

Investors launch initiative tackling risks related to the chemical sector

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The chemical industry is an integral part of the global economic landscape, with 95% of all manufactured goods reliant on some form of chemical process. However, chemical pollution is both a key driver of the biodiversity crisis and a contributor to climate change. Chemical production is the most energy-consuming production sector and the third largest source of global carbon emissions. Pressure is mounting.

Key takeaways:

- While chemical pollution is clearly one of the main drivers of biodiversity loss, there are still significant research gaps when it comes to establishing a clear link between chemical pollutants and their impact on the environment. >
- Recent policies from major economies have been criticized for overlooking the effect of chemical pollutants, which may lead to regulatory changes. >
- Investors should be aware of the key regulatory, legal, and reputational risks associated with chemical manufacturers. >
- To address these concerns, we joined the Investors Initiative on Hazardous Chemicals (IIHC), with the goal of encouraging issuers to improve chemical-related transparency and production processes. >



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Chemical manufacturers must be held accountable if we want to manage the risk and harm caused by hazardous and persistent chemicals. The production and use of hazardous chemicals pose substantial material risks to investors. These risks are amplified by a lack of transparency in the chemical sector, where only modest insights into the portfolios of the companies are permitted. The Investor’s Initiative on Hazardous Chemicals brings together investors to engage with chemical companies who play a vital role in addressing the threat of hazardous chemicals.

Nisha Long,
Head of Sustainability Research
at Credit Suisse Asset Management

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The production and use of hazardous chemicals are linked to substantial financial risks. It is also – though often overlooked – a key driver of the ongoing biodiversity loss. It is therefore important that responsible investors engage with the chemical industry and push for a transition to safer alternatives. This is what Credit Suisse Asset Management is doing by joining the Investor Initiative on Hazardous Chemicals and leading the engagements with two of the companies.

ChemSec,
International Chemical Secretariat

Introduction

The chemical industry is an integral part of the global economic landscape, with 95% of all manufactured goods reliant on some form of chemical process.¹ The industry not only produces a huge range of finished products for general consumption, but also generates key inputs and enables processes for other manufacturing activities that have raised living standards across the world. However, until very recently, broader society was in the dark regarding the negative impact of the chemical industry on the environment.

In the European Union, 75% of the almost 300 million tons of chemicals used every year are considered hazardous to human health or the environment.² Average male sperm counts have more than halved over the last 40 years, and this has been linked to chemical exposure.³ Exposure to toxic chemicals has also been linked to birth defects, cancer, obesity, and a range of other illnesses.⁴ Chemical pollution is a key driver of the biodiversity crisis and a big contributor to climate change, as chemical production is the world’s most energy-consuming production sector and the third largest source of global carbon emissions.⁵

The past couple of months has seen increased media coverage around hazardous chemicals, and in particular, persistent chemicals (PFAS). From 3M [announcing their decision](#) to exit PFAS manufacturing by 2025, to the European Union

starting to consider a blanket ban on PFAS, pressure for change is mounting. Studies published last year by The Guardian found that chemical companies such as DuPont and Daikin had been aware of the dangers surrounding a PFAS compound found in food packaging since 2010 but hid this from the general public and the Food and Drug Administration (FDA).⁶ In February 2023, a major mapping project by an independent nonprofit revealed that more than 17,000 sites across the UK and Europe contain alarmingly high levels of PFAS pollutants.⁷

Other studies have addressed the need for a planetary boundary for chemical pollution and novel entities. Some argue that synthetic chemicals, namely persistent chemicals, should be prioritized, and that failing to do this would pose a threat to the global ecosystem. Today, there are more than 100,000 substances in global commerce,⁸ with production projected to triple by 2050 compared to 2010, according to a study published last year.⁹

Given all the above, regulation and oversight still falls short and is fragmented in several areas, from a lack of comprehensive testing and slow regulatory processes to a limited focus on cumulative effects and inadequate transparency and reporting. Addressing these shortcomings requires input from all stakeholders: regulators, NGOs, researchers, industry associations, and investors.

¹ [The Global Chemical Industry: Catalyzing Growth and Addressing Our World’s Sustainability Challenges – Oxford Economics.](#)

² [Global Chemicals Outlook | UNEP – UN Environment Programme.](#)

³ [Temporal trends in sperm count: a systematic review and meta-regression analysis of samples collected globally in the 20th and 21st centuries | Human Reproduction Update | Oxford Academic \(oup.com\).](#)

⁴ [The Public Health Impact of Chemicals: Knowns and Unknowns \(who.int\).](#)

⁵ [Plastics, the circular economy and Europe’s environment – A priority for action – European Environment Agency \(europa.eu\).](#)

⁶ [Chemical giants hid dangers of ‘forever chemicals’ in food packaging | Pollution | The Guardian.](#)

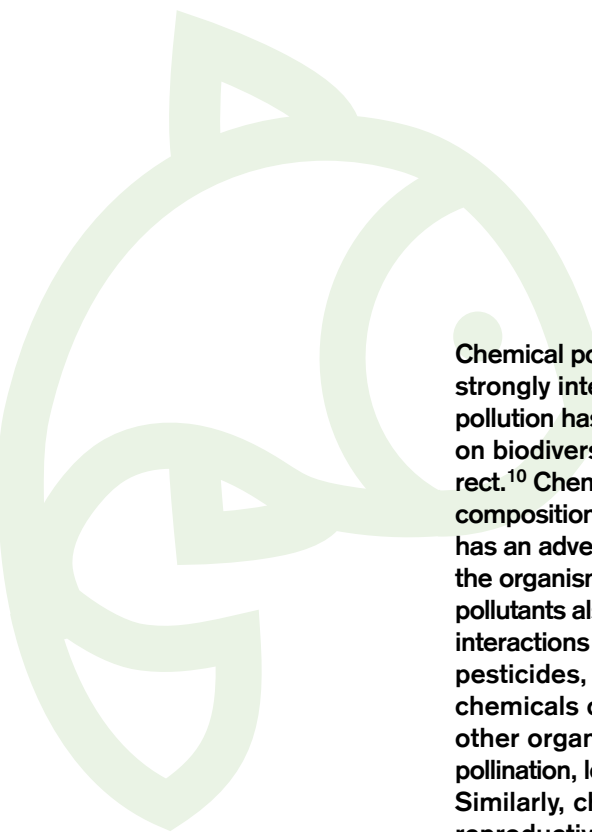
⁷ [Pan-European forever pollution project – Watershed Investigations.](#)

⁸ [Planetary boundaries: Guiding human development on a changing planet | Science.](#)

⁹ [Outside the Safe Operating Space of the Planetary Boundary for Novel Entities.](#)

Linn Persson, Bethanie M. Carney Almroth, Christopher D. Collins, Sarah Cornell, Cynthia A. de Wit, Miriam L. Diamond, Peter Fantke, Martin Hassellöv, Matthew MacLeod, Morten W. Ryberg, Peter Søgaard Jørgensen, Patricia Villarrubia-Gómez, Zhanyun Wang, and Michael Zwicky Hauschild
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Biodiversity loss



Chemical pollution and biodiversity loss are strongly interconnected issues. Chemical pollution has profound, far-reaching impacts on biodiversity that are both direct and indirect.¹⁰ Chemical pollution alters the chemical composition of soils, water, and air, which has an adverse effect on ecosystems and the organisms that inhabit them. Hazardous pollutants also impact the food chain and the interactions between species. For example, pesticides, insecticides, and other toxic chemicals can kill beneficial insects and other organisms that are important for pollination, leading to lower plant biodiversity. Similarly, chemicals can also affect the reproductive success of certain species, leading to reduced populations and the eventual loss of biodiversity, as seen in “ocean dead zones.”¹¹ Moreover, the loss of biodiversity even exacerbates the impacts of chemical pollution. As biodiversity declines, ecosystems become less resilient, making them more vulnerable.¹² In other words, when an ecosystem loses species that help to break down pollutants, it becomes less able to cope with chemical pollution.

Although ecologists have identified pollution, including chemical pollution, as one of the main drivers of biodiversity loss, chemical pollution is often not part of the discussion.¹³ In a recent ecology study titled “Addressing chemical pollution in biodiversity research,” the authors found that chemical pollution as a global change factor for contributing to worldwide biodiversity loss has received much less attention in biodiversity research thus far.¹⁴ There is much more focus on the other drivers, such as climate change, changes in land and sea use, invasive species, and direct exploitation of natural resources. The study found that chemical pollution is addressed in relation to eutrophication, and occasionally concerning the toxicity caused by a few select classes of chemicals, notably pesticides. Another study referenced work that showed that the high rate of change in production and variety of synthetic chemicals over the last four decades has even outpaced many other drivers of change.¹⁵



While chemical pollution is clearly one of the main drivers of biodiversity loss, gaps persist in biodiversity research. Further interdisciplinary research efforts and collaboration are needed to bring clarity to the complex interactions between chemicals and ecosystems, as well as to the long-term effects on different species and habitats.

Ecologists warn that failing to account for the negative impacts of chemical pollution will significantly undermine measures to protect biodiversity. A [research article](#) published on science.org highlighted the urgent need for an Earth-system perspective when assessing the hazard and risk of chemicals. In an ideal world, it would be possible to identify the properties that may predispose chemicals toward becoming a problem prior to being released into the environment – especially before their effects become irreversible on a global scale. However, given the many unknown and complex interactions between chemicals and ecosystems, it remains a challenge for the research community to develop the knowledge base that allows for this type of screening approach. In addition, the effects of chemical pollution are often subtle, cumulative, and manifest over longer time frames, making them more challenging to quantify.

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Chemical pollution has the potential to cause severe ecosystem and human health problems at different scales, but also to alter vital Earth system processes on which human life depends.

Outside the Safe Operating Space of the Planetary Boundary for Novel Entities¹⁶

What is PFAS?

PFAS stands for “per- and polyfluoroalkyl substances.” Since the 1940s, this group of human-made chemicals has been used in a wide range of industrial and consumer products, including nonstick cookware, stain-resistant fabrics, firefighting foam, and food packaging. PFAS are persistent in the environment and do not break down easily, which means that they can accumulate in living organisms and the environment – hence the nickname “persistent chemicals.” They are persistent due to the chemical bond between a carbon atom and a fluorine atom, both of which are extremely stable in the natural world.¹⁷

¹⁰ [Policy options to account for multiple chemical pollutants threatening biodiversity \(lib4ri.ch\)](#)

¹¹ [Strategy.pdf \(europa.eu\)](#)

¹² [Chemical pollution, a key driver of the biodiversity crisis \(chemtrust.org\)](#)

¹³ [5 key drivers of the nature crisis \(unep.org\)](#)

¹⁴ [Addressing chemical pollution in biodiversity research \(wiley.com\)](#)

¹⁵ Outside the Safe Operating Space of the Planetary Boundary for Novel Entities
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¹⁷ [roadmapnowhere.pdf \(clientearth.org\)](#)

The regulatory landscape



European Union

In recent years, the dangers of per- and polyfluoroalkyl (PFAS) chemicals and the importance of reducing exposure have been acknowledged by the European Union (EU). The Regulation on the registration, evaluation, authorization, and restriction of chemicals (REACH), enacted in 2007, is the main EU law protecting human health and the environment from the risks posed by chemicals.¹⁸ REACH requires companies to register substances that they manufacture or import into the EU and to provide information on their potential hazards. It also requires the evaluation of the risks of substances and the authorization of substances of very high concern. Since REACH was implemented, fewer than 100 substances (out of hundreds of thousands) have been restricted.¹⁹

The year 2020 saw the launch of the Chemical Strategy for Sustainability, as part of the EU's Green Deal. The purpose of the chemical strategy is to assess and regulate chemicals more effectively. This includes ridding consumer products of the most harmful chemicals and restricting certain substances, including some PFAS.

While we find these steps encouraging, we believe that more could be done. For example, there are critical policy gaps in current legislation that should be rectified.

In 2022, the EU unveiled the “largest ever ban” on dangerous chemicals, with up to 12,000 substances potentially falling within the scope of its new “restrictions roadmap.”²⁰ This “restrictions roadmap” was conceived as a decisive first step toward tackling issues such as chemical pollution, declining human fertility rates, and whale extinction. According to the European Chemicals Agency, the plan would focus on entire classes of chemical substances, including PFAS. In 2023, on the first anniversary of the EU’s bold plan, a study conducted by environmental and health groups found that the EU has failed to implement the regulations necessary to effectively ban the chemicals, missed several deadlines, and failed to provide adequate resources for implementing the regulations.²¹ The study also criticized the EU for permitting exemptions and loopholes that enable use of some of the most hazardous chemicals to continue. **The authors of the study called on the EU to take urgent action to address these shortcomings and to ensure that the ban on dangerous chemicals is properly enforced.**

In addition, the European Commission is working on a new set of taxonomy criteria for economic activities that substantially contribute to one or more of the following “Taxonomy 4 objectives”.

However, the “pollution prevention and control” section of the proposal²² does not include the manufacturing of chemicals, nor the manufacturing of chemical products. The absence of these activities is particularly concerning, as it greatly reduces the incentive for producing safer substitutes and alternatives. If there is the will for the taxonomy to deal with chemical pollution, it is important that the issue is addressed at the beginning of the supply chain, where the ingredients for finished products are manufactured. Without substitution offerings downstream, there is little hope that companies will be incentivized to seek safer alternatives.

The circular economy set of objectives includes a few criteria that address chemicals, such as the manufacture of plastic packaging goods (*high ambition when it comes to chemicals*), the manufacture of electrical and electronic equipment (*lower ambition*), and the construction of new buildings (*no ambition, but Do No Significant Harm (DNSH)*). However, a priority should be the inclusion of the “manufacture of chemicals” or “manufacture of chemical products” in the “pollution prevention and control” set of objectives with an ambition level akin to that of plastic packaging (*high ambition when it comes to chemicals*). These activities would have a trickle-down effect and the largest impact on pollution prevention.

Four taxonomy objectives

<p>Sustainable use and protection of water and marine resources</p> 	<p>Transition to a circular economy</p> 	<p>Pollution prevention and control</p> 	<p>Protection and restoration of biodiversity and ecosystems</p> 
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¹⁸ REACH Regulation (europa.eu)
¹⁹ Registry of restriction intentions until outcome - ECHA (europa.eu)
²⁰ DocsRoom - European Commission (europa.eu)
²¹ A roadmap to nowhere? | ClientEarth

²² Sustainable investment – EU environmental taxonomy (europa.eu)



A timeline of recent developments around the globe

2022

In 2022, the European Commission proposed to update the list of water pollutants in scope of the European Green Deal’s zero-pollution ambition. The addition of PFAS to the list means that surface water and groundwater would have more strict controls in terms of PFAS.

In 2022, the US Environmental Protection Agency (EPA) proposed designating PFAS chemicals as “hazardous substances,”²⁴ following the announcement of more stringent guidelines on PFAS in drinking water. Under the new definition, entities would have to report any releases of the substances that meet or exceed defined thresholds.

As of the end of 2022, New York banned the intentional addition of PFAS in food packaging.²⁶

Toward the end of 2022, the EU formally adopted a regulation to reduce limit values for the presence of persistent organic pollutants in waste. This regulation brings the EU’s legislation in line with its international commitments, such as the Stockholm Convention on Persistent Organic Pollutants (POPs), and is consistent with the European Green Deal’s ambitions to achieve toxic-free material cycles, as well as the new Circular Economy Action Plan.²³

China published an action plan in 2022 to regulate a number of key pollutants, such as PFAS.²⁵

2023

In January 2023, the Japanese Ministry for the Environment started discussing strengthening ways to combat PFAS pollution. The proposals will consider water quality standards and will also conduct an assessment on the impact of certain substances used in food contact articles.²⁷

In 2023, the European Chemicals Agency (ECHA) submitted a proposal to ban all PFAS in Europe.

2025

From 2025 onward, California will ban the use of PFAS in cosmetics and personal care products.²⁸



Scientists have called on the EU to take urgent action to address the shortcomings and ensure that the ban on dangerous chemicals is properly implemented. Including truly sustainable criteria in the EU Taxonomy Regulation to encourage sustainable innovation and the development of safer chemicals is of utmost importance. As understanding of the chemical pollution crisis grows, the regulatory environment is rapidly changing.

²³ Council formally adopts further restrictions to ‘forever chemicals’ in waste – Consilium (europa.eu).
²⁴ Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS) – June 2022 (epa.gov).
²⁵ China Publishes Draft List of Key New Pollutants under Pollutant Control Action Plan (natlawreview.com).
²⁶ PFAS in Food Packaging – NS Dept. of Environmental Conservation.

²⁷ Japan updates list of substances allowed for food contact articles | Food Packaging Forum.
²⁸ Governor Newsom Signs Legislation Making California First in the Nation to Ban Toxic Chemicals in Cosmetics | California Governor.

What is the risk to investors?

Substantial material risks are associated with the production and use of hazardous and persistent chemicals. As we have already noted, both the regulatory landscape and the ecological research landscape are catching on to the fact that hazardous, persistent chemicals are detrimental to our natural environment and people's health. These risks are heightened by a lack of transparency in the chemical sector, where there is often minimal insight into the portfolios of chemical manufacturers. Since EU and US regulations require minimal degrees of reporting (and with those in the rest of the world requiring even lower degrees), investors are often left in the dark when it comes to assessing the ultimate impact of chemical pollutants.

- **Regulatory risk:** Historically, the chemical production industry has been largely unregulated compared to other sectors. For example, up until 2016, only five out of hundreds of thousands of chemicals were subject to restrictions in the US. Although the regulatory landscape is rapidly changing when it comes to managing hazardous and persistent chemicals, a lack of transparency remains. The European Green Deal, as well as the US EPA's flagship roadmaps and action plans for tackling PFAS have not yet had the desired effect. This makes it difficult for investors to understand the legal and reputational risks that chemical manufacturers are exposed to. With a harsher regulatory environment looming

on the horizon, chemical-producing companies should be focusing on developing safer alternatives. Failing to do so will put future revenues at risk and could lead to stranded assets if substances cannot conform with regulations.

- **Litigation risk:** During the last few years, some of the biggest chemical manufacturers in the world, particularly those who produce PFAS, have been involved in litigation – DuPont, Chemours, and 3M to name but a few.²⁹ The estimated legal costs of these cases come to USD 40 bn, and could exceed USD 400 bn in the coming years.³⁰ With figures like this, and insurance and liability experts referring to the PFAS crisis as “the mother of all toxic torts,”³¹ it is easy to imagine chemical companies facing bankruptcy in the near future.
- **Reputation risk:** In addition to companies being dragged into resource-intensive litigation related to hazardous chemicals, the risk of reputational damage is not to be underestimated. With the dangers of persistent and hazardous chemicals ever more present in the mainstream media, the general public are much more aware of the issue. Such heightened awareness means that people are more conscious when buying products that contain or may contain persistent chemicals. In addition, the chemical producing sector is not without its share of deadly accidents and controversies that can negatively affect a firm's (and its investors') reputation and financial performance.



The substantial material risks associated with the production and use of hazardous chemicals are amplified by a lack of transparency in the chemical sector. Investors should be aware of the key financial risks associated with companies producing chemicals.

²⁹ DuPont, Chemours, 3M Sued by N.C. Attorney General Over PFAS (bloomberglaw.com).

³⁰ Sizing Up an Environmental Liability for 3M and Others | Barron's (barrons.com).

³¹ A Roadmap to Insurance Coverage for the Mother of Toxic Torts: PFAS | Miller Nash LLP.

Investors take action

Credit Suisse Asset Management joined the Investor Initiative on Hazardous Chemicals (IIHC) in January 2023. The IIHC is an investor-led collaborative initiative coordinated by ChemSec. In line with our engagement policy, our goal is to encourage issuers to improve transparency and to achieve more ethical production processes regarding persistent chemicals. By joining forces with 50 of the world's largest institutional investors, representing around USD 10 tn in assets under management, we aim to foster rapid transformation in the chemical sector.



While PFAS can be safely made and used, our decision to exit per- and polyfluoroalkyl substance (PFAS) manufacturing and to discontinue the use of PFAS across our product portfolio by the end of 2025 was based on careful consideration and a thorough evaluation of the evolving external landscape, including multiple factors such as accelerating regulatory trends focused on reducing or eliminating the presence of PFAS in the environment and changing stakeholder expectations.

Investor Relations, 3M

With ChemScore, ChemSec helps fill an important data gap. ESG³² ratings and scores tend to underestimate the risks associated with the production of hazardous chemicals. This is mainly due to the lack of data disclosed by chemical companies, and often on account of data providers' lack of expertise on the topic. ChemScore ranks the world's top 54 chemical producers on their efforts to reduce their hazardous chemical footprints. The score ranks a company's performance across four categories: 1) the toxicity of its product portfolio; 2) research and development of nontoxic chemicals; 3) management and transparency; and 4) the number of controversies and scandals that the company has been involved in. The ranking was developed to provide investors with better information so that they can assess which companies have robust chemicals management strategies, and which do not.³³

Prior to joining the IIHC, Credit Suisse Asset Management cosigned a letter in 2022 to companies ranked in ChemScore. The 47 signatories with a combined USD 8 tn in assets under management were assembled by Aviva Investors and Storebrand Asset Management. The letter asked for increased transparency, phaseout plans for persistent chemicals, and improved ChemScore ratings.



Credit Suisse Asset Management joined the Investors Initiative on Hazardous Chemicals (IIHC) with the goal of encouraging issuers to improve transparency, and to achieve more ethical production processes, especially regarding persistent chemicals.

³² ESG stands for environmental (E), social (S), and governance (G). For further information about the ESG investment criteria and the sustainability-related aspects of the fund please consider the legal and regulatory documents of the fund (such as, e.g., the prospectus) and visit credit-suisse.com/esg. In addition to sustainability-related aspects, the decision to invest in the fund should take into account all objectives and characteristics of the fund as described in its prospectus, or in the information which is to be disclosed to investors in accordance with applicable regulations.

³³ About (chemsec.org)



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