2022.xlsx

5. Control approach

An operational control approach was defined; that is, all activities in which Grupo Rotoplas can introduce and implement operation policies are considered.

Table 1 shows the location of the facilities:

Tabla 1. Location of facilities included in the GHG inventory.

Country	Facility type	Reference
Mexico	Plant	Anahuac, Guadalajara, Leon Rotomolding, Leon Rotopinsa, Lerma, Los Mochis (Pacific), Merida (Southeast), Monterrey Compounds, Monterrey Rotomolding, Tuxtla, Veracruz (Gulf).
	Headquarters	MX Corporate and RSA Corporate
Argentina	Plant	Loma Hermosa, Pilar, Pilarica and San Martin.
Peru	Plant	Peru
Guatemala	Plant	Guatemala
Costa Rica	Distribution center	CEDIS Costa Rica
Honduras	Distribution center	CEDIS Honduras
Nicaragua	Plant	Nicaragua
United States	Stores	US Stores

Source: Own development.

6. Period analyzed

This emissions inventory report pertains to the operations performed during 2022, regarding the period between January 1 and December 31.

7. Recalculation of emissions and materiality

The base document considered for the recalculation of emissions was the calculation tool "Summary of environmental indicators 2022.xlsx" developed by Rotoplas, which includes the information required to calculate Scope 1 and Scope 2 emissions (emission factors, calorific values, references and equations used).

The procedures and/or methods applied to recalculate emissions and the corresponding comparison with the calculation tool and the inventory report submitted by Rotoplas were carried out considering the methodologies and calculation variables applicable for each emission source (See References).

Upon completion of the analysis and evaluation activities by e3 Consultora Ambiental, considering the base documents submitted for the recalculation of emissions, the following was found:

During the review of the calculation tool "Summary of environmental indicators 2022.xlsx", it was detected that Rotoplas used calorific values and emission factors other than those established in the General Law on Climate Change for the estimation of GHG emissions from facilities in Mexico. This leads to differences in the calculation of emissions, which are presented in Table 2 below:

Tabla 2. Materiality obtained by facility in Mexico.

Facility	Emissions (tCO_2e)		Materiality (%)
	e3 Consultora Ambiental	Rotoplas	
Anahuac	4,175.72	3,942.66	5.91
Gulf - Veracruz	1,704.47	1,606.92	6.07
Guadalajara	1,552.86	1,464.66	6.02
Leon Rotomolding	1,926.51	1,817.57	5.99
Leon Rotopinsa	45.84	48.27	5.03
Lerma	516.90	544.19	5.01
Merida	1,033.90	976.46	5.88
Monterrey Compuestos	190.06	200.15	5.04
Monterrey Rotomolding	750.72	711.46	5.52
Pacific Sinaloa	2,446.21	2,542.54	3.79
Tuxlta	1,083.95	1,109.79	2.33
Total	**15,427.15**	**14,964.66**	**3.00**

Source: Own development.

Table 3 shows the total emissions estimated by e3 Consultora Ambiental and their percentage of materiality with regard to the emissions estimated by Rotoplas:

Tabla 3. Results of the recalculation of GHG emissions of Grupo Rotoplas.

Team	Scope 1 emissions (tCO_2e)	Scope 2 emissions (tCO_2e)	Total (tCO_2e)
e3 Consultora Ambiental	22,098.50	22,856.23	44,954.73
Rotoplas	22,331.92	22,693.74	45,025.66
Materiality % (e3 - Rotoplas)			0.16

Source: Own development.

8. Conclusions

According to the results shown in Tables 2 and 3, the 5% materiality threshold between the emissions estimated by e3 Consultora Ambiental and Rotoplas is not exceeded. This supports a positive result in the pre-verification exercise of the 2022 GHG inventory.

Annex 1 includes five tables with estimates of other air pollutant emissions related to the inputs considered within the 2022 GHG Inventory.

9. Recommendation

- Use emission factors and calorific values for the corresponding country. If the country does not generate this information, values from international institutions can be used.

10. References

- General Law on Climate Change, published on June 6, 2012 in the Official Gazette of the Federation, and updated on July 13, 2018.
- Regulation of the General Law on Climate Change regarding the National Emissions Registry, published on October 28, 2014 in the Official Gazette of the Federation.
- Standard NMX-SAA-14064-3-IMNC-2007, Greenhouse Gases - Part 3: Specification with guidance for the validation and verification of greenhouse gas statements, published on October 15, 2007 in the Official Gazette of the Federation.
- AGREEMENT that establishes the technical particulars and formulas to apply methodologies for calculating greenhouse gas or compound emissions, published on September 3, 2015, in the Official Gazette of the Federation.
- AGREEMENT that establishes the greenhouse gases or compounds that are grouped together for the purposes of reporting emissions, as well as their warming potentials, published on August 14, 2015 in the Official Gazette of the Federation.
- AGREEMENT establishing the methodology for the direct measurement of carbon dioxide emissions, published on September 8, 2015.
- Agreement disclosing the instructions and format of the annual operation form, published on August 14, 2015.
- List of fuels, updated on February 21, 2021, to be considered to identify the users with a high consumption pattern, as well as the factors to determine equivalences in terms of barrels of oil equivalent.
- Criteria for the verification of greenhouse gas and compound emissions reports, updated on September 28, 2022.
- Emission factor of the National Power System for the period reported, 2022.
- Ministry of the Environment, Peru.
- Ministry of Science, Technology and Innovation of Brazil.

Annex

Tabla 4. Other emissions of pollutants into the atmosphere from the use of natural gas.

Planta	Natural Gas								
	CO (kg)	PS (kg)	COT (kg)	COV (kg)	SO_3 (kg)	SO_2 (kg)	NOX (kg)	PSFILTRABLES (kg)	Total (kg)
Anahuac	2.73	0.25	0.36	0.18	No Aplica	0.001959159	3.2652656	No Aplica	6.79
Golfo Veracruz	1.12	0.10	0.15	0.07	No Aplica	0.000804762	1.34127032	No Aplica	2.79
Guadalajara	1.02	0.09	0.13	0.07	No Aplica	0.000731357	1.2189277	No Aplica	2.53
León Rotomoldeo	1.27	0.11	0.17	0.08	No Aplica	0.000906337	1.5105616	No Aplica	3.14
León Rotopinsa	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Lerma	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Mérida	0.67	0.06	0.09	0.04	No Aplica	0.000480744	0.801240128	No Aplica	1.67
Monterrey Compuestos	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Monterrey Rotomoldeo	0.47	0.04	0.06	0.03	No Aplica	0.000340196	0.56699296	No Aplica	1.18
Pacífico Sinaloa	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Tuxlta	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Totales México	7.29	0.66	0.96	0.48	No Aplica	0.01	8.70	No Aplica	18.10
Nicaragua	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Guatemala	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Totales Centroamerica	0.00	0.00	0.00	0.00	No Aplica	0.00	0.00	No Aplica	0.00
Loma Hermosa	0.01	0.00	0.00	0.00	No Aplica	6.57234E-06	0.010953904	No Aplica	0.02
Perú	1.46	0.13	0.19	0.10	No Aplica	0.001047571	1.745951152	No Aplica	3.63
Pilar	1.05	0.10	0.14	0.07	No Aplica	0.000750203	1.2503376	No Aplica	2.60
Pilarica	1.09	0.10	0.14	0.07	No Aplica	0.000781838	1.303064	No Aplica	2.71
San Martín	0.01	0.001	0.00	0.00	No Aplica	6.6522E-06	0.011086992	No Aplica	0.02
Totales Argentina	2.16	0.20	0.28	0.14	No Aplica	0.00	2.58	No Aplica	5.35
									23.452

Source: Own development.

Tabla 5. Other emissions of pollutants into the atmosphere from the use of LP Gas.

Planta	Gas LP								
	CO (kg)	PS (kg)	COT (kg)	COV (kg)	SO_3 (kg)	SO_2 (kg)	NOX (kg)	PSFILTRABLES (kg)	Total (kg)
Anahuac	0.02	0.002	0.003	No Aplica	No Aplica	0.04	0.04	0.0005	0.10
Golfo Veracruz	0.02	0.002	0.002	No Aplica	No Aplica	0.03	0.03	0.0004	0.08
Guadalajara	0.02	0.002	0.002	No Aplica	No Aplica	0.03	0.03	0.0004	0.09
León Rotomoldeo	0.02	0.002	0.002	No Aplica	No Aplica	0.03	0.03	0.0004	0.09
León Rotopinsa	0.03	0.003	0.003	No Aplica	No Aplica	0.05	0.05	0.0006	0.13
Lerma	0.32	0.031	0.042	No Aplica	No Aplica	0.62	0.58	0.0077	1.61
Mérida	0.02	0.002	0.003	No Aplica	No Aplica	0.04	0.04	0.0005	0.10
Monterrey Compuestos	0.12	0.011	0.015	No Aplica	No Aplica	0.23	0.21	0.0028	0.58
Monterrey Rotomoldeo	0.02	0.002	0.003	No Aplica	No Aplica	0.04	0.04	0.0005	0.11
Pacífico Sinaloa	1.55	0.148	0.203	No Aplica	No Aplica	2.99	2.77	0.0369	7.70
Tuxlta	0.68	0.065	0.089	No Aplica	No Aplica	1.31	1.21	0.0161	3.37
Totales México	2.81	0.27	0.37	No Aplica	No Aplica	5.42	5.02	0.07	13.96
Nicaragua	0.13	0.012	0.017	No Aplica	No Aplica	0.25	0.23	0.0031	0.64
Guatemala	0.77	0.073	0.101	No Aplica	No Aplica	1.48	1.37	0.0183	3.81
Totales Centroamerica	0.90	0.09	0.12	No Aplica	No Aplica	1.73	1.60	0.02	4.45
Loma Hermosa	0.00	0.000	0.000	No Aplica	No Aplica	0.00	0.00	0.0000	0.00
Perú	0.02	0.002	0.002	No Aplica	No Aplica	0.03	0.03	0.0004	0.08
Pilar	0.01	0.001	0.001	No Aplica	No Aplica	0.02	0.02	0.0002	0.05
Pilarica	0.00	0.000	0.000	No Aplica	No Aplica	0.00	0.00	0.0000	0.00
San Martín	0.00	0.000	0.000	No Aplica	No Aplica	0.00	0.00	0.0000	0.00
Totales Argentina	0.01	0.00	0.00	No Aplica	No Aplica	0.02	0.02	0.00	0.05
									18.458

Source: Own development.

Tabla 6. Other emissions of pollutants into the atmosphere from the use of diesel.

Planta	Diésel								
	CO (kg)	PS (kg)	COT (kg)	COV (kg)	SO_3 (kg)	SO_2 (kg)	NOX (kg)	PSFILTRABLES (kg)	Total (kg)
Anahuac	0.0043	0.0011	0.00022	No Aplica	0.001	0.061	0.017074	0.0017	0.09
Golfo Veracruz	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Guadalajara	0.0000	0.0000	0.00000	No Aplica	0.000	0.001	0.000199	0.0000	0.00
León Rotomoldeo	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
León Rotopinsa	0.0007	0.0002	0.00004	No Aplica	0.000	0.010	0.002880	0.0003	0.0145
Lerma	0.0001	0.0000	0.00001	No Aplica	0.000	0.001	0.000420	0.0000	0.0021
Mérida	0.0000	0.0000	0.00000	No Aplica	0.000	0.001	0.000144	0.0000	0.0007
Monterrey Compuestos	0.0007	0.0002	0.00003	No Aplica	0.000	0.009	0.002640	0.0003	0.01
Monterrey Rotomoldeo	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Pacífico Sinaloa	0.0004	0.0001	0.00002	No Aplica	0.000	0.005	0.001440	0.0001	0.01
Tuxlta	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Totales México	0.01	0.00	0.00	No Aplica	0.00	0.09	0.02	0.00	0.12
Nicaragua	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Guatemala	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Totales Centroamerica	0.00	0.00	0.00	No Aplica	0.00	0.00	0.00	0.00	0.00
Loma Hermosa	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Perú	0.0002	0.0000	0.00001	No Aplica	0.000	0.003	0.000720	0.0001	0.0036
Pilar	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Pilarica	0.0047	0.0012	0.00024	No Aplica	0.001	0.067	0.018830	0.0019	0.09
San Martín	0.0000	0.0000	0.00000	No Aplica	0.000	0.000	0.000000	0.0000	0.00
Totales Argentina	0.00	0.00	0.00	No Aplica	0.00	0.07	0.02	0.00	0.09
									0.219

Source: Own development.

Tabla 7. Other emissions of pollutants into the atmosphere from the use of gasoline.

Planta	Fuels				
	CO (kg)	NOX (kg)	NMCOVS (kg)	SO_2 (kg)	Total (kg)
Anahuac	0.266	0.84	0.061	No Aplica	1.170
Golfo Veracruz	0.000	0.00	0.000	No Aplica	0.000
Guadalajara	0.002	0.01	0.000	No Aplica	0.009
León Rotomoldeo	0.054	0.17	0.012	No Aplica	0.236
León Rotopinsa	0.000	0.00	0.000	No Aplica	0.000
Lerma	0.000	0.00	0.000	No Aplica	0.000
Mérida	0.000	0.00	0.000	No Aplica	0.000
Monterrey Compuestos	0.000	0.00	0.000	No Aplica	0.000
Monterrey Rotomoldeo	0.038	0.12	0.009	No Aplica	0.168
Pacífico Sinaloa	0.000	0.00	0.000	No Aplica	0.000
Tuxlta	0.000	0.00	0.000	No Aplica	0.000
Totales México	0.36	1.14	0.08	No Aplica	1.58
Nicaragua	0.000	0.00	0.000	No Aplica	0.000
Guatemala	0.000	0.00	0.000	No Aplica	0.000
Totales Centroamerica	0.00	0.00	0.00	No Aplica	0.00
Loma Hermosa	0.000	0.00	0.000	No Aplica	0.000
Perú	0.000	0.00	0.000	No Aplica	0.000
Pilar	0.000	0.00	0.000	No Aplica	0.000
Pilarica	0.000	0.00	0.000	No Aplica	0.000
San Martín	0.000	0.00	0.000	No Aplica	0.000
Totales Argentina	0.00	0.00	0.00	No Aplica	0.00
					1.583

Source: Own development.

Tabla 8. Summary of other air emissions by country.

Compuesto/Sustancia	Mexico	Centroamérica	Argentina	Perú	Totales (kg)
CO (kg)	10.47	0.90	2.17	1.48	15.01
PS (kg)	0.93	0.09	0.20	0.13	1.35
COT (kg)	1.33	0.12	0.28	0.19	1.92
COV (kg)	0.48	0.00	0.14	0.10	0.72
SO_3 (kg)	0.00	0.00	0.00	0.00	0.00
SO_2 (kg)	5.51	1.73	0.09	0.04	7.37
NOX (kg)	14.89	1.60	2.61	1.78	20.88
PSFILTRABLES (kg)	0.07	0.02	0.00	0.0005	0.09
NMCOVS (kg)	0.08	0.00	0.00	0.000	0.08
				Total (kg)	**47.43**

Source: Own development.

Scope 3 Emissions Screening Report 2022

Developed for:

Rotoplas S.A. de C.V.

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Chapter 1

General Aspects of Scope 3 GHG Emissions Screening

CHAPTER 1. GENERAL ASPECTS OF SCOPE 3 SCREENING

1.1. Introduction.

Rotoplas, S.A. de C.V., is the leading company in the development and sale of water solutions, with almost 4 decades of experience and a culture of innovation and sustainability. By participating in all stages of the water cycle, it offers individual and integrated solutions for water storage, waterflow and improvement.

e3 Consultora carried out a *screening* exercise of scope 3 emissions from its value chain, using parameters that correspond to the Greenhouse Gas Protocol (GHG). The methodology covers 15 different categories, divided into upstream and downstream groups, and focuses on assessing the value chain by collecting data to estimate emissions. To this end, the initiative designed the Quantis tool, which makes it possible to estimate GHG emissions based on specific, mainly economic, data. The tool was used by applying a robust database created by **Rotoplas**, using existing availability of emission factors, carbon intensity data and carbon footprint of **Rotoplas** products, which allowed for more accurate values in the screening.

This report represents a continuation of **Rotoplas**' efforts to become a more sustainable company. The analysis carried out will make it possible to identify the areas where the most emissions are generated and thus be able to make decisions regarding the activities of the value chain that can be environmentally improved.

Scope 3 emissions calculated for 2022 totaled 202,084.23 tons of CO_2 equivalent (tCO_2e), which represent 81.93% of **Rotoplas**' total emissions (Scope 1, 2 and 3).

1.2. Greenhouse Gas Protocol Initiative

The GHG Protocol emerged in the late 1990s, when the WRI[1] and the WBCSD[2] saw the need to have an international standard for corporate GHG accounting and reporting.

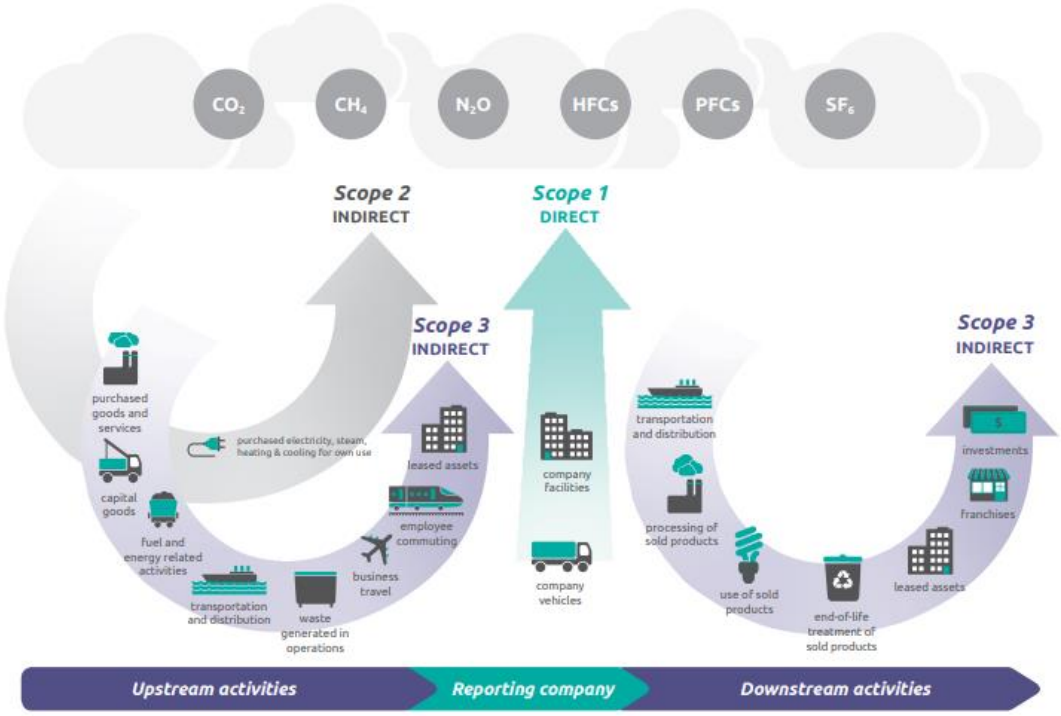
The GHG Protocol establishes comprehensive global standardized frameworks for the measurement and management of greenhouse gas (GHG) emissions from public and private sector operations, as well as their value chain and mitigation actions.

[1] World Resources Institute
[2] World Business Council for Sustainable Development

1.3. Scope 3 emissions: Corporate Value Chain Standard

Scope 3 emissions are those that occur in the value chain as a consequence of the company's activities. The standard is part of the total emissions assessment, and its objective is to identify significant emissions generated by supplier and customer activities. This scope shows a broader picture of an organization's contribution to climate change, as it complements the impact of direct and indirect process emissions (scopes 1 and 2). Knowing the three scopes, a company can make decisions that allow for comprehensive emission reduction strategies (Figure 1)

Figure 1 Universe of GHG emissions including Scope 3



Source: WRI, WBCSD, Technical Guidance for Calculating Scope 3 Emissions, GHG Protocol (2013)

The standard describes 15 categories under which GHG emissions attributed to the company can be calculated (Table 1).

Table 1 Description of Scope 3 Categories

	Categories		Scope of emissions
Upstream	Category 1	Goods and services acquired	Includes upstream emissions from the manufacture of products purchased or acquired by the company during the reporting year. Goods (tangible products) and services (intangible products) should be included.
	Category 2	Capital assets	Includes upstream emissions from capital goods that are final products and usually have an extended life, and are used by the company to manufacture a product, provide a service, sell, store and deliver merchandise: Includes equipment, machinery, buildings, facilities and vehicles, among others,
	Category 3	Activities related to fuel and energy (not included in Scope 1 and 2)	Includes upstream emissions related to the production of fuels and energy purchased and consumed by the company that are not included or reported in Scope 1 and 2 (emissions from combustion or electricity consumed by the reporting company).
	Category 4	Upstream transportation and distribution	Covers the transportation and distribution of all products and third-party distribution and transportation services purchased by the company. Includes inbound and outbound logistics services; transportation and distribution by third parties between company facilities. These emissions can be from air, rail, road, or sea transportation, product storage, distribution centers and retail facilities.
	Category 5	Waste generated in operations	Includes all emissions from the disposal and treatment by third parties of waste generated in the activities reported by the company. This category includes emissions from the disposal of solids and wastewater and the treatment of waste in facilities owned by third parties. It also includes future emissions from waste generated in the reporting year. Landfill disposal, landfills with gas conversion, energy landfills, composting and incineration should be considered.
	Category 6	Business travel	Includes emissions from employee transportation for business purposes: air, train, bus, and automobile travel, and car rentals; but does not include employee commutes to and from work.
	Category 7	Employee commutes	Covers emissions from employees' travel between their homes and workplaces, in any type of vehicle. Telework emissions can also be included.

	Categories		Scope of emissions
	Category 8	Upstream leased assets	Emissions from the operation of assets leased by the reporting company in the reporting year that are not included in scopes 1 and 2. This category is only applicable to companies that own and lease assets to others.
Downstream	Category 9	Downstream transportation and distribution	Emissions that occur from transportation and distribution of products sold in vehicles and facilities that are not owned or controlled by the reporting company. Emissions from retail trade and warehousing are included. These are outbound transportation and distribution services purchased by the reporting company.
	Category 10	Processing of products sold	Emissions from the transformation of intermediate products sold, and carried out by third parties after their sale by the reporting company. They are those producers that require further processing for transformation or inclusion in another product, prior to its use by the final consumer. These emissions are allocated to the intermediate product.
	Category 11	Use of products sold	Includes emissions from the use of goods and services sold by the reporting company during the reporting year. It mainly covers end users, who may be consumers or commercial customers who make use of the final product. These emissions are divided into two types: direct emissions in the usage phase of the products sold, and indirect emissions from the use of the product. It is up to the company to decide whether or not to consider the indirect effects. It includes the total expected lifetime emissions of all relevant products that are sold during the reporting year. Optionally, emissions associated with the maintenance of the products sold can be included.
	Category 12	End-of-life treatment of products sold	It includes all emissions coming from the disposal and treatment of waste from products sold by the company in the reporting year. All emissions expected at the end of its useful life are considered.
	Category 13	Downstream leased assets	It includes emissions from the operation of assets owned by the reporting company during the reporting year and leased to other entities in the reporting country. These leased assets may also be included in a company's inventory 1 or 2, depending on the type of

	Categories		Scope of emissions
			lease and the consolidation approach used by the company to define organizational boundaries.
	Category 14	Franchises	It covers emissions from the operation of franchises that are included in Scope 1 or 2. A franchise is a company that operates under a license to sell or distribute goods or services from another company in a particular location. This category only applies to franchisers, who must account for the emissions produced by the operation of the franchises.
	Category 15	Investments	Emissions associated with the reporting company and are the investments in the year. This category applies to those who make an investment with the objective of making a profit, to financial companies, and to companies that make investments for non-profit purposes. The category refers to capital or financing provided by the reporting company.

Source: WRI, WBCSD, Technical Guidance for Calculating Scope 3 Emissions, GHG Protocol (2013)

1.3.1. Scope 3 "Quantis" calculation tool.

This is a tool for the calculation of scope 3 emissions that allows users to have a screening of the scope 3 footprint, regardless of the type and size of the organization. The tool uses questions about the organizational structure and different activities, such as the procurement of goods and services, the procurement of fuels, the transportation of materials, etc.

1.4. Objective of the report.

To preliminarily estimate and report **Rotoplas** ' GHG Scope 3 emissions in 2022, using the methodology defined by the GHG Protocol and the Quantis tool as a reporting framework.

1.4.1. Specific objectives.

- ✓ To reflect, in accordance with the GHG Protocol accounting and reporting principles a screening of the value chain emissions resulting from **Rotoplas**' corporate activities.
- ✓ To identify the main Scope 3 categories that contribute to **Rotoplas'** value chain emissions.

1.5. Organizational and operational limits.

The limits of quantification for the screening were defined between the **Rotoplas** team and e3 Consultora Ambiental. It was decided to estimate emissions for the two **Rotoplas** business models in the countries where they are present, considering the availability of information, according to the following figure.

Figure 2 Operational and organizational boundaries

Source: Own development

Rotoplas was responsible for managing and documenting the activities required for the calculation, while e3 Consultora Ambiental provided technical expertise in the development and implementation of the screening analysis.

Description of the Rotoplas business models. **Rotoplas** has two business models: The first focuses on the production and marketing of water storage, waterflow, and mprovement products. This model includes water tanks, cisterns, pipes, valves, pumps, purifiers and heaters, among others (Figure 3).

Source: Rotoplas website https://rotoplas.com.mx/

*Figure 3 **Rotoplas** products*

The second business model integrates services and maintenance, and includes wastewater treatment plants (WWTP), purification and desalination plants, residential and commercial purifiers (bebbia brand) and agricultural water management through intelligent irrigation systems (Rieggo brand).

1.6. Base year.

2022 was set as the base year, because this is the first screening exercise, and there is a greater breakdown and identification of the 15 applicable categories.

1.7. Methodology.

The Scope 3 screening was performed based on the GHG Protocol, the Quantis tool and using the databases available at Rotoplas to quantify emissions in the value chain.

Different sources of information were also used to carry out a more accurate estimation of emissions. The following table lists the sources used.

Table 2 References used to estimate emissions

Type of data	Applicable categories	Database document	Reference document
Carbon intensity	1	Database tab in Annex 7. Scope 3 emissions calculation tool_Rotoplas_2022	The Dow Chemical Company - Climate Change 2022 (CDP)
			Sustainability Report Tricon 2021
			Hyosung Chemical - Climate Change 2022 (CDP)
			Braskem S/A - Climate Change 2022
			Borealis Ag Combined Annual Report 2022
			Ternium Sustainability Report 2021
Emission factors for Mexico	9		Ministry agreements 2015
Net calorific value of Mexico	9 and 11		CONUEE 2022 fuel list
International Emission Factors	9 and 11		WRI- GHG Protocol 2017 Toolkit database
			Estimation of Argentina's Emission Factor according to the United Nations' "Tool to

			calculate the emission factor for an electricity system" (1) Version 7
Value chain emission factors	4 and 5		Department for Business, Energy & Industrial Strategy (DEFRA), UK Government GHG Conversion Factors for Company Reporting (2022)
Carbon footprint	11 and 12		Annex 9. Environmental product data sheets

Source: Own development

Rotoplas defined and agreed with e3 Consultora Ambiental the categories it wishes to assess and consider for the corresponding estimates, based on the knowledge of its value chain and the parties that comprise it.

Table 3 shows all the categories, which were included in the screening and the rationale for doing so.

Table 3 Scope 3 categories estimated in screeening

Category	Description	Is it included in the exercise?	Justification
Category 1	Goods and services acquired	**Yes**	Information is available on purchases and quantity of goods and services acquired for the year 2022.
Category 2	Capital assets	**Yes**	Information is available on the purchase of capital goods by sector for the year 2022.
Category 3	Activities related to fuel and energy (not included in Scope 1 and 2)	**Yes**	The quantification of Scope 1 and 2 emissions for 2022 is available, so the necessary information for their estimation is available.
Category 4	Upstream transportation and distribution	**Yes**	There is a database of the weight transported per year, as well as the distances and

Category	Description	Is it included in the exercise?	Justification
			type of transport for the reporting year.
Category 5	Waste generated in operations	**Yes**	There is a breakdown of waste generated by country, as well as the management of each of these wastes in the year 2022.
Category 6	Business travel	**Yes**	There is a database of business trips made, including flights, use of cabs, and rooms used by employees in the year 2022.
Category 7	Employee commutes	**Yes**	The number of registered workers per country in the year 2022 is available.
Category 8	Upstream leased assets	**No**	Emissions considered within **Rotoplas'** Scope 1 and 2.
Category 9	Downstream transportation and distribution	**Yes**	The breakdown of fuel consumption information for each of the transportation providers in the year 2022 is available.
Category 10	Processing of products sold	**No**	Not applicable, because Rotoplas only generates finished products.
Category 11	Use of products sold	**Yes**	There is an analysis of product characteristics and environmental data sheets for each product, with their carbon footprint by life cycle stage.
Category 12	End-of-life treatment of products sold	**Yes**	There is an analysis of product characteristics and

Category	Description	Is it included in the exercise?	Justification
			environmental data sheets for each product, with their carbon footprint by life cycle stage.
Category 13	Downstream leased assets	**No**	There are no downstream leased assets.
Category 14	Franchises	**No**	Rotoplas does not have franchises.
Category 15	Investments	**No**	No investments were reported in the reporting year.

Source: Own development

Chapter 2

Results

CHAPTER 2. RESULTS

Rotoplas ' Scope 3 emissions were estimated according to available information, using a hybrid quantification scheme, using the Quantis tool, estimation by emission factors, and carbon footprint and intensity, among others.

2.1. Scope 3 screening results

The results of the Scope 3 emissions screening for **Rotoplas** are as follows:

Table 4 Scope 3 Screening Results

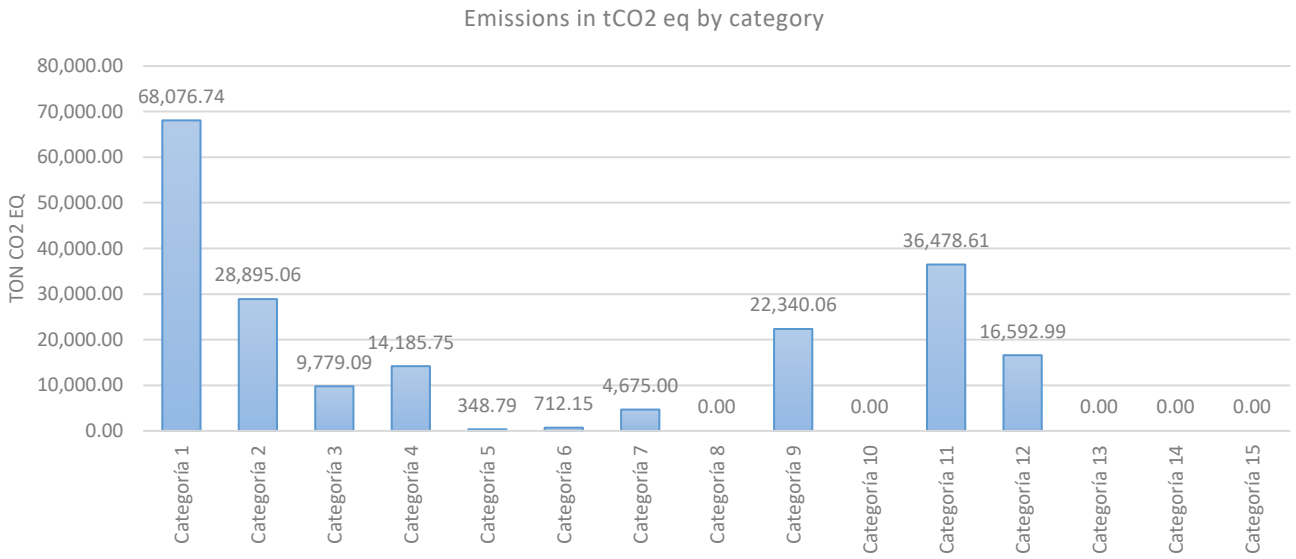
	Category	Description	Methodology	Total emissions tCO2e	A3 contribution [%]
Upstream	Category 1	Goods and services acquired	Quantis Tool/Carbon Intensity Estimation	68,076.74	33.69%
	Category 2	Capital assets	Quantis tool	28,895.06	14.30%
	Category 3	Activities related to fuel and energy (not included in Scope 1 and 2)	Quantis tool	9,779.09	4.84%
	Category 4	Upstream transportation and distribution	Emission factors	14,185.75	7.02%
	Category 5	Waste generated in operations	Emission factors	348.79	0.17%
	Category 6	Business travel	Quantis tool	712.15	0.35%
	Category 7	Employee commutes	Quantis tool	4,675.00	2.31%
	Category 8	Upstream leased assets	Not applicable	-	0.00%
Downstre	Category 9	Downstream transportation and distribution	Emission factors	22,340.06	11.05%

	Category 10	Processing of products sold	Not applicable	-	0.00%
	Category 11	Use of products sold	Estimation by product carbon footprint	36,478.61	18.05%
	Category 12	End-of-life treatment of products sold	Estimation with product carbon footprint	16,592.99	8.21%
	Category 13	Downstream leased assets	Not applicable	-	0.00%
	Category 14	Franchises	Not applicable	-	0.00%
	Category 15	Investments	Not applicable	-	0.00%
			Total Scope 3 emissions	202,084.23	100%

Source: Own development

According to the results obtained from the Scope 3 Evaluator and estimates per the GHG Protocol, the **Rotoplas** value chain emitted approximately **202,084.23 tCO2eq** in the estimated categories. For a more detailed breakdown of the information and calculations performed, see Annexes 1 to 7.

Figure 4 Rotoplas Value Chain Emissions



Source: Own development

In subsequent exercises, it will be very useful to have mechanisms for gathering and safeguarding data on the following categories:

I. Goods and services acquired
II. Use of products sold
III. Capital assets
IV. Downstream transportation and distribution
V. End-of-life treatment of products sold
VI. Upstream transportation and distribution
VII. Activities related to fuel and energy (not included in Scope 1 and 2)
VIII. Employee commutes

It is also recommended, for future exercises, to analyze the availability of information for the categories that were not included in 2022 according to the GHG Protocol, to have a more robust Scope 3 inventory.

When comparing **Rotoplas**' direct, indirect and value chain emissions, the following becomes apparent:

Table 5 Rotoplas direct, indirect and value chain emissions

	Emissions in t CO2e	Contribution [%]	Contribution [%]
Scope 1	21,869.43	8.87%	18.07%
Scope 2	22,693.74	9.20%	
Value chain	202,084.23	81.93%	81.93%
Total	246,647.40	100.00%	100.00%

Source: Own development

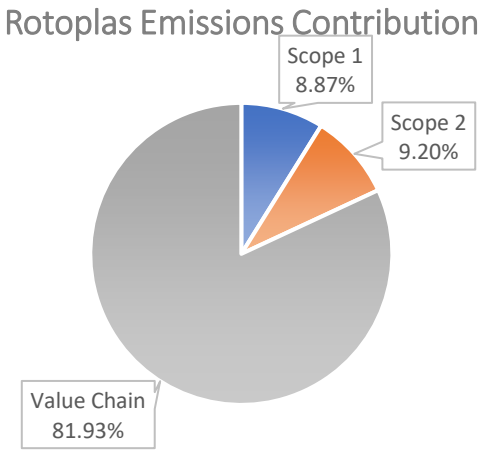


Figure 5 Rotoplas emissions contribution

Source: Own development

Chapter 3
Conclusions

CHAPTER 3. CONCLUSIONS AND RECOMMENDATIONS

3.1. Conclusions

1. **Rotoplas emitted 202,084.23 tCO_2e in 2022**, corresponding to its value chain.
2. Ten Scope 3 emissions categories were estimated. The most important emissions come from the acquisition of goods and services (33.69%), the **use of its products (18.05%**), the acquisition of capital goods (14.30%), and the transportation of its products downstream (11.05%).
3. **GHG emissions associated with the value chain contribute 81.93% of the total emissions** attributable to **Rotoplas**.
4. As Scope 3 emissions exceed 40% of **Rotoplas**' total emissions, if the goal is adherence to the Science Based Targets Initiative (SBTi), the company must also set Scope 3 targets.
5. Estimates made with the Quantis tool may be above or below actual emissions; however, they serve as a benchmark for informed decision-making to drive the value chain to participate in **Rotoplas**' emissions reduction targets.

3.2. Recommendations and estimation considerations.

1. It is recommended to establish mechanisms for collecting and safeguarding information for the selected categories, in the order of priority considered.
2. For the categories that were not included in this exercise, it is recommended to analyze in future years the availability of information and, if necessary, estimate the emissions of omitted categories in 2022.
3. Within category 1, there are carbon intensity data that were not found for productive activities similar to those of some **Rotoplas**suppliers; therefore, an estimate was made in the Quantis tool, using costs.
4. In future years, consider requesting specific data from suppliers and customers, such as consumption and carbon intensities, to allow for greater precision in the calculation of **Rotoplas**' Scope 3 emissions.
5. For future exercises, and due to their potential impact, consider emissions from the **use of water heaters,** even if they represent only 0.32% of sales.
6. Some minor recommendations can be found in the "Analysis of results" in Annex 7. Scope 3 emissions calculation tool_Rotoplas_2022

Chapter 4
References

CHAPTER 4 REFERENCES

4.1. REFERENCES

- Technical Guidance for Calculating Scope 3 Emissions Complement to the Value Chain (Scope 3) accounting and reporting standard (2013)
- Department for Business, Energy & Industrial Strategy (DEFRA), UK Government GHG Conversion Factors for Company Reporting (2022)
- List of fuels and their calorific values (CONUEE) to be used for reporting to RENE 2023
- Official Gazette of the Federation, Mexico, Agreement that establishes the technical particulars and formulas to apply methodologies for calculating greenhouse gas or compound emissions (Sep30,2015).
- Official Gazette of the Federation, Mexico, Agreement that establishes the greenhouse gases or compounds that are grouped together for the purposes of reporting emissions, as well as their warming potentials, (Aug14,2015).
- WRI- GHG Protocol Calculation tool database (2017)

List of Annexes

Description	Annex
Scope 3 Evaluator for Mexico	Annex 1. Scope 3 Evaluator_Results_Rotoplas_Mexico_2022
Scope 3 Evaluator for Argentina	Annex 2. Scope 3 Evaluator_Results_Rotoplas_Argentina_2022
Scope 3 Evaluator for Peru	Annex 3. Scope 3 Evaluator_Results_Rotoplas_Peru_2022
Scope 3 Evaluator for Central America	Annex 4. Scope 3 Evaluator_Results_Rotoplas_Central America_2022
Scope 3 Evaluator for Brazil	Annex 5. Scope 3 Evaluator_Results_Rotoplas_Brazil_2022
Scope 3 Evaluator for the United States	Annex 6. Scope 3 Evaluator_Results_Rotoplas_USA_2022
Scope 3 calculation tool	Annex 7. Scope 3 emissions calculation tool_Rotoplas_2022
Category 2 database	Annex 8 Database Category 2_Rotoplas_2022
Product Environmental Data Sheets	Annex 9. Product Environmental Data Sheets