Welcome to your CDP Climate Change Questionnaire 2023

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Şişecam has introduced numerous innovations and driven development of the flat glass industry both in Turkey and the larger region. The Company is a leader in Europe and the world's fifth largest flat glass producer in terms of production capacity. Şişecam conducts flat glass operations in three core business lines: architectural glass (e.g. flat glass, patterned glass, laminated glass and coated glass), energy glass and home appliance glass.

Şişecam is the world's and Europe's second largest producer of glassware. The Company boasts a strong distribution network, an extensive range of products and exceptional production capabilities.

A leader in the glass packaging market in Turkey and Russia, Şişecam also ranks among the top five producers in Europe and worldwide in glass packaging. Şişecam meets glass packaging needs for a range of industries, including food, beverages, pharmaceuticals, and cosmetics, with a broad palette of colors and volumes ranging from 6 cc to 15000 cc.

As Turkey's largest automotive glass producer, and a sector leader, Şişecam delivers world-class products to automobile manufacturers nationwide, while serving as a supplier for Europe's leading auto manufacturers. Şişecam’s clients in the automotive industry include Audi, Bentley, BMW, Dacia, Daimler, Ford, Honda, Hyundai, Lada, MAN, Nissan, Renault, Rolls Royce, Seat, Skoda, Stellantis, Volkswagen, among others.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1, 2022

End date

December 31, 2022

Indicate if you are providing emissions data for past reporting years

Yes

Select the number of past reporting years you will be providing Scope 1 emissions data for

2 years

Select the number of past reporting years you will be providing Scope 2 emissions data for

2 years

Select the number of past reporting years you will be providing Scope 3 emissions data for

Not providing past emissions data for Scope 3

C0.3

(C0.3) Select the countries/areas in which you operate.

Bulgaria
Italy
Turkey

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

EUR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Financial control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Bulk inorganic chemicals

Other chemicals

Other, please specify
Glass Production

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	TRASISEW91

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Board Chair	The Chairman of Şişecam is the highest authority with direct responsibility for all for Şişecam's Corporate Sustainability governance, including climate-related issues such as climate change strategy, mitigation actions, policies, risks, and opportunities. In detail, the Chairman of Şişecam's main responsibility is to review, approve and oversee the climate strategy and related actions. In this context, progress and actions related to the 2050 Carbon Neutral target within the scope of the Care for Next strategy are periodically reviewed by the Chairman and directly reported by the CEO on behalf of the Sustainability Executive Committee of Şişecam.

	https://sustainability.sisecam.com/en/what-is-sustainability-at-sisecam/sustainability-governance-at-sisecam
Board-level committee	Board of Directors Sustainability Committee is the highest-level function to fully integrate corporate sustainability and climate-related issues such as climate strategy, mitigation actions, policies, risks and opportunities (Transition and Physical).into the company's structure, and to set and coordinate sustainability policies at the company. The Committee is structured at the Board of Directors level under the leadership of Şişecam's Chairman. With this governance structure, Şişecam ensures the adoption, effective monitoring, and management of the CareforNext Sustainability Strategy and its climate-related components at all functions and levels of the organization by the highest authority at the company. The Committee oversees the work of the Sustainability Steering Committee, which operates in line with Şişecam's 2050 climate neutral target and 2030 renewable energy target, are directly monitored and overseen by the Committee. https://sustainability.sisecam.com/en/what-is-sustainability-at-sisecam/sustainability-governance-at-sisecam
Chief Executive Officer (CEO)	Leads the executive board on issues related to climate change and approves decisions. All investments, projects and actions are controlled and approved by the CEO himself and directly reported to the Board Level Committee on behalf of Şişecam Sustainability Executive Committee.
Board-level committee	The strategic direction of the Board of Directors Sustainability Committee is reflected in Şişecam's operations through the Sustainability Executive Committee. The Sustainability Executive Committee is chaired by the CEO and consists of members of the Executive Board. The Committee carries out the vision, priority and strategy development efforts related to sustainability, environment and climate-related areas, internal and external stakeholder communications, and the sustainability targets and performance monitoring of the working groups. The Committee evaluates developments related to the studies and objectives of its working groups. Key areas of responsibility of the executive board regarding climate related issues: • Designing the company's corporate climate change adaptation strategy, determining its priorities in this context and ensuring its adaptation to all fields of activity, identifying relevant policies and approaches • Determining, distributing, revising and monitoring climate change-related targets and KPIs in order to measure the effectiveness of the strategy.

	• Reviewing of actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning • Evaluation of climate-related risks and opportunities on the basis of product and production geographies • Deciding on activities, measures and investments that will serve the strategy and accelerating the integration of climate mitigation measures. • Reviewing and approving the budget within this scope https://sustainability.sisecam.com/en/what-is-sustainability-at-sisecam/sustainability-governance-at-sisecam

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding annual budgets Reviewing innovation/R&D priorities Overseeing and guiding the development of a transition plan Monitoring the implementation of a transition plan Overseeing the setting of corporate targets	In accordance with the corporate sustainability governance procedure, Şişecam Board of Directors Sustainability Committee meets every quarter of the year and evaluates actions and progress related to Sustainability Strategy and targets. Renewable energy and climate-related issues are one of the priority agenda items of Board of Directors' investment and company strategy meetings. In this context, the following topics are reviewed: • Şişecam's progress and position comparing to approved strategy and roadmaps • Revision and action requirements according to updated assessment of climate-related risks and opportunities • Progress against set sustainability targets which include KPIs on measuring climate-related

	Monitoring progress towards corporate targets Reviewing and guiding the risk management process	performance including renewable energy and decarbonization • Status of projects and investments • Potential collaborations and markets • R&D priorities and studies related to product and process development The Sustainability Executive Committee annually reports its activities to the CEO. The Committee carries out vision, priority and strategy formulation efforts related to sustainability. The Sustainability Executive Committee is charged with internal and external stakeholder communication in addition to the sustainability targets and performance monitoring of the working groups. The Committee is chaired by Şişecam's CEO and consists of the Executive Board members of the Committee. The Committee evaluates the developments related to the studies and objectives of the working groups.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	One member of Şişecam's Board of Directors has competence on renewable energy and climate change issues due to his professional background. The said Board Member is working on renewable and clean energy issues, and he has a senior position in many scientific organizations on this subject. He is also in the Scientific Committee of "European Photovoltaic Solar Energy Conference EU-PVSEC" and representing Turkish Physical Society at the European Physical Society (EPS). At national level he is the Honorary Chairman Turkish Solar Energy Industry Association, a member of steering committee of Turkish Clean Energy Foundation, a member of advisory committee to Turkish Science, Technology and Innovation Policies Council, a member of board of Turkish Fundamental Sciences Research Foundation. Prior to being a member of the Board of Directors, he served as president of the Research and Technological Development Group at Şişecam.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

Other committee, please specify

The Board of Directors Sustainability Committee

Climate-related responsibilities of this position

Managing annual budgets for climate mitigation activities

Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)

Managing climate-related acquisitions, mergers, and divestitures

Integrating climate-related issues into the strategy

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

The Board of Directors Sustainability Committee was established in 2021, consisting of Şişecam Board members and chaired by our Chairman of the Board. Our Sustainability Committee works to accelerate the integration of sustainability into Şişecam's structure with the “Protect, Empower and Transform” strategies aligned with United Nations Sustainable Development Goals. The Committee also sets down the relevant policies and approaches by embracing the actions at the highest level. The main responsibilities of the Committee include, integrating sustainability principles into Şişecam’s processes, determining and implementing operational improvement activities, preparing and circulating the Corporate Sustainability Strategy, defining sustainability targets and coordinating, directing and supervising the activities of sub-working

groups within the Sustainability Committee. Key areas of responsibility of The Board of Directors Sustainability Committee regarding climate related issues:
• Reviewing and guiding strategy
• Reviewing and guiding the risk management process
• Overseeing and guiding the development of a transition plan
• Overseeing the setting of corporate targets
• Monitoring the implementation of a transition plan
• Monitoring progress towards corporate targets
• Reviewing innovation/R&D priorities

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

Integrating climate-related issues into the strategy
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Assessing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Şişecam CEO chairs The Sustainability Executive Committee and oversees the management of climate-related issues, which represent both a risk and an opportunity for Şişecam and evaluates all relevant issues with the Executive Committee. Project and investment approvals in this context are primarily given by the CEO.

Position or committee

Other committee, please specify

The Sustainability Executive Committee

Climate-related responsibilities of this position

Integrating climate-related issues into the strategy
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Assessing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

The Sustainability Executive Committee (Sustainability Steering Committee) is chaired by the Şişecam CEO and consists of Executive Board members. The Committee evaluates progress achieved toward the goals and actions of our working groups. The Committee follows up on priorities and strategies related to sustainability as well as internal and external stakeholder communication and the sustainability targets and performance of its working groups. The Working Groups reporting to the Committee were formed as “Protect the Planet”, “Empower Society” and “Transform Life” groups, including managers from all functional areas, in line with our strategy. Under the Protect the Planet, climate related targets and strategies have been focused. The CEO directly reports to The Board of Directors Sustainability Committee on behalf of the

Sustainability Executive Committee of Şişecam. Key areas of responsibility of The Sustainability Executive Committee regarding climate related issues:
• Designing the company's corporate climate change adaptation strategy, determining its priorities in this context and ensuring its adaptation to all fields of activity, identifying relevant policies and approaches
• Determining, distributing, revising and monitoring climate change-related targets and KPIs in order to measure the effectiveness of the strategy.
• Reviewing of actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning
• Evaluation of climate-related risks and opportunities on the basis of product and production geographies
• Deciding on activities, measures and investments that will serve the strategy and accelerating the integration of climate mitigation measures.
• Reviewing and approving the budget within this scope

Position or committee

Other C-Suite Officer, please specify

Chief Strategy Officer

Climate-related responsibilities of this position

Developing a climate transition plan
Conducting climate-related scenario analysis
Setting climate-related corporate targets

Coverage of responsibilities

Reporting line

CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

Şişecam Chief Strategy Officer designs, and monitors Şişecam's short-, medium- and long-term strategy. In this context, the sustainability strategy is an integral part of the corporate strategy. It sponsors all projects related to climate change, sets, and follows targets; Reports to the Executive Board. The CSO both asses and manage climate-related risks and opportunities

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Position or committee

Environment/ Sustainability manager

Climate-related responsibilities of this position

Developing a climate transition plan
Conducting climate-related scenario analysis
Setting climate-related corporate targets

Coverage of responsibilities

Reporting line

Other, please specify

Chief Officer Strategy

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

ESM directly reports to Chief Strategy Officer, the General Secretary of The Sustainability Executive Committee. Şişecam Sustainability Directorate focuses on coordinating the corporate sustainability activities by connecting teams responsible for production, communications, human resources, infrastructure, procurement, and quality. At the same time, it monitors climate-related issues and procurement, innovative practices relating to corporate sustainability reporting, supply chain sustainability, sustainability training programs, measurement of sustainability

efficiency, environment & quality management, etc.
• (Compliance/adaptation) Evaluating the sensitivity towards the physical effects of climate change, and identifying the priorities at the physical, financial, and operational level to adapt to such effects,
• (Reduction) Identifying the emission reduction potentials in the field of climate change, and addressing low-carbon production techniques and technologies,
Closely following international, regional, and national developments and obligations related to climate change mitigation and incorporating and effectively managing the relevant processes under Şişecam. Alongside these efforts, preparations were initiated for the Climate Change Adaptation Strategy of Şişecam.

Position or committee

Other committee, please specify

Protect the Planet Working Group

Climate-related responsibilities of this position

Developing a climate transition plan
Implementing a climate transition plan
Conducting climate-related scenario analysis

Coverage of responsibilities

Reporting line

Other, please specify

Chief Officer Strategy

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

At Şişecam, the Executive Committee follows up on priorities and strategies related to sustainability as well as internal and external stakeholder communication and the sustainability targets and performance of its working groups. Working Groups reporting to the Committee were formed as “PROTECT THE PLANET”, “EMPOWER SOCIETY” and “TRANSFORM LIFE” groups, including managers from all functional areas, in line with our strategy.

Protect the Planet Working Group focuses on Climate Change, Water Use, Circular Production and chaired by Production Technologies Coordinator. The group,
• Supports Sisecam’s renewable energy and climate change strategy and environmental actions
• Coordinates technical studies, design, technological development and transformation projects, investment planning related to WG’s focus areas in accordance with CareforNext Strategy and related Targets
• Monitors and reports performance

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	Şişecam has a rewarding program called Stars of the Year, provides incentives in different categories for all employees including management level to increase motivation, participation, success, and productivity in the management of climate-related issues, and raise awareness. Under the “Life Protectors” category, climate-related studies. In addition, within the scope of the performance management system, which is implemented to measure annual individual performance and reflect it on promotion, targets related to sustainability goals are defined and included in individual performance score cards.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive

Chief Executive Officer (CEO)

Type of incentive

Monetary reward

Incentive(s)

Salary increase

Performance indicator(s)

Reduction in emissions intensity
Energy efficiency improvement

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Şişecam's strategic goals are reflected in the scorecards of all managers within the scope of the performance management system. In this context, the reduction in Şişecam's energy-carbon intensities is located in the CEO's scorecard as an internal target.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

Ownership of the target by the GM enables practitioners to plan their actions in this regard in a clearer and more focused way. In this way, the development is monitored directly by the CEO.

Entitled to incentive

Facilities manager

Type of incentive

Monetary reward

Incentive(s)

Salary increase

Performance indicator(s)

Progress towards a climate-related target
Achievement of a climate-related target

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Within the scope of the performance management system implemented to measure annual individual performance and reflect it on promotion, targets related to sustainability goals are determined and included in individual performance scorecards. Some of these targets are aimed at reducing Şişecam's environmental impact and are internal targets on the basis of energy efficiency, renewable energy and carbon intensities and are assigned on a functional basis.

Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan

The system encourages senior managers to embrace the goals and to work on this subject. Annual raises and promotion performances are determined depending on the fulfilment of the relevant targets. Thus, it becomes the main driving force for the advancement of corporate goals.

Entitled to incentive

All employees

Type of incentive

Monetary reward

Incentive(s)

Bonus – set figure

Performance indicator(s)

Implementation of an emissions reduction initiative
Reduction in absolute emissions
Reduction in emissions intensity
Energy efficiency improvement
Increased share of low-carbon energy in total energy consumption
Increased share of renewable energy in total energy consumption
Reduction in total energy consumption
Increased investment in low-carbon R&D
Increased share of revenue from low-carbon products or services in product or service portfolio

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Şişecam Corporate Rewarding Mechanism evaluates the successful projects that apply to have an award. Energy efficiency and reduction as well as emissions reduction projects are evaluated under the “Life Protectors” category.

Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan

In order to raise the awareness, to increase internal motivation, and productivity and to dissemination of best practices, Şişecam has been applying an internal rewarding program for projects and practices related to its business strategy and corporate targets.

In this system, where projects, studies, and suggestions within the scope of climate and energy are also evaluated, it is ensured that the targets are internalized by each employee, the competition among the facilities is triggered, and the proposals that will serve the targets are developed.

All employees who are successful are encouraged and rewarded. One category of this award process is "Life Protectors" aligned with climate change mitigation and adaptation, energy efficiency, water efficiency, circular economy, and waste management.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	The short-term is determined as 0-3 years time horizon in the context of climate-related risks and opportunities in Şişecam
Medium-term	3	5	The short-term is determined as 1-5 years time horizon in the context of climate-related risks and opportunities in Şişecam
Long-term	5	10	The short-term is determined as 5-10 years time horizon in the context of climate-related risks and opportunities in Şişecam

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Organization's processes for identifying and assessing climate-related risks: Analysis of risks and threats is carried out by examining the causes and sources of risks and threats in the current risk catalogue, as well as the effects and possibilities of these risks. During the analysis, risks are evaluated, impact and probabilities are expressed numerically. While expressing the effects and possibilities numerically, the principles set forth in the Şişecam Group Risk Assessment Guide are followed. The risk score is formed by multiplying the impact and probability values. A risk score of "significant financial or strategic impact" is 15 or higher. The risk scores obtained as a result of the analysis are prioritized by ranking from the highest to the lowest. Risks in this category are usually equal to one 10,000th of turnover; **According to Enterprise Risk Management principles for 2022, "significant financial or strategic impact" is defined as financial impact affecting €500 000 or more.**
Definitions: Based on Şişecam's Risk Management Procedure,
· Risks in the highest risk impact category significantly affect company operations, bring the process flow to a long standstill and cause significant loss of sales, profits and reputation.
· Financial impact of risk: In case of realization of these risks, process costs increase by 50%.
· The temporal effect of the risk: If the risk materializes, critical business processes will be interrupted for more than 24 hours.
· Operational impact: If the risk materializes, operations are interrupted and cause serious bottlenecks.
· Reputation effect: In case of realization of the risk, there will be an irreparable loss of reputation in the eyes of the customer, the public, employees and other stakeholders.
· Impact on customer relations: In case of realization of the risk, more than 25% of the customer portfolio is affected.
· Effect of compliance with the law: In case of realization of the risk, monetary penalties equal to 10% or more of the turnover of the relevant facility are faced.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Process: The process is based on internal documents such as Şişecam Risk Policy, Risk Assessment Guide, Risk and Opportunity Assessment Procedure and Risk Catalogue. Physical impacts of climate change as part of adaptation measures for each facility of Şişecam has been screened as well as mitigation risks are overviewed on regular basis and upon any regulatory changes. Potential factors, events and experiences are used to identify risks. Analysis of risks and threats is the examination of the causes and sources of the risks and threats in the inventory, as well as the effects and possibilities of these risks. During the analysis, risks are evaluated, impact and probabilities are expressed numerically. While expressing the effects and possibilities numerically, the principles set forth in the Şişecam Group Risk Assessment Guide are followed. During the analysis, the effects and probabilities of the risks are determined numerically over the risk scale. The risk score is obtained by multiplying the probability and the effect value. The risk scores obtained as a result of the analysis are prioritized by ranking from the highest to the lowest. Expert comments are also taken into account as an important determination criterion during reviews.
Responsibility: Şişecam Risk Management Department Monitors and evaluates risky areas and risks arising from climate change (physical damages due to adverse weather conditions, production losses, disruptions in supply chain, decrease in sales volumes and revenues, disruptions in water and energy supply, price increases and administrative obligations related to legal compliance) and includes them in the Group's corporate risk catalogue.
Risks: The main risk items are defined as follows:
• Operational Risks: Production, Loss of Fixed Assets, Marketing and Sales, Competition, Logistics,
• Market Risks: Financial, Commodity

• Legal and Ethics: Ethics and Reputation, Compliance
• Physical Risks
Practices: Risk review and evaluation meetings are held annually and changing risks are defined when necessary. Companywide risk management practices including surveys, internal audit activities and feedback mechanisms are systematically and actively in place by use of digital platforms and awareness bulletins are communicated frequently on the basis of risk appetite. The results of regular meetings with the Early Risk Detection Committee, Audit Committee and Corporate Governance Committee are reported to the Board of Directors in accordance with the legislation. Risks can also be identified through key risk indicators and audit findings. These activities are intended to reassure stakeholders, safeguard the tangible and intangible assets of Şişecam, conserve its resources, protect the environment, minimize losses originating from uncertainties and maximize potential benefits gained from opportunities.
Revisions: If there is any significant change that may impact the climate related risks due to the reasons provided below, the existing assessment shall be revised:
• Context of Organization
• Deciding on a new process or revising existing processes
• Using a new or different technology
• Emergency situations
• A negative outcome in internal and external audits
• Employee recommendations
• Customer complaints
• Environmental accidents
• Changes in parameters that determine the effects (severity and/or probability)
Establishing a Risk Processing Plan: Within the scope of the risk treatment plan regarding the prioritized risks and threats; one of the methods of reduction, transfer, acceptance and avoidance is applied. The actions decided in the risk treatment plan are approved by the risk owners. Risks with a high risk score are primarily handled within the scope of planning. It is aimed to reduce these risks to an acceptable score level. In addition to the actions to be taken in the risk processing plan, responsible persons with the necessary competence for each action, deadlines and resource needs are determined. After the risk treatment plan is implemented, the risk score is re-assessed, and the remaining risks are expressed as residual risks.

Value chain stage(s) covered

Upstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Upstream risk assessment consists of 3 main stages:
• Mapping the Supply Chain
• Risk Assessment based on Şişecam Risk Policy, Risk Assessment Guide, Risk and Opportunity Assessment Procedure and Risk Catalogue
• Supplier Engagement and Collaboration
The process can be summarized as follows:
• The operations of the upstream supply chain are considered, including the geographic locations of the activities and the various layers of your supply chain, including suppliers, sub-suppliers and logistics providers are defined.
• Şişecam Crisis and Risk Management Team consisting of Procurement & Supply Chain units evaluates the effects and risks based on the information gathering towards active suppliers (Tier1-Tier2) in order to learn the supply chain risks and effects. In this context, first of all, a risk definition is made.
• Potential risks related to climate, such as extreme weather events, sea level rise, changing precipitation patterns and regulatory changes related to climate change are identified.
• The direct and indirect effects of climate-related risks on the company's operations, infrastructure, supply chains and stakeholders are considered.
When making a risk assessment:
• The potential impacts of identified climate-related risks on the company's assets, operations and financial performance are scaled.

• Expert opinion of the relevant departments is sought for the exposure and sensitivity of assets to climate-related risks.
To manage risks:
• Şişecam engages with its suppliers to understand their own risk management practices and their exposure to climate-related risks and fosters collaboration and information sharing with suppliers to jointly identify and address climate-related risks.
• Şişecam requests all of its Suppliers to deliver the Supplier Code of Conduct and make it available to all related persons working in the Suppliers' companies, ensure that its employees comply with the principles specified under the Supplier Code of Conduct and share Şişecam's commitment on the ethical principles term of its business relationship. Key elements of the Code of Conduct is based on environmental - social and governance pillars. In particular, Şişecam pays special attention on combatting climate change and requests all its suppliers to work towards an economy not using carbon-based fuel being conscious of the global threat of climate change.

(https://www.sisecam.com.tr/sites/catalogs/en/Investor%20Relations/Corporate%20Overview%20and%20Governance/Corporate%20Governance%20Policies/Corporate%20Governance%20Policies/code-of-ethics-guide.pdf)

• Şişecam also develops contingency plans that outline actions to be taken in the event of supply chain disruptions caused by climate-related risks. Alternative strategies are studied within the scope of risk management. For example, long-term strategies such as finding different suppliers, diversifying the supply network, working on alternative raw materials or supply channels are evaluated for supply channels that are likely to experience disruption due to certain reasons.

Value chain stage(s) covered

Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Downside risks often arise from regulatory costs and constraints, with the most significant being the risks of loss of customers and/or technological transformations due to customer commitments. In this context, Şişecam evaluates the potential financial, operational, and reputational implications for our business if customer needs and behaviours change as a result of climate change.
Risk assessments in this context are made by following the steps below:
a) Customer Analysis:
Şişecam, conducts research and analysis to understand the customer base and preferences and evaluates the potential impact of climate change on customer demand patterns, purchasing behaviors, and product/service preferences. In this context, the Marketing Departments ensure that the demands of corporate customers are compiled and forwarded to the Sustainability Directorate. Apart from this, expectations and related potential risks are mutually evaluated in periodic surveys and one-on-one meetings from customers.
b) Regulation Analysis:
Legislation and policy follow-up mechanism is another risk assessment tool used in this context for geographies where climate risks and regulations are more serious. Activity and product-based climate regulations in customer geographies are monitored and their potential effects are analyzed (For example, Carbon Border Adjustment Mechanism is monitored and potential cost is constantly updated on a product basis).
c) Climate Risk Integration:
The Sustainability Directorate analyses the regulations, climate commitments of customers and their expectations from Şişecam, presents them to the Sustainability Management/Executive Committees quarterly and also provides input to the annual Şişecam Corporate Strategy studies.
d) Management:
Compliance with customer and geographical expectations is evaluated on both process and product basis. In order to make production less carbon-based, a low-carbon production roadmap is being studied and action plans are created on the basis of priority products/geographies. With its deep-rooted R&D studies, Şişecam innovates and promotes products and services that help customers mitigate or adapt to climate-related risks, such as energy-efficient solutions, sustainable products. In this context, Sisecam develops clear and transparent communication strategies about how our products address those risks. Şişecam also started to engage with customers to understand their concerns, expectations, and feedback regarding climate-related risks and sustainability (TCFD study has begun).

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Turkey’s Energy Efficiency Law, Energy Strategy Plan and National Climate Change Action Plan and European Green Deal guided the industry for the energy and emission targets. In order to reduce energy consumption, efficiency projects are applied and EU ETS Directives and international benchmarks are followed up.
Emerging regulation	Relevant, always included	Şişecam follows up the project on Partnership for Market Readiness (PMR), governed by Ministry of Environment and Urbanism and takes parts in workshops related to this project. The key objective of the project is to define the Structure of Emission Trade System of Turkey with “Market Based Instrument” to cope with climate change and to be implemented in Turkey. Şişecam reviews and give comments on draft "Climate Law" and "ETS Regulation". Upcoming EU Carbon border tax, Green Deal strategy is followed up.
Technology	Relevant, always included	In accordance with the developments in technology, in order to protect market share, Şişecam follows up the technology and investment potentials in research and development of new technologies as well as improvements. For instance light weight glass, electric /hybrid furnaces etc.
Legal	Relevant, always included	Turkey’s Energy Efficiency Law, Energy Strategy Plan and National Climate Change Action Plan guided the industry for the energy targets. In order to reduce energy consumption, efficiency projects are applied. Moreover, Şişecam follows up the revised National Energy Strategy Plan and related regulations. Green Deal and Fit for 55 package in EU is also continuously followed up . Engages with related corporate functions (Energy, Procurement and Finance) in the fields of E ETS and Required EUA finance is budgetized on annual basis while EU ETS market is closely followed up regularly.
Market	Relevant, always included	In order to protect market share, Şişecam follows up the technology and invest in research and development. Supported with Şişecam's circular economy vision, increasing recovery of glass cullet which reduces GHG emissions is always prioritized.
Reputation	Relevant, always included	Due to increased public concern both in Turkey and in rest of the world, climate change is an important issue in managing corporate reputation. Today, it is critical that companies safeguard their reputations through effective communications with all their stakeholders about their environmental performance on climate change issue. This risk may impact Şişecam's

		reputation also. Moreover, Şişecam focuses on sustainability of the operations, development of climate friendly products and introduces online applications to the partners to ensure optimum selection of climate friendly products. Şişecam Sustainability Directorate directly reports to Chief Strategy Officer and has a robust sustainability approach. As part of Şişecam business operations, all relevant risks effecting Corporate Strategy including sustainability and reputational aspects are overviewed and integrated into management of change process. Şişecam has access to corporate databases for monitoring all peer views and corporate scores on financial and sustainability aspects.
Acute physical	Relevant, sometimes included	Globally, much more extreme, and variable weather conditions are expected in the future. Floods, sudden temperature rises and decreases forms a risk for Şişecam plants and its supply chain. Supply chain risk assessment processes are strengthening Şişecam's resilience capacities on Climate change. These risks and their potential impacts are analysed and reported by Şişecam.
Chronic physical	Relevant, sometimes included	IPCC SRES emission scenarios and physical impacts on Şişecam's geographical operations are followed up.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation

Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company-specific description

For facilities located in the EU: The EU-Emissions Trading System is the largest carbon market in the world. The principle is that any industrial installation receives a certain number of free credits each year. If its annual verified emissions are lower than the free credits allocation, it can sell the surplus in the EU-ETS market; otherwise, the shortage must be bought on the market. This is the « cap and trade » principle, aiming at decreasing the emissions of the European Industry. In Europe, we are regulated by the EU-ETS for all our European operations, which includes 4 glass manufacturing plants. The EU-ETS has introduced Phase IV in 2021, which made Şişecam observe an increase in direct costs through Increased price of EUAs on the market associated with the mechanism.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

21,655,040.7

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

EU-ETS Risk: The source of the impact has been identified as EU-ETS. A fee of >90 Euro per ton will be paid for emissions on free allocations distributed based on the product-benchmark. Emission (ton/year) * EUA (Euro/ton) estimated over the expected price and the relevant figure in total for 4 plants has been reached. There are only Scope 1 emissions under EU-ETS, so I didn't have a calculation on Scope 2.

Cost of response to risk

191,500

Description of response and explanation of cost calculation

Risk Calculation: Deficit (198294 ton) x Estimated EUA Price (110 Euro/ton)
Response: Actual figure for hedged EUAs (191,500 Euro)

Şişecam used the hedge opportunities in the market to reduce the impact of rising EUA prices. In this context, he obtained a market monitoring consultancy, followed the appropriate trading times and made periodic "earlier purchases". Figure given is the total annual hedge volume. Note: some, but not all, of the deficit has been hedged to the extent anticipated.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation

Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company-specific description

For facilities located in the TUR:

Carbon Border Adjustment Mechanism: The current MRV legislation requires installation-level MRV for CO2 emissions arising from the energy and industry sectors, including electricity and heat production, coke production, metals, cement, glass, ceramic products, insulation materials, pulp and paper, and chemicals, therefore covering all sectors that would be targeted by the upcoming CBAM.

The current proposed design of CBAM will significantly affect EU trading partners. The economic impacts of CBAM will depend on the export of products covered by CBAM to the EU, the carbon intensity of such production, the existence and size of a carbon price in the country of origin, and the EU ETS allocation price.

The EU receives almost half of all of Turkey's exports (World Trade Organisation, 2016) and is Turkey's largest trading partner by a significant margin. CBAM-like measures will have a significant impact on goods and services and all carbon-intensive production. the potential adverse impact of the CBAM on the Turkish economy would range between 2.7 and 3.6% loss of the GDP by 2030 over the business-as-(un)usual base path. The glass sector exhibits moderate trade exposure, and it is exposed both from an import and export perspective. Trade exposure is moderate, relative to other MRV sectors, at 40%. Turkey comprises 1% of global exports and imports, with 40% of trade intensity contributed from imports and 60% from exports. Turkish glass trade intensity has grown substantially in recent years, with both imports and exports increasing approximately 75% from 2011 to 2015.

Şişecam productions are not within the sectoral scope of the currently announced CBAM regulation. However, the scope is targeted to potentially cover all goods covered by the EU ETS by 2030 (e.g. mineral oil products, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals). In this case, exports to the EU will be subject to the provisions of CBAM and (both in exports to the EU and in EU

established productions) will be faced with the effects of the regulation.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

9,480,489

Potential financial impact figure – maximum (currency)

16,730,274

Explanation of financial impact figure

CBAM Risk: Annual CBAM costs are predicted based on main import data, at minimum (85 Euro/tCO2) and maximum (150 Euro/tCO2) unit prices over the Current Product Benchmark Values.

Cost of response to risk

21,132,642

Description of response and explanation of cost calculation

Risk Calculation: [EU Product Benchmark – Şişecam Average C Intensity] x Annual Import Rate x EUA Unit Price (Min; Max)
Response: Actual figure for energy efficiency measures

CBAM will be implemented annually and will incur an increased annual cost due to rising EUA prices and lower benchmark levels. Because Instead of immediate measures, effective and permanent solutions are required. From this point of view, Şişecam realizes serious energy efficiency investments every year. Total energy efficiency investment dimension (CAPEX) is stated as the equivalent of the measure taken against the said risk.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation
Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company-specific description

For facilities located in the TUR:
National ETS: In accordance with decisions and negotiations regarding Paris Agreement, the Republic of Turkey presented the Nationally Determined Contribution (NDC) towards achieving the ultimate objective of the United Nations Framework Convention on Climate Change. Turkey committed up to 21 percent reduction in GHG emissions from the Business as Usual (BAU) level by 2030. The country has planned an

Emissions Trading Scheme by incorporating the Environment Chapter – Emission Trading Directive (2003/87/EC) into Turkish Law. It is planned to adopt from 2024 with a 2-year pilot phase.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

1,115,352

Potential financial impact figure – maximum (currency)

2,230,703

Explanation of financial impact figure

Although the national ETS has not been clarified yet, the estimates are based on a unit carbon price of 10 Euro/tonne to 20 Euro/tonne. In the estimated calculations, the ratios of the related productions according to the benchmark levels in EU-ETS were defined as "allocation deficit" and the estimated range was found by multiplying by the unit price.

Cost of response to risk

200,000

Description of response and explanation of cost calculation

Risk Calculation: [EU Product Benchmark – Şişecam Average C Intensity] x Estimated C Price

Şişecam focused on its glass melting operations in the first step, giving priority to our Scope 1 and Scope 2 emissions and planned an important and a comprehensive study called “Şişecam Low Carbon Road Map” which covers all glass production activities including auto-glass and aims to analyse (i) Şişecam’s carbon reduction potentials, (ii) required technologies and (ii) related investment requirements. With this study we plan to have a solid action plan and defined priorities to a C-neutral future. The study will be supported by an international consultant including also “Climate related risk assessment study”. The consultancy fee received in this context is 200 000 Euros. As a result of these efforts, Şişecam will take measures to reduce its carbon emissions and reduce its carbon pricing-related costs. Related investments are not included in this cost.

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Participation in renewable energy programs and adoption of energy-efficiency measures

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

General Trend: 2022 was dominated by an inflationary environment globally as well as rising input and energy costs, in addition to risks related to an energy crisis. The business community was forced to try to solve its acute energy shortage while simultaneously managing sharply rising costs due to various embargoes imposed on Russia. As an energy-intensive sector, glass production is under increasing pressure due to energy shortages and supply disruptions. This conjuncture also accelerates the initiatives of industrial actors to transform their energy consumption into green energy sources and to limit their carbon footprints. More companies are putting renewable energy investment for their self-consumption on their agenda every day.

Company-specific description: Şişecam also aims to minimize this negative impact by increasing its renewable energy capacity by 2030 and also aims to use alternative energy sources – such as green electricity and green hydrogen– in line with Şişecam's CareforNext sustainability strategy. in 2022 a total of 10 MWp installed capacity is already in operation in the first phase with rooftop solar power generation plants at the North and South Italy, Mersin Plants and the Şişecam Science, Technology and Design Center. This capacity will provide approximately 13 000 MWh - 16 000 MWh annual "green" electricity generation.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

1,300,000

Potential financial impact figure – maximum (currency)

1,600,000

Explanation of financial impact figure

It is estimated that the annual savings for 10 MWp total solar installed power could be between 1 million Euros and 1.5 million Euros. This estimate is an estimated calculation based on factors such as solar panel efficiency, energy policies, local electricity tariffs and exchange rates. Average unit electricity price taken as 0.10 Euro/kWh and production rate is between 13 000 MWh - 16 000 MWh The actual benefit is variable. (Production x unit price)

Cost to realize opportunity

10,000,000

Strategy to realize opportunity and explanation of cost calculation

Realizing this opportunity requires total capital investment to install rooftop solar PV. An investment of 10 million Euros has been made (10 000 Euros for rooftop solar PV installation in Mersin, N. Italy, S. Italy Flat Glass Plants and R&D Centre). Şişecam aims to expand its renewable energy generation capacity by eight times to support its clean energy transformation. The company plans to reach an installed renewable energy generation capacity of 53 MWp, mainly for electricity consumption at its factories. Wind and solar energy investments for renewable electricity are planned. It is planned to invest an additional 80 million Euros in different facility areas.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

General Trend: The global solar energy sector, which was 40 GW in 2010, reached 1,120 GW in 2022. Global installed capacity of solar energy is expected to quadruple by 2030 and exceed 3 thousand GW. The falling costs of producing electricity from solar resources coupled with a growing worldwide focus on sustainability are creating an array of new opportunities in the patterned glass and energy glass industries. In the EU side, as part of the REPowerEU plan, this strategy aims to bring online over 320 GW of solar photovoltaic newly installed by 2025, over twice today's level, and almost 600 GW by 2030.
Components of EU-SES: (i) Photovoltaics, (ii) Concentrated solar power, (iii) Solar thermal technologies.

Company-specific description: At Şişecam, we are empowered by our risk prediction capabilities as well as our ability to take advantage of emerging opportunities. Recognizing an opportunity in this segment, Şişecam announced in July that it would invest in a patterned glass furnace and processing line at its Mersin plant. Before year's end, we made a second announcement about a capacity expansion for this new furnace and processing line. With this latest capital investment, the capacity of the second patterned glass furnace in Mersin – where we will also produce energy glass – will increase from 180 thousand tons to 244 thousand tons per year. Meanwhile, the annual capacity of Şişecam's

energy glass processing line will expand from 20 million square meters to 26.6 million square meters.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

60,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

According to the IEA solar PV is expected to account for the largest annual capacity additions for renewables for the next 5 years. The solar photovoltaic glass market was valued at USD 4.42 billion in 2021 and is expected to reach USD 84.14 billion by 2029, registering a CAGR of 30.80% in 2022-2029.

Cost to realize opportunity

228,000,000

Strategy to realize opportunity and explanation of cost calculation

Şişecam aims to increase its installed patterned glass production capacity to 324 thousand tons per year, and its energy glass processing line capacity to 26.6 million square meters per year, with the capacity increase in patterned glass production and processing line in Mersin. Şişecam supports the development of the rapidly growing solar energy sector in Türkiye with this decision, which is the outcome of its sustainability-oriented value-added production strategy

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

General Trend: With regulations such as Energy Efficiency Law and Regulation on Energy Performance in Buildings, energy efficiency in buildings are supported. Using value added energy efficient construction products became important by this way. All new buildings must meet minimum design requirements for energy efficiency and nearly zero emission criteria. From this point of view, the regulatory requirements in the Şişecam market are explained below:

European Union: The EU has proposed to move from the current nearly zero-energy buildings (NZEB) to zero-emission buildings (ZEB) by

2030. The ZEB requirement should apply as of 1 January 2030 to all new buildings, and as of 1 January 2027 to all new buildings occupied or owned by public authorities.The Energy Performance of Buildings Directive requires EU countries to develop long-term renovation strategies aiming to facilitate the cost-effective transformation of existing buildings into nearly zero- energy buildings. The proposal to revise the Energy Performance of Buildings Directive aims to reinforce the long-term renovation strategies into national building renovation plans having the objective to transform the building stock into zero emission buildings by 2050.

Turkey: The regulation on making changes in the "Regulation on Energy Performance in Buildings" was published in the Official Gazette dated February 19, 2022. According to this regulation, as of January 1, 2023: Until January 1, 2025, buildings with a total useful floor area of 5000 m2 or more must be constructed as NZEB.

Company-specific description: Şişecam stands out with the glass products that are good solution partners to the increasing requirements and norms of the planet, for example, with our coated and low-e glasses that provide energy and light control in the renovation process of buildings within the scope of EU's "Fit for 55". With our flat glass solutions, such as our Solar Low-E coated glass, produced under the brand of Isıcam K T to combat climate change, heat losses are reduced by 50% and solar heat input by 40–65% when compared to ordinary double glazing, hence saving fuel in winter and reducing the energy consumption of air conditioning systems in summer.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1,300,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

By way of the Renovation Wave, the European Commission aims to at least double renovation rates in the next ten years and make sure renovations lead to higher energy efficiency. The goal is to renovate 35 million buildings by 2030 and unleash the creation of up to 160 000 jobs in the construction sector. This will create opportunities for the market growth of high performance, added value products. For example, the residential renovation market in Europe alone accounted for nearly €420Bn in 2021.Increase in demand for Şişecam's energy efficient products such as low-e, Tentesol titanium, solar control and thermal insulation glass is expected. Şişecam Flat Glass recorded net sales revenue of approximately EUR 1 million as of year-end 2022. Şişecam Flat Glass recorded a net sales revenue of approximately 1 million Euros as of the end of 2022. As a result of the 30% increase in the capacity, a revenue increase of 300 000 Euro is estimated. (1 Milo Euro net sales x 30% capacity increase)

Cost to realize opportunity

76,524,868.69

Strategy to realize opportunity and explanation of cost calculation

Operating in flat glass manufacturing with eight flat glass lines at four locations in Turkey, Şişecam plans to invest further in the two new flat glass lines it started in 2021 for architectural glass and auto glass. This investment is aimed at meeting rapidly growing demand in the country and creating sustainable value for all its stakeholders. As a result of the investments Şişecam will expand its current annual float production capacity in Turkey by 30% to 2.6 million tons, strengthening its leadership position in the Turkish market.

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a climate transition plan within two years

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future

As underpinned by the pillar of Protecting the Planet in our new Strategy, Şişecam has announced a clear vision of becoming CARBON NEUTRAL by 2050 which is compatible with Global Ambition. For a detailed transition action plan, a comprehensive study called "Şişecam Low Carbon Road Map" which covers all glass production activities including auto-glass has been started in 2023 with internationally experienced external consultants. It aims to analyse (i) Şişecam's carbon reduction potentials, (ii) required technologies and (ii) related investment requirements. With this study a solid action plan and defined priorities to a C-neutral future will be provided. The study will be supported by an international consultant and results will be derived from scenario-based analyses. In order to produce a realistic pathway and reach the target, Low Carbon RoadMap Study will be taken as a base and then a holistic target will be set after defining the requirements.
The project was initiated with the decision of the Board of Directors in order to prepare a transition plan compatible with 1.5 degrees. At the end of the project -that will continue in 2023- it is aimed to prepare a transition plan, aligned with the 1.5°C scenario and in line with the science based goals . The decarbonization studies are followed by the Board of Directors during the board meetings and decisions are taken in annual general meetings regarding the climate related scenarios and the results.

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios Bespoke transition scenario	Company-wide	1.5ºC	Şişecam initiated an important and a comprehensive study called "Şişecam Low Carbon Road Map" which covers all glass production activities including auto-glass and aims to analyse (i) Şişecam's carbon reduction potentials, (ii) required technologies and (ii) related investment requirements. The study has been supporting by an international consultant and results will be derived from scenario-based analyses. "Şişecam Low Carbon Road Map Project" consists of a customized scenario-based modelling. With the scenario-based model for industrial decarbonization model, the decarbonization potentials and/or cost (CAPEX and OPEX) of different decarbonisation pathways are calculated. Scenarios may differ in terms of underlying assumptions on factors such as, for example, energy and carbon pricing, grid decarbonisation rates, feedstock prices, cost of Guarantees of Origin (GOOs) and green energy procurement, level of economic growth and technological innovation. This model is designed for comparing cost and carbon reduction potential for up to four different decarbonisation pathways and four different scenarios, including business-as-usual (BAU). The output of the model consists of carbon footprint reduction, CAPEX, OPEX, payback period; Merit order of carbon reduction projects; Deployment rates at a company level over time; Sensitivity analysis visualized in tornados showing the impact of for example energy and CO2 prices, legislation such as EU ETS and CBAM, and market and economic growth on specific options and pathways. Low carbon road map means more over 90% or even 95% emission reduction and based. The risk assessment will be run through up to four global warming and decarbonisation scenarios to model how different physical and transitional risks may flex

			over time and under different conditions. on sector specific decarb solutions flex over time (to 2050) and under different conditions. With this study we plan to have a solid action plan and defined priorities to a C-neutral future. The output of this study will form the basis of detailed regional studies; It will also be a reference in terms of expressing the needs of the sector in countries where the national decarbonization strategy is studied, such as Turkey.
Physical climate scenarios RCP 4.5	Company-wide		Şişecam has been in a partnership with an outsourced its international consultant with an aim to assess and to conduct and to quantify Şişecam's exposure to policy, market, reputation, technology and physical climate related risks (acute and chronic) for its own operations. The main motivation point of the study is to understand the damage to assets, interruption of operations and disruption to supply chains based on different climate warming scenarios and timelines. Climate risk analysis tool has been applied to measure Şişecam's physical risks in terms of adaptation scenarios. It has been adopted at the company level based on three time periods (2020 baseline, 2030 and 2050) and three climate scenarios (RCP 2.6, 4.5 and 8.5 to model the magnitude and the potential impact of both acute and chronic physical risks on company financials and operations.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

Şişecam focuses on climate-related physical risks and analyse their impacts on both production sites and production processes at the company level, taking into consideration climate hazard indicators such as water stress, flood, heatwaves, cold waves, hurricane, sea level rise, etc. As a part of Şişecam's strategic studies, in addition to physical risks, the potential impacts of the transition to a low-carbon economy on Şişecam operations were focused to be analysed in terms of the policy, market, reputation, and technology risks. In this context, the following critical

issues have been evaluated:
• Impact of climate related risks (policy and legal risk, technology risks, market risks, reputation risks, chronic and acute physical risks) on operations, supply chain, earnings, costs, revenues, and asset value
• GHGE Reduction potentials
• Possible future investments and technologic developments
• Investment costs and operational costs including carbon pricing.,

Results of the climate-related scenario analysis with respect to the focal questions

According to the assessment, Şişecam's priorities are mostly transition-related risks. Especially approval of CBAM for exports and the revision of EU-ETS for the EU located operations will impact the operational costs.
From this point of view, reduction of energy intensities was defined as the priority for Şişecam productions. Therefore, both saving energy and benefiting from clean sources have been the main output of the risk assessment.

As a first step, Şişecam plans to focus on on-site production for self-consumption with a 53 MWp extra investment. As the second phase, the opportunities of long term “green” power purchase agreements is evaluated to off-set Scope2 emissions. The plants will also be supported with zero-carbon electricity generated from the waste heat of Şişecam's own glass melting furnaces.

To reduce Şişecam's carbon containing fuels and raw material consumptions, R&D application schedule has been prepared for the follow-up of new technologies and their testing in melting furnaces. In this context, parallel applications are planned with sectorial developments and commercialization of the techniques. We are planning to make investments into the use of green electricity in energy-intensive processes involving a transition to hybrid furnace technologies in which electric melting furnace technologies are used. As the first step, Şişecam plans to convert one of its glassware furnaces to a full-electric melting technology to get the know-how. As the technology develops, Şişecam will be ready to disseminate it based on the prioritization.

Addition to green electricity, Şişecam R&D Department has been also focusing on green hydrogen technologies and participating in national consortiums (South Marmara Green Hydrogen Valley) and international projects. Şişecam’s carbon reduction potentials, required technologies and related investment requirements have still been studying in Şişecam Low Carbon Road Map Project to have a solid action plan and defined priorities to a C-neutral future.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	An aggressive energy efficiency strategy, combined with the ramping up of renewables to replace fossil fuels, is the most realistic path towards halving emissions by 2030. From this point of view, photovoltaic solar glass market expected to grow with the growing rate of interest in renewables. Due to the fact that it is essential to the production of solar panels, need for this glass will certainly increase. Flat glass is a type of glass that is commonly used in the construction of solar panels. Its primary function is to act as a protective layer over the solar cells, which generate electricity from the sun's energy. Flat glass is an essential component in the solar panel manufacturing process, as it helps to improve the efficiency and durability of the solar panel. Its high light transmission properties, resistance to the elements, insulation properties, and sustainability make it an essential component in the manufacturing of solar panels. As the demand for solar energy continues to rise, we can expect to see continued demand for flat glass. In addition, based on the EU's nearly-zero buildings regulations, energy-efficient, value-added coated glass will be also another critical product in the way to decarbonization. Due to its recyclable nature, glass is a climate friendly construction product and as a result of the impact, coated glass and glazing were covered by the EU Taxonomy Climate Delegated Act. The energy efficient coated glass and insulated glazing with solar control, low emissivity, low maintenance and transparency, value added Şişecam products will meet the requirements of low energy consumption buildings. Şişecam aims to close the supply gap expected to occur in the energy glass sector by increasing the installed patterned glass production capacity to 324 thousand tons per year with the capacity increase of the patterned glass and processing line to be implemented in Mersin adhering to the principles of Industry 4.0 and by increasing its energy glass processing line capacity to 26.6 million square meters per year. These investments will be around 228 million Euros inclusive of working capital requirements and this move will reinforce Şişecam's leading position in the Turkish energy glass industry, while also

		reinforcing its strong position in the world glass industry.
Supply chain and/or value chain	Yes	A changing climate and the greater frequency and/or severity of hazards may increase disruptions in supply chains that interrupt production, raise costs, hurt corporate revenues, and lead to higher prices or shortages for consumers. Therefore, the resilience of the supply chain should be a priority for the industry and the existing value chain should be secured and improved to mitigate anticipated climate risks. In this manner, Sustainable supply chain management is a strategic priority at Şişecam that creates value. Therefore, Şişecam's strategy is to anticipate risk, to minimise exposure by Security of current Supply Chain and Supplying Alternative Raw Materials i.e. post-consumer cullet.
Investment in R&D	Yes	The glass sector has already identified a number of domains where R&D efforts should be focused. In parallel with the sector, Şişecam R&D also focuses on: • Electrification of glass furnaces • Alternative carbon-neutral or low-carbon fuels • Possibility of carbon capture and storage (CCS), and carbon and • capture utilization (CCU) on site. • Waste heat recovery and process intensification As indicated in above, glass sector will also contribute to decarbonization action not only with the improving production technologies but also its innovative and sustainable glass products. High-performance glazing is the indispensable component of the energy-efficient windows that buildings will need to cut their CO2 emissions. For these reasons, the industry focuses on R&D to design and develop more effective and innovative products. Developments are being made not only for flat glass, but also for lightweight glass products with more recycled content. Şişecam focuses on developing new low emissivity coated glass products with heat and light control features for architectural applications. This is a key R&D focus at the company area every year.

		Şişecam also evaluates collaboration opportunities with research institutions, universities, and various start-up companies and aims to enrich its value-added and sustainable product range with its organic and inorganic investments From this point of view, Şişecam R&D follows-up of new technologies and participates international/cross-sectorial collaborations. In particular, we are planning to make investments into the use of green electricity in energy-intensive processes involving a transition to hybrid furnace technologies in which electric melting furnace technologies are used. As the first step, Şişecam plans to convert one of its glassware furnace to a full-electric melting technology to get the know-how. As the technology develops, Şişecam will be ready to disseminate it based on the prioritization. Addition to green electricity, Şişecam R&D Department has been also focusing on green hydrogen technologies and participating in national consortiums (South Marmara Green Hydrogen Valley) and international projects. R&D investment spending realized over the last 3 years was TRY 271 million.
Operations	Yes	The production process in glass manufacturing plants is typically energy-intensive and mainly fueled by natural gas. In addition to fossil fuel oriented CO2, process emissions also occur due to the decarbonisation of the carbonate raw material in the process input, mainly carbonates. Therefore, glass manufacturing operations are subject to GHGE reduction and/or carbon pricing mechanisms like the EU ETS. Such carbon pricing not only increases the operational expenditures of the sector, but also necessitates new investments. Therefore, reducing the carbon intensity is very critical. As an energy-intensive actor, adaptation to climate change and end-to-end management of energy are among our top priorities, and in line with our commitment to Protect the Planet as part of our strategy, we have adopted a clear vision to become carbon neutral by 2050. As a result of continuous improvements, the amount of energy consumed in Şişecam glass melting processes has decreased by 15% over the last 20 years and this has been achieved through combination of a number of energy saving actions/measures taken over the time investing heavily on improvement of melting technology and production process. • Decreasing of glass melting energy through raw material optimization, melting chemistry furnace heat

		and fluid mechanics management, • Improving of heat recovery from combustion gases back to furnace, • Waste heat recovery from flue gases, • Increased use of external glass cullet • Investment on energy efficient equipment • Decreasing of energy consumption in auxiliary services • Implementation of energy and environment management systems • Continuous training of staff. Through the 2050 carbon-neutral vision, Şişecam has been initiating numerous projects and investments. In 2022, Şişecam executed over 350 environmental and energy-oriented project investments totalling more than USD 17 million under its sustainability action plan.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Capital expenditures	● Revenues: As stated in C3.3, sustainable products such as energy efficient products and products we supply to the solar PV market make up a share in Şişecam's revenues. Driven by this elevated demand, the global installed capacity for solar power is expected to quadruple to over 3 thousand GW by 2030. The falling costs of producing electricity from solar resources coupled with a growing worldwide focus on sustainability are creating an array of new opportunities in the patterned glass and energy glass industries. In this context, it is foreseen that the revenues of the related products will increase together with the growth in the sector. From this point of view, Şişecam announced its target of "Increasing the Number of Sustainable Products and Solutions" as part of its sustainability strategy.

		● Direct costs: As noted in C3.3, the glass industry is subject to significant carbon pricing such as ETS and CBAM. These costs increase annually, especially due to regulations such as the Green Deal in the EU. Currently, the unit price of 1 ton of CO2 in the EU is close to 100 Euros. While this situation affects the annual costs of our assets residing in the EU, it will also affect the exports to be made to the EU in the near future due to CBAM. In addition, Turkey has a plan to implement a national ETS in the short term. In 2022, Şişecam has a direct cost of 20 million Euros in total for its 4 facilities within the scope of EU-ETS. ● Capital expenditures: In order to avoid direct emission costs due to legal restrictions, Şişecam within the scope of its strategy; prioritized investment in renewable energy and decarbonization technologies. From this point of view, it started the first electric melting furnace investment and implemented my renewable energy production facilities for self-consumption. Through the 2050 carbon-neutral vision, Şişecam has been initiating numerous projects and investments. In 2022, Şişecam executed over 350 environmental and energy-oriented project investments totalling more than USD 17 million under its sustainability action plan.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	No, but we plan to in the next two years

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Is this a science-based target?

No, but we anticipate setting one in the next two years

Target ambition

Year target was set

2023

Target coverage

Business activity

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Intensity metric

Metric tons CO2e per metric ton of product

Base year

2020

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

0.665

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

0.14

Intensity figure in base year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Other (upstream) (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)

Intensity figure in base year for total Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

0.805

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

100

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

100

% of total base year emissions in Scope 3, Category 1: Purchased goods and services covered by this Scope 3, Category 1: Purchased goods and services intensity figure

% of total base year emissions in Scope 3, Category 2: Capital goods covered by this Scope 3, Category 2: Capital goods intensity figure

% of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) covered by this Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) intensity figure

% of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution covered by this Scope 3, Category 4: Upstream transportation and distribution intensity figure

% of total base year emissions in Scope 3, Category 5: Waste generated in operations covered by this Scope 3, Category 5: Waste generated in operations intensity figure

% of total base year emissions in Scope 3, Category 6: Business travel covered by this Scope 3, Category 6: Business travel intensity figure

% of total base year emissions in Scope 3, Category 7: Employee commuting covered by this Scope 3, Category 7: Employee commuting intensity figure

% of total base year emissions in Scope 3, Category 8: Upstream leased assets covered by this Scope 3, Category 8: Upstream leased assets intensity figure

% of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution covered by this Scope 3, Category 9: Downstream transportation and distribution intensity figure

% of total base year emissions in Scope 3, Category 10: Processing of sold products covered by this Scope 3, Category 10: Processing of sold products intensity figure

% of total base year emissions in Scope 3, Category 11: Use of sold products covered by this Scope 3, Category 11: Use of sold products intensity figure

% of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products covered by this Scope 3, Category 12: End-of-life treatment of sold products intensity figure

% of total base year emissions in Scope 3, Category 13: Downstream leased assets covered by this Scope 3, Category 13: Downstream leased assets intensity figure

% of total base year emissions in Scope 3, Category 14: Franchises covered by this Scope 3, Category 14: Franchises intensity figure

% of total base year emissions in Scope 3, Category 15: Investments covered by this Scope 3, Category 15: Investments intensity figure

% of total base year emissions in Scope 3, Other (upstream) covered by this Scope 3, Other (upstream) intensity figure

% of total base year emissions in Scope 3, Other (downstream) covered by this Scope 3, Other (downstream) intensity figure

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this total Scope 3 intensity figure

% of total base year emissions in all selected Scopes covered by this intensity figure

100

Target year

2025

Targeted reduction from base year (%)

5

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

0.76475

% change anticipated in absolute Scope 1+2 emissions

5

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

0.67

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

0.139

Intensity figure in reporting year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Other (upstream) (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)

Intensity figure in reporting year for total Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

0.809

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

-9.9378881988

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2018

Target coverage

Business division

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

GJ

Target denominator (intensity targets only)

metric ton of product

Base year

2017

Figure or percentage in base year

8

Target year

2022

Figure or percentage in target year

7.84

Figure or percentage in reporting year

% of target achieved relative to base year [auto-calculated]

Target status in reporting year

Is this target part of an emissions target?

No

Is this target part of an overarching initiative?

Low-Carbon Technology Partnerships initiative

Other, please specify

As a part of our CareforNext Strategy and PROTECT THE PLANET philosophy.

Please explain target coverage and identify any exclusions

Plan for achieving target, and progress made to the end of the reporting year

List the actions which contributed most to achieving this target

---

Target reference number

Oth 2

Year target was set

2018

Target coverage

Business division

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Renewable fuel production

Other, please specify

MW

Target denominator (intensity targets only)

Base year

2017

Figure or percentage in base year

6

Target year

2022

Figure or percentage in target year

12

Figure or percentage in reporting year

% of target achieved relative to base year [auto-calculated]

Target status in reporting year

Is this target part of an emissions target?

No

Is this target part of an overarching initiative?

Other, please specify

As a part of our CareforNext Strategy and PROTECT THE PLANET philosophy.

Please explain target coverage and identify any exclusions

Plan for achieving target, and progress made to the end of the reporting year

List the actions which contributed most to achieving this target

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation		
To be implemented*	6	29,000
Implementation commenced*	2	5,000

Implemented*	21	21,634
Not to be implemented		

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes

Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)

173

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

110,180

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

478

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

34,092

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

68

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

48,230

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes

Waste heat recovery

Estimated annual CO2e savings (metric tonnes CO2e)

153

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

94,482

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

475

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

28,521

Investment required (unit currency – as specified in C0.4)

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	Şişecam being a highly energy intensive manufacturing company, but in the same time recognizes that sustainable energy solutions (energy efficiency, renewable energy, alternative energy mix) are key for sustainability, several actions are taken corporately to respond and adopt to the increasingly competitive global business environment. Şişecam's cost of energy is

	between 20-25% of the total operational cost. To minimize the risks related to volatility of energy prices, access of quality and continuous energy, Şişecam proactively identifies and implements energy efficiency solutions. Şişecam invests in low carbon product research & developments activities and continues to research and develop technologies in addition to applying advanced technologies in the fields of advanced furnace control technologies, waste heat recovery, and high glass cullet use. Energy efficiency investments are defined separately in annual investment plans and priority is given to these investments. Efficiency increasing projects determined as a result of energy audits are evaluated annually.
Compliance with regulatory requirements/standards	Our fundamental approach on climate change regulation requirements and standards is to comply with legislation concerning climate change and environment applied to each site. Turkey: In line with the Turkish Energy Efficiency Law (no 5627) and Regulation on “Improving Energy Efficiency on Energy Usage, we aim to increase efficiency in using energy sources and energy in order to use energy effectively, avoid waste heat. In this context, annual energy audits are made by independent and authorized institutions, reported and efficiency-enhancing measures are developed. Within the scope of the regulation on Monitoring and Reporting of Greenhouse Gas Emissions, the emissions are monitored, verified and reported annually. In accordance with decisions regarding Paris Agreement, the Republic of Turkey presented its Nationally Determined Contribution (NDC) towards achieving the ultimate objective of the United Nations Framework Convention on Climate Change , whereby Turkey is committed up to 21 percent reduction in GHG emissions from the Business as Usual (BAU) level by 2030. Ministry of Environment and Urbanism is working on many strategies and action plans to combat climate change that will directly influence business sectors. However, it is still not clarified how the target will be distributed to different sectors. It is for sure that restrictions on greenhouse gas emissions will be applied. The Partnership for Market Readiness (PMR) Project governed by Ministry of Environment and Urbanism aims to identify potential alternatives to govern the carbon mechanisms nationwide (for example carbon taxes, carbon-trading systems etc.). To this end, the Ministry of Environment and Urbanism makes extra effort to engage private sectors in the preparations. Şişecam is actively involved in these projects and provides feedback and required technical inputs. In new investments internal carbon pricing is considered. European Union: Our facilities operating in the EU are included in the scope of EU-ETS. In addition to monitoring, reporting and "emission trading" obligations, all regulations within the scope of energy efficiency are complied with. Likewise, annual energy audits are carried out and the situation is reported to the official authorities. Revisions within the scope of the Green Deal are closely monitored and working closely with government and industry associations.

Employee engagement	Şişecam as of the end of 2021, gave average training time per employee as 22.2 hours in Türkiye. The topics included environmental trainings with increasing numbers.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

The GHG Protocol for Project Accounting, ISO 14064-2 Greenhouse gases – Part 2, Guidelines for Quantifying GHG emission reductions of goods or services through Global Value Chain by the Ministry of Economy, Trade and Industry

Type of product(s) or service(s)

Other

Other, please specify

solar/energy control glasses

Description of product(s) or service(s)

Special products in flat glass segment are in the low carbon category with their energy efficiency during use. With our coated flat glass solutions, such as our Solar Low-E coated glass, produced under the brand of Isıcam K T to combat climate change, heat losses are reduced by 50% and solar heat input by 40–65% when compared to ordinary double glazing, hence saving fuel in winter and reducing the energy consumption of air conditioning systems in summer. Şişecam Glass for Photovoltaics and Şişecam Glass for Solar Thermal Collector directly affect the efficiency of solar panels with their high light transmittance performance. In addition, the glass protects the internal parts of solar panels, which generate electricity from solar energy, against environmental conditions. Produced in the “Sandy” and “Prism” patterns, Şişecam Glass for Photovoltaics and Şişecam Glass for Solar Thermal Collector reduce the reflections on the glass surface with its patterned structure. As a result, the specially developed glass achieves maximum efficiency in the performance of solar panels and collectors with their high light transmittance and low reflection values. Thanks to the anti-reflective (AR) coating on glass surfaces, light reflections are minimized. Furthermore, the light transmittance of the glass was increased by 2%, further boosting solar panel performance and ensuring high efficiency.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Cradle-to-gate

Functional unit used

Reference product/service or baseline scenario used

Flatglass

Life cycle stage(s) covered for the reference product/service or baseline scenario

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

Explain your calculation of avoided emissions, including any assumptions

No data

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?
Row 1	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1, 2020

Base year end

December 31, 2020

Base year emissions (metric tons CO2e)

2,203,490

Comment

Scope 2 (location-based)

Base year start

January 1, 2020

Base year end

December 31, 2020

Base year emissions (metric tons CO2e)

477,111

Comment

Scope 2 (market-based)

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

0

Comment

Scope 3 category 1: Purchased goods and services

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 5: Waste generated in operations

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 6: Business travel

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 7: Employee commuting

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Defra Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance, 2019
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
ISO 14064-1
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
The Greenhouse Gas Protocol: Scope 2 Guidance
US EPA Emissions & Generation Resource Integrated Database (eGRID)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

2,795,013.846

Start date

January 1, 2022

End date

December 31, 2022

Comment

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)

2,542,044.394

Start date

January 1, 2021

End date

December 31, 2021

Comment

2021 emission data, which was entered incorrectly in the previous report, has been revised and corrected in this report

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)

2,203,490

Start date

January 1, 2020

End date

December 31, 2020

Comment

C6.2

(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

578,952

Start date

January 1, 2022

End date

December 31, 2022

Comment

Past year 1

Scope 2, location-based

546,516.324

Start date

January 1, 2021

End date

December 31, 2021

Comment

Past year 2

Scope 2, location-based

477,111

Start date

January 1, 2020

End date

December 31, 2020

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source of excluded emissions

Şişecam's Chemicals productions and glass productions located in Russia, India and Egypt are not covered.

Scope(s) or Scope 3 category(ies)

Scope 1
Scope 2 (location-based)
Scope 3: Purchased goods and services
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations

Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Upstream leased assets
Scope 3: Downstream transportation and distribution
Scope 3: Processing of sold products
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products
Scope 3: Downstream leased assets
Scope 3: Franchises
Scope 3: Investments

Relevance of Scope 1 emissions from this source

Emissions are relevant and calculated, but not disclosed

Relevance of location-based Scope 2 emissions from this source

Emissions are relevant and calculated, but not disclosed

Relevance of market-based Scope 2 emissions from this source

Relevance of Scope 3 emissions from this source

Emissions are relevant and calculated, but not disclosed

Date of completion of acquisition or merger

Estimated percentage of total Scope 1+2 emissions this excluded source represents

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

Explain how you estimated the percentage of emissions this excluded source represents

C6.5

(C6.5) Account for your organization’s gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

838,667.247

Emissions calculation methodology

Spend-based method

Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Master datasets for emissions in this category were obtained from Şişecam's purchasing department. Calculations were made on the online and outsourced GHGE calculation platform.

Capital goods

Evaluation status

Not relevant, explanation provided

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Not relevant, explanation provided

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,697.38

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Master datasets for emissions in this category were obtained from Şişecam's logistics department based on 2022 shipment data. Calculations were made on the online and outsourced GHGE calculation platform based on DEFRA 2022 conversion factors (kgCO2e per km emission factor for an average and 100% laden HGV)

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

4,098.38

Emissions calculation methodology

Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Master datasets for emissions in this category were obtained from Şişecam's environmental department based on 2022 plant based waste data. Calculations were made on the online and outsourced GHGE calculation platform.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,493.57

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculations were made on the online and outsourced GHGE calculation platform.

Employee commuting

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

12,394.96

Emissions calculation methodology

Fuel-based method

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Calculations were made on the online and outsourced GHGE calculation platform.

Upstream leased assets

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

61,951.04

Emissions calculation methodology

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

Master datasets for emissions in this category were obtained from Şişecam's logistics department based on 2022 shipment data. Calculations were made on the online and outsourced GHGE calculation platform based on DEFRA 2022 conversion factors (kgCO2e per km emission factor for an average and 100% laden HGV)

Processing of sold products

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Use of sold products

Evaluation status

Not evaluated

Please explain

Formed and finished glass products are ready to use and do not directly emit or cause any greenhouse gas emissions

End of life treatment of sold products

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Downstream leased assets

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Franchises

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Investments

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Other (upstream)

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

Other (downstream)

Evaluation status

Not evaluated

Please explain

Not considered as a relevant category in terms of emissions due to its negligible proportion among Şişecam activities.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.001

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

3,373,965.85

Metric denominator

unit total revenue

Metric denominator: Unit total

3,189,410,000

Scope 2 figure used

Location-based

% change from previous year

63

Direction of change

Decreased

Reason(s) for change

Other, please specify

Please explain

The percentage of increase in revenues is much higher than in emissions.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	2,795,013.846	IPCC Sixth Assessment Report (AR6 - 100 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
Turkey	1,919,372.536
Bulgaria	376,773.859
Italy	245,898

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division
By facility

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Glass packaging	730,620.657
Automotive glass	3,203.648
Flat glass	1,721,121.279
Glassware	340,068.262

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Glassware Bulgaria	103,149.852		
Glassware Denizli	17,016.563		

Glassware Kırklareli	109,359.591		
Glassware Eskişehir	110,542.256		
Glass Packaging Bursa	270,419.878		
Glass Packaging Eskişehir	244,096.433		
Glass Packaging Mersin	216,104.347		
Flat Glass Mersin	351,036.085		
Flat Glass Kırklareli	233,894.682		
Flat Glass Polatlı	345,639.511		
Flat Glass Yenişehir	287,985.625		
Flat Glass Bulgaria EAD	249,700.476		
Flat Glass South Italy	126,003.291		
Flat Glass North Italy	126,861.609		
Auto Glass Turkey	1,654.472		
Auto Glass Bulgaria	1,549.176		

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Chemicals production activities		

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/area/region.

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Turkey	432,751.3	
Bulgaria	113,890.6	
Italy	32,310.1	

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division
By facility

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Glass packaging	211,469.3	
Automotive glass	56,588.5	
Flat glass	212,199.6	
Glassware	98,694.6	

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Glassware Bulgaria	19,141.1	
Glassware Denizli	2,101	

Glassware Kırklareli	47,170	
Glassware Eskişehir	30,282.5	
Glass Packaging Bursa	74,677.8	
Glass Packaging Eskişehir	73,707.5	
Flat Glass Mersin	56,866	
Flat Glass Kırklareli	41,447.2	
Flat Glass Polatlı	21,367.4	
Flat Glass Yenişehir	12,405.9	
Flat Glass Bulgaria EAD	47,803	
Flat Glass South Italy	13,032.1	
Flat Glass North Italy	19,278	
Auto Glass Turkey	9,642	
Auto Glass Bulgaria	46,946.5	

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Not relevant as we do not have any subsidiaries

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Chemicals production activities			

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)		
Methane (CH4)		
Nitrous oxide (N2O)		
Hydrofluorocarbons (HFC)		
Perfluorocarbons (PFC)		
Sulphur hexafluoride (SF6)		
Nitrogen trifluoride (NF3)		

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption				
Other emissions reduction activities				
Divestment				
Acquisitions				
Mergers				
Change in output	24,734,769.98	Increased	8.7	Glass production is an energy-intensive production, and fossil fuel is the primary fuel. In production increases, the need for energy increases and an increase in energy consumption is expected at the same rate. There was an approximately 8.7% increase in production. Change in Productions = (4,952,053.00 - 4,557,109.00) = 8.7% Change in emissions = (3,373,965.85 - 3,088,560.72) * 0.087 =27,734,769.98
Change in methodology	260,670,358.02	Increased	0.6	Glass furnaces become inefficient at certain rates every year due to the nature of production. This is called ""aging"". Due to aging, energy consumption increases. The annual aging factor of furnaces is close to 1%. (2021-2022: 6%) Change in emissions = (3,373,965.85 - 3,088,560.72) * 0,06 =260,670,358.02

Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 20% but less than or equal to 25%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes

Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	9,236,688.45	9,236,688.45
Consumption of purchased or acquired electricity		4,810	1,415,587.39	1,420,397.39
Consumption of self-generated non-fuel renewable energy		8,453.32		8,453.32
Total energy consumption		13,263.32	10,652,275.85	10,665,539.17

C-CH8.2a

(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.

Consumption of fuel (excluding feedstocks)

Heating value

MWh consumed from renewable sources inside chemical sector boundary

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

Consumption of purchased or acquired electricity

MWh consumed from renewable sources inside chemical sector boundary

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

Consumption of self-generated non-fuel renewable energy

MWh consumed from renewable sources inside chemical sector boundary

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

Total energy consumption

MWh consumed from renewable sources inside chemical sector boundary

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of heat	Yes

Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

There is no sustainable biomass consumption as a fuel type.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

There is no other biomass consumption as a fuel type.

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

There is no green/renewable hydrogen consumption as a fuel type.

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

There is no coal consumption as a fuel type.

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

55,217.13

MWh fuel consumed for self-generation of heat

55,217.13

MWh fuel consumed for self-generation of steam

0

Comment

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

9,181,471.31

MWh fuel consumed for self-generation of heat

9,180,738.08

MWh fuel consumed for self-generation of steam

733.23

Comment

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

9,236,688.44

MWh fuel consumed for self-generation of heat

9,235,955.21

MWh fuel consumed for self-generation of steam

733.23

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	54,013.62	54,013.62	8,453.32	8,453.32
Heat	9,235,955.22	9,235,955.22	0	0
Steam	717.19	717.19	0	0
Cooling	0	0	0	0

C-CH8.2d

(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

Electricity

Total gross generation inside chemicals sector boundary (MWh)

Generation that is consumed inside chemicals sector boundary (MWh)

Generation from renewable sources inside chemical sector boundary (MWh)

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

Heat

Total gross generation inside chemicals sector boundary (MWh)

Generation that is consumed inside chemicals sector boundary (MWh)

Generation from renewable sources inside chemical sector boundary (MWh)

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

Steam

Total gross generation inside chemicals sector boundary (MWh)

Generation that is consumed inside chemicals sector boundary (MWh)

Generation from renewable sources inside chemical sector boundary (MWh)

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

Cooling

Total gross generation inside chemicals sector boundary (MWh)

Generation that is consumed inside chemicals sector boundary (MWh)

Generation from renewable sources inside chemical sector boundary (MWh)

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Turkey

Consumption of purchased electricity (MWh)

1,052,299.66

Consumption of self-generated electricity (MWh)

40,801.38

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

7,054,557.53

Total non-fuel energy consumption (MWh) [Auto-calculated]

8,147,658.57

Country/area

Italy

Consumption of purchased electricity (MWh)

66,532.28

Consumption of self-generated electricity (MWh)

128.9

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

786,629.2

Total non-fuel energy consumption (MWh) [Auto-calculated]

853,290.38

Country/area

Bulgaria

Consumption of purchased electricity (MWh)

296,755.46

Consumption of self-generated electricity (MWh)

13,083.34

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

1,395,501.72

Total non-fuel energy consumption (MWh) [Auto-calculated]

1,705,340.52

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

No

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Energy usage

Metric value

Metric numerator

GJ

Metric denominator (intensity metric only)

% change from previous year

Direction of change

Please explain

C-CH9.3a

(C-CH9.3a) Provide details on your organization's chemical products.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Şişecam R&D is focused on sustainable products and solutions. Work continues on low-e, heat and solar-controlled coated glasses that will reduce carbon emissions in the usage phase.

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area

Stage of development in the reporting year

Average % of total R&D investment over the last 3 years

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

Average % of total R&D investment planned over the next 5 years

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No emissions data provided

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Third party verification/assurance underway

Attach the statement

GHG Annual Report_2022-merged.pdf

Page/ section reference

Relevant standard

European Union Emissions Trading System (EU ETS)

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Page/ section reference

Relevant standard

ISO14064-1

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Energy consumption	ISO 50001	The data within the scope of the annual sustainability report is 3rd party assurance. Verifier: EY-Turkey

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

EU ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS

24.5

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

429,032

Allowances purchased

397,808.21

Verified Scope 1 emissions in metric tons CO2e

622,671.86

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

The management of production-related greenhouse gas emissions requires the right market strategy and emission reduction approach to be carried out in parallel in geographies where mandatory mechanisms are in place. On the other hand, in geographies where mandatory practices are not on the agenda, the ideal approach is to apply energy efficiency and emission reduction technologies in line with roof targets to prepare for possible restrictions such as potential market and tax practices, as well as to comply with the Group's sustainability approach and targets.
For this reason, Şişecam primarily carried out studies to accurately determine the needs of our activities within the scope of the EU ETS, to automatically monitor them from a confidence level free from operator errors, to increase the capacities of the relevant units, and to manage the need by making the most efficient use of market instruments.

Core strategy consists of 4 major components:

1. Establishing a Centralized Monitoring, Control, and Procurement Approach
2. Capacity Building on EU ETS Processes and Data Control
3. Identifying Financial Risks and Developing a Market Diversification Approach
4. Monitoring of National/International Studies and Participation by Considering Group Interests

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers/clients

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Education/information sharing

Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number

40

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

Based on the prioritization, this customer group consists of ambitious climate targets (SBTi) and customers who are subject to climate regulations due to their locations.

Impact of engagement, including measures of success

Customers' periodic or instant data requests are being addressed, and information regarding production, recycling, and emissions is transparently shared. As a result, data is provided for customers' Scope 3 emissions. Additionally, regular meetings are held with customers, and routine presentations are conducted regarding performance and approach towards climate change adaptation.

Type of engagement & Details of engagement

Collaboration & innovation

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

70

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

Şişecam works in coordination with its glass packaging and glassware customers to reduce CO2 emissions on a product basis. With 100% recycled glassware and weight-reduced bottles, it reduces GHG emissions in production compared to standard production, while reducing its carbon footprint at product scale. With the design changes carried out in this direction, we achieved a 14% greenhouse gas emission reduction in the single bottle type.

Impact of engagement, including measures of success

The final products obtained as a result of the customer's stretching of the quality criteria, making changes in the design and making color optimizations; It causes lower carbon emissions than standard production. In these joint efforts, the customer is guided to adapt to Şişecam and industry capacity, thus optimizing expectations according to environmental criteria.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization’s purchasing process?

No, and we do not plan to introduce climate-related requirements within the next two years

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Statement

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

Şişecam is in contact with the government and relevant institutions to develop strategy, targets, technology implementation and most importantly, policy makers in order to realize its vision on combating climate change. Şişecam has taken part in relevant projects (such as GIZ:

Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, PMR) and represented the industry, especially in shaping the administrative instruments such as the National ETS that will guarantee Turkey's climate change targets.
Based on Şişecam's activities and experience in the EU, experience is transferred to the relevant official institutions and industry associations of the Turkish Republic. Within the scope of the national ETS implementation planned for Turkey, the Republic of Turkey takes part in the specialized working groups of the Ministry of Environment, Urbanization and Climate Change, and supports benchmarking and cost analysis studies for the glass industry. In this context, contributions and guidance are made to legal infrastructure preparations and regulatory views in line with Şişecam's appropriate transition plan.
The official institutions and professional chambers that we provide opinions and technical support in official studies on climate change are as follows:
Republic of Turkey: Ministry of Environment, Urbanization and Climate Change, Ministry of Commerce, Istanbul Chamber of Industry, Turkish Construction Material Manufacturers Association
In addition, as Şişecam, we participated as a sectoral and national representative of our country at COP 26, where special importance was attached to the implementation of the decisions following the Paris Agreement and the construction of a future where global warming will remain below 2°C.
Glass Alliance Europe is the European Alliance of Glass Industries. Şişecam, as a manufacturer based in Europe, is involved in the work of the industry association. In this context, it contributes to the formation of sector views in shaping new official regulations and strategies. Thanks to these studies, it is able to revise its own transition plan and guide in critical regulations in line with its own internal commitments.
GAE Position paper:
https://www.glassallianceeurope.eu/images/cont/2021-05-05-gae-position-paper-on-decarbonisation-v2_file.pdf
https://www.glassallianceeurope.eu/images/cont/gae-paper-on-2030-package-vdef_file.pdf

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Specify the policy, law, or regulation on which your organization is engaging with policy makers

National

Category of policy, law, or regulation that may impact the climate

Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate

Emissions trading schemes

Policy, law, or regulation geographic coverage

National

Country/area/region the policy, law, or regulation applies to

Turkey

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

In accordance with decisions regarding Paris Agreement, the Republic of Turkey presented its Intended Nationally Determined Contribution (INDC) towards achieving the ultimate objective of the United Nations Framework Convention on Climate Change. Turkey confirms to reduce its greenhouse gas (GHG) emissions by 41% through the Business as Usual (BAU) level by 2030.
Ministry of Environment and Urbanism is working to establish the regulatory, institutional and technical infrastructure of the monitoring, reporting and verification system (MRV) for greenhouse gas (GHG) emissions towards the EU ETS standard.
Şişecam attends and takes an important role in workshops and meetings focused on adaptation to Paris Agreement. Şişecam follows up the project on Partnership for Market Readiness (PMR), governed by Ministry of Environment and Urbanism and attends workshops related to this project. The key objective of the project is to identify alternative "Market Based Instrument" to cope with climate change and to be implemented in Turkey

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

Glass Alliance Group

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

No, we did not attempt to influence their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The organization's position is consistent with that of the trade association. Glass Alliance Europe's work focuses on EU environment policy, marked in recent years by the EU's Climate Change Policy. The primary mission of Glass Alliance Europe is to enhance the exchange of information between its members and to coordinate views on common environmental and regulatory challenges, which affect the glass sector. To fulfil this mission, Glass Alliance Europe issues reports, statements and press releases from the European glass industries on different topics.

As a member of these trade associations, Şişecam follows the EU Regulations and related applications related to climate chance closely. In this way, Şişecam has the opportunity to transfer EU glass market's experience into national implementations.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

0

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Istanbul Chamber of Industry, The Union of Chambers and Commodity Exchanges of Turkey (TOBB)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

No, we did not attempt to influence their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The organization's position is consistent with that of the trade association. The Chamber of Commerce supports a national climate law and Turkey's compliance with the Paris Climate Agreement at the national level. In this regard, it organizes and guides the sector. The main objective of İstanbul Chamber of Industry (ICI) is to fulfil the existing and future needs of the Turkish industry through information, training and consulting services, to improve the international competitiveness of glass industry and country and to contribute to the development of the country as a whole. In this respect; ICI is involved in the climate change issue as "Turkish Industry Representative" and it intends to follow global and national regulations on climate change, provide recommendations on draft regulation, train and support the Turkish Industry and contribute national strategies in the industrial perspective. ICI considers environment and energy related issues in a separate department. Commissions perform their studies with the coordination of this department.

Şişecam has been an active member of ICI Environmental Management and Policies Commission, in order to: -define realistic targets and strategies for the industry in accordance with Turkey's special conditions on Kyoto Protocol, Paris Agreement and global competition conditions -Deliver sectoral opinions on Turkey's National Strategy and Regulations -introduce the contribution of energy efficient products, -provide sectoral opinions and data regarding regulations.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

0

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

Page/Section reference

Page 16, 23, 24, 36, 95

Content elements

Governance
Strategy
Risks & opportunities
Emission targets

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	UN Global Compact	Şişecam became a party to UN Global Compact.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues

Row 1	No, and we do not plan to have both within the next two years

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity
Row 1	No, and we do not plan to do so within the next 2 years

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

No and we don’t plan to within the next two years

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No and we don’t plan to within the next two years

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

Not assessed

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?
Row 1	No, and we do not plan to undertake any biodiversity-related actions

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No	

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category

Row 1	Ali Efe Çağlayan	Environment/Sustainability manager

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

Türkiye Şişe ve Cam Fabrikaları A.Ş. (Şişecam Group), participates Carbon Disclosure Project-Investor Programme since 2011 and submits a consolidated response on behalf of its subsidiary companies. In this concept on behalf of subsidiary companies Şişecam Group is also invited to CDP-Supply Chain Programme by Ford, Electrolux, Coca-Cola, PepsiCo and Renault
Therefore, in the Supply Chain Respond; Group's automotive glass plant in Turkey supply automotive glass to Ford and Electrolux. Group's glass packaging plants in Turkey supply products to Coca-Cola and PepsiCo. Group's glassware plants in Turkey and Bulgaria supply products to Coca-Cola and PepsiCo .
• Glassware: Carrying out the activities of Sisecam Group in the field of tableware, Paşabahçe Cam Sanayii ve Ticaret A.Ş. performs design, production, marketing and sale of table, kitchen articles, and souvenirs made of glass.
• Glass Packaging: Carrying out the activities of Sisecam Group in the field of glass packaging, Şişecam Glass Packaging produces designed glass packaging of different colors and sizes for the food, beverage, alcoholic drinks, pharmaceutical and cosmetic sectors.
• Automotive Glass: Şişecam Automotive, which implements sophisticated glass projects in car, light and heavy commercial vehicle segments, participates in different projects as the co-design partner of original equipment manufacturers. As Turkey's leader and biggest automotive glass producer, the company is the supplier of automotive manufacturers.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	1,454,541.17

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Requesting member

Ford Motor Company

Scope of emissions

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

1.572

Uncertainty (±%)

15

Major sources of emissions

Fossil fuel combustion and raw material decomposition.

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

380,000

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

Ford Motor Company

Scope of emissions

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

9,160

Uncertainty (±%)

15

Major sources of emissions

Purchased electricity

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

380,000

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

Renault Group

Scope of emissions

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

1,654

Uncertainty (±%)

15

Major sources of emissions

Fossil fuel combustion and raw material decomposition.

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

360,000

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

Renault Group

Scope of emissions

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

9,642

Uncertainty (±%)

15

Major sources of emissions

Purchased electricity

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

360,000

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

The Coca-Cola Company

Scope of emissions

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

30,279

Uncertainty (±%)

15

Major sources of emissions

Fossil fuel combustion and raw material decomposition.

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

12,974,177

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

The Coca-Cola Company

Scope of emissions

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

8,193

Uncertainty (±%)

15

Major sources of emissions

Purchased electricity

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

12,974,177

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

PepsiCo, Inc.

Scope of emissions

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

6,853

Uncertainty (±%)

15

Major sources of emissions

Fossil fuel combustion and raw material decomposition.

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

2,474,773

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

PepsiCo, Inc.

Scope of emissions

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

2,004

Uncertainty (±%)

15

Major sources of emissions

Purchased electricity

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

2,474,773

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

Electrolux

Scope of emissions

Scope 1

Scope 2 accounting method

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

613

Uncertainty (±%)

15

Major sources of emissions

Fossil fuel combustion and raw material decomposition.

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

241,128,000

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

Electrolux

Scope of emissions

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Allocation level

Company wide

Allocation level detail

Emissions in metric tonnes of CO2e

25,309

Uncertainty (±%)

15

Major sources of emissions

Purchased electricity

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

25,309

Unit for market value or quantity of goods/services supplied

Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

In glass production, different raw materials required for various products and customers are melted in the same furnace but shaped in different lines. Therefore, certain assumptions must be made to track energy and raw materials on a product basis. Stationary emission sources in glass production facilities are determined according to ISO 14064 and are monitored within the framework of official regulation.

Requesting member

Velux A/S

Scope of emissions

Scope 2 accounting method

Scope 3 category(ies)

Allocation level

Allocation level detail

Emissions in metric tonnes of CO2e

Uncertainty (±%)

Major sources of emissions

Verified

Allocation method

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

https://www.sisecam.com.tr/sites/catalogs/tr/Documents/sustainability/Sisecams-2021-Sustainability-Report.pdf

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges

Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Even in a single facility, there is a wide variety of productions and customers. Therefore, the major challenge was to allocate the collective emission activity data to different types of products and also to customers. Also, mass of products differ according to product types. Thus, we calculated allocated facility emissions (ton CO2 / unit of product) according to the formula: (mass of products purchased / total mass of products produces) * total emissions Şişecam plans its production for B2B specific clients and has right infrastructure in place to track their product specific footprint (scope 1 and scope 2)

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

Developing digital monitoring infrastructure and placing meters at all relevant points

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC4.1

(SC4.1) Are you providing product level data for your organization’s goods or services?

No, I am not providing data

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms