

C0. Introduction

C0.1

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

Tracing its roots to 1877 in Cleveland, Ohio, Greif, Inc. is a world leader in industrial packaging products. Our offerings include steel, plastic and fibre drums, intermediate bulk containers, reconditioned containers, flexible products, containerboard, uncoated recycled paperboard, coated recycled paperboard, tubes and cores and a diverse mix of specialty products. We provide filling and packaging services such as warehousing, reconditioning flexible intermediate bulk containers and container life cycle management for a wide range of industries. Our subsidiary, Soterra, sustainably manages more than 244,000 acres of timberland in the Southeastern United States and offers land management services including consulting, wildlife stewardship, recreation and wetlands mitigation bank development. With operating locations in more than 40 countries, we are positioned to serve global as well as regional customers. Our operations, wherever we are in the world, follow The Greif Way. These principles guide our decisions and actions throughout our operations. We use financial, natural, and human resources wisely without compromising the ability of future generations to meet their needs. In 2010, Greif established Container Life Cycle Management LLC, a joint venture focused on reconditioning rigid industrial packaging in North America. With the 2011 acquisition of pack2pack in Europe, we launched Earthminded® Life Cycle Services (LCS), one of the leading global reconditioning networks. In 2019, Greif acquired Carastar Industries, Inc. expanding our manufacturing and service capabilities of high-quality recycled materials and paper products. Greif is committed to creating sustainable products, across all product groups, from supply chain through end of life, lowering greenhouse gas emissions and meeting our customers' needs.

All statements, other than statements of historical facts, included in this report or incorporated herein, including, without limitation, statements regarding our future financial position, business strategy, budgets, projected costs, goals and plan and objectives of management for future operations, are forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements generally can be identified by the use of forward-looking terminology such as "may," "will," "expect," "intend," "estimate," "anticipate," "project," "believe," "continue," "on track" or "target" or the negative thereof or variations thereon or similar terminology. All forward-looking statements speak only as of the date the statements we made. Although we believe that the expectations reflected in forward-looking statements have a reasonable basis, we can give no assurance that these expectations will prove to be correct. Forward-looking statements are subject to risks and uncertainties that could cause our actual results to differ materially from those projected. All forward-looking statements made in this report are expressly qualified in their entirety by reference to such risks and uncertainties. We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	November 1 2019	October 31 2020	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

- Algeria
- Argentina
- Austria
- Belgium
- Brazil
- Canada
- Chile
- China
- Colombia
- Costa Rica
- Czechia
- Denmark
- Egypt
- France
- Germany
- Greece
- Guatemala
- Hungary
- Israel
- Italy
- Kenya
- Malaysia
- Mexico
- Morocco
- Netherlands
- Poland
- Portugal
- Romania
- Russian Federation
- Saudi Arabia
- Singapore
- South Africa
- Spain
- Sweden
- Turkey
- Ukraine
- United Kingdom of Great Britain and Northern Ireland
- United States of America
- Viet Nam

C0.4

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

- USD

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.

- Operational control

C-AC0.6/C-FB0.6/C-PF0.6

(C-AC0.6/C-FB0.6/C-PF0.6) Are emissions from agricultural/forestry, processing/manufacturing, distribution activities or emissions from the consumption of your products – whether in your direct operations or in other parts of your value chain – relevant to your current CDP climate change disclosure?

	Relevance
Agriculture/Forestry	Please select
Processing/Manufacturing	Please select
Distribution	Please select
Consumption	Please select

C-AC0.7/C-FB0.7/C-PF0.7

(C-AC0.7/C-FB0.7/C-PF0.7) Which agricultural commodity(ies) that your organization produces and/or sources are the most significant to your business by revenue? Select up to five.

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(s)	Please explain
Board Chair	Since 2016, Greif's entire board, and ultimately our Board Chair, has held responsibility for climate-related issues & sustainability. Greif's Vice President, Investor Relations, External Relations and Sustainability reports to the board at each meeting. Annually, one board meeting is dedicated to sustainability, including climate change. In 2020, Vice President, Investor Relations, External Relations and Sustainability assumed responsibility for leading sustainability. This role is strategically positioned to lead our external communications, relationships with key stakeholders and integration of our business and sustainability strategies. The individual in this role also leads our Sustainability Steering Committee (SSC), which is comprised of members of the Executive Leadership Team and Greif's Director of Sustainability. The board holds the SSC accountable for reaching annual goals, impacting Vice President, Investor Relations, External Relations and Sustainability and Director of Sustainability's remuneration and funding for sustainability programs.

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	Scope of board-level oversight	Please explain
Scheduled – all meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding business plans Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues 	<Not Applicable>	Greif's Board of Directors receives updates on sustainability and our ESG scores from our Vice President, Investor Relations, External Relations and Sustainability at each quarterly board meeting. It is up to the board if they want to discuss sustainability further. Annually, one board meeting is dedicated to a discussion of sustainability issues, including climate change. The board receives an update on progress against formal goals, key initiatives, and establishment of new priorities. Additionally, we bring in outside resources to talk to the board during our quarterly board meetings. These outside resources inform board members on various ESG topics. Feedback and guidance received from the board is communicated to the Sustainability Steering Committee for implementation in the organization. In 2020, board members participated in our materiality assessment, providing their perspective on the importance of sustainability-related risks, opportunities, and impacts, including climate strategy. Three of our board members participated in the process through interviews. Board members, in alignment with the results of the assessment, communicated the importance of Greif's climate strategy to our business and our stakeholders.

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify (Vice President, Investor Relations, External Relations and Sustainability)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Greif's Board of Directors receives annual updates from our Vice President, Investor Relations, External Relations and Sustainability. This role assumed responsibility for leading sustainability across Greif in 2020. Greif's aim is to further embed sustainability into our business strategy and believes that the individual in this role is strategically positioned to do so. The role also leads Greif's 11-member Sustainability Steering Committee (SSC), which was formed in 2016 to establish a formal governance structure and provide broad organizational oversight of our sustainability program. In addition to this individual, the SSC includes members of Greif's Executive Leadership Team, President and Chief Executive Officer; Executive Vice President, Chief Financial Officer; Executive Vice President, Chief Human Resources Officer; Executive Vice President, General Counsel and Secretary; Vice President and Chief Administrative Officer; Vice President and Group President of Global Industrial Packaging; Vice President and Division President, Flexible Products & Services; Senior Vice President and Group President, Paper Packaging & Services and Soterra LLC; Senior Vice President Enterprise Strategy, Global Sourcing and Supply Chain; and Director of Sustainability.

The SSC is tasked with further integrating sustainability into our business strategy and operations, reviewing our sustainability progress and priorities quarterly and ensuring accountability at all levels of our organization. The SSC, which is subject to Board oversight, was formed including Senior leadership to signal to the organization and our stakeholders the importance of sustainability, ensure an enterprise view of sustainability, accelerate our progress of initiatives and ensure the SSC has the authority to implement change in the organization. The Board of Directors holds the SSC accountable for reaching annual goals, which directly impacts the remuneration of our Vice President, Investor Relations, External Relations and Sustainability and Director of Sustainability, and determines the level of funding for Greif's sustainability programs.

The SSC guides the activities of our six-member Sustainability Management Team, which works with topic teams, including the Global Energy & Emissions Team, consisting of representatives from each region and business unit to drive operational projects and priorities. The Sustainability Management Team meets quarterly to review progress against goals through energy and emission performance dashboards and facility level roadmaps detailing energy and emission reduction initiatives that are active in Greif facilities and reports meeting outcomes to our Vice President, Investor Relations, External Relations and Sustainability and Director of Sustainability. Our Director of Sustainability meets quarterly with our CEO, CFO and other members of our Executive Leadership Team to discuss progress of sustainability initiatives and funding required for upcoming initiatives, including energy and emissions reduction projects.

In 2020, our Director of Sustainability attended and presented on sustainability at Greif, with a focus on climate-related topics, at our annual Leadership Council meeting. The Leadership Council meeting brings together leaders from each Greif business unit and the Executive Leadership Team. The sustainability presentation served to increase awareness and further integrate sustainability into the operations and procurement of each business unit. Throughout 2021, our Leadership Council is breaking into working groups to develop strategies and programs to advance our performance across key ESG focus areas. In addition, each of the Leadership Council's 2021 quarterly meetings are dedicated to advancing ESG knowledge, priorities, and strategy across our business. Since 2010, Greif has maintained a Global Energy & Emissions Team, currently consisting of 20 members, that is responsible for coordinating energy and emissions reduction projects throughout the company and identifying specific operational risks and opportunities that can contribute to meeting Greif's energy and emission goals. In 2019, we restructured the team to place an increased emphasis on including regional leadership to better engage and identify energy opportunities within each business unit and include legacy Caraustar facilities. This change in structure has allowed us to streamline our energy roadmap process to focus on and invest in the business units and facilities that have the most impactful energy opportunities. Whereas previously each facility was responsible for developing their own roadmap, regional leadership is now responsible for collaborating with each business unit to identify energy reduction and efficiency opportunities. Greif's sustainability governance structure was established to ensure climate-related issues are a focus at all levels of the organization and are tied to our business initiatives.

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	

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	Type of incentive	Activity incentivized	Comment
All employees	Monetary reward	Energy reduction target	Energy savings are integrated into Greif's incentive structure. Our Flexible Products and Services (FPS) Hadımköy facility in Turkey developed a sustainability program focused on employee engagement. They have identified various success criteria for the plant, including energy reduction, via scrap reduction. All employees engaged in monthly meetings to generate improvement ideas. The plant evaluated the ideas, selected projects to implement, set success criteria, and tracked progress monthly. The facility has decreased the scrap ratio from 12.1% to 9.7%, saving 413,900 kWh and €23,250 in costs. This reduction exceeded the facility's goal of a scrap ratio of 10%, in 2020. Production employees' bonuses are tied to achieving the success criteria identified and paid monthly, based on performance. For example, if semi-finished departments had greater than 12% scrap, no bonuses are paid. However, if they reduce the monthly scrap rate to 10.2% or less, they are paid their full bonus.
Other, please specify (Energy and Emissions Team)	Non-monetary reward	Emissions reduction target	Greif's Global Energy & Emissions Team and business unit-level management create annual energy roadmaps; energy and emissions-reduction goals are integrated into the performance reviews of some members of the Energy and Emissions Team.
Facilities manager	Monetary reward	Energy reduction target	Plant managers track energy spend at their facilities and actively work to achieve energy savings delineated in business unit energy roadmaps. Our plant managers' performance incentives are linked to overall cost savings, including savings from energy reductions.
All employees	Non-monetary reward	Emissions reduction target	We introduced the Michael J. Gasser Global Sustainability Award Program in 2010. This program is available to all employees and recognizes superior effort and achievement, recognizing teams that create innovative, sustainable products or processes that reduce or mitigate impact on the environment, including climate change. Awards are given for Energy Excellence, Ecosystem Improvement, and Sustainable Innovation. Greif's Board and CEO recognize award winners. In 2014, we introduced the Operations Best in Class program in EMEA drum manufacturing plants to reinforce a pattern of excellence by ranking each plant as gold, silver, bronze, yellow or red, reward workers for accomplishments and identify areas of opportunity. In 2017, it expanded globally. Ratings are based on safety, people, productivity, customer satisfaction, and sustainability, including climate change. Each facility achieving Gold, Silver or Bronze on all categories receives a medal and a non-financial award for the plant.
Environment/Sustainability manager	Non-monetary reward	Energy reduction target	Our Director of Sustainability's entire performance review consists of progress on sustainability goals and initiatives.
Procurement manager	Monetary reward	Environmental criteria included in purchases	Part of our Senior Director, North American Sourcing & Supply Chain's performance is based on their ability to lead Greif's Procurement Sustainability project to ensure / hold to account we are meeting our 2025 goals. Many of our buyers are working on specific sustainability projects, for example sourcing more recycled materials. These buyers have sustainability criteria integrated into their performance reviews.

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	
Medium-term	3	5	
Long-term	5	10	

C2.1b

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

Greif defines substantive financial or strategic impact as any strategic risk with the potential to have aggregated impact of approximately 5% of pre-tax income or greater, which is in alignment with guidance set forth by the U.S. Securities and Exchange Commission. Risks that fall below this threshold but are significant due to customer, operational or regulatory demands are also considered in this process and prioritized based on risk velocity, financial impact and likelihood of occurrence.

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
Upstream
Downstream

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

Climate-related risks and opportunities are integrated into Greif's Enterprise Risk Management (ERM) Process, which considers all Greif Business Units and geographies. Greif's Risk and Content Monitoring processes identify and analyze risk information, collecting information from assurance providers across the organization including our business units, Internal Audit, Legal/Compliance, and the Sustainability Steering Committee (SSC). Information from these groups is provided to Greif's Risk Leader Committee (RLC) led by Greif's VP of Internal Audit, and comprised of members of Greif's Executive, Business Unit, and Strategic Business Unit Leadership Teams, including representatives from Legal, Finance, Risk Management and each of Greif's business units. Our Director of Sustainability is also a member of the RLC and is responsible for aggregating information and advising the RLC on sustainability risks, including those associated with climate change. The RLC evaluates risks in conjunction with the Audit Committee of Greif's Board of Directors to determine the most critical risks and identify areas of opportunity within them. Risks are evaluated and prioritized based on the potential financial impact, production impact, importance to key stakeholders, and timeline to implementation. Greif prioritizes risks with the potential to have substantive financial impact (as defined in C2.1b). The RLC evaluates the potential impact and likelihood of risks and characterizes each risk as critical, severe, major/moderate, or minor. Quarterly, the RLC reports to the Audit Committee and, when appropriate, the Audit Committee chair reports on risk management topics to the full Board of Directors. The top 10 risks, as assessed by the RLC, are assigned to a risk owner, a subject matter expert responsible for informing business units of these risks and reporting on mitigation activities to the RLC, regularly, and the Audit Committee, when appropriate. The RLC evaluates whether risk mitigation is appropriate to reduce risk to an acceptable level or requires further mitigation. The SSC, comprised of Greif's Executive Leadership Team and our Director of Sustainability, meets quarterly to look at economic, environmental and social trends, risks and opportunities and ensure they are considered in our corporate strategy and ERM. The SSC monitors industry reports, ESG ratings and ranking, energy pricing, evolving government regulations/programs, and holds formal relationships with ESG-specific associations and NGOs, including World Business Council for Sustainable Development and the UN Global Compact, to identify emerging risks that may impact our business. In 2019, Greif began incorporating results from our internal Global Trends Report into our ERM process. Based on interviews with internal leaders and secondary research, the report identifies global trends with particular relevance to our business: Companies Becoming More Environmentally Friendly; Digitization & Automation of Manufacturing Supply Chain & Logistics, and Enterprise Purchasing & B2B Selling; Workforce Shortages, Surpluses & Skill Gaps; and Growth Opportunities Increasing in Emerging Markets. In conjunction with other internal and external sources that are considered in our ERM process, the trend report improves our ability to forecast and plan for long-term trends that may impact our business in the future. In 2020, we incorporated sustainability updates and risk statements into our 10K and proxy statements. We also selected ESG as a strategic priority area for the Leadership Council in 2021, where a key focus area is embedding our sustainability priorities – climate, waste, environmental compliance, diversity and innovation, circular economy – into our culture, colleagues' daily behaviors and risk management processes. During 2021, we will begin reporting key sustainability KPIs to the Leadership Council, Executive Leadership Team and Vice Presidents regularly while also providing quarterly sustainability updates to the Executive Leadership Team. We are also developing a communication plan to provide regular sustainability updates to the entire organization including key updates on risks. Our ERM process identified our customers' response to climate change, sustainability trends, and evolving stakeholder priorities and expectations as a transitional market risk and opportunity. In 2020, to continue delivering exceptional customer service we conducted a Voice of the Customer study to understand our customers' expectations and needs. The study engaged over 600 Greif customers through interviews and surveys. Customers communicated a clear need for sustainable products. In response, we are adding sustainability performance indicators focused on meeting with customers, identifying clear objectives and setting post-consumer resin (PCR) product targets for each facility that produces PCR. The Global Industrial Packaging Leadership Team monthly tracks these sustainability performance indicators. Through our ERM, Greif identified extreme weather events as an acute physical risk with potential to cause substantive financial impact to Greif, particularly where Greif's operations and suppliers are exposed to hurricane risk (e.g. GIP facilities and suppliers in Texas, Florida, and Louisiana). We have established insurance coverage and redundancies in supply chain and manufacturing capabilities, and GIP North America launched its Disaster Recovery/Business Continuity program to address business continuity risks. Administered by representatives from sales, marketing, customer service, operations and logistics in conjunction with business unit leadership, the Disaster Recovery/Business Continuity program manages risk and business continuity through inventory and production redundancy capabilities, facility risk assessments and proactive labor relations. The program outlines a 25-step process to identify customer orders that may be impacted if a disaster impacts one of our facilities, identify alternative products that meet customer specifications and facilities that are able to produce the products our customers have ordered. Each facility conducts monthly random mock disasters to ensure protocols are in place, understood, and quickly implementable. Following a contingent business interruption assessment we identified the need for additional production capabilities of a product line. We invested in machinery at an additional facility to ensure appropriate capacity. Over the past 24 months, 3 insurance claim events impacted production at our mills. We were able to shift production and meet demand during these events through multi-facility production planning in response to the events. In 2021, we are conducting a climate-related risk management workshop to continue advancing our understanding of and our strategy to address the physical, market, and legal and regulatory risks and opportunities that climate change presents to our business.

C2.2a

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

Relevance & inclusion	Please explain

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	As an organization with operations across the globe, current regulations are considered as part of Greif's ongoing climate-related risk assessments. Each Regional VP is responsible for monitoring the regulatory environment and ensuring their operations are compliant with all applicable regulations. The Sustainability Steering Committee (SSC) is responsible for maintaining awareness of climate-related regulations globally and helping to identify risk and opportunity within these regulations, based on input from Regional VPs and the Risk Leadership Committee. Current regulatory risks are discussed at SSC meetings. Climate-related regulatory risk is incorporated into Greif's Enterprise Risk Management process, which is reviewed quarterly by Greif's Audit Committee and members of the ELT, and annually by Greif's Board of Directors. Greif's most recent risk reviews have identified current compliance and regulatory risk as a moderate risk factor with potential impact evident within six to 12 months. For example, our Chinese Global Industrial Packaging (GIP) operations are subject to strict air quality regulations set by the Ministry of Ecology and Environment. If air quality falls below yellow alert levels, the government will request that manufacturers shut down operations until air quality returns to a safe level. Due to these regulations, Greif's Taicang, Shanghai and Tianjin facilities were shut down in 2020 resulting in 1, 5 and 27 days of lost production time, respectively. Similar mandated shutdowns could reoccur at any time, representing risk of lost revenues as a result of climate-related regulations. As such, this, and similar climate-related regulations, are relevant and always included in our Enterprise Risk Management process, as described in C2.2. Further, per our 2020 10K, we are subject to transportation safety regulations set by the U.S. Department of Transportation and similar agencies in other jurisdictions. These regulations and standards set forth requirements related to the transportation of both hazardous and nonhazardous materials in some of our packaging products and subject Greif to random inspections and testing to ensure compliance. As transportation, and reducing emissions related to the transportation of our products, is a critical component of our climate strategy, the implications of these regulations are relevant to, and thus always included in our climate-related risk assessments.
Emerging regulation	Relevant, always included	Emerging regulations are considered as part of Greif's ongoing climate-related risk assessments. Each Regional VP is responsible for monitoring the regulatory environment in their region and notifying executive leadership of emerging changes. The SSC is notified when regulatory changes with potential climate-related impacts are identified by regional VPs and the Director of Sustainability. Emerging regulatory risks are discussed at SSC meetings. Climate-related regulatory risk is incorporated into Greif's ERM process, which is reviewed quarterly by Greif's Audit Committee and members of the ELT, and annually by Greif's Board of Directors. The risk of changing climate, climate change regulations and GHGs affecting our operations and financial performance is disclosed as a risk on our 2020 10K. We believe it is likely that the scientific and political attention to issues concerning the extent and causes of climate change will continue, with the potential for further legislation and regulations that could affect our results of operations and financial condition. Recently, Canada implemented a number of rules and regulations around paint, impacting our operations in the country. To address the new regulations, Greif leverages Dakota Software to track the relevant regulations across our North American operations. By creating unique profiles for each of our sites, we can better understand the relevant laws and regulations that each facility is subject to. The system sends monthly updates, informing each facility of any changes to relevant regulations. In 2016, the Brazilian Federal Government initiated an energy rationing program intended to make the energy market more competitive for consumers and energy traders. The emerging regulation was identified as a potential risk through our ERM process. In 2020, through this program, Greif reduced CO2 emissions and energy costs saving \$561,316. In 2019, we implemented a similar program in Chile and in 2020 we shifted 59% of energy use to renewable sources leading to 257 tons of CO2 savings. In 2020, as we developed our new 2030 GHG emissions reduction target we conducted an analysis of the financial impact of carbon pricing regulations across our enterprise to understand the business case of the different target ambition levels we were evaluating. We used the IEA's WEO to provide projected carbon prices and evaluate the financial implications of regulations establishing a carbon price could have on our business.
Technology	Relevant, always included	Greif surfaces technology opportunities/risks through customer conversations and RFPs, our Life Cycle Analysis showing where our most significant emissions occur, facility energy audits and product cost analyses. We address these opportunities/risks through product quality, innovation and operational energy and emission roadmaps. Our Global Innovation Committee, comprised of representatives from each of Greif's business units, manages innovation and is responsible for driving collaboration and idea sharing across and within business units. The committee updates members of Greif's Executive Leadership Team on innovation priorities and industry megatrends that may influence investment and company strategy. Innovation is managed by a process that evaluates and prioritizes projects based on potential financial return, sustainability impacts and overall value to Greif and our customers. Since efforts identified by this team have potential for significant capital investment, and indicate changing customer behavior, the activities are a Risk Process and Content Monitoring input considered in our ERM process (see C2.2), as is Greif's Global Trends report created by this team (see C2.2). Our technology-related innovation efforts focus on transforming our product portfolio by developing sustainable packaging solutions based on a set of eight environmental, social, and financial sustainability criteria. Through internally initiated solutions and customer collaboration, our innovation efforts focus on dematerialization and green material substitution while maintaining performance requirements. Greif Sweden/Nordic developed the capability to replace ink jet markings with laser markings on Intermediate Bulk Containers (IBCs), reducing the use of solvent-based ink during production. By eliminating the use of solvents and ink, the production environment is cleaner and the weight of the IBC is reduced by one kilogram, a 6.7 percent reduction of resin, and the greenhouse gas footprint of the IBC. Each year, Greif's Sustainability Management Team oversees the development of operational energy and emissions roadmaps to identify projects, including technology replacements that will contribute to climate-related goals. This information is incorporated into Greif's ERM process. Progress against the goals is discussed at each quarterly SSC Meeting. In 2020, we completed 55 projects, reducing energy consumption by over 14.3 million kWh, annually.
Legal	Relevant, always included	Greif considers climate-related legal risk in conjunction with emerging regulatory risk. As discussed in our 2020 10k, Greif's legal risks are evaluated collaboratively by Greif's Environmental Health and Safety, Legal and Compliance teams. As direct assurance providers to Greif's Risk Process and Content Monitoring inputs, risks identified by these teams are directly factored into Greif's ERM process, and evaluated by the Risk Leader Committee, as described in C2.2. When legal risk with potential climate-related implications is identified, the Sustainability Steering Committee is notified. If the matter is urgent, the Committee will convene to discuss and address the risk, with subsequent updates occurring at each quarterly meeting. In 2017, the Wisconsin reconditioning facilities of Container Life Cycle Management LLC (CLCM), a joint venture partially owned by Greif, became subject to environmental and safety regulatory violation allegations, many of which CLCM disputes, and to odor complaints. CLCM immediately began working with the regulators to identify and address these issues and is continuing to make tangible changes to those operations. For example, CLCM raised the height of a smoke stack to immediately address odor concerns. In 2018, CLCM installed a regenerative thermal oxidizer (RTO) at the St. Francis facility intended to reduce odors emanating from the site's operations. Thermal oxidation is recognized as the most effective way to destroy odor-causing compounds and is commonly used throughout the United States for a wide variety of processes. CLCM initiated the use of the RTO in 2019 and continues to identify areas for improvement. More information on this situation is available at clcmwi.com. Greif's risk management process enabled us to quickly identify, respond to, and continue to manage any potential legal ramifications of this event. At our facility in Warminster, PA we installed an enclosure around our parts lining booth and are focused on enhanced capture of emissions around our lining booth. By capturing air emissions at the site, we will decrease emissions to the environment and the associated regulatory requirements, primarily difficult source testing, and reduce legal risk.
Market	Relevant, always included	Industrial packaging customers are increasingly looking to manufacturers such as Greif to help optimize their costs and reduce waste and emissions in their supply chain. An increasing number of our customers are committing to SBTi-approved GHG emission reduction targets, setting expectations for Greif to reduce our emissions in support of scope 3 targets. We engage customers daily to ensure we remain abreast of concerns and are able to respond to them. We track Customer Satisfaction Index and Net Promotor Scores quarterly to ensure we are addressing customer needs and use feedback to monitor emerging concerns. Greif collaborates with customers on product development and innovation efforts to help meet their sustainability goals. These efforts have led to a variety of products, including NexDrum and EcoBalance that increase the use of recycled materials, reduce weight and emissions compared to conventional products. In 2020, we conducted a Voice of the Customer project, engaging over 600 customers through interviews and surveys. Customers demonstrated a clear demand for sustainable products. All GIP customers have access to the Greif Green Tool, allowing them to estimate the emission impact of Greif solutions. Our supply chain management efforts proactively reduce material use and seek to identify materials that are more environmentally friendly, including low-VOC and energy-efficient alternatives. In response to these risks, and to ensure market related risks associated with them are being actively managed, Greif set 2025 goals: Using a FY2017 baseline, reduce raw materials/logistical costs used to produce current product offering by 1%; Move from non-green to green material sourcing if economically feasible and doing so provides high quality products to our customers. The SSC receives updates on these risks and associated programs at quarterly meetings. Greif identifies market-related risks related to raw materials, procurement activities, supplier relations, and competition, as describe above and through our Global Sales and Marketing, Global Sourcing and Procurement teams and Global Innovation Committee. Recommendations from these teams are Risk Process and Content Monitoring inputs and considered in our ERM process by the Risk Leader Committee, as described in C2.2. As discussed in our 2020 10K, the risk of raw material and energy price fluctuations and shortages in part due to climate related events, is a material financial risk to the business.
Reputation	Relevant, always included	Acknowledgment and management of climate risk is increasingly becoming an expectation for our current and potential customers that poses a risk of reduced demand for our products. Our Sustainability Director, who reports to the Senior Vice President, Investor Relations, External Relations and Sustainability and sits on both the Sustainability Steering Committee and Sustainability Management Team, is responsible for assessing and managing climate-related reputational risk through regular engagement with our stakeholders and developing communications and reporting on sustainability topics. In 2020, we conducted a materiality assessment, which identified climate strategy as amongst the most important topics to our internal and external stakeholders. Based on the results of the assessment, the Greif ELT reviewed and updated our strategy to more fully integrate high priority topics, including climate strategy into our business strategy. We also developed a new goal to, by 2030, reduce absolute Scope 1 and Scope 2 GHG emissions 28 percent over a 2019 baseline. Greif will also complete an assessment of Scope 3 emissions and determine the feasibility of a long-term net zero emissions aspiration by the end of 2023. Potential reputational risks that we identified as part of this assessment, as well as the SSC's ongoing stakeholder engagement and responsibilities, are Risk Process and Content Monitoring inputs and considered in our ERM process by the Risk Leader Committee (see C2.2). Greif publishes annual sustainability reports in accordance with GRI Standards Core requirements. In our 2020 Sustainability Report, we advanced our climate reporting to align with recommendations from the Task Force on Climate-related Financial Disclosure (TCFD). Greif has been a member of the World Business Council for Sustainable Development (WBCSD) since 2009. We engage with WBCSD quarterly, have partnered to host conferences, signed on to the organization's Manifesto for Energy Efficiency in Buildings, partnered to publish From Cradle to Grave: Greif's Life Cycle Analysis (LCA), a case study on how we implement LCA in our business. We collaborated with WBCSD to participate in a pilot program to further integrate climate and sustainability risks into our ERM process and are members of REScale and Energy Solutions working groups and co-chair the Plastics and Packaging group focused on developing a transition roadmap to circularity for the industrial packaging sector.

	Relevance & inclusion	Please explain
Acute physical	Relevant, always included	Risk Management and Business Continuity is a material risk for Greif that is evaluated on an ongoing basis via our ERM process (see C2.2). To ensure this risk is regularly and proactively managed, Greif established our Disaster Recovery/Business Continuity program within our Global Industrial Products North America region, administered by representatives from sales, marketing, customer service, operations and logistics in conjunction with business unit leadership. The program manages risk and business continuity through inventory and production redundancy capabilities, facility risk assessments and proactive labor relations. The program outlines a Natural Disaster Recovery Protocol for each Greif GIP NA production facility. The program outlines a 25-step process to identify customer orders that may be impacted if a disaster impacts a facility, identify alternative products that meet customer specifications and facilities that are able to produce the products our customers have ordered. Each GIP NA facility conducts monthly mock disasters to ensure protocols are in place, understood, and quickly implementable. Greif's facilities undergo periodic loss control engineering inspections by our property insurance company and every 2 years Greif's highest risk facilities are third-party audited to assess natural disaster and safety risks. Inspections are conducted by engineers to identify acute physical risks to the facility and ways to reduce and control those risks. We make capital investments in our facilities to mitigate identified risks. In 2019 Greif opened a new facility in Palmyra, PA. During the site selection process we evaluated the risk of flooding to ensure the facility was not located in a flood zone. We also installed a custom designed sprinkler system to protect the facility in the event of a fire. In 2020, Greif Paper Packaging & Services' Tama facility experienced a derecho, shutting the facility down for a week. Our Sweetwater and Los Angeles facilities covered the necessary supply to continue meeting customer demand. When repairing the roofs damaged in the derecho, we upgraded the decking materials to make the roof stronger. We upgrade our facilities to improve their resilience should we be impacted in the future. Additionally, we will be implementing risk based cost allocation, which will use a site's relative risk as a rate factor for how the facility is allocated cost to promote loss control investment, and better mirror cost generation.
Chronic physical	Relevant, always included	Chronic physical risks are evaluated as part of our long-term risk management and business continuity efforts, which is led by our Risk Leader Committee according to our ERM process, described in C2.2. Each of our business units works with the Global Strategy Team to set short- and long-term strategy around locations of operation, facility placement, and markets we serve. Climate risk is integrated into business decisions, including siting of facilities and areas of operation. Greif's facilities undergo loss control engineering inspections by our property insurance company periodically and every two years Greif's highest risk facilities are audited through third parties to assess natural disaster and safety risks. Inspections are conducted by engineers and focus on identifying physical risks to the facility and ways to reduce and control those risks. We make capital investments in our facilities to mitigate the risks identified in these inspections and audits. For example, Greif recently opened a new facility in Palmyra, Pennsylvania. During the site selection process, we evaluated the risk of flooding to ensure the new facility was not located in a flood zone. We also installed a custom designed sprinkler system to best protect the facility in the unfortunate event of a fire. In 2019 we completed an upgrade to the roof for one of our Houston, Texas facilities to better protect against hurricane-related wind and water damage. We continue the engineering and protection work across our operations and have plans to continue making roofing upgrades at our Houston facility in the coming years. When determining the closure of our former Mobile Mill, one of the factors considered during the selection process was the hurricane risk the facility faced. At our two Delta campuses in Houston, we have begun a loss control investment to address fire related risks. Additionally, we will be implementing risk based cost allocation, which will use a site's relative risk as a rate factor for how the facility is allocated cost to promote loss control investment, and better mirror cost generation.

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

Chronic physical	Rising sea levels
------------------	-------------------

Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Climate change, to the extent it produces rising temperatures inducing sea level rise, may adversely impact our ability to manufacture and transport our products. Our operations include facilities in low-lying coastal areas such as Europort, Vreeland, and Asterweg, in the Netherlands, Malaysia, Singapore, and certain regions in China, which may be significantly impacted by sea level rise. These facilities produce many steel and plastic drums and intermediate bulk containers (IBC) products that are core to our Global Industrial Products (GIP) business, including some of Greif's sustainability tagged products (please see 4.5a) such as lightweight steel drums, NexDrum® and GCUBE IBCs. Our facilities are strategically located in close proximity to our customers and seaports to minimize logistics and transportation costs, which can be significant due to the weight of raw materials that are transported in Greif packaging. Adaptations due to sea level rise may lead to increased logistics costs, production interruptions, or potentially facility relocation, each of which could disrupt Greif's strategic locations.

Time horizon

Long-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)

<Not Applicable>

Potential financial impact figure – minimum (currency)

450000000

Potential financial impact figure – maximum (currency)

50000000

Explanation of financial impact figure

19 Greif facilities, and a few of our offices, are situated in low-lying coastal areas, accounting for 10% of Greif’s revenue from the manufacture of rigid industrial packaging products and closures. According to the Fifth Assessment of the Intergovernmental Panel on Climate Change (IPCC), such areas are at risk of the consequences of sea-level rise. A study from the European Commission’s FP7 notes that “expected annual damage from flooding [in Europe] is projected to grow to around €5 bil. by the 2020s [and] €11 bil. by the 2050s.” A 2008 study by the Dutch Deltacommissie estimated costs of adaptation to sea level rise increasing up to €1.6 bil./year by 2020, and €1.5 bil. through 2100. With operations and customers in these lands, Greif may bear some of these adaptation costs. Potential financial impact assumes that all Greif facilities at risk of sea level rise will need to be relocated at the full value of the facility and revenues generated from those facilities will be lost for a period of one year.

Cost of response to risk

286200

Description of response and explanation of cost calculation

Each of our business units works with the ELT to set short- and long-term strategy around locations of operation, facility placement, and markets we serve. Climate risk is integrated into business decisions, including location of facilities and areas of operation. Greif purchases property insurance to protect assets from losses associated with fire, flood, wind storm, and earthquake. Such coverage would cover the total loss of a facility and machinery and equipment replacement costs. In addition to asset protection, Greif purchases business interruption coverage, which protects the company from loss of profits due to a loss from covered natural disasters. Business interruption coverage includes contingent coverage, protecting Greif from loss of supply of raw materials and loss of customer business provided that such losses are due to the supplier or customer sustaining a loss due to a covered natural disaster. In 2017, Greif’s NA operations in Texas and Florida were hit by hurricanes Harvey and Irma, resulting in \$5.3 million of impact to our business. Despite the impact, our risk management and business continuity practices, as described above, allowed us to meet our customer commitments during recovery without declaring force majeure. In 2019, Greif opened a new facility in Palmyra, Pennsylvania. During the site selection process, we evaluated the risk of flooding to ensure the new facility was not located in a flood zone. In 2020, Greif Paper Packaging & Services’ Tama Paperboard facility was impacted by a derecho, shutting the facility down for a week. Our Sweetwater and Los Angeles Paperboard facilities were able to cover the necessary supply to meet customer demand. When repairing the roofs damaged in the derecho, we upgraded the decking materials to make the roof stronger. In an effort to improve our resilience should we be impacted in the future we upgrade our facilities such as an upgrade to the roof for one of our Houston, Texas facilities to better protect against hurricane-related wind and water damage. Additionally, we will be implementing risk based cost allocation, which will use a site’s relative risk as a rate factor for how the facility is allocated cost to promote loss control investment, and better mirror cost generation. Cost of response includes spending on this, and similar, resilience-related upgrades made to the 19 Greif facilities subject to this risk. As this cost is variable from year to year, cost is provided for 2020 only.

Comment

Referenced sources include: OECD Environment Working Paper: Ranking Port Cities with High Exposure and Vulnerability to Climate Extremes; Environmental Technology: Which Countries are Most at Risk of Rising Sea Levels?; Quaternary Science Reviews: Expert assessment of sea-level rise by AD 2100 and AD 2300; Surging Seas Risk Zone Map (<https://ss2.climatecentral.org>).

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Increased severity and frequency of extreme weather events such as cyclones and floods
----------------	----------------------------------------------------------------------------------------

Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Climate change, to the extent it impacts the frequency and severity of precipitation extremes and related natural disasters— including wildfires and flooding—may impact our ability to manufacture and transport our products. Such climate-related extremes may impact our footprint in any geography at any time. Greif’s Mexico and United States operations in Florida, Texas, and Louisiana are at specific risk of hurricanes and California locations are at specific risk of drought and wildfires. In 2017, Greif’s North American operations were hit by hurricanes Harvey and Irma, resulting in \$5.3 million of impact to our business. Despite the impact, our risk management and business continuity practices allowed us to meet our customer commitments during recovery without declaring force majeure. In 2018 and 2019, no Greif facilities were directly impacted by acute physical events, however we did complete facility upgrades to continue to improve our resilience should we be impacted in the future. In 2020, Greif Paper Packaging & Services’ Tama Paperboard facility was impacted by a derecho, shutting the facility down for a week. Our Sweetwater and Los Angeles Paperboard facilities were able to cover the necessary supply to meet customer demand. When repairing the roofs damaged in the derecho, we upgraded the decking materials to make the roof stronger. In March 2020, a tornado damaged a third party warehouse where approximately \$5 million of Greif’s finished goods were damaged. We leveraged 7 plants to produce additional product for customers and account for inventory that was damaged during the tornado.

Time horizon

Medium-term

Likelihood

Virtually certain

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

3000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Several of Greif's operations are subject to temporary disruptions or increased costs due to extreme weather events, including flooding and drought. A significant number of our manufacturing facilities are situated nearby our customers to minimize the impact of freight and enhance customer service. This strategy also facilitates our business contingency plans, which focus on moving production to other facilities during any business interruptions. Supplying our customer base from an alternate location may increase freight costs and/or production costs, however we are confident in our abilities to efficiently and effectively support the supply chain during any period of the interruption. A recent review of several loss events enables an estimated exposure range of \$1 million to \$3 million due to production downtime and lost revenues associated with facility closure events with a duration of less than a year. The provided financial impact is the impact of one such event at one facility.

Cost of response to risk
9550000

Description of response and explanation of cost calculation

Each of our businesses works with the ELT to set short- and long-term strategy around locations of operation, facility placement, and markets we serve. We also assess business continuity risk and implement redundancy plans to mitigate risks related to changing physical conditions. Our operations are strategically placed to allow for redundancies throughout our operations. Greif has a proven record of quickly and efficiently shifting production to other production facilities to meet our customers' needs, which is formalized in our Disaster Recovery/Business Continuity Program, which was put into place in 2017 during Hurricanes Harvey and Irma, which impacted our Texas and Florida operations. Greif purchases total loss property insurance to protect assets from losses associated with fire, flood, wind, storm, and earthquake. Such coverage would cover the total loss of a facility and machinery and equipment replacement costs. In addition to asset protection, Greif purchases business interruption coverage, which protects the company from loss of profits due to a loss from covered natural disasters. Business interruption coverage includes contingent coverage, protecting Greif from loss of supply of raw materials and loss of customer business provided that such losses are due to the supplier or customer sustaining a loss due to a covered natural disaster. Greif insurance covers additional costs of shipping if production is temporarily shifted due to climate related natural disasters. The provided cost of response is the amount Greif spends on total loss property insurance, which, as noted above, is made to mitigate the impact of this risk.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Upstream

Risk type & Primary climate-related risk driver

Market	Increased cost of raw materials
--------	---------------------------------

Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Greif's Global Industrial Packaging (GIP) business, with operations in over 40 countries, accounted for approximately 57% of our global revenue in 2020. GIP produces multiple lines of steel drums, including our Large, Conical, and Composite steel drums product lines, placing steel among our leading raw material inputs. Accordingly, the price of steel has a significant impact on the profitability of our business. If we are unable to manage steel pricing, our margins suffer and we may not be able to offer our customers competitive prices for our products. In 2020, the COVID-19 pandemic had a substantial impact on steel prices as demand dropped substantially before rebounding in late May. In late 2020, supply of steel lagging behind demand has led to a spike in the price of steel and steel shortages. (Source: 2021 Gensteel Pricing Forecast). We know that active management in the form of lightweighting, downgauging, recycling and reconditioning our products to reduce the use of raw materials is needed to mitigate this risk, and have taken steps to do so. Down gauging resulted in \$1 million USD in raw material savings in 2019. Our production costs are at risk of rising due to an increase of fuel, transportation, and natural gas costs. Driver shortages and increasing fuel costs increase our transportation costs. Our PPS operations, located in Riverville, VA and Massillon, OH, are heavily reliant on natural gas, which is forecasted to decrease in price as supply increases over the coming years. This impacts both our production costs, and raw material supply costs.

Time horizon

Medium-term

Likelihood

Virtually certain

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The financial impact is based on the aggregated results of the Greif Enterprise Risk Management committee, who have identified the potential financial impact of raw material price volatility to be approximately \$5 million. Quarterly, the risk committee evaluates the likelihood and financial impact of each risk, as described in C2.2. As part of rating the risks from (high, medium, low); respondents are asked to provide a quantitative measure of the impact. The quantitative measure is compared to the risk factors (or factors contributing to the risk rating). Financial impact is determined based on the outcome of this process, which is informed by the information detailed in the company-specific description of this risk, as well as the volume of raw materials used and required in Greif's operations.

Cost of response to risk

11586124

Description of response and explanation of cost calculation

Price volatility is managed by our Global Procurement and Supply Chain team as well as our innovation efforts focused on transforming our product portfolio by developing sustainable packaging solutions based on a set of 8 environmental, social, and financial sustainability criteria. Through internally-initiated solutions and collaboration with

customers, our innovation efforts focus on dematerialization—producing products that are lighter weight, utilize less virgin raw materials and more recycled content and identifying safer materials while continuing to meet performance requirements. In 2019, our dematerialization efforts like reductions in steel, lead to \$1 mil. in savings. Greif's line of Composite Steel Drums is produced using steel that is up to 1.5mm thinner than conventional drums. Innovation is managed by our Global Innovation Committee, comprised of representatives from each of Greif's business units (BUs). This structure facilitates idea sharing and collaboration across the enterprise, which allows ideas to serve and influence multiple BUs. The committee updates Greif's Executive Leadership Team quarterly providing progress on innovation priorities and industry megatrends that may influence investment and overall company strategy in the future. Innovation is managed by a process that evaluates and prioritizes projects based on potential financial return, sustainability impacts and overall value to Greif and our customers. Beginning in 2019, Greif began incorporating results from our internal Global Trends Report into our ERM process. Based on interviews with internal leaders and secondary research, the report identifies global trends with particular relevance to our business such as Companies are Becoming More Environmentally Friendly; Digitization & Automation of Manufacturing and Digitization of Supply Chain & Logistics. In conjunction with other internal and external sources that are considered in our ERM process, the trend report improves our ability to forecast and plan for long-term trends that may impact our business in the future, including those related to our supply chain and logistics. Cost of response includes \$11,436,124 in R&D investments made in 2020 on sustainability tagged products that, in addition to reducing emissions and energy use, reduce Greif's reliance on virgin raw materials and \$150,000 as an estimate for the salary of Greif's procurement team that is attributable to time spent on actively managing this risk.

Comment

Cost of management includes: \$11.4 million in R&D investments made in 2020 on sustainability tagged products that, in addition to reducing emissions and energy use, reduce Greif's reliance on virgin raw materials. \$150,000 as an estimate of the salary of the Sustainability Procurement Team that is attributable to time spent on actively managing this risk.

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?

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

In 2020, Greif conducted a Voice of the Customer project engaging over 600 Greif customers through interviews and surveys. 65% of customers surveyed believe that in the next five years, their sustainability goals will have an impact on their requirements for sustainable packaging. Additionally, 84% of customers surveyed stated that increased availability of more sustainable packaging could be or is useful in supporting their sustainability performance. The results of our 2020 Materiality Assessment also reinforced these findings. Our climate strategy, cradle to cradle, and innovation related topics were identified as high priority topics to our customers. Our 2019 Global Trends Report, which highlighted similar concerns and opportunities along our supply chain (see C2.2). We regularly collaborate and engage with our customers to improve our customer service and ability to enable their sustainability goals (see C12.1b). As a manufacturer of industrial packaging, Greif can play a unique role in helping our customers reach their sustainability goals. In many cases, empty Greif packaging must be transported to a customer to be filled, and then transported to our customer's customers for use. As such, the manufacture and transportation of Greif packaging can be areas of opportunity for companies to reduce both upstream and downstream costs and emissions. Greif works with our raw material suppliers, transportation partners, and internal teams to develop lighter weight and more energy efficient products and provide transportation and ancillary services to help our customers reduce emissions associated with our packaging (e.g. EcoBalance, NexDRUM®), as described in the estimated financial impact and strategy to realize columns. To manage logistics in an environmentally responsible manner, Greif uses carriers that are approved through the EPA's SmartWay initiative whenever possible. We include SmartWay certification during our new carrier certification process. We have transitioned 50 percent of our North American fleet to solar-powered GPS units through 2020. In Latin America, we have conducted truck modification projects at various facilities to allow our trucks to carry more drums during each trip. By carrying more drums, we are able to reduce the number of trips and accompanying GHG emissions.

Time horizon

Medium-term

Likelihood

Virtually certain

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

380100000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

In 2020, Greif realized \$362 million from sustainability-tagged products (please see C4.5a for additional information). The estimated financial impact provided is based on a conservative five percent growth rate across Greif's entire sustainability-tagged product portfolio for one year of sales.

Cost to realize opportunity

11436124

Strategy to realize opportunity and explanation of cost calculation

Greif addresses this opportunity by providing tools and collaboration opportunities that allow our customers better access and visibility to how our products impact their value chain. Greif's sustainability-driven products better enable our customers to achieve their goals and will play an increasing role in differentiating Greif from competitors. For example, in Latin America, we designed a novel plastic drum innovation using a faceted side-wall approach. This improvement removed up to 14 percent of the resin while maintaining current performance. Due to the change in shape, this new side-wall approach optimized pallet utilization, allowing more drums to be transported in the same space. This faceted drum is more sustainable in both reducing natural resource consumption during manufacture and transportation. Our Green Tool allows customers to evaluate the environmental impact of our products and select optimal packaging solutions to mitigate emissions. We are working directly with 21 of our customers to take their current Greif product(s) and decrease the raw material input, weight, and increase the use of recycled content to create closed loops and minimize waste. In 2017, Greif established a goal to reduce raw materials/logistical costs used to produce current product offering by 1% and established formal innovation processes/teams. These teams collaborate with customers to increase the number of sustainable products in our portfolio by developing products that are lighter weight, utilize less virgin raw materials in favor of recycled materials and reduce emissions associated with our products. Cost to realize opportunity represents Greif's 2020 R&D investments in sustainability-tagged products, which can include spending on new production lines, manufacturing tooling, and/or and machine or facility upgrades that are needed to more efficiently produce sustainability-tagged products, introduce or expand production capability/capacity for sustainability-tagged products, or enable production of sustainability-tagged products in new facilities, or begin producing new sustainability-tagged products. For example, Greif invested \$2.8 million to expand our IBC reconditioning capabilities at our Mendig, Ellesmere Port, and Ede facilities. Cost to realize opportunity includes \$11,436,124 in R&D investments made in 2020 on sustainability tagged products.

Comment

Cost to realize opportunity includes \$11,436,124 in R&D investments made in 2020 on sustainability tagged products.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

As corporations, investors, and the general public are becoming increasingly attuned to climate change issues, industrial manufacturing clients are at risk of changing public perceptions around a company's operations and product lines. Greif, as an industrial manufacturer of products that may be perceived as energy, emissions, and waste intensive, may be adversely impacted by perceived brand and reputational risk. By developing products and services that can decrease customers' GHG emissions and waste in their value chain, and publicly communicating our sustainability commitments, Greif can set itself apart from competitors and ensure the success of its reputation. In 2020, Greif conducted a Voice of the Customer project engaging over 600 Greif customers through interviews and surveys. 65% of customers surveyed believe that in the next five years, their sustainability goals will have an impact on their requirements for sustainable packaging. Additionally, 84% of customers surveyed stated that increased availability of more sustainable packaging could be or is useful in supporting their sustainability performance. The results of our 2020 Materiality Assessment also reinforced these findings. Our climate strategy, cradle to cradle, and innovation related topics were identified as high priority topics to our customers. Using data from third-party life cycle assessments, the Greif Green Tool contains energy and emissions data for all of our Rigid and Flexible Packaging products and services and allows us to collaborate with our customers to help them select packaging solutions that lower emissions and their overall carbon footprint as much as possible. In 2019, Greif used the tool to collaborate with a chemical specialty customer in Italy to identify more sustainable products for them. The analysis helped identify four projects to present to the customer – transitioning to lighter-weight jerry cans, increasing use of products with high percentages of postconsumer resin (PCR), create and coordinate closed loop packaging in Europe, and test Greif's GCUBE Track technology to optimize logistics and supply chain. The customer implemented two of these projects and will continue to evaluate the remaining for implementation in 2021. In 2020, Greif generated \$362 million in revenue from sustainability tagged products.

Time horizon

Long-term

Likelihood

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)

11292205

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Positive perceptions surrounding Greif's sustainability-driven product lines could trigger an increase in stock price resulting in higher market capitalization for Greif. For example, as of December 13, 2019, Greif (GEF) had 26,260,943 outstanding shares of Class A stock trading at a value of \$43.82 per share. A 1% increase in value due to positive perception would result in an increase of \$0.43 per share, or a new stock value of \$44.25, and an increased market capitalization of \$11,292,205.

Cost to realize opportunity

300000

Strategy to realize opportunity and explanation of cost calculation

In 2016 we established board oversight of sustainability to enhance and continue developing our sustainability program and climate change initiatives. Members of our Sustainability Steering Committee maintain relationships with sustainable development organizations, including WBCSD and UNGC (of which we are a signatory) and lead our reporting efforts, including our annual CDP response and GRI-aligned sustainability report. In 2019, we collaborated with WBCSD to participate in a pilot program to further integrate climate and sustainability risks into our ERM process and joined their ReScale and Energy Solutions working groups, focused on renewable energy and climate and energy, respectively. Many of Greif's customers are also members of WBCSD and these working groups. We participate in third-party assessments (e.g. Sedex, Together for Sustainability, EcoVadis) and share our results to build trust with our stakeholders and further our reputation as a company that is committed to transparency and continuous improvement. We foster a culture of innovation that encourages sustainable product development and considers the end-of-life of our products. After conducting LCAs on our entire rigid and flexible products and services lines, we created Earthminded LCS, which recollects, reconditions and enables reuse of used industrial containers, and developed the Greif Green Tool, which allows customers to identify and choose Greif products that mitigate the emissions impact of their industrial packaging. Product innovation, including incorporating sustainability factors into our products, is managed by our Global Innovation Committee, comprised of representatives from each Greif business unit and is responsible for driving collaboration and idea sharing across and within business units. The committee updates Greif's Executive Leadership Team (ELT) quarterly on progress on innovation priorities and industry megatrends that may influence investment and company strategy in the future. Greif manages innovation through a process that evaluates and prioritizes projects based on potential financial return, sustainability impacts and overall value to Greif and our customers. Cost to realize opportunity includes updates to the Green Tool, membership dues to sustainable development organizations (e.g. WBCSD), costs for completing sustainability assessments (e.g. EcoVadis), and costs related to sustainability reporting (e.g. Greif's annual GRI report and data verification).

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

The cost of producing and transporting our products is sensitive to the price of energy. Energy prices, in particular oil and natural gas, have fluctuated in recent years with a corresponding effect on our production costs. Potential legislation, regulatory action and international treaties related to climate change may result in increases to energy costs. To date at least 40 countries and 24 subnational regions (states, provinces etc.) have already or are scheduled to soon make polluters pay with a national or regional price on carbon, including 16 where Greif currently operates: Poland, Sweden, Denmark, Netherlands, UK, Ukraine, France, Spain, Portugal, Canada, Mexico, South Africa, Singapore, Colombia, Chile and Argentina. Since 1997, there has been a 20-fold increase in the number of global climate change laws, according to the most comprehensive database of relevant policy and legislation (Source: Mapped: Climate change laws around the world). We believe it is likely that the scientific and political attention to issues concerning the extent and causes of climate change will continue, with the potential for further regulations that could affect our operations and financial condition. Foreign, federal, state and local regulatory bodies have proposed various measures relating to climate change, regulating GHG emissions and energy policies, for example, California expanded its cap-and-trade program to cover 85% of GHG emissions, impacting 10 Greif facilities in California. In China, at least 9 regulatory changes are impacting our operations (China accounts for 1.1% of Greif's Scope 1 emissions), including reductions in hazardous fine particulate matter, capping of particulate matter, and increased air pollution inspections. Examples of these regulations include the Integrated Emission Standards for Air Pollutants and Volatile Organic Compound Emission Standards. Due to these changes in legislation/regulation, we could incur increased energy, environmental and other costs and capital expenditures to comply with the limitations. Failure to comply with these regulations could result in fines and negatively affect our business, however also afford us the opportunity to proactively improve our energy efficiency, thereby reducing our costs and exposure to these risks. We have entered into short-term contracts to hedge certain of our energy costs, but are also taking more permanent measures that positively impact our business like investing in renewable energy.

Time horizon

Medium-term

Likelihood

Virtually certain

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

10000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We are increasing the use of renewables across our business, both through investments in our direct operations and sourcing renewables via energy contracts. The total impact of these programs is estimated annually as we develop facility-level energy roadmaps identifying energy efficiency projects to be completed in the following year. In North America alone we have installed more than 2,000 solar panels, delivering 2.7 mil. kilowatt hours (kWh) of energy and saving more than \$100,000 annually. Throughout our China operations, we source renewable energy through 4,800 solar panels via energy purchase contracts. We are also investing in more energy efficient equipment in our operations. In 2020, we completed 55 projects resulting in \$724,419 in savings. In working to achieve our 2020 energy and emissions goal, we estimate a \$10 mil. savings opportunity annually.

Cost to realize opportunity

1394240

Strategy to realize opportunity and explanation of cost calculation

Greif set a 2020 goal to achieve 10% reduction in energy and GHG emissions per unit of production over a 2014 baseline. Greif's Sustainability Steering Committee (SSC) is responsible for developing strategies and overseeing tactics to drive progress against this goal. The SSC guides the activities of our Sustainability Management Team and Global Energy & Emissions Team (GEET). Having achieved and exceeded our target by reducing GHG emissions 11%, we announced a new commitment to reduce our Scope 1 & 2 emissions by 28% by 2030 from a 2019 baseline. This new target is aligned with prevailing climate science to limit overall global warming to well below 2

degrees Celsius. We also committed to assessing of our Scope 3 emissions and determine the feasibility of a long-term net zero emissions aspiration in alignment with the SBTi. Since 2010 Greif has maintained a GEET, currently consisting of more than 20 members, responsible for coordinating energy and emissions reduction projects throughout the company and identifying specific operational risks and opportunities that can contribute to meeting our climate goals. In 2019 we restructured the team to put more emphasis on regional leadership to better engage and identify energy opportunities within each business unit (BU) and include legacy Carastar facilities. This change in structure has allowed us to streamline our energy roadmap process to focus on and invest in the BUs and facilities that have the most impactful energy opportunities. In 2020, Greif's Dalton facility initiated a project with existing customers to educate them on the benefits of reducing waste to landfill and evolving recycling economics. The project involved creating a closed loop with two customers to collect and recycle their waste and turn this waste into new products within the network to sell back to the same customers. The project developed stronger customer partnerships; improved financial results; enhanced our continuity of fiber supply; and will divert more than 40,000 tons of customer waste from landfills. Due to the outstanding sustainability impact of the project, the project was awarded the 2020 Michael J. Gasser Sustainability Award. Cost to realize opportunity is presented for FY2020 only, representing the cost of implementing energy projects for the fiscal year. We estimate a \$10 million savings opportunity annually through our efforts to increase our resource efficiency through renewables and energy savings projects.

Comment

Cost to realize opportunity is presented for FY2020 only. We estimate a \$10 million savings opportunity annually through our efforts to increase our resource efficiency through renewables and energy savings projects.

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1b

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years	No, we do not intend to include it as a scheduled AGM resolution item	

C3.2

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

Yes, quantitative

C3.2a

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

Climate-related scenarios and models applied	Details
2DS Other, please specify (1.5-degree scenario, Greif-specific scenario developed based on existing business forecast and energy and emissions reduction plans)	As part of the development of our 2030 goal to reduce absolute Scope 1 and Scope 2 GHG emissions 28 percent over a 2019 baseline we conducted scenario analysis and modeling to determine the feasibility and implications of aligning our target to be consistent with the level of decarbonization required to keep global temperatures to well-below 2-degrees Celsius, 1.5-degrees Celsius, and business-as-usual considering existing business forecasts and energy and emissions reduction plans. We selected these scenarios in alignment with the criteria established by the Science Based Targets Initiative for setting climate targets aligned with climate science. As part of the criteria, best practice is for targets to cover a minimum of 5 years and a maximum of 15 years. In line with this recommendation, we selected 2030 for our target coverage and scenario modeling. The scenario analysis covered all our operations. To better understand the business case of the different target ambition levels, we also considered the implications of carbon taxes under the described scenarios. We used the IEA's WEO to provide projected carbon prices and evaluate the financial implications of carbon prices to our business. The results of the scenario analysis demonstrated opportunities to expand on our current energy and emissions roadmaps and the investment in renewable energy or renewable energy credits required to align our decarbonization with the various scenario pathways. With our projected production growth through 2030, our existing energy and emissions roadmaps were not sufficient to align with SBTi's absolute contraction level. The scenario analysis informed our GHG emissions target setting process and approach to renewable energy procurement. As a result of the analysis, we have established a partnership with a third party to advance our strategic approach to further utilize alternative energy sources. We are also in the process of conducting further scenario analysis to understand the risks and opportunities our business faces due to climate change. We will be conducting this more robust analysis through 2021 and into 2022.

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	Greif's products and services are impacted by each risk and opportunity identified. Mitigating raw material price volatility is one of the primary goals of our efforts to lightweight and downgauge our product lines. The core of this effort is reducing the amount of virgin raw materials used in our products, which directly impacts our exposure to this risk. Downgauging results in approximately \$1 mil. in raw material savings annually, including in 2019. Our products are impacted by the risk of sea level rise and change in precipitation extremes. 19 of Greif's production facilities are located in areas at risk for flooding due to sea level rise. In 2020, these facilities accounted for over \$472 mil. in revenue. Greif's business continuity and disaster response program mandates that all products must be able to be co-produced at multiple facilities so that we can service customer orders in the event of a shut-down. Greif's production and transportation services must account for the potential that products may be produced and shipped from back-up production facilities. Each Greif product benefits from our energy efficiency programs as a result of lowered operating expenses impacting our overall cost of production. Since each facility is expected to identify and complete energy efficiency projects each year, all product lines benefit from this opportunity. In 2020, we completed 55 projects, and commenced 5 more, leading to a 3,615 metric ton reduction in CO ₂ e. Changes in customer preferences towards low emission packaging require changes to Greif's products to remain competitive. Greif has identified 8 sustainability criteria to factor into new product development, set sourcing goals for green material inputs and launched numerous products. As of year-end 2020, Greif realized \$362 mil. in revenues from 18 product and service lines as sustainable. Our products and services are impacted by our reputation to the extent that we can effectively communicate and prove the benefits to the market/customers. The Greif Green Tool allows our customers to identify the emission impact of their selected Greif products in their value chain, including raw materials, production, transportation, and end-of-life, and evaluate the benefits of moving to low/lower carbon products. Since being developed, over 80 customers have used the tool.
Supply chain and/or value chain	Yes	Greif's upstream and downstream value chain is impacted by sea level rise and changes in precipitation extremes and drought risk. These risks could result in temporary shut-downs, or long-term relocations, particularly in the case of sea level rise. Our sourcing and procurement strategy is highly dependent on sourcing raw materials in close proximity to our production facilities. Operational changes could lead to changes in spending patterns with suppliers, including short-term reductions in spend and long-term elimination of suppliers. Price volatility may impact suppliers in the event Greif identifies favorable pricing for like materials with alternate suppliers. Conversely, Greif's inability to control pricing could lead to reduced margins, or increased prices to our customers. Supplier performance against our supply chain goals; to reduce raw materials/logistical costs used to produce current product offering by 1% and move to green material sourcing if it is economically feasible and doing so provides high quality products to our customers by the end of fiscal year 2025, account for 5% of our supplier scorecard. Greif's innovation efforts offer positive impact to our customers, who may experience lowered prices (for Greif products and transportation), increased performance, and/or reduced environmental impact for product changes, but can cause negative impact to suppliers, particularly through our light weighting and downgauging programs. For example, in FY 2019, Greif reduced raw material use by 0.001%, resulting in \$1 million less in spending with our suppliers. That is due to gauge reduction, inventory reductions (less demand), switching to water-based paints, etc. Greif's energy efficiency improvements positively impact our customers in the form of reduced Scope 3 emissions as well as improving their reputation of working with sustainable suppliers. In 2019, our Los Angeles and Fitchburg mills engaged in one time sales of emissions reduction credits valued at over \$1 million. Our NexDrum product offers 12% reduction in emissions, which can benefit emissions reporting for our downstream stakeholders. Our focus on energy efficiency and emissions reductions extends to our suppliers whom we request respond to the extensive ESG EcoVadis supplier questionnaire and comply with our Supplier Code of Conduct which sets climate-related expectations.
Investment in R&D	Yes	Greif makes investments in R&D to develop products that protect against raw material price volatility, reduce our Scope 3 greenhouse gas emissions and waste to landfill and allow us to address opportunities related to changing customer preferences and reputation. Greif's product development and innovation efforts are supported by R&D investments to develop products that reduce our reliance on virgin raw materials through light weighting, downgauging, improving production methods, and increasing the use of recycled materials without compromising required performance standards and regulations. In 2020, Greif invested approximately \$11.4 million in R&D for our sustainability-tagged products, which represent approximately 8% (\$362 million) of Greif's revenues. Down gauging and increasing the use of PCR in our products directly reduces the raw materials required to produce our products, such as the DoubleGreen product line Jerrycan, which is produced using 28.5% less polyethylene resin than comparable cans and uses bioplastics, and EcoBalance™ product line made using 75% PCR, including some Jerrycans that can be made with 100% PCR. We also invest in R&D to develop new production methods, in part to support producing such products. For example, to produce our NexDrum plastic drum, we developed an innovative injection and welding process that works with reduced material inputs, without negatively affecting the performance and stability of the drum. This process allows us to produce the NexDrum using 15% less material and results in a 12% reduction in CO ₂ emissions compared to our standard blow molded plastic drum. Since these types of R&D investments directly lead to a reduction in raw materials needed to produce our products, our exposure to raw material price volatility is reduced. In 2019 we realized \$1 million in savings from our downgauging program. These types of investments directly address changes in customer preferences and our reputation. The products developed through our R&D investments, such as those described above, address our customers' increasing demand for more sustainable, reduced emissions and lighter weight products. Promoting and discussing these products through our Products and Services page and Innovation and Supply Chain Management pages of our sustainability report enhance our reputation as an aware and responsible steward of the climate.
Operations	Yes	Sea level rise and changes in precipitation may lead to operational shut-downs and associated expenses, per the risk description, financial implication and strategy to mitigate described in 2.3, Greif operations include facilities in low-lying coastal areas and those at risk for hurricanes, for example Florida, Texas, Louisiana, Georgia, Virginia, and North Carolina in the United States. Greif's disaster response program mandates that all products must be able to be co-produced at multiple facilities so that we can maintain production in the event of a shut-down. Accordingly, all of Greif's operations, not just those directly at risk of these events, must be prepared to respond to them. As an asset-heavy industrial manufacturer, we have significant energy efficiency opportunities in our direct operations. Our Sustainability Steering Committee and Sustainability Management Team work with our Global Energy & Emissions Team to develop annual project roadmaps identifying energy efficiency opportunities at each Greif facility. In 2020, 55 energy efficiency projects with a combined impact of 14.3 million kWh and \$724,419 in savings were implemented across Greif's operations. For example, Greif's Tacoma mill implemented a boiler efficiency improvement project resulting in savings of \$35,338 and 3.4 million kWh annually. Our commitment to transparency to support our reputation impacts our operations through third party audits and management of our Environmental Management System (EMS). Greif participates in third-party audits at the request of our customers to establish, protect, maintain, and publicly communicate our practices. Through the end of 2020, Greif participated in 13 third-party audits conducted by Sedex and Together for Sustainability, including evaluation of our energy and emission use and environmental compliance systems. Realizing our opportunity in changing customer expectations requires our operations to develop new production capabilities, invest in new production equipment and add new products to their production lines. For example, in 2018 we introduced a UN-certified PCR drum. This could only be initially produced in one Illinois facility. In 2019, we expanded production to our Hazelton, Houston and Lavonia facilities in North America.

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 Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital Assets Liabilities	<p>Climate related risks and opportunities influence all elements of Greif's financial planning. Greif's opportunity in changing customer behavior has factored into our revenues forecast through a predicted shift in product mix from conventional to sustainable and/or low emission products (e.g. NexDrum, see 2.4a). Revenue can also be impacted by raw material price volatility. In the event raw material prices lead to increased prices to our customers, we are at risk of losing their business. We reduce our exposure to this risk and address the customer behavior opportunity, in part, through our efforts to lightweight and downgauge our product lines. In doing so, we offset potential revenue losses from conventional packaging and addressing market demand, providing revenue growth. Revenue from Greif's sustainability-tagged products totaled \$362M, 8% of total revenue in 2020. We have forecasted 2 to 24% annual growth for select sustainability-tagged products. Raw material price volatility poses a direct risk to Greif's operating costs, specifically energy, water, and transportation costs. Price volatility may be compounded by the risks of sea level rise and changes in precipitation extremes, which may lead to operational shutdowns in at risk facilities. 10% of Greif's revenues ship from facilities that are at risk of sea level rise and changes in precipitation. If these facilities are impacted by these risks, Greif could lose revenues due to lost customer orders. We have accounted for this in our financial planning process by establishing a natural disaster response protocol, across our Global Industrial Products North America business unit, mandating that all of our products can be manufactured at multiple facilities and purchase business interruption insurance coverage protecting from loss of revenue and customer business due to a loss from covered natural disasters. In the event of a shutdown, our Disaster Recovery / Business Continuity program outlines our processes for fulfilling customer orders at back-up production facilities. Changes in production and shipping locations have meaningful impacts on our transportation costs, both incoming for raw materials and outgoing to our customer locations. Climate-related weather impacts are included in Greif's Enterprise Risk Management process and factored into our Sales and Operations Planning process (S&OP), including planning maintenance and upgrades to our existing facilities. Every two years Greif's highest risk facilities are third-party audited for natural disaster and safety risks. Based on audit findings, Greif makes capital investments to address those risks, such as upgrading the roof in one of our Houston, Texas facilities to better protect against wind and water damage that was caused by hurricanes. Capital expenditure decisions such as these, including supply chain and infrastructure projects that support business continuity and address climate related risks, are formally part of our financial planning process. Our global procurement team has worked to establish supplier/supply chain redundancies to ensure consistency of supply. In 2020, Greif Paper Packaging & Services' Tama Paperboard facility was impacted by a derecho, shutting the facility down for a week. Our Sweetwater and Los Angeles Paperboard facilities were able to cover the necessary supply to continue meeting customer demand. Executing on our energy efficiency opportunity requires the investment of financial capital, impacts our manufactured capital and directly impacts our operating costs. Since capturing energy efficiency opportunities involves replacing manufacturing equipment in our production facilities and changes the amount and cost of energy used in our manufacturing processes, realizing our energy efficiency opportunities impacts our manufactured capital. In 2020, Greif invested \$1.4 million in capital expenditures to complete 55 energy efficiency projects, saving 3,587 metric tons of CO₂e and \$724,419 annually. Innovation efforts undertaken to capture changing customer preferences have led to intellectual property assets. For example, to produce our NexDRUM plastic drum, we developed a proprietary injection and welding production process that works with reduced material inputs, without negatively affecting the performance and stability of the drum. This process allows us to produce the NexDrum using 15% less material and results in a 12% reduction in CO₂ emissions compared to our standard blow molded plastic drum. Liabilities associated with environmental, health and safety claims that may arise from damages resulting from sea level rise or extreme weather events are covered by Greif's comprehensive insurance policies, which attempt to mitigate Greif's financial exposure in the event of these risks were to occur. We have made approximately \$11.8 million in expenditures on insurance policies to protect against the financial impacts of these risks. Greif purchases total loss property insurance to protect assets (facilities, machinery and equipment) from losses associated with fire, flood, windstorm and earthquakes. Greif purchases business interruption coverage, which protects from loss of profits due to a loss from covered natural disasters, including contingent coverage, protecting Greif from loss of supply of raw materials and customer business provided that such losses are due to the supplier or customer sustaining a loss due to a covered natural disaster, and covers additional costs of shipping if production is temporarily shifted due to climate related natural disasters. Greif has allocated human and financial capital to address changing customer expectations and our reputational opportunity. Our Sustainability Steering Committee (described in 1.2a) has access to financial capital to make investments in enhancing our sustainability reputation, including partnerships with organizations such as the World Business Council for Sustainable Development, building climate-related social and human capital in the organization, which is used to communicate with our stakeholders on a day-to-day basis, thereby helping us capture our reputational opportunity. For example, in 2020, the SSC conducted a third-party ESG materiality assessment, the results of this assessment reaffirmed the importance of climate strategy to our stakeholders. Based on the results of the assessment, Greif is further building our climate strategy into our business strategy and advancing our management and disclosure around climate in alignment with recommendations from TCFD. Financial planning, including all elements discussed above, is conducted annually and forecasted ahead 1-3 years.</p>

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Year target was set

2021

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2019

Covered emissions in base year (metric tons CO2e)

1313200

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

100

Target year

2030

Targeted reduction from base year (%)

28

Covered emissions in target year (metric tons CO2e) [auto-calculated]

945504

Covered emissions in reporting year (metric tons CO2e)

1282400

% of target achieved [auto-calculated]

8.37648492232714

Target status in reporting year

New

Is this a science-based target?

Yes, we consider this a science-based target, but it has not been approved by the Science-Based Targets initiative

Target ambition

Well-below 2°C aligned

Please explain (including target coverage)

As part of the development of our 2030 goal to reduce absolute Scope 1 and Scope 2 GHG emissions 28 percent over a 2019 baseline we conducted scenario analysis and modeling to determine the feasibility and implications of aligning our target to be consistent with the level of decarbonization required to keep global temperatures to well-below 2-degrees Celsius, 1.5-degrees Celsius, and business-as-usual considering existing business forecasts and energy and emissions reduction plans. We selected these scenarios in alignment with the criteria established by the Science Based Targets Initiative for setting climate targets aligned with climate science.

C4.1b

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

Target reference number

Int 1

Year target was set

2015

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (location-based)

Intensity metric

Metric tons CO2e per unit of production

Base year

2014

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

100

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2020

Targeted reduction from base year (%)

10

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

90

% change anticipated in absolute Scope 1+2 emissions

-24.6

% change anticipated in absolute Scope 3 emissions

5.7

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

89

% of target achieved [auto-calculated]

110

Target status in reporting year

Achieved

Is this a science-based target?

No, but we are reporting another target that is science-based

Target ambition

<Not Applicable>

Please explain (including target coverage)

Greif has tailored its greenhouse gas reduction program and targets to meet its unique business needs. Our 10% emissions intensity reduction target is calculated based on performance at each facility and each of our business units. Final corporate emissions intensity figures are based on a consolidated emissions performance from each facility and business unit. Emissions intensity figures reported here represent normalized progress against our actual emissions intensity in our base year. Greif has achieved 110% of our target and therefore exceeded the FY2020 target in FY2019.

C4.2

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

No other climate-related targets

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	0	0
To be implemented*	3	30
Implementation commenced*	5	28
Implemented*	55	3587
Not to be implemented	0	0

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)

4

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2502

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

1

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

763

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

296

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

51752

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

7400

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

1. Increase the startup speed; 2. Reduce the changeover time

Initiative category & Initiative type

Non-energy industrial process emissions reductions	Other, please specify (GHG emissions treatment and reduction)
----------------------------------------------------	---------------------------------------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

0

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

1-3 years

Estimated lifetime of the initiative

3-5 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
-------------------------------------------	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

4

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

647

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

1900

Payback period

1-3 years

Estimated lifetime of the initiative

3-5 years

Comment

Use small air compressor in night shift.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

28

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

4852

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

9700

Payback period

1-3 years

Estimated lifetime of the initiative

3-5 years

Comment

Using less energy for same job.

Initiative category & Initiative type

Energy efficiency in production processes	Fuel switch
-------------------------------------------	-------------

Estimated annual CO2e savings (metric tonnes CO2e)

9

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

6500

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

0

Payback period

<1 year

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)

11

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1207

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

4060

Payback period

1-3 years

Estimated lifetime of the initiative

21-30 years

Comment

The lighting needed replacement to LED 2020.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

15

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

3500

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

18828

Payback period

4-10 years

Estimated lifetime of the initiative

21-30 years

Comment

The lighting needed replacement to LED 2020.

Initiative category & Initiative type

Energy efficiency in buildings	Building Energy Management Systems (BEMS)
--------------------------------	-------------------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

0

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

10000

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

8000

Payback period

<1 year

Estimated lifetime of the initiative

21-30 years

Comment

We will measure the energy consumption on several stand alone machines and will be subsidized by the government.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

0

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

40

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

200

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Light bulbs in the parking lot were replaced with led bulbs.

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
-------------------------------------------	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

39

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

9000

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

73300

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Air compressor replaced.

Initiative category & Initiative type

Energy efficiency in production processes	Motors and drives
-------------------------------------------	-------------------

Estimated annual CO2e savings (metric tonnes CO2e)

0

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Mandatory

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

0

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

44800

Payback period

>25 years

Estimated lifetime of the initiative

16-20 years

Comment

Eletrical current wasn't reliable

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

3

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1651

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

28

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

12427

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

214

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

93204

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

15

Scope(s)

Please select

Voluntary/Mandatory

Voluntary

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

7727

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

10000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

612

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

35338

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

234000

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

132

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

26001

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

34

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

4690

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

1500

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Motors and drives
-------------------------------------------	-------------------

Estimated annual CO2e savings (metric tonnes CO2e)

3

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

505

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

1500

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

2

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

306

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

2771

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Maintenance program
--------------------------------	---------------------

Estimated annual CO2e savings (metric tonnes CO2e)

58

Scope(s)

Scope 1

Voluntary/Mandatory

Mandatory

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

13200

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

54000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

30

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

13430

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

13000

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

1

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

306

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

24000

Payback period

>25 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

151

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

50000

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

25000

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

602

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

35970

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

0

Payback period

<1 year

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

32

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

10222

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

83000

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
-------------------------------------------	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

62

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

10164

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

24240

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Draught proofing
--------------------------------	------------------

Estimated annual CO2e savings (metric tonnes CO2e)

16

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2675

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

14250

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

91

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

9285

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

18500

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

24

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

3640

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

6000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

80

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

9900

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

15000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Waste reduction and material circularity	Waste reduction
------------------------------------------	-----------------

Estimated annual CO2e savings (metric tonnes CO2e)

122

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

15000

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

23000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
-------------------------------------------	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

16

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2000

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

4000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
-------------------------------------------	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

25

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Mandatory

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

3500

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

37000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

1

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

145

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

1000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Replacement of hi bay lights to LED

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
-------------------------------------------	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

42

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

5375

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

70000

Payback period

11-15 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

106

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

13127

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

18802

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

35

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

4358

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

11459

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
-------------------------------------------	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

3

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

5400

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

38000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Replacing a 30 year old compressor that consumed more energy and oil to a new, more energy efficient model.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

0

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1050

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

1000

Payback period

<1 year

Estimated lifetime of the initiative

6-10 years

Comment

Converting lights to LED.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

8

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2641

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

3517

Payback period

1-3 years

Estimated lifetime of the initiative

1-2 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

3

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1064

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

1416

Payback period

1-3 years

Estimated lifetime of the initiative

1-2 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

3

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

950

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

1700

Payback period

1-3 years

Estimated lifetime of the initiative

1-2 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Maintenance program
--------------------------------	---------------------

Estimated annual CO2e savings (metric tonnes CO2e)

18

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

12000

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

13000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

26

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

5750

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

15000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Fuel switch
-------------------------------------------	-------------

Estimated annual CO2e savings (metric tonnes CO2e)

23

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

7500

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

28100

Payback period

1-3 years

Estimated lifetime of the initiative

<1 year

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

11

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

3985

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

47722

Payback period

4-10 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)

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

3609

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

66800

Payback period

16-20 years

Estimated lifetime of the initiative

>30 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

1

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1250

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

2500

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)

1

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1800

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

1700

Payback period

<1 year

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Machine/equipment replacement
-------------------------------------------	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s)

Scope 1

Voluntary/Mandatory

Mandatory

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

483

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

2160

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Replacement of an old boiler with a new one. The old boiler was too old and its consumption was too high. We chose a condensing boiler because its energy consumption was the lowest.

Initiative category & Initiative type

Energy efficiency in production processes	Machine/equipment replacement
-------------------------------------------	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

244

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

34800

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

69600

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Reorganizing chilled water piping system. The new big capacity chiller helps our energy reduction.

Initiative category & Initiative type

Energy efficiency in production processes	Machine/equipment replacement
-------------------------------------------	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

56

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

8000

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

138000

Payback period

16-20 years

Estimated lifetime of the initiative

16-20 years

Comment

We needed a new chiller because our old chiller was too old and its energy consumption was too high. We bought a free-cooling type of chiller to save more energy.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting
--------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

13

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1890

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

15000

Payback period

16-20 years

Estimated lifetime of the initiative

16-20 years

Comment

Replacement of old lighting with LED lights.

Initiative category & Initiative type

Energy efficiency in production processes	Waste heat recovery
-------------------------------------------	---------------------

Estimated annual CO2e savings (metric tonnes CO2e)

56

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

8000

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

2615

Payback period

1-3 years

Estimated lifetime of the initiative

>30 years

Comment

To warm up the recycling area of our factory we are using compressor's waste hot air. Compressors are working below the recycling area. We connected the waste air pipes to the recycling area's air conditioning system.

Initiative category & Initiative type

Energy efficiency in buildings	Draught proofing
--------------------------------	------------------

Estimated annual CO2e savings (metric tonnes CO2e)

109

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

18000

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

28000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment**Initiative category & Initiative type**

Energy efficiency in production processes	Machine/equipment replacement
-------------------------------------------	-------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

91

Scope(s)

Scope 1

Voluntary/Mandatory

Mandatory

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

15000

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

66000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment**Initiative category & Initiative type**

Energy efficiency in production processes	Motors and drives
-------------------------------------------	-------------------

Estimated annual CO2e savings (metric tonnes CO2e)

13

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1500

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

4000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Replaced the 22 Kw motors with 11 Kw motors.

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

Method	Comment
Internal finance mechanisms	We integrate environmental aspects of our business into our overall business strategy, including mergers and acquisitions, research and development, and operations.
Internal finance mechanisms	Energy and emission reductions are factored into all capital expenditure requests.
Internal incentives/recognition programs	The Michael J. Gasser Global Sustainability Award recognizes superior effort and achievement in furthering the improvement of the environment and the company. The award recognizes teams that create innovative sustainable initiatives in Energy Excellence, Ecosystem Improvement and Sustainable Innovation. Winning teams are recognized by the CEO and the Board, in addition to receiving a trophy and celebratory lunch or dinner. Several of our SBUs provide financial incentives to facilities that reduce energy consumption.
Internal incentives/recognition programs	In 2014, Greif introduced the Operations Best In Class program in the drum manufacturing plants of the EMEA region to reinforce a pattern of excellence by ranking each plant as gold, silver, bronze, yellow or red, reward workers for outstanding accomplishments and identify areas of opportunity to promote year-over-year improvements. Due to the success of the program at driving incremental improvements the program was expanded globally in 2017. Ratings are based on safety, people, productivity, customer satisfaction, and sustainability, including climate change, specifically energy reduction. Each facility achieving Gold, Silver or Bronze performance levels across all categories receives a medal recognizing the achievement. In addition, Gold, Silver and Bronze winners receive a non-financial award for the entire plant such as an award dinner.
Employee engagement	Sustainability is a pillar of The Greif Way and plays a key role in driving our business strategy, management & operations. Energy reduction goals are embedded into employee performance reviews including facility managers and some Global Energy & Emissions Team members. Employees are encouraged to incorporate best practices in energy efficiency into their day-to-day operations both at work and at home. We provide challenges and contests for our employees to reduce energy in our facilities and elsewhere. In our EMEA operations, we offer financially subsidized bicycles to employees to lower emissions and improve the health of our commuters. Our Flexible Products and Services (FPS) Hadımköy facility in Turkey developed a sustainability program that focuses on employee engagement. They've identified various success criteria for the plant, including energy and scrap reduction. All employees engaged in monthly meetings to generate improvement ideas. The plant evaluated the ideas, selected projects to implement, set success criteria, and tracked progress monthly. Employees' premiums were tied to the achievement of the identified success criteria. The facility has decreased the scrap ratio from 12.1% to 9.7%, saving 413,900 kWh and €23,250 in costs. This reduction exceeded the facility's goal of a scrap ratio of 10% in 2020. Production employees' bonuses are tied to achieving the success criteria identified and paid monthly based on performance. In 2019, the collective efforts from our 5 week "Greif Going Green" initiative resulted in nearly 600 trees planted and 42,000 pounds of trash collected. During the 5 weeks leading up to Earth Day colleagues were challenged to make a positive difference for the environment in their communities. 1,320 Greif colleagues from 16 countries participated totaling 103 hours of volunteering. In 2019 we launched our Serious About Sustainability colleague engagement program in North America aimed at sharing detailed energy information with our colleagues for identifying projects and everyday opportunities to impact our energy use. Facilities that signed up to the program participated in a 3 month competition to reduce energy usage. The 3 winning facilities received a certificate and catered lunch in recognition of their efforts. Due to the Covid-19 pandemic, we paused these activities during 2020 to maintain employee health & safety.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

Injected IBC plastic pallet (GCube) The injected Intermediate Bulk Container (IBC) plastic pallet is a (new) plastic pallet design for the GCube-IBC product range at Greif. It supersedes the old plastic pallet design. Compared to the old pallet design, the new pallet is now made of 100% recycled HDPE. At the same time, the new pallet design is also recyclable, as it can be easily disassembled.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.66

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of the new with the old plastic pallet designs (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

Lightweight steel drums (Spiraltainer) The Spiraltainer is a light weighted steel drum design. Compared to conventional standard bead steel drums, the Spiraltainer has a comparable vacuum strength using less steel, which reduces the raw materials used.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

3.5

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of Spiraltainer with conventional standard bead steel drums (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

New GCube valves The New GCube Valve is a plastic valve for IBCs. Traditional IBC valves (which are superseded by the new GCube valve at Greif) are made of HDPE and PP, but also contain small metal parts that cannot be removed easily, so traditional IBC valves cannot be recycled. The new GCube valve is made of HDPE and PP only, what allows an easy recycling of the valve.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Reduced virgin material use.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

GCube valves avoid emissions by reducing the amount of virgin materials in Greif's, and our customers' value chain.

Level of aggregation

Product

Description of product/Group of products

NexDrum Nexdrum is a light weighted plastic drum design. Compared to conventional blow molded HDPE plastic drums, Nexdrum is produced with 15% less HDPE, which reduces the amount of raw materials used.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.29

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of Nexdrum with conventional blow molded HDPE plastic drums (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

Valerex Plastic Drums Valerex is a light-weighted plastic drum design. Compared to conventional blow molded HDPE plastic drums, Valerex is produced with less HDPE, so it reduces the amount of virgin raw materials used and required.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.19

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of Valerex with conventional blow molded HDPE plastic drums (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Group of products

Description of product/Group of products

LATAM Jerrycan Coex - 5, 10, 20 L The COEX jerrycans in LATAM have a layer made of bio-based HDPE resin (supplied by BRASKEM, derived from sugarcane) instead of standard HDPE. Using Bio-based PE instead of standard oil-based PE reduces the climate change impact of the packaging.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.41

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison based on a LCA study done at Greif.

Level of aggregation

Group of products

Description of product/Group of products

LATAM Jerrycan Mono - 5, 10, 20 L The monolayer jerrycans in LATAM contain a significant amount of bio-based HDPE (supplied by BRASKEM, derived from sugarcane) instead of standard HDPE. Using Bio-based PE instead of standard oil-based PE reduces the climate change impact of the packaging.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.55

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than our conventional jerrycans.

Level of aggregation

Group of products

Description of product/Group of products

Clean steel drums Clean steel drums (for highly sensitive filling goods) are specially cleaned drums using compressed air treatment technology. This process of cleaning the steel drums replaces the manual cleaning process of drums using solvents. Compared to the manual cleaning process using solvents (notable amount of solvents per drum is needed), the clean steel drums just require the usage of compressed air (low energy input).

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than our conventional cleaning process. Carbon footprint comparison of cleaning by compressed air vs. manual cleaning with solvents, using environmental data from LCAs for solvents and electricity figures for applying compressed air.

Level of aggregation

Group of products

Description of product/Group of products

PCR Drums - Monolayer Monolayer PCR (post-consumer resin) drums are made of recycled HDPE (PCR). The usage of recycled HDPE instead of virgin HDPE increases the recollection and recycling of HDPE packaging products. The environmental impact of using recycled HDPE resin to produce drums is typically significantly lower than the impact of using virgin HDPE.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than our drums produced using virgin HDPE. Carbon footprint comparison of monolayer PCR drums with conventional plastic drums made of virgin HDPE, using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Group of products

Description of product/Group of products

PCR Drums - Coex (multilayer) Multilayer PCR drums are HDPE drums which are made of two layers of virgin HDPE and a middle layer of recycled HDPE (PCR). The usage of recycled HDPE for the middle layer instead of virgin HDPE increases the recollection and recycling of HDPE packaging products. The environmental impact of using recycled HDPE resin to produce drums is typically significantly lower than the impact of using virgin HDPE.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.14

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than our drums produced using virgin HDPE. Carbon footprint comparison of multilayer PCR drums with conventional plastic drums made of pure virgin HDPE, using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Company-wide

Description of product/Group of products

Greif Life Cycle Services network is a collection and reconditioning service for used jerry cans, drums and IBCs which enables the re-usage of the reconditioned packaging. In the case that a collected drum or IBC cannot be properly reconditioned anymore, the material of the packaging (steel and plastics) is sent to recycling to enable the re-usage of the materials (e.g. to produce other products made from the recycled materials such as PCR plastic drums).

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Reduced virgin material use.)

% revenue from low carbon product(s) in the reporting year

0.62

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of new drums and IBCs with reconditioned drums and IBCs (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

Conical Steel Drums Conical steel drums are open head steel drums with a conical form. Compared to classic cylindrical (non-conical) steel drums, the conical form allows a stacking of empty drums. This leads to better space utilization in trucks when transporting empty drums (typically 2,000 conical drums with lids vs. only 288 palletized classic cylindrical drums).

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

1.4

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than our conventional plastic drum design. Carbon footprint comparison of using and transporting empty conical drums with using and transporting empty classic cylindrical drums (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Company-wide

Description of product/Group of products

Greif Green Tool Greif Green Tool allows customers to identify and evaluate the total environmental impact of industrial packaging given their individual situation. The tool, a calculator based on independent Greif LCA models of Greif products, highlights interdependent sustainability improvements to reveal unmet potential in GHG footprint reductions. Through inputs such as geographic scope, weight and volume of shipments, distance of transportation and trip rate, the Green Tool provides our customers with the optimal packaging solution to mitigate emissions and maximize value.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

The Greif Green tool incorporates findings from our LCA's into a tool that allows our customers to evaluate the carbon footprint of their packing selection and transportation methods. This information allows our customers to better understand the emission associated with their packaging choices, and select lower emission options that meet their requirements. We do not charge customers to use this service.

Level of aggregation

Product

Description of product/Group of products

LATAM plastic bottle -1L The PE plastic bottle in LATAM has a new enhanced design with rings. The enhanced design with rings reduces the weight of the bottle by up to 25% compared to the old bottle design with fewer rings. Less HDPE is needed which reduces the amount of virgin raw materials used and therefore the climate change impact of the product.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.06

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than bottles produced in the old design. Carbon footprint comparison of bottles produced in the new enhanced design with bottles produced in the old design, using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

JCR jerry cans (Europe) - 16, 18, 20 & 25 liter The PE jerry cans in Europe have a new enhanced design. The enhanced design reduces the weight of the jerry cans by up to 15% compared to the old standard design. Less HDPE input is needed which reduces the climate change impact of the product.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0.1

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than jerry cans produced in the old standard design. Carbon footprint comparison of jerry cans produced in the new enhanced design with jerry cans produced in the old design, using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

GCUBE Intermediate Bulk Container (IBC) with PCR Introduced in 2019, the GCUBE IBC is made with up to 60% PCR. The inner layer of this sustainable bottle is 100% virgin high density polyethylene (HDPE), while the two external layers are made from a blend of PCR. In addition to reducing the need for virgin resin, the new product reduces the carbon footprint of the IBC bottle by up to 38% and up to 11% for the entire IBC.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison based on a LCA study done at Greif.

Level of aggregation

Group of products

Description of product/Group of products

Transparent PCR Jerry Cans In 2019 Greif introduced a transparent jerry can made with 100% PCR providing our customers the ability to see the level of liquid inside the jerry can while reducing their carbon footprint and reliance of virgin materials.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of jerry cans produced in the new enhanced design with jerry cans produced in the old design. A formal LCA has not been conducted on this product, but emissions savings are anticipated based on known savings from similar product transitions.

Level of aggregation

Product

Description of product/Group of products

Knock-Down Steel Drums (KDD) KDDs offer the optimal sustainable solution for transporting steel drums to remote locations. Semi-finished drum parts are shipped and assembled locally. The unique concept allows transportation of up to 1,176 KDDs in a 20' sea container compared to 80 full finished drums, saving valuable space, optimizing transport costs and minimizing our customers' carbon footprint during longer transit times.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments)

% revenue from low carbon product(s) in the reporting year

0.07

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Greif uses lifecycle assessment studies of our products to determine the carbon footprint of our industrial packaging products. Through our LCA, we determined this product has a lower carbon footprint than our conventional plastic drum design. Carbon footprint comparison of using and transporting empty conical drums with using and transporting empty classic cylindrical drums (screening level / estimate), using data from LCA studies on industrial packaging done at Greif.

Level of aggregation

Product

Description of product/Group of products

PCR Screw Caps Greif's new screw caps are made with 30% PCR. In addition to reducing the consumption of virgin resin and diverting plastics from landfills, the new product reduces the carbon footprint of screw caps.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (Third-party lifecycle assessments.)

% revenue from low carbon product(s) in the reporting year

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Carbon footprint comparison of jerry cans produced in the new enhanced design with jerry cans produced in the old design. A formal LCA has not been conducted on this product, but emissions savings are anticipated based on known savings from similar product transitions.

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

November 1 2013

Base year end

October 31 2014

Base year emissions (metric tons CO2e)

371500

Comment

Scope 2 (location-based)

Base year start

November 1 2013

Base year end

October 31 2014

Base year emissions (metric tons CO2e)

500600

Comment

Scope 2 (market-based)

Base year start

November 1 2013

Base year end

October 31 2014

Base year emissions (metric tons CO2e)

500600

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

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)

692900

Start date

<Not Applicable>

End date

<Not Applicable>

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 are reporting 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

589500

Scope 2, market-based (if applicable)

596700

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

C6.4

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

Source

Emissions associated with minor sources at facilities outside of North America. Minor sources could include leased or owned vehicles, fork lifts, yard tractors, landscaping equipment or other mobile sources.

Relevance of Scope 1 emissions from this source

Emissions are relevant but not yet calculated

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why this source is excluded

The quantity of fuel used for these sources is not available.

Source

Air conditioning refrigerant replacement.

Relevance of Scope 1 emissions from this source

Emissions are not evaluated

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why this source is excluded

No records of air conditioning maintenance are available.

Source

Process emissions.

Relevance of Scope 1 emissions from this source

Emissions are relevant but not yet calculated

Relevance of location-based Scope 2 emissions from this source

No emissions excluded

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why this source is excluded

Steel drum manufacturing generally involves painting exterior and coating interior surfaces. Emissions of solvents or combustion products of solvents have not been included in the inventory.

Source

Closed landfill emissions

Relevance of Scope 1 emissions from this source

Emissions are not evaluated

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why this source is excluded

Several mills have closed landfills on their properties. The information needed to evaluate potential emissions is not available.

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

Metric tonnes CO₂e

2323000

Emissions calculation methodology

Technical Guidance average-data method

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

0

Please explain

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

83000

Emissions calculation methodology

Technical Guidance average-data method

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

0

Please explain

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

Evaluation status

Relevant, calculated

Metric tonnes CO2e

291000

Emissions calculation methodology

Technical Guidance average-data method

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

0

Please explain

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

253000

Emissions calculation methodology

Technical Guidance fuel-based method method

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

0

Please explain

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

153000

Emissions calculation methodology

Technical Guidance average-data method

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

0

Please explain

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3000

Emissions calculation methodology

Technical Guidance spend-data method

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

0

Please explain

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

26000

Emissions calculation methodology

Technical Guidance average-data method

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

0

Please explain

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Greif does not lease any upstream assets that are not included in scope 1 and 2 emissions calculations.

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

It is Greif's practice to deliver finished products to customers using transportation paid for by Greif.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Greif's products are typically finished packaging products and no further processing by the customer is required.

Use of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Greif's products do not directly consume any energy during use nor do they release any direct GHG emissions.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1124000

Emissions calculation methodology

Technical Guidance average-data method

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

0

Please explain

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Greif does not lease any assets to third parties that are not already included in scope 1 and 2 emissions calculations.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Greif does not have franchise operations.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

As a manufacturing company, Greif does not make investments with the objective of making a profit.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

There are no additional upstream sources.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

There are no additional downstream sources.

C6.7

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

Yes

C6.7a

(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.

	CO2 emissions from biogenic carbon (metric tons CO2)	Comment
Row 1	200100	

C-AC6.9/C-FB6.9/C-PF6.9

(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?

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

0.000284

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

1289800

Metric denominator

unit total revenue

Metric denominator: Unit total

4515000000

Scope 2 figure used

Market-based

% change from previous year

1.16

Direction of change

Increased

Reason for change

Revenue decreased, but emissions reductions did not track revenue reduction because of the quantity of emissions from fixed (non-variable) activities.

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 CO ₂ e)	GWP Reference
CO ₂	612840	IPCC Fifth Assessment Report (AR5 – 100 year)
CH ₄	79212	IPCC Fifth Assessment Report (AR5 – 100 year)
N ₂ O	848	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO ₂ e)
United States of America	647152
China	7789
Netherlands	4313
Belgium	3586
France	3330
Singapore	2804
Russian Federation	2415
United Kingdom of Great Britain and Northern Ireland	2374
Brazil	1762
Canada	1692
Spain	1671
Italy	1662
Germany	1467
Sweden	1085
Czechia	998
South Africa	984
Turkey	951
Mexico	825
Argentina	818
Saudi Arabia	780
Malaysia	714
Hungary	585
Israel	554
Colombia	334
Greece	296
Poland	292
Viet Nam	289
Chile	284
Costa Rica	278
Portugal	197
Egypt	187
Kenya	170
Romania	107
Algeria	105
Ukraine	59
Guatemala	39

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)
Paper Packaging and Services (PPS)	606317
Rigid Industrial Packaging and Services (RIPS)	71283
Life Cycle Services (LCS)	6804
Corporate	6768
Global Packaging Accessories (GPA)	1207
Flexible Products and Services (FPS)	570
Soterra	0

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
Riverville	180243	0	0
Massillon	79323	0	0
Austell	55250	0	0
Sweetwater	42162	0	0
Milwaukee	40683	0	0
Fitchburg	29747	0	0
Cincinnati (CCI)	26467	0	0
Baltimore	22961	0	0
Commerce	22219	0	0
Taylors	21533	0	0
Tama	21313	0	0
Tacoma	14002	0	0
Mobile	10736	0	0
Mason (MPM)	8686	0	0
Houston	8607	0	0
Harrisburg (SPC)	7121	0	0
Alsip	6857	0	0
Delaware	6768	0	0
Louisville (MCC)	4343	0	0
Arkadelphia	4145	0	0
Warminster	3214	0	0
Pioneer	2804	0	0
Ghent	2735	0	0
Europoort	2662	0	0
Taicang	2471	0	0
Santa Clara	2381	0	0
Palmyra	2280	0	0
Rouen	1980	0	0
Merced	1958	0	0
Oshkosh	1919	0	0
Oak Creek	1865	0	0
Van Wert	1709	0	0
Caojing	1676	0	0
Huizhou	1666	0	0
Ellesmere Port	1598	0	0
Martorell	1466	0	0
Melzo	1299	0	0
Tianjin	1298	0	0
Moraine	1264	0	0
Welcome	1156	0	0
Santo Amaro	1045	0	0
Usti nad Labem	998	0	0
Vreeland	936	0	0
Falkenburg	927	0	0
Laudun	889	0	0
Kernersville	888	0	0
Auburndale	842	0	0
Tigre	818	0	0
Burton on Trent	776	0	0
Loevenich	719	0	0
Asterweg	715	0	0
Petaling Jaya	714	0	0
Cuernavaca	709	0	0

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Perm	681	0	0
Zhuhai	668	0	0
York	619	0	0
Winfield	618	0	0
Almasfuzito	585	0	0
Stoney Creek	575	0	0
Hamburg	571	0	0
Florence	571	0	0
Ein Hahoresch	554	0	0
Mobeni	550	0	0
Omsk	549	0	0
Istanbul	546	0	0
Fontana	543	0	0
Atlanta	538	0	0
Belleville	530	0	0
San Jose	525	0	0
Jubail	492	0	0
Dalton	476	0	0
Bay Minette	472	0	0
Rumbeke	461	0	0
Lille	461	0	0
Vologda	436	0	0
Vanderbijlpark	434	0	0
Texarkana	433	0	0
Baytown	431	0	0
Doraville	416	0	0
De Pere	411	0	0
Rock Hill	392	0	0
Lier	390	0	0
Stockton	372	0	0
Hardeeville	351	0	0
Carrol Stream	349	0	0
Volgograd	335	0	0
Aratu	331	0	0
Columbus	322	0	0
Arlington	310	0	0
St. Francis	296	0	0
Mandra	296	0	0
Meridian	293	0	0
Rybnik	292	0	0
Vung Tau	289	0	0
Riyadh	288	0	0
Pudahuel	284	0	0
Charlotte	284	0	0
Samandira	277	0	0
Naperville	272	0	0
Lithonia	272	0	0
Windsor Locks	269	0	0
Okemah	259	0	0
Esteio	249	0	0
Neenah	230	0	0
Angarsk	228	0	0
Buffalo	226	0	0
West Monroe	225	0	0
Castenedolo	218	0	0
Winnipeg	217	0	0
Bradley	211	0	0
Wright City	210	0	0
Don Benito	204	0	0
Cornell	202	0	0
Povoa	197	0	0
Scarborough	190	0	0
Palatka	187	0	0
Sadat City	187	0	0
Lockport	183	0	0
Woodbine	180	0	0
Cartagena	179	0	0
Beloyarsk (Upakovka)	176	0	0
Mendig	176	0	0
Newark	174	0	0
Lavonia	173	0	0

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Minerva	173	0	0
Mombasa	170	0	0
Indianapolis	163	0	0
Englishtown	159	0	0
Vaesterhaninge	157	0	0
Bogota	155	0	0
Salem	153	0	0
Bottanuco	145	0	0
Nashville	141	0	0
Rio de Janeiro	138	0	0
Memphis	132	0	0
St. Gabriel (Evans)	129	0	0
Tallahassee	120	0	0
Toledo	120	0	0
Chicopee	118	0	0
Monterrey	117	0	0
Silsbee	115	0	0
Saginaw	114	0	0
Crossett	114	0	0
Sultanbeyli	106	0	0
Botosani	105	0	0
Algeria	105	0	0
Mississauga	103	0	0
Morgan Hill	94	0	0
Denver	92	0	0
Franklin	87	0	0
Longview	80	0	0
Mt. Sterling	74	0	0
Kingston	65	0	0
Beardstown	62	0	0
Zhitomir	59	0	0
Salt Lake City	54	0	0
Shreveport	43	0	0
Guatemala	39	0	0
Phoenix	36	0	0
Corinth	36	0	0
Chattanooga	28	0	0
Cedartown	26	0	0
Hadimkoy	21	0	0
Delta	13	0	0
Augusta	11	0	0
Kazan	11	0	0
Shanghai	10	0	0
Hazleton	8	0	0
Tonawanda	6	0	0
Negresti	2	0	0
Muhlhoff	1	0	0

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
United States of America	486102	484058	1173370711	4600
China	17186	17186	27899454	0
Turkey	15221	14132	32655101	0
Italy	9840	14926	31946626	0
Netherlands	7648	10189	18305610	0
Israel	4991	4991	10083820	0
Germany	4681	7126	11661399	0
Russian Federation	4080	4080	11432330	0
Romania	3845	3585	11479827	0
Belgium	3347	3151	16644277	0
Argentina	3271	3271	10159650	0
Singapore	2834	2834	7284512	0
Ukraine	2778	2778	7255906	0
Poland	2614	3000	3683055	0
Brazil	2531	1408	25326051	0
South Africa	2293	2293	2559830	0
Mexico	1996	1996	4375094	0
Morocco	1931	1931	3040662	0
Malaysia	1899	1899	2868423	0
United Kingdom of Great Britain and Northern Ireland	1461	2228	6368431	0
Saudi Arabia	1443	1443	2785800	0
Spain	1065	1412	4102227	0
Portugal	896	778	3018735	0
Canada	778	778	5899076	0
France	774	608	14038378	0
Greece	762	809	1396710	0
Czechia	744	896	1501131	0
Viet Nam	597	597	1311700	0
Chile	441	185	1098660	650
Hungary	355	403	1399057	0
Egypt	339	339	697206	0
Colombia	270	270	1679949	0
Sweden	179	668	13338086	0
Austria	124	124	832143	0
Algeria	102	102	202945	0
Kenya	47	47	288706	0
Denmark	46	127	272589	0
Guatemala	27	27	70841	0
Costa Rica	4	4	424404	0

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)
Paper Packaging and Services (PPS)	427630	427630
Rigid Industrial Packaging and Services (RIPS)	117412	125837
Flexible Products and Services (FPS)	26903	25627
Tri-Sure also known as the Global Packaging Accessories (GPA) division	8753	9727
Life Cycle Services (LCS)	7235	7235
Corporate	1588	605
Soterra (Land Management business)	21	21

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)
Riverville	163689	163689
Austell	33433	33433
Sweetwater	28850	28850
Milwaukee	28688	28688
Massillon	28536	28536
Santa Clara	27547	27547
Baltimore	20597	20597
Cincinnati (CCI)	19476	19476
Tama	14051	14051
Fitchburg	12587	12587
Mobile	9515	9515
Taylors	9231	9231
Houston	9002	9002
Hadimkoy	7101	6012
Alsip	6772	6772
Samandira	6626	6626
Tacoma	6516	6516
Lockport	5331	5331
Florence	5325	5325
St. Francis	5206	5206
Ein Hahoreshe	4991	4991
Commerce	4721	4721
Castenedolo	4524	6862
Bottanuco	4391	6660
Lavonia	4286	4286
Caojing	4231	4231
Changzhou	4135	4135
Mason (MPM)	3787	3787
Negresti	3688	3439
Bradley	3004	3004
Taicang	2845	2845
Pioneer	2834	2834
Carrol Stream	2647	2633
Louisville (MCC)	2622	2622
Rybnik	2614	3000
Mendig	2605	3966
Zhitomir	2575	2575
Ede	2507	3341
Europoort	2473	3294
Zhenjiang	2452	2452
Mt. Sterling	2418	2418
Asterweg	2358	3142
Harrisburg (SPC)	2311	2311
Hazleton	2141	2141
Casablanca	1931	1931
Petaling Jaya	1899	1899
Delaware	1588	605
Tigre	1551	1551
Rumbeke	1510	1422
Van Wert	1504	479
Huizhou	1393	1393
Arkadelphia	1354	1354
Warminster	1333	1333
Vanderbijlpark	1250	1250
Campana	1249	1249
Matehuala	1236	1236
Kazan	1214	1214
Lithonia	1146	1146
Zhuhai	1133	1133
Santo Amaro	1079	421
Lier	1076	1013
Mobeni	1043	1043
Ellesmere Port	1030	1571
Kaluga	1008	1008
Tianjin	958	958
Melzo	926	1404
Povoa	896	778
Oshkosh	884	884
Sultanbeyli	874	874

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Jubail	856	856
Palmyra	853	853
Wright City	808	808
Naperville	778	778
Mandra	762	809
Usti nad Labem	744	896
Ghent	661	622
Muhlhoff	656	999
Cuernavaca	648	648
Baytown	627	627
Rouen	623	490
Istanbul	620	620
Riyadh	587	587
Merced	586	586
Kernersville	557	557
Welcome	549	549
Londrina	526	338
Auburndale	524	524
Hamburg	520	792
Araucaria	500	392
Martorell	481	638
San Juan	472	472
Loevenich	466	709
Perm	465	465
Belleville	465	465
Beardstown	453	453
San Roque (Cadiz)	451	598
Charlotte	448	448
Oak Creek	448	448
Texarkana	445	445
Pudahuel	441	185
Omsk	401	401
Huckelhoven	376	573
Vologda	371	371
Almasfuzito	355	403
Volgograd	347	347
Vung Tau	345	345
Winfield	341	341
Sadat City	339	339
Burton on Trent	337	514
York	335	335
Dalton	334	334
Rock Hill	321	321
Atlanta	314	314
Vreeland	309	412
Toledo	309	309
Minerva	308	308
Franklin	290	290
Phoenix	287	287
Arlington	277	277
Saginaw	262	262
Manaus	256	88
Hochi Minh City	252	252
Doraville	248	248
Okemah	244	244
Bay Minette	231	231
Woodbine	224	224
Bogota	220	220
St. Gabriel (Evans)	211	211
Kiev	203	203
Beloyarsk (Upakovka)	196	196
Moraine	185	185
Fontana	176	176
Silsbee	175	175
Hardeeville	174	174
Grand Rapids	172	172
Falkenburg	163	608
Englishtown	160	160
Windsor Locks	159	159
Botosani	157	146

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Meridian	155	155
Corinth	153	153
Cedartown	146	146
Newark	140	140
Neenah	138	138
Morgan Hill	137	137
Palatka	133	133
Don Benito	133	176
Vienna	124	124
Longview	118	118
Chattanooga	114	114
Riviera Beach	114	114
Denver	114	114
Monterrey	112	112
De Pere	107	107
Memphis	105	105
Algeria	102	102
Izegem	101	95
Chicopee	98	98
Nashville	96	96
Thirsk	94	144
Augusta	92	92
Cleveland	89	89
Laudun	86	68
Kingston	86	86
Columbus	86	86
Ontario	84	84
Stoney Creek	83	83
Crossett	83	83
Tonawanda	83	82
Weyers Cave	79	79
La Palma	78	57
Angarsk	78	78
West Monroe	75	75
Salt Lake City	72	72
Indianapolis	72	72
Rio de Janeiro	71	70
Scarborough	65	65
Salem	60	60
Aratu	60	60
Rheine	57	87
Lille	56	44
Waynesville	53	53
Shreveport	53	53
Stockton	51	51
Cornell	50	50
Cartagena	49	49
Mombasa	47	47
Hedehusne (Roskilde)	46	127
Tallahassee	45	45
Buffalo	43	43
Shanghai	41	41
Esteio	39	39
Mississauga	39	39
Winnipeg	38	38
Johnsonville	31	31
Guatemala	27	27
San Jose	23	23
Vaesterhaninge	16	60
Grove Hill	10	10
Montceau	8	6
Jackson	7	7
Pelahatchie	2	2
Delta	2	2
Vicksburg	2	2
Green Bay	2	2

(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?

Decreased

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	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	2600	Decreased	1	Greif's renewable energy consumption (purchases and generation) in FY20 increased by approximately 7500 MWh compared to FY20. The result was a decrease in emissions of 2600 tonnes of CO2e or less than 1% of FY 20scope 1 and 2 emissions. $(2600/1,290,000)*100$.
Other emissions reduction activities	4000	Decreased	1	In FY20 Greif's emission reduction projects reduced total s1 and s2 emissions by approximately 4,000 tonnes CO2e. This reduction is less than 1% of total FY20 s1 and s2 emissions . $(4,000/1,290,000)*100$
Divestment	15000	Decreased	0	In FY20 Greif divested of one business segment, resulting in a decrease of approximately 1% of company emissions $(15,000/1,290,000)*100$
Acquisitions	10000	Increased	1	During FY20 Greif acquired businesses that contributed emissions totaling less than 1% of total s1 and s2 emissions. $(10,000/1,290,000)*100$
Mergers	0	No change	0	There were no mergers in FY20
Change in output	20000	Decreased	2	Greif's Paper Packaging and Services business unit (PPS) contributes over 70% the company's greenhouse gas emissions. In FY20 production at PPS decreased, resulting in a decrease in emissions of 20,000 tonnes CO2e, or 1.6% $(20,000/1,290,000)*100$
Change in methodology	0	No change	0	There was no change in methodology in FY20.
Change in boundary	0	No change	0	There was no change in the emissions inventory boundary during FY20
Change in physical operating conditions	0	No change	0	There were no known changes in physical operating conditions during FY20 that would impact company emissions.
Unidentified	0	No change	0	Not applicable.
Other	0	No change	0	Not applicable.

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?

Market-based

C8. Energy

C8.1

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

More than 0% but less than or equal to 5%

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	Yes
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)	HHV (higher heating value)	620061	3322588	3942649
Consumption of purchased or acquired electricity	<Not Applicable>	19879	1452432	1472759
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	23574.63	23574.63
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	2842	<Not Applicable>	2842
Total energy consumption	<Not Applicable>	642782	4787129	5429912

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	Yes
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	Yes

C8.2c

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

Fuels (excluding feedstocks)

Black Liquor

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

161027

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

161027

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

94.54

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Coal

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

931

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

931

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

96.25

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Distillate Oil

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

38268

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

38268

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

73.96

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

1389

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

70.22

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Jet Kerosene

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

697

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

75.2

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Mobile

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

8853

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

8853

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

61.71

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

3164102

MWh fuel consumed for self-generation of electricity

14789

MWh fuel consumed for self-generation of heat

608414

MWh fuel consumed for self-generation of steam

2992214

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

53.06

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Other, please specify (Non road diesel)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

16190

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

73.86

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

mobile

Fuels (excluding feedstocks)

Other, please specify (Non Road Gasoline)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

760

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

169676

Emission factor

69.13

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

mobile

Fuels (excluding feedstocks)

Other, please specify (Old Corrugated Cardboard (OCC))

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

39980

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

39980

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

94.54

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

Fuels (excluding feedstocks)

Propane Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

28095

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

64.46

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Mobile

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

63303

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

73.86

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Mobile

Fuels (excluding feedstocks)

Wood

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

419055

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

419055

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

94.54

Unit

kg CO2e per million Btu

Emissions factor source

US EPA

Comment

Stationary

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	51990	51990	2842	2842
Heat	524428	524428	0	0
Steam	3613240	3613240	552129	552129
Cooling	0	0	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Unbundled energy attribute certificates, Renewable Energy Certificates (RECs)

Low-carbon technology type

Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling

United States of America

MWh consumed accounted for at a zero emission factor

4600

Comment

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Chile

MWh consumed accounted for at a zero emission factor

651

Comment

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator without energy attribute certificates

Low-carbon technology type

Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Brazil

MWh consumed accounted for at a zero emission factor

12140

Comment

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator without energy attribute certificates

Low-carbon technology type

Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Colombia

MWh consumed accounted for at a zero emission factor

1680

Comment

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator without energy attribute certificates

Low-carbon technology type

Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling

China

MWh consumed accounted for at a zero emission factor

840

Comment

C9. Additional metrics

C9.1

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

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	Third-party verification or assurance process in place

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

Limited assurance

Attach the statement

Greif 2020 GHG Verification Statement Final.pdf

Page/ section reference

All

Relevant standard

ISO14064-3

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

Greif 2020 GHG Verification Statement Final.pdf

Page/ section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 2 approach

Scope 2 market-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

Greif 2020 GHG Verification Statement Final.pdf

Page/ section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Purchased goods and services

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

Greif 2020 GHG Verification Statement Final.pdf

Page/section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Capital goods

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

Greif 2020 GHG Verification Statement Final.pdf

Page/section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 3 category

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

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

Greif 2020 GHG Verification Statement Final.pdf

Page/section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Upstream transportation and distribution

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

Greif 2020 GHG Verification Statement Final.pdf

Page/section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Waste generated in operations

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

Greif 2020 GHG Verification Statement Final.pdf

Page/section reference

All

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Business travel

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
Greif 2020 GHG Verification Statement Final.pdf

Page/section reference
All

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Employee commuting

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
Greif 2020 GHG Verification Statement Final.pdf

Page/section reference
All

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

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

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
Greif 2020 GHG Verification Statement Final.pdf

Page/section reference
All

Relevant standard
ISO14064-3

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?
No, we do not verify any other climate-related information reported in our CDP disclosure

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.

California CaT - ETS
France carbon tax
Singapore carbon tax
Sweden carbon tax
Ukraine carbon tax

C11.1b

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

California CaT

% of Scope 1 emissions covered by the ETS

3.55

% of Scope 2 emissions covered by the ETS

5.4

Period start date

January 1 2020

Period end date

December 31 2020

Allowances allocated

48881

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

24600

Verified Scope 2 emissions in metric tons CO2e

32268

Details of ownership

Facilities we own and operate

Comment

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

France carbon tax

Period start date

January 1 2020

Period end date

December 31 2020

% of total Scope 1 emissions covered by tax

0.48

Total cost of tax paid

275500

Comment

Singapore carbon tax

Period start date

January 1 2020

Period end date

December 31 2020

% of total Scope 1 emissions covered by tax

0.4

Total cost of tax paid

21312

Comment

Sweden carbon tax

Period start date

January 1 2020

Period end date

December 31 2020

% of total Scope 1 emissions covered by tax

0.16

Total cost of tax paid

80400

Comment

Ukraine carbon tax

Period start date

January 1 2020

Period end date

December 31 2020

% of total Scope 1 emissions covered by tax

0.01

Total cost of tax paid

15.37

Comment

C11.1d

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

As an organization with operations across the globe, current and emerging regulations are considered as part of Greif's ongoing climate-related risk assessments. Each Regional VP is responsible for monitoring the regulatory environment, ensuring their operations are compliant with all applicable regulations, and notifying executive leadership of emerging changes. Greif's Director of Sustainability and Vice President, Investor Relations, External Relations and Sustainability monitor existing and emerging climate-related regulations globally and inform the Sustainability Steering Committee of regulations that may impact Greif. Through this process, the organization maintains awareness of climate-related regulations globally, including carbon pricing systems, and is better able to identify risk and opportunity within these regulations, based on input from Regional VPs and the Risk Leader Committee. Both current and emerging regulatory risks are discussed at Sustainability Steering Committee meetings. Climate-related regulatory risk, including carbon pricing systems, is incorporated into Greif's Enterprise Risk Management process, which is reviewed quarterly by Greif's Audit Committee and members of the Executive Leadership Team, and annually by Greif's Board of Directors. Failure to comply with these regulations could result in fines to our company and could affect our business, financial condition and results of operations. We, along with other companies, including our customers, are considering and implementing ways to reduce GHG emissions.

Greif collaborates with its customers to align on how our products impact their value chain. Greif's sustainability-driven products better enable Greif and our customers to achieve sustainability goals and maintain regulatory compliance. Products such as our NexDrum® plastic drum is produced with 15% less material and results in a 12% CO2 emissions reduction compared with conventional drums. Similarly, our EcoBalance product line is produced using up to 75% recycled plastic and reduces CO2 emissions 30-53% compared to conventional drums and GCUBE Intermediate Bulk Container (IBC) reduces the carbon footprint of the IBC bottle by up to 38% and up to 11% for the entire IBC. Further, some products, such as certain Greif Jerry Cans, can be produced using 100% PCR. In Latin America, Greif designed a novel plastic drum innovation using a faceted side-wall approach. This improvement removed up to 14 percent of the resin while maintaining current performance. Due to the change in shape, this new side-wall approach optimized pallet utilization, allowing more drums to be transported in the same space. This faceted drum is more sustainable in both reducing natural resource consumption during manufacture and transportation. Our Green Tool allows customers to evaluate the environmental impact of our products, providing our customers with the optimal packaging solution to mitigate emissions. These programs and initiatives support our efforts to maintain our business, financial conditions and results of operations while maintaining compliance with regulatory requirements.

In 2020, as we developed our new 2030 GHG emissions reduction target we conducted an analysis of the financial impact of carbon pricing regulations across our enterprise to better understand the business case of the different target ambition levels we were evaluating. We used the IEA's WEO to provide projected carbon prices and evaluate the financial implications of regulations establishing a carbon prices could have on our business.

As we evaluate emission reduction activities and energy efficiency improvements, we consider regulatory factors. In 2020, we completed 55 energy efficiency projects, saving 3587 metrics tons of CO2e and \$724,419 annually. Some of these projects were informed by or benefited from regulatory factors. For example, we replaced equipment at our paperboard mills in Los Angeles, California and Fitchburg, Massachusetts with more energy efficient technology. These improvements led to a reduction of both greenhouse gasses and air pollutants such as Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs). The updates allowed Greif to take advantage of Cap-and-Trade programs in California and Massachusetts that provide Emission Reduction Credits (ERCs). In 2019, Greif was awarded \$1,037,100 in ERCs through these programs.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

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

No, and we do not currently 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 suppliers
- Yes, our customers
- Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement
Innovation & collaboration (changing markets)

Details of engagement
Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

95

% total procurement spend (direct and indirect)

60

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

60

Rationale for the coverage of your engagement

Greif focuses our supplier engagement efforts on our largest suppliers by spend and on raw materials that are most commonly used in our business, which are also most subject to climate-related raw material price volatility (steel and resin). We chose to engage our largest suppliers as they have the largest impact on our footprint. We formally collaborate with these suppliers via our Global Sourcing and Procurement and Global Innovation Teams to identify opportunities for material downgauging, light weighting products and identifying more environmentally friendly materials.

Impact of engagement, including measures of success

Our innovation and collaboration efforts led to the launch of new products lines and reduced costs. For example, the EcoBalance™ product line in North America, which is produced using up to 75 percent recycled plastic and reduces CO2 emissions 30 to 53 percent compared to comparable conventional products. Our down gauging program led to \$1 million in savings from reduced raw materials use in 2019, a figure higher than anticipated. Collectively, 7% of savings realized by Greif's procurement team in 2019 was attributable to supplier innovation and collaboration efforts.

Comment

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

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

100

Rationale for the coverage of your engagement

Greif has publicly posted its Supplier Code of Conduct on its website and incorporates sustainability measures into its Supplier Scorecard, Supplier Selection Criteria and Supplier Quality Audits / Criteria of grading suppliers at their facilities. We updated our Supplier Code of Conduct in 2020 to set better expectations for our suppliers and better address environmental and social risks within our supply chain based on the key industries that we serve. We also empower our suppliers to act on potential violations of the Code of Conduct, including reporting suspected violations committed by Greif employees, by providing a hotline for our suppliers to call should they observe a peer or Greif employee displaying values that are inconsistent with our Code of Conduct. We expect all suppliers to adhere to our Supplier Code of Conduct as any violations along our supply chain have the potential to expose us to reputational risk. Beginning in 2019, Greif incorporated the Supplier Code of Conduct into every purchase order issued to a supplier in North America, approximately 35% of Greif's global supplier base by number and 50% by spend. By signing our Purchase Order, these suppliers have attested to and agree to adhere to our Supplier Code of Conduct. In 2020, we began sending our Supplier Code of Conduct with legacy Carastar purchase orders. This began elevating the importance of the Supplier Code of Conduct and environmental, social and governance topics with our suppliers and during our buying decision process.

Impact of engagement, including measures of success

Sustainability criteria accounts for 5% of our supplier scorecard.

Comment

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

0.2

% total procurement spend (direct and indirect)

15

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

15

Rationale for the coverage of your engagement

We are utilizing EcoVadis assessments to analyze the sustainability performance of our suppliers. We began requesting that our 40 largest suppliers complete EcoVadis assessments in 2020. Thus far, suppliers accounting for 15 percent of our supplier spend have submitted EcoVadis responses and we target assessing 25 percent of our supplier spend by the end of 2021. As part of this program, we trained our buyers on EcoVadis to understand the assessment, recognize the factors EcoVadis is rating and best utilize information from the assessments.

Impact of engagement, including measures of success

As a result of our engagement efforts, we created our first set of supplier sustainability goals. These goals have a FY2017 baseline and a target completion year of 2025. This "Green Procurement" Vision focuses on: 1) A one percent reduction in overall material used to produce current product offerings by using innovative materials 2) Moving from Non-Green to Green Material Sourcing if it is economically feasible and doing so provides high quality of product to our customers. We score each of our top 20 suppliers on a supplier scorecard (which accounts for approximately 70% of our supplier spend) that considers cost, quality, delivery, value-added services, technical support and environmental and social criteria. We track supplier scorecard performance in Greif's Quality Control System, allowing us to tie quality issues to specific suppliers. If a supplier gets a low score, we expect corrective action to happen.

Comment

C12.1b

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

Type of engagement

Collaboration & innovation

Details of engagement

Other, please specify (More information provided below.)

% of customers by number

15

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

15

Portfolio coverage (total or outstanding)

<Not Applicable>

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

Greif works with customers to allay greenhouse gases in their supply chain. We prioritize customers that desire to impact their sustainability goals, including energy and emissions, and reduce costs. We collaborate with these customers frequently in an effort to develop products that meet their needs and those of others in the industry. We regularly meet with customers to identify collaborative projects to reduce each other's carbon emissions. We meet with customers during tradeshows and conferences such as Interpack and send updates to all customers regarding our sustainability-related products, achievements, and news. In 2020, to ensure the health and safety of our colleagues and customers during the COVID-19 pandemic, we offered a series of webinars and virtual plant tours. Our webinars covered topics such as sustainability, product deep dives and innovation. Through this virtual approach, we were able to conduct more plant visits than prior years. In total, we hosted over 1,200 customers in virtual meetings during 2020 and received positive feedback from those involved. We use the Greif Green Tool to assist customers in selecting the most efficient container for their needs. The tool enables companies to evaluate the GHG emissions associated with different shipping scenarios and assists customers in calculating their scope 3 GHG emissions. Over 80 customers have used the tool. We continue to update the tool with our latest product information, ensuring data and product classifications are as up-to-date as possible and all new product launches are analyzed and added to our sustainable product portfolio if they meet the criteria. In 2019, Greif used the Green Tool to collaborate with a customer in the chemical specialties industry in Italy to identify more sustainable products. The analysis helped identify four projects to present to the customer; transitioning to lighter-weight jerry cans, increasing use of products with high percentages of postconsumer resin (PCR), create and coordinate closed loop packaging in Europe and test Greif's GCUBE Track technology to optimize logistics and supply chain. The customer implemented two of these projects and will continue to evaluate the remaining for implementation in 2021. We are also conducting pilots with customers to test rebottled IBCs, testing PCR IBCs, and downgauging and using recycled paint on steel drums.

Impact of engagement, including measures of success

We measure the success of customer engagement through customers actively engaged in sustainability discussions, number of customers completing a Green Tool Analysis, and revenue from sustainability-tagged products. In 2020, we achieved 21 customers completing a Green Tool Analysis and \$362 million in revenue from sustainability-tagged products (8% of total revenue). Size of engagement and percentage of scope 3 emissions are provided as a percentage of revenue attributable to sustainability tagged-products, which are viewed as an outcome of these engagements. Greif collaborates with our customers through a variety of associations, including WBCSD. Greif is an active participant in WBCSD's 41-member Circular Economy working group, which includes 15 Greif customers and 63-member PPA and renewables technology working group, of which 9 members are Greif customers. We also participate in WBCSD's, REscale and New Energy Solutions working groups. In 2020, we also served as Co-Chairs of the WBCSD Plastics and Packaging working group focused on developing a transition roadmap to circularity for the industrial packaging sector.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

In 2020 Greif completed our second materiality assessment, engaging stakeholders along our value chain to determine significant impacts, risks, and opportunities that are most relevant to Greif and its stakeholders. Our materiality process involved mapping our value chain. As disclosed on the Stakeholder Engagement & Materiality page of our sustainability report, Greif's value chain consists of raw material suppliers, transportation and distribution partners, customers, end-of-life services (fulfilled by our Life Cycle Services (LCS) network) and external stakeholders that influence our activities, including investors, communities in which Greif operates and sustainable development organizations in which Greif participates.

Greif engages with our transportation and distribution partners daily to incorporate climate-related factors into our logistics decision-making processes. Since 2014 we have formally partnered with the EPA's SmartWay program to manage logistics in an environmentally-responsible manner. Greif uses carriers that are approved through the EPA's SmartWay initiative whenever possible.

We include SmartWay certification during our new carrier certification process. Greif's SmartWay-approved carrier base accounts for 82 percent of miles traveled in NA. From 2014 to 2018, we have saved over 231,535 tons of CO2 mass emissions through the use of SmartWay carriers.

Greif engages investors in our climate-related strategy through formal earnings calls, daily interactions, sustainability reporting, and active responses to sustainability assessments, including CDP and EcoVadis. We engage with sustainability assessment firms to ensure accuracy and improve our scores for the investor community. We also attend meetings with current and potential investors to discuss our climate strategy, circular economy strategy, and other aspects of our sustainability program. Greif engages the communities in which we operate through our public reporting, including our sustainability report, social media, attending various conferences, and public meetings in certain cases.

Greif engages with the World Business Council for Sustainable Development (WBCSD) and the UN Global Compact (UNGC). Greif began engaging with WBCSD in 2009 to demonstrate our commitment to providing business leadership as a catalyst for change toward sustainable development. Greif is proud to have hosted the first Midwest WBCSD conference in 2011, and again in 2012 and 2013, to discuss and share ideas and strategies about how to respond to some of the key environmental and business sustainability questions we face today and to share best practices. We are proud to have partnered with WBCSD to publish From Cradle to Grave: Greif's Life Cycle Analysis, a case study on how we implement Life Cycle Analysis in our business. In 2020, Greif was an active member of WBCSD's circular economy, REscale, and New Energy Solutions working groups. In 2020, we also served as Co-Chairs of the WBCSD Plastics and Packaging working group focused on developing a transition roadmap to circularity for the industrial packaging sector. Our CEO delivered the keynote address at WBCSD's 2019 Annual Council Meeting dinner and our director of sustainability presented at the sessions on Plastics and the integration of ESG risks into the risk management process, and provided input on two WBCSD papers/pieces that were published and communicated on their website and shared with all of their members. We also piloted a risk management program in collaboration with WBCSD to better integrate ESG issues into our enterprise risk management process. In addition to these activities, we continue to engage with WBCSD quarterly and are participating in a program to better ingrain climate-related risk into our enterprise risk management approach. During 2020, we also took part in an energy risk identification and mapping project for WBCSD run by KPMG. The results of this project will be published in 2021.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Trade associations

Funding research organizations

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

International Confederation of Plastic Packaging Manufacturers (ICPP).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The ICPP's mission is "to promote the safe and efficient manufacturing, use and recycling of plastics packaging." This includes the fields of international transport of plastics packaging and test methods. The ICPP indirectly engages in the realm of climate change through advocating for, and encouraging environmentally sound practices in the management of the packaging life cycle.

How have you influenced, or are you attempting to influence their position?

Our Product Management and Development Director is the President of the ICPP. In this capacity, Greif, along with the ICPP, work with the United Nations' (UN) Committee of Experts on the Safe Transport of Hazardous Goods to promote regulatory aspects of the transport of dangerous goods, international standardization and lessen environmental impact of transportation.

Trade association

American Forest and Paper Association (AF&PA).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The AF&PA works to advance the sustainability of the U.S. pulp, paper, packaging and wood products manufacturing industry through public policy and marketplace advocacy. The organization engages directly in climate change and has set an industry-wide goal to reduce GHG emissions by at least 15 percent from 2005 to 2020. The program was recognized by the U.S. Environmental Protection Agency (US EPA) during the 2012 Climate Leadership Conference. Other AF&PA goals include increasing paper recovery and energy efficiency, and promoting sustainable forestry. These goals contribute directly toward climate change mitigation. Between 2005 and 2018, AF&PA membership has reduced their GHG emissions by 23.2 percent, surpassing the 2020 target. AF&PA member managed forests and forest products store approximately 10 percent of annual U.S. carbon dioxide emissions, playing a pivotal role in reducing climate change impacts.

How have you influenced, or are you attempting to influence their position?

Greif's Chief Executive Officer serves on the board of directors. Through our membership in the AF&PA, Greif supported their 2030 goal setting initiative including goals aimed at reducing GHG emissions and mitigating the effects of climate change. Greif also helps to establish long-term planning goals, form industry committees to work on the most critical sustainability opportunities, and publish annual sustainability reports for the public. By supporting these activities, Greif reinforces the AF&PA's commitment to addressing climate change. Various Greif leaders occupy other AF&PA positions: General Counsel, Resource Committee member, Chairman Containerboard sector, Water subcommittee, Workplace Health and Safety subcommittee, Recovered Fiber Sector group, and Containerboard Sector group.

Trade association

World Business Council for Sustainable Development (WBCSD).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The WBCSD works with the global business community to create a sustainable future business, society and environment. The WBCSD's Vision 2050 promotes a global transition to sustainable business including the halving of carbon emissions worldwide through a shift to low-carbon energy systems, the halting of deforestation, incorporating carbon externalities into the marketplace and improving demand-side energy efficiency. Through its Action 2020 initiative, the WBCSD provides solutions for companies to utilize carbon sinks and capture and storage technologies promote zero emissions and increase climate change resilience.

How have you influenced, or are you attempting to influence their position?

Greif's Vice President, Investor Relations, External Relations and Sustainability and Director of Sustainability manage Greif's partnership with the WBCSD. In our partnership, we are active members of the WBCSD ReScale and New Energy Solutions working groups and co-chair the Plastics and Packaging working group, contribute to various WBCSD reports, and supported the development of the WBCSD circular economy metrics tool/calculator they published.

Trade association

SERRED (Association of European reconditioners).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

According to SERRED's website, they provide environmental services to its business partners "by collecting, transporting, cleaning and reprocessing millions of packaging every year. Packaging reuse saves energy and the production of greenhouse gases, making our community a better place in which to live."

How have you influenced, or are you attempting to influence their position?

EMEA's Life Cycle Services (LCS) Product Director serves as SERRED's president while other Greif employees hold membership. Our LCS serves as a means to recondition and remanufacture industrial drums and intermediate bulk containers. By LCS representatives participating in SERRED, Greif brings its leadership and expertise in packaging sustainability.

Trade association

Fiber Box Association (FBA).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

In response to the growing demand for sustainability practices, the Fibre Box Association formed a sustainability committee to help in "defining and articulating the sustainable practices of the corrugated packaging industry." The FBA promotes sustainable forestry practices and recycling.

How have you influenced, or are you attempting to influence their position?

Greif's Senior Vice President and Group President of Paper Packaging & Services and Soterra LLC, serves as a member of the FBA's Executive Committee. Through their leadership, the individual reinforces the FBA's position on climate change by commissioning lifecycle analyses and carbon foot-printing for the industry as a whole, establishing long-term planning goals, forming industry committees to work on the most critical sustainability opportunities, and publishing annual sustainability reports for the public.

Trade association

Reusable Industrial Packaging Association (RIPA).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Reusable Industrial Packaging Association (RIPA) promotes policies and practices that encourage additional use and reuse of reusable industrial and transport packaging. Packaging reuse reduces greenhouse gas emissions and RIPA seeks to encourage greater use of such packaging by corporations where practical and feasible.

How have you influenced, or are you attempting to influence their position?

Our LCS segment is a member of RIPA and sits on the association's board.

Trade association

European Industrial Packaging Association (EIPA).

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The consumption of fossil-based fuels and raw materials cannot be truly considered as 'sustainable', by the simple fact that the natural processes for production of oil, gas and minerals occurs over millions of years, yet they are obtained, refined and consumed within a matter of months. Ideally the manufacture of sustainable industrial packaging, along with the manufacture of any tools or equipment used in such a process, would include use of renewable energy sources such as wind, solar, tidal and wave energy.

How have you influenced, or are you attempting to influence their position?

As Chairman of EIPA, Greif has worked to create a standardized definition for Sustainable Industrial Packaging and worked to create a shared view of the circular economy among industry partners.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

No

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

The Greif Way, which outlines Greif's core tenets, and our Environmental Health and Safety Policy cover climate change and inform our organizational strategy, including how we both directly and indirectly influence policy through our activities. Sustainability is a critical component of The Greif Way and permeates our organization. Interaction between Greif and groups influencing climate change are coordinated from our Corporate Headquarters through Greif's Vice President, Investor Relations, External Relations and Sustainability with input from the Board and CEO. All Greif employees are expected to engage with our value chain in accordance with our Code of Business Conduct, which sets expectations for Compliance with Laws, Regulations and Policies, People and Planet, and Business Ethics. The code of conduct specifically states our policy regarding political contributions and engagement, "Do not make any payments or donations by or on behalf of Greif to political candidates or political parties or their institutions, agencies or representatives." Further, the policies set forth in the Code of Business Conduct are written to ensure our activities are consistent with our business strategies, including our overall climate change strategy. Our 2020 materiality assessment reinforced the importance of Ethics & Compliance to our business as a material sustainability topic. Our Ethics and Compliance policies are reported as part of our 2020 Sustainability Report. Additionally, we have established a goal to provide online training of the Greif Code of Business Conduct and Ethics to 100 percent of employees with access to computers by 2025. As of 2020, 91.1 percent of colleagues with access to computers completed training on Greif's Code of Business Conduct and Ethics.

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 mainstream reports

Status

Complete

Attach the document

Greif-2020 Annual Report.pdf

Page/Section reference

CEO Letter and pages 11, 18

Content elements

Governance

Strategy

Risks & opportunities

Other metrics

Comment

2020 Annual Report

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Greif_Sustainability_Report_2020.pdf

Page/Section reference

Governance pg. 5 Strategy pg. 27 Risks & opportunities pg. 27 Emissions figures pg. 28 Emissions targets pg. 28 Other metrics pg. 77

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Comment

2020 Sustainability Report

C15. 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.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President and Chief Executive Officer	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0

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

SC0.1

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

	Annual Revenue
Row 1	4515000000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

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.

SC1.2

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

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
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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.

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?

Yes

SC2.2a

(SC2.2a) Specify the requesting member(s) that have driven organizational-level emissions reduction initiatives, and provide information on the initiatives.

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 am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain questions?
I am submitting my response	Investors Customers	Public	Yes, I will submit the Supply Chain questions now

Please confirm below

I have read and accept the applicable Terms