2022 TCFD Disclosure

TRONOX HOLDINGS PLC

TCFD Disclosure

This report is a supplement to the initial disclosure made by Tronox in early 2022 on certain climate-related topics prepared in accordance with the Taskforce on Climate-Related Financial Disclosures (TCFD). Its purpose is to provide our key stakeholders with disclosure on our activities related to reducing our carbon emissions during the year ended December 31, 2022.

GOVERNANCE
The organization's governance around climate-related risks and opportunities

STRATEGY
The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy and financial planning

RISK MANAGEMENT
The processes used by the organization to identify, assess and manage climate-related risks

METRICS AND TARGETS
The metrics and targets used to assess and manage relevant climate-related risks and opportunities

a. Governance

We made important improvements to our governance structure for sustainability-related matters in 2022. What has not changed since our initial TCFD report is the high level of engagement by our Board of Directors. The Governance and Sustainability Committee of the Board of Directors remains responsible for oversight of sustainability at Tronox and is still comprised of three independent members of the Board of Directors, including the non-executive chairman of the Board, Ilan Kaufthal.

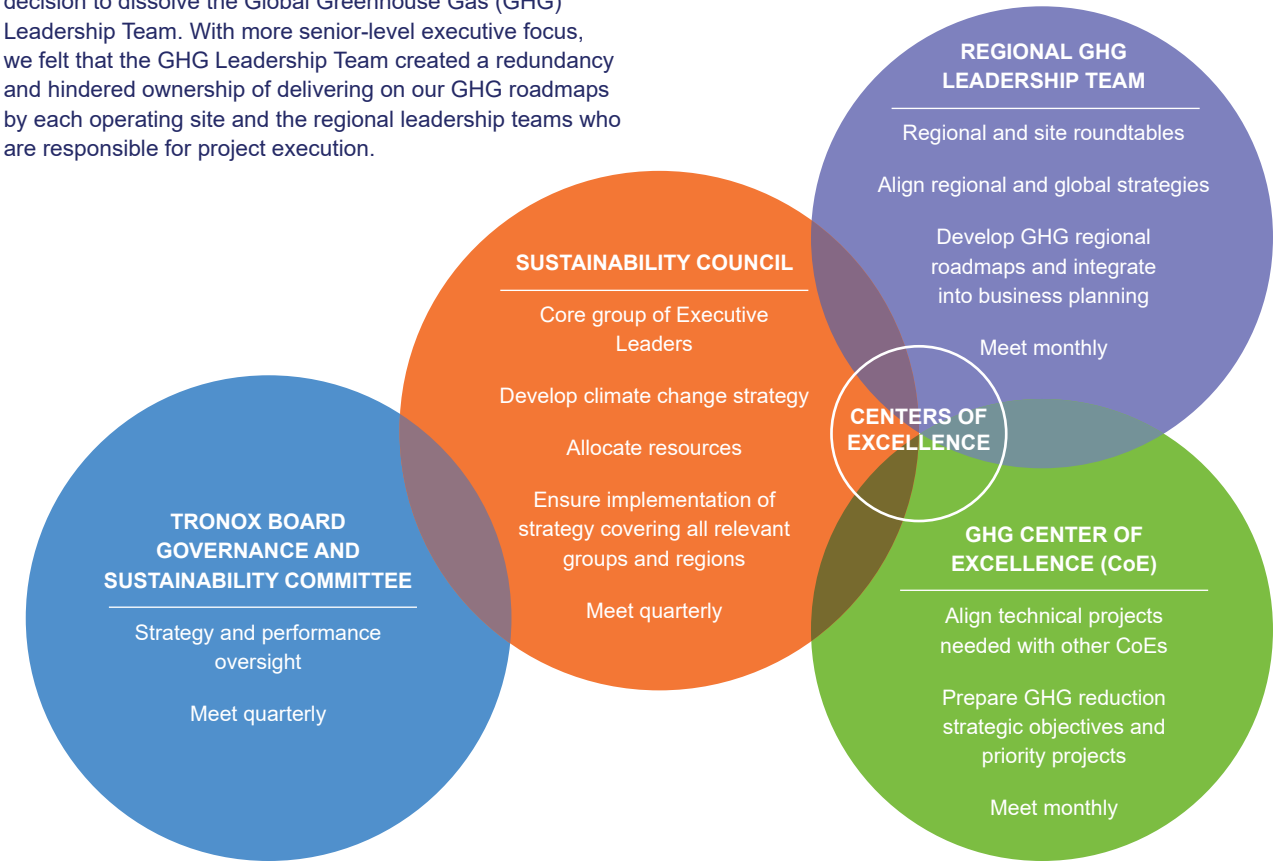
Key updates to our governance structure in 2022 included:

1. The Sustainability Council is the most senior level executive body charged with managing sustainability-related matters at Tronox. In 2022, to reflect the importance of sustainability to our investors, customers and employees, we increased the seniority of the members and shrank its size to create more of a sense of ownership. The Council is now comprised of Tronox's most senior executives responsible for operations, finance, commercial, supply chain, legal and investor relations. It is chaired by the Chief Sustainability Officer and Head of Investor Relations and Financial Planning. The Council meets on quarterly basis. Key decisions made in 2023 included the approval of upstream Scope 3 emissions intensity targets and the mechanism to be used for internal carbon pricing.

2. We have created the new position of Chief Sustainability Officer and Head of Investor Relations and Financial Planning, as well as the Vice President of Sustainability who reports to the Chief Sustainability Officer. Like with changes to our Sustainability Council, this organizational change reflects the increased importance of sustainability as well as the increased scope of sustainability activity across the enterprise. Management believes that these new positions will be better able to drive Tronox's sustainability strategy, increase stakeholder collaboration and increase the likelihood that Tronox delivers on its sustainability goals.

3. In light of the changes described above, we made the decision to dissolve the Global Greenhouse Gas (GHG) Leadership Team. With more senior-level executive focus, we felt that the GHG Leadership Team created a redundancy and hindered ownership of delivering on our GHG roadmaps by each operating site and the regional leadership teams who are responsible for project execution.

4. We created 20+ sustainability workstreams to manage specific projects and initiatives. Similar to the governance of the GHG CoE, each workstream has a senior leader as a portfolio owner, supported by a cross functional team to deliver on project milestones.



b. Strategy

In 2022 we held detailed discussions with our shareholders, investors and key customers to ensure that our climate strategy is aligned with their expectations. Our corporate strategy on climate change was well-received by our stakeholders and aligned with their expectations that Tronox proactively addresses climate risks and opportunities and aligns disclosures accordingly.

Importantly, our downstream customers told us about the role Tronox can play in their own efforts to decarbonize and their desire to collaborate with us, particularly to help them better understand and reduce their own Scope 3 emissions.

Year	Key Milestones
2021	• Entered renewable energy agreement in South Africa. • Completed GHG reduction opportunity assessments in Australia and the European Union. • Completed key climate studies examining transitional business and physical risks. • Completed Scope 3 emissions determination capabilities (e.g. carbon footprint of raw materials such as chlorine, additives, process gases).
2022	• Announced a landmark 200 MW solar power project in the Republic of South Africa, the first large-scale renewable energy project since that country deregulated its power markets. • Completed organization-wide assessment of transitional risks and opportunities and physical risks. • Completed Phases 1 and 2 of regional carbon emission roadmaps in Australia and Europe (including the United Kingdom). • Commenced Phase 1 of regional carbon emission roadmaps for the United States, South Africa, Kingdom of Saudi Arabia and Brazil. • Formulated physical resilience plans for realistic climate change scenarios. • Assessed robustness of Tronox GHG reduction strategy using ACT chemical industry framework. • Launched initial automated process controls at our pigment plants in the United States and the United Kingdom to reduce reductant (coke) consumption. • Implemented pilot energy management system at our site in Thann, France which was certified against ISO50001 standards. • Engaged with our high-emitting suppliers to discuss their approach and programs related to sustainability. • Commenced a third party limited assurance review with respect to our global Scope 1 and 2 emissions. • Undertook a third-party gap analysis of our ability to comply with the Security and Exchange Commission's draft rule on carbon disclosure when and if it goes into effect. The gap assessment results showed that we are relatively ahead in terms for readiness to report against the regulation if it is published as drafted.

In 2023 we will deepen discussions with customers to ensure alignment of our carbon roadmap and to leverage synergies, so that both Tronox and our customers can quickly respond to any changing trends and evolving low-carbon technologies.

We are committed to transparency and sharing progress with our stakeholders on our journey to achieve net-zero carbon emissions by 2050. Starting with this update, we will provide a detailed five-year action plan showing progress on our short-, medium- and long-term carbon emission reduction goals. For more details on the overall strategy, please refer to the strategy section in the initial TCFD report.

Year	Key Milestones
2023	• Expect to announce a second large renewable energy project in South Africa. • Announce Scope 3 emission reduction targets and explore signing the Science-Based Target Initiative. • Explore Scope 3 reduction opportunities with key suppliers and update Scope 3 emissions intensity reduction targets. • Expand use of automated process controls at all chloride pigment plants around the world to reduce the amount of reductants (coke) used to produce our products. • Energy management systems to be introduced at all sites including energy performance indicators and targets. • R&D projects for alternative reductants used for beneficiation of titanium feedstocks initiated. • Commencing Scope 1 emission reduction projects including a ‘Green Rutile’ feasibility study in Australia and ‘Steam elimination’ initiatives in Europe. • Finalizing the pathway to reducing Scope 2 emissions in our Australian and European sites. • Commence Phase 2 regional carbon emission roadmaps in South Africa, United States, Kingdom of Saudi Arabia and Brazil. • Establish GHG and energy reduction project portfolio for our entire business (global roadmap).
2024	• South Africa solar renewable energy project announced in 2021 comes on-stream (Q1 2024). • Begin transition from coal-based to renewable energy opportunities in Australia.
2025	• Electrification and fuel substitution projects to replace natural gas and steam commence at priority TiO_2 pigment facilities.

Scope 3 Emissions and Becoming the Low-Carbon Supplier of TiO_2

Tronox management approved the following Scope 3 GHG emissions intensity targets against our revised 2021 baseline:

- 9% reduction in upstream Scope 3 emissions intensity by 2025
- 16% reduction in upstream Scope 3 emissions intensity by 2030

To be able to publicly announce Scope 3 targets, throughout 2022 we worked to ensure the methodology used meets the latest international standards. Refinements to our methodology will continue into 2023. As mentioned in our initial TCFD report, we are focused on cradle-to-gate greenhouse gas emissions.

Below is the revised 2021 baseline based on the refined GHG emissions calculation methodology:

Scope 3 GHG Emission Category Per Year	Raw Materials (Feedstock, Chemicals, Materials)	Energy	Water	Wastewater	Waste	Total
GHG Emissions (t CO_2e)	1,458,327	619,128	3082	1	8251	2,088,789

Our 2022 Scope 3 emissions are shown in the table below (Provisional):

Scope 3 GHG Emission Category Per Year	Raw Materials (Feedstock, Chemicals, Materials)	Energy	Water	Wastewater	Waste	Total
GHG Emissions (t CO_2e)	1,279,815	618,031	3,004	10	6,989	1,907,850

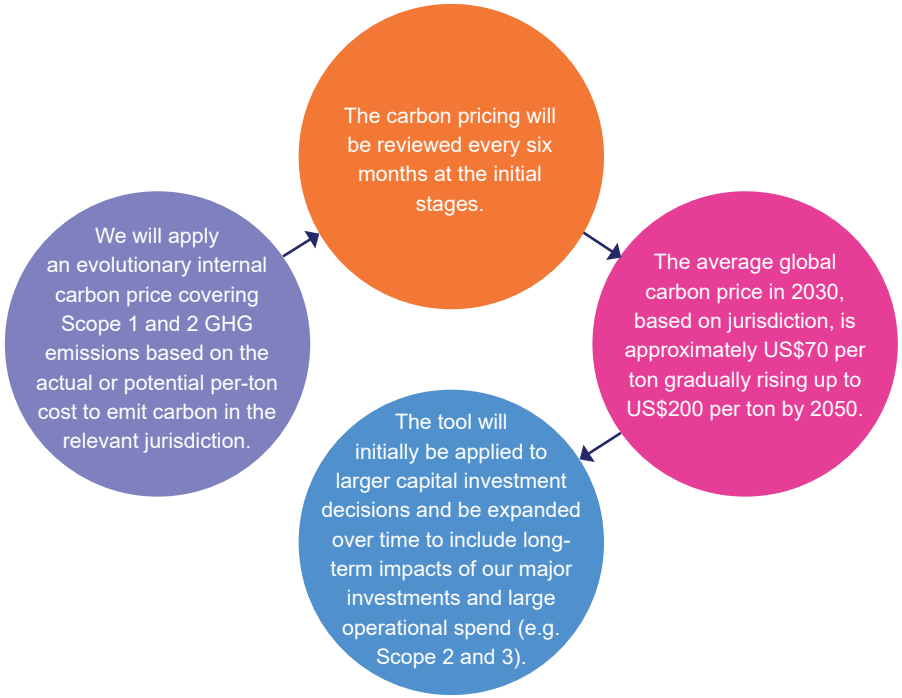
c. Risk Management

As mentioned in the initial TCFD report, we analyzed how the relevant climate change transition scenarios would impact Tronox. These transition scenarios were based on the global community's ability to act against climate change, ranging from inaction to sustainable development. We continued our discussions with our internal and external stakeholders on how these transition scenarios would impact Tronox in ways which Tronox could adjust under each scenario. For more information on the transitional risk assessment methodology and outcomes, please refer to the initial TCFD report.

Internal Carbon Pricing

In our initial report, Tronox committed to develop and deploy an internal carbon pricing methodology. The main objectives for this initiative are to accelerate low-carbon investment, improve energy efficiency and accelerate the evolution of our corporate culture to be even more climate and sustainability conscious. Establishing an internal carbon pricing mechanism will also help us better identify and benefit from new low-carbon opportunities, adapt to evolving GHG regulations, and stress test our investment decisions against possible future regulatory scenarios.

The methodology measures the financial impact of business decisions that increase or decrease our Scope 1, 2, and 3 emissions based on actual or potential per-ton emission costs in the jurisdictions where we operate. Below is an outline of the key features of the methodology which we will begin applying from Q2 2023:



Transition Risk by 2050	Time Horizon	Process/BU Concerned	Impact description	Risk	Actions update - 2022
Carbon pricing	As of today	All BUs (Pigments, SC&M, Mining and Beneficiation)	Carbon pricing policies and associated regulatory mechanisms – including carbon border taxes – are being adopted in various countries.	If no GHG emission reduction action is undertaken, production costs could increase dramatically resulting in both direct carbon pricing penalties ($/ton product sold) and indirect increasing costs of carbon-intensive energy sources and raw materials (chlorine, sulfur, petcoke, etc.)	Scope 1+2 emissions reduction of 35% by 2025 and 50% by 2030 Scope 3 emissions reduction of 9% by 2025 and 16% by 2030. Internal carbon pricing mechanism developed and approved for implementation in 2023.
Fossil fuel phase out	From 2030 onwards	All BUs (in particular energy-intensive activities, e.g. pigment manufacturing)	Increasing number of countries with regulations to phase out coal and other fossil fuels	Rising energy and raw material costs, especially in the 'Sustainable World' scenario, which can lead to production costs increases particularly in smelting and chlorination processes if no major change is made in the energy and raw material supply mix.	First 200MW solar power supply at South Africa under construction. First live power expected in Q1 2024. Additional renewable energy project to be announced later this year. Ongoing discussions with energy providers on opportunities for green Power Purchase Agreements and Gas Purchase Agreements Dedicated supply chain team focused on high GHG emitters at each site. A survey was conducted in 2022 to understand supplier sustainability ambitions and more precisely action on climate change. Based on the outcome of the surveys, a detailed engagement plan will be developed in 2023 to seek opportunities to further reduce our Scope 3 emissions. R&D project team established with clear focus on alternatives to high-carbon emitting reductants.

Transition Risk by 2050	Time Horizon	Process/BU Concerned	Impact description	Risk	Actions update - 2022
Increased environment	As of today	Pigments & SC&M	Increased sectoral regulations for the production of end products (plastics, paints, coatings, etc.) through eco-design requirements and environmental labelling of consumer products	Reduced sales in certain markets (e.g. single-use plastics) and higher expectations from clients on the environmental footprint of products supplied	Continue our discussions with key customers on possible opportunities to market low-carbon Tronox products that benefit from the implementation of specific GHG emission reduction initiatives (see Decarbonisation Roadmap p.9) and which are sold to customers along with a Guarantee of Origin (GO) mechanism, helping Tronox's clients decrease their Scope 3 emissions. Regular scenario-based assessment of the evolution of the environmental regulation of end products (e.g. EU Chemicals Strategy) in order to best understand which end markets are at risk and how Tronox products can help those markets be more resilient. Gap analysis against draft SEC regulations completed to proactively address the significant change in regulatory environment.
Technology changes	As of today	All BUs	Tronox needs to adopt new technologies to fully decarbonize its activities and thus achieve its GHG emission reduction targets. The availability of decarbonization technologies at a competitive cost is thus a challenge.	Tronox may experience challenges reaching net zero by 2050 if some technologies are unavailable at a sufficiently competitive cost (e.g. green hydrogen, carbon capture, biocoke, etc.). Tronox can also face a high cost to implement those technologies.	R&D project team established with clear focus on alternatives to high-carbon emitting reductants. Working with specialized technology providers within the regional decarbonization roadmaps to identify new ideas and opportunities. Energy efficiency group developed under the Global GHG Center of Excellence.

Transition Risk by 2050	Time Horizon	Process/BU Concerned	Impact description	Risk	Actions update - 2022
Market shift for products with lower-carbon impact	As of today	Pigments & SC&M	Demand from both clients and end consumers for products with a lower-carbon footprint	Higher expectations from clients on reducing the environmental footprint of products supplied. The TiO_2 pigment market is for now relatively less threatened by a massive demand shift because of the absence of alternative products (e.g. biobased or synthetic pigments) with the same performance.	Refer to progress update on decarbonization roadmaps. Refer to discussion with customer on the evolution of low carbon products.
Reputation	As of today	All BUs	Increased stakeholder concern about GHG emissions and reporting	If Tronox does not implement the necessary actions to meet the climate ambitions it has set, several reputational risks can be anticipated including: • Less funding available and/ or increased production costs due to boycott by shareholders, banks and commercial partners • Closure of existing mining and pigment manufacturing plants and impossibility to create new plants because of potential activism	Renewable power supply in South Africa announced (Scope 2 & 3). Additional large renewable power supply to be announced in 2023 (Scope 2 & 3). Regional decarbonization roadmaps completed for Europe and Australia in 2022 (Scope 1 & 2). Regional decarbonization roadmaps commenced for Brazil, Kingdom of Saudi Arabia, South Africa and USA (Scope 1 & 2). Continual dialogue with shareholders to update on progress and gain feedback on their expectations. Maintain annual update on roadmap progression.

Physical Risk Assessment

In the initial TCFD report, we provided detailed disclosure on a physical risk assessment conducted at all our operating sites. We are planning to provide an update to this initial assessment within 2 years to ensure that all necessary mitigation measures are underway and that we maintain our resilience as an organization against the potential physical risks associated with climate change. We intend to disclose the results of the updated physical risk assessments every three years with the next such updated planned for release in 2024. All TCFD reports can be found on our Sustainability website.

d. Metrics and Targets

Refer to our 2022 Sustainability Report for Scope 1, 2, and 3 emissions, as well as other metrics in alignment with TCFD, SASB and GRI. A detailed description of our 2022 performance against baseline and previous years is provided in the relevant sections of the report.