
THE CHEMICALS STRATEGY FOR SUSTAINABILITY:

How Can the European Union Set an Example for the World?

Overview

In October 2020, the European Commission published the “Chemicals Strategy for Sustainability.” The Strategy sets up a new long term vision for chemicals policy in the European Union (EU), presenting some of the most potentially transformative initiatives of the past 20 years. The Strategy should help to achieve “a toxic-free environment,” as established in the “zero pollution ambition” of the [European Green Deal](#). If properly implemented, the Strategy has the potential to be a game-changer. Currently, it is simply a [communication](#) with an indicative [action plan](#) that needs to be carried out. Turning these promises into legislative proposals and concrete actions will be a significant challenge and responsibility for the next few years. The implementation of the Strategy will determine whether these initiatives will be remembered as a watershed moment for the EU, or yet another missed opportunity to put people and planet before private financial interests.

Broad Takeaways

While this analysis focuses on the global policy aspects¹ of the Strategy, several proposals in other parts of the Strategy have the potential to transform the overall EU policy on chemicals and should be mentioned at the outset. They include:

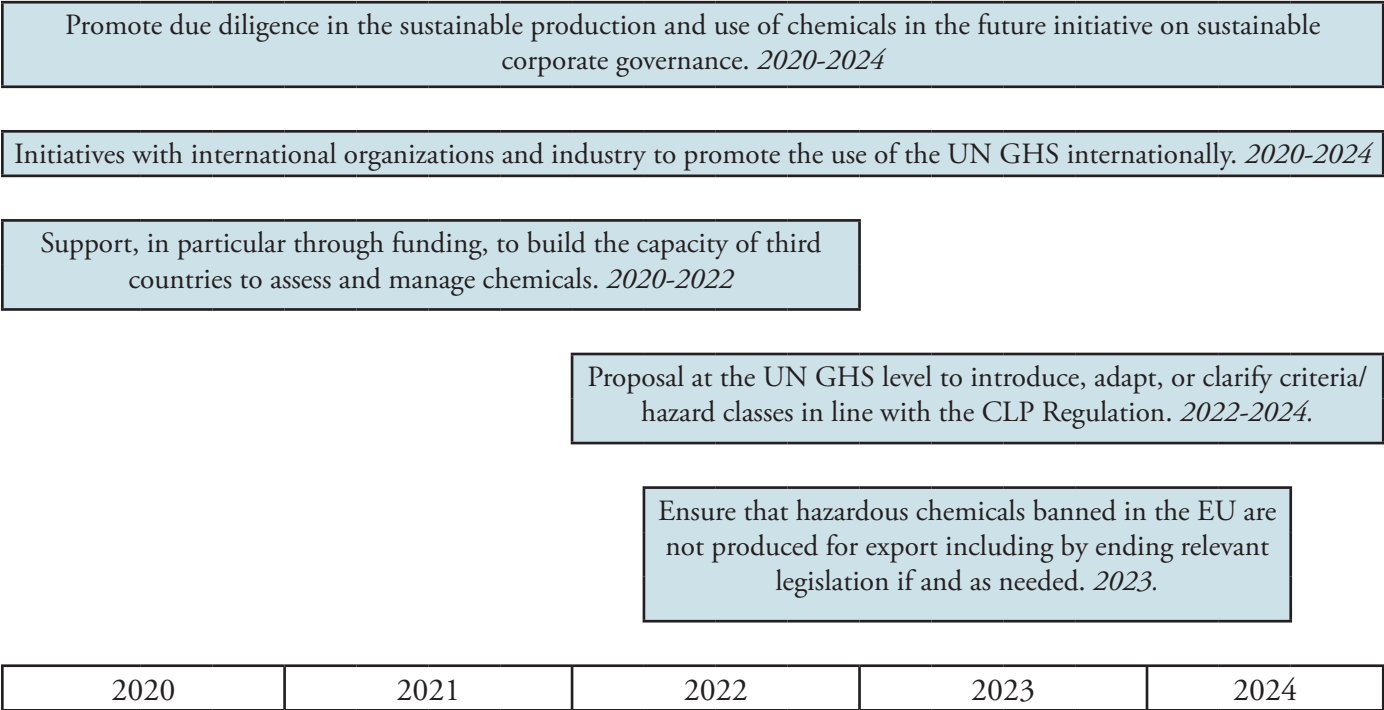
- Making a preventive approach — such as the “**generic approach to risk management**” — the default option, particularly for chemicals used in consumer products. In practice, this means that harmful chemicals won’t be used in products such as food contact materials, toys, cosmetics, furniture, and textiles. The approach would first cover chemicals that cause cancers or gene mutations, affect the reproductive or the hormonal systems, or are persistent, bioaccumulative, and toxic, and further include those chemicals that are toxic to a specific organ or affect the immune, neurological, or respiratory systems. The time frame indicated for translating this approach into several pieces of legislation is 2022.
- Minimizing substances of concern in products and recycled materials to achieve “**non-toxic material cycles**,” ensuring information requirements on chemicals content (in the upcoming “sustainable products initiative” as of 2021-22), adopting “as a principle” the same limit values for hazardous substances both in products and recycled materials, and addressing legacy substances in waste streams, such as in plastic waste.
- Defining the concept of “**essential uses**” of chemicals, taking into account the Montreal Protocol on substances that deplete the ozone layer. The suggested time frame indicated in the Strategy’s action plan is 2021-2022. This should allow the use of the most harmful chemicals only if absolutely necessary and if no acceptable alternatives are available. This concept’s definition will be key to reaching the zero pollution ambition of the European Green Deal.
- Developing criteria for the concept of “**sustainable and safe-by-design chemicals**” in 2022. This concept should implement the toxic-free hierarchy for chemical management, prioritizing upstream measures.

- Requiring the registration of some **polymers** (the basic ingredients of plastic) under the regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). The “Registration” provisions of this regulation are often referred to as the “no data, no market” principle, because they mandate that the industry carries the burden of proof on chemicals safety. This would mean the EU would obtain basic information on polymers, such as their formulation and toxicity, their production/import volumes, and the names of the companies manufacturing and importing them before they are allowed into the EU market. One of the implementation challenges will be the decision regarding which polymers would be subject to the registration. For instance, there should be a pre-registration of polymers similar to how chemicals are registered, and the registration of polymers should consider [polymers’ production volumes as well as polymers’ contribution to micro- and nanoplastics’ burden in the environment](#).
- Strengthening commitments on endocrine disrupting chemicals (**EDCs**) by developing a legally binding hazard identification that applies across-legislation and including provisions that will ban EDCs from consumer products (unless their use is deemed “essential”) in 2021-2022.
- Restricting persistent poly- and perfluoroalkyl substances (**PFAS**) for non-essential uses in 2022-2024. This long-awaited approach would move from regulating substance-by-substance to a more efficient grouping approach. The resulting challenge would be how “essential uses” of PFAS will be defined.
- Assessing how to best introduce mixture assessment factor(s) (**MAF**) in the REACH regulation in 2022. In practice, this could help to address the mix of chemicals we are exposed to daily. However, the language here remains too non-committal as a mere assessment would not necessarily translate into a concrete use of the MAF.

The International Scene: An Analysis of the EU Commitments and How to Achieve Them

In the Strategy, the European Commission promises to set the example for the global sound management of chemicals. It includes several initiatives, notably to (1) strengthen international standards and

Indicative Timeline of EU Commitments to Global Chemicals Management:



(2) promote safety and sustainability standards outside the EU. To achieve these objectives, holistic thinking and swift implementation are crucial. The relevant international commitments presented in the Strategy and the practical steps to achieve those results are analyzed in the following pages.

How the EU Aims to Strengthen International Standards

2030 Agenda for Sustainable Development and Chemicals Conventions	
Commitments	What’s Needed to Achieve Them
<p>The first EU commitment on demonstrating its international leadership is to “Meet the 2030 Agenda’s goals and targets for the sound management of chemicals.” The Strategy also specifies: “in particular by having a leading role and promoting the implementation of existing international instruments as well as EU standards globally.”</p>	<p>The 2030 Agenda is comprised of several Sustainable Development Goals (SDGs), some of which have specific targets on the sound management of chemicals, namely:</p> <ul style="list-style-type: none">• SDG 12 on Sustainable Consumption and Production, target 12.4. This commitment is based on the objective of the Strategic Approach to International Chemicals Management (SAICM).²• SDG 3 on Good Health and Well-being, target 3.9.• SDG 6 on Clean Water and Sanitation, target 6.3. <p>The Strategy itself acknowledges that the 2020 global commitment set in SDG12 has not been met by the United Nations member states. While the goals are global, the EU has not yet achieved this commitment at the European level either. Progress towards SDG12 has been measured using the consumption volume of industrial chemicals that are hazardous to human and environmental health as the proxy to track human exposure.³ As Eurostat reported in 2020, the total consumption of toxic chemicals in the EU has increased between 2013 and 2018.⁴</p>
<p>In a dedicated section on PFAS, the Strategy promises to “Address PFAS concerns on a global scale through the relevant international fora and in bilateral policy dialogues with third countries.” In the Strategy’s Action Plan, the European Commission further details these promises as proposals to address PFAS under the Basel and Stockholm Conventions in 2023-2024.</p>	<p>Achieving the SDGs in the EU would require both European coordinated policies and national implementation. Some specific country recommendations on the SDGs can be found in the European Semester country reports. As an example: Germany, the largest chemicals producer in Europe,⁵ received specific recommendations that include developing an overarching strategy to accomplish systemic change to achieve a circular economy and implementing more environmental taxes to internalize environmental costs and use resources more efficiently.⁶ More targeted country recommendations and monitoring are needed, especially for the top producers and users of hazardous chemicals.</p> <p>The promise to promote EU standards globally could be a double-edged sword, in that it could also extend harmful policies to the rest of the world. While the promotion of EU standards that effectively protect human health and the environment is a positive step for the global community, it requires that the EU upholds the integrity of its own internal processes on chemicals, for example by ensuring that European legislation sets the most ambitious low POPs content values, by truly eliminating toxics from the circular economy, and by not further weakening its standards for restriction and authorization of chemicals under pressure from industry.</p>

Actions on Chemicals Conventions

Stockholm Convention

This international agreement aims to protect human health and the environment from Persistent Organic Pollutants (POPs), the so-called “worst chemicals” in the world, by eliminating their production, use, and emissions. In order to implement the Convention and achieve its objective, the EU should support the listing of new POPs in the Convention **without adding exemptions** that allow continued use of POPs. In the past years, the EU has been promoting loopholes such as recycling exemptions for certain POPs, against the very clear advice from the Convention’s Scientific Committee.⁷ These exemptions left the door open for POPs to enter recycled products, including plastic [toys](#). Currently, the EU recycling exemptions have been withdrawn. However, other EU exemptions for the production of the POP [DecaBDE](#) for specific parts of vehicles and plastic home appliances remain. All exceptions should be withdrawn, and no new exemptions should be sought for any of the new POPs listed.

Similarly, the European commitments on **PFAS** can only truly be addressed on a global scale if their production and use is restricted without broad exemptions. Defining “essential uses” will be key to preventing loopholes. The manipulation of science could also be a potential threat, with actors trying to deliberately fragment the grouping approach to continue the production of PFAS. To list more PFAS under the Stockholm Convention at its 2023 Conference of the Parties, the European Commission should start presenting its proposals to the Convention’s Scientific Committee now.

The action on PFAS could be a first step in adopting a more efficient approach to chemicals regulation. This would implement Article 3, paragraphs 3 and 4 of the Stockholm Convention.⁸ The EU should prevent the “regrettable substitution” of chemicals and remove existing substances with POP properties from the market, including by using modeling, existing data, and other techniques.

Similarly, the EU should [lower](#) the current **low POPs content values** in order to uphold the objectives of the Basel and Stockholm Conventions. These content levels have consequences on the determination of methods for POPs waste disposal, potential recycling, and their release into the environment. High content levels create a potential for widespread release and exposure to POPs. While the low POPs content levels are usually in the order of 10 or 100 mg/kg, the EU [has been proposing](#) the worst content value in the Convention’s history, such as 10,000 mg/kg, for the POP short-chain chlorinated paraffins ([SCCP](#)) – orders of magnitude above what other countries were proposing.⁹ These kinds of approaches and positions are incompatible with the EU’s commitment to demonstrate its international leadership and should therefore be abandoned.

Finally, the EU could lead by example by promoting alternative technologies for POP-containing waste, rather than waste incineration or co-incineration in cement kilns. This would prevent the formation of unintentionally produced POPs during waste management operations, one of the key measures to achieve the objective of the Stockholm Convention.

Basel Convention
<p>This Convention deals with transboundary movements of hazardous waste and other waste. It is not explicitly referred to in the international commitments on the Strategy, however, it is highly relevant to chemicals management. For instance, in the case of low POPs content values in wastes, there's an evident connection between the Stockholm and the Basel Conventions. The EU should include the connections between international chemicals and wastes when implementing the Strategy.</p>
Rotterdam Convention
<p>This Convention aims to equip governments with information about hazardous chemicals and pesticides so they can assess the risks and make informed decisions before importing them. However, the Convention has been suffering political impasses, particularly around its ability to add new substances under its Prior Informed Consent mechanism. The EU should play a leading role in supporting a more functional Convention, particularly in supporting upcoming projects to revise or amend it, and address the political paralysis.</p>
<p>As an additional step forward, the EU could continue to routinely propose all chemicals listed under the Stockholm Convention for nomination under the Rotterdam Convention, and notify the Rotterdam Secretariat of all substances the EU restricts that could be eligible for listing in the Rotterdam Convention. This would increase information exchange and contribute to the objectives of the Rotterdam Convention.</p>
Minamata Convention
<p>This global agreement aims to protect health and the environment from the harmful effects of mercury. The European exports of mercury as amalgam to the rest of the world are still high.¹⁰ The EU should build on the lessons learned regarding the impact of mercury on human health, especially in the case of dentistry, and support the global ban of mercury for artisanal small-scale gold mining (ASGM) and amalgam.</p>
<p>Further action could include cooperation for mercury monitoring, supporting countries in identifying and cleaning up mercury-contaminated sites, and addressing health issues. In the case of mining, technical assistance projects for miners to use non-mercury methods should continue, as well as just transition measures for workers in ASGM.</p>
<p>The EU should disseminate technologies to handle waste containing mercury, especially in high concentrations. Some EU countries have been promoting long term storage and should continue this practice.</p>

Strategic Approach to International Chemicals Management (SAICM) Beyond 2020	
Commitments	What's Needed to Achieve Them
In the Strategy, the EU commits to “striv[ing] for the adoption of global strategic objectives and targets for the sound management of chemicals and waste beyond 2020 to reflect life cycle approaches for chemicals, in line with the post-2020 global biodiversity targets.”	This promise relates to the future of SAICM, beyond 2020. This is a unique multi-stakeholder and multi-sectoral instrument, whose inclusive participation of different stakeholders should continue and be taken as a model.
	The future instrument should go beyond mere identification and focus on actions to effectively address SAICM’s “issues of concern,” like endocrine disrupting chemicals and highly hazardous pesticides, which continue harming our health and environment.
	One of the main challenges in implementing the sound management of chemicals and waste is related to its financing. The sector has been chronically underfunded. For instance, the SAICM Secretariat budget had an annual shortfall of at least 43% for six of the ten years between 2006 and 2015. ¹¹ To ensure adequate, predictable, and sustainable financing, the EU should promote the creation of an international fund, based on the chemical industry’s contribution, such as a coordinated national tax on basic chemicals. None of the declared intentions have any chance of being realized unless a clear financing plan is adopted.
Implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	
Commitments	What's Needed to Achieve Them
The Strategy’s commitment is to “promote, together with industry, the implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (UN GHS) as the means for identifying chemical hazards and communicating them to operators, workers and consumers.” The Strategy’s Action Plan only indicates the prospective beginning for this action: “as of 2020.”	The EU has implemented the GHS with a specific EU regulation. ¹² However, many countries and regions in the world have not been able to achieve this step. To support the GHS implementation, countries would need broader support to develop the regulatory infrastructure that allows the inclusion of the GHS in their national chemicals framework. Several building blocks are needed, including: financial resources, legal and institutional infrastructures, and capacity building for relevant ministers and enforcement authorities. Relevant UN resources could be used for that purpose, such as the LIRA guidance (UN Environment Guidance on the Development of Legal and Institutional Infrastructures and Measures for Recovering Costs of National Administration for Sound Management of Chemicals) and its complementary tools on chemicals control . It should be noted that while GHS is an important information sharing tool, its integration in national legal frameworks does not guarantee in and of itself the sound management of chemicals and health and environmental risk reduction.
	In line with the multi-stakeholder and multi-sectoral approach for the sound management of chemicals and waste, the development and implementation of national infrastructures should include the meaningful participation of government authorities, industry, civil society organizations, workers and trade unions, the health sector, and relevant international organizations.

GHS Criteria/Hazard Classes	
Commitments	What's Needed to Achieve Them
<p>The Strategy proposes “to introduce, adapt or clarify criteria/hazard classes in UN GHS.” An endnote further specifies the idea of introducing “new criteria/ hazard classes for PBTs/ vPvBs, terrestrial toxicity, endocrine disruptors, persistency and mobility; adapt existing criteria based on scientific knowledge and progress, i.a. to take account of alternative methods, and clarify criteria for germ cell mutagenicity.” The Strategy’s Action Plan sets out a desired timeline of 2022-2024 for these GHS commitments, “in line with the CLP [Classification, Labelling and Packaging] Regulation.”</p>	<p>In amending or adding criteria/hazard classes, the EU would first need to guarantee that the process is not used as an excuse to delay action at the EU level.</p>
	<p>For instance, in the case of (EDCs, the creation of a hazard class under the CLP Regulation, which implements the GHS in the EU, is still at the proposal stage. The class should include both category 1 (1A and 1B, as “known” and “presumed” EDCs) and category 2 (“suspected” EDCs).</p>
	<p>The introduction of new hazard classes should also lead to the adoption of complementary measures, such as ways to avoid unnecessary repetition of a hazard assessments,¹³ the development of corresponding labels to adequately share information in the chemicals supply chain with workers and consumers, and further measures that address and inform about the risk of chemicals’ “cocktail effect”¹⁴ (the combined exposure to different chemicals, which can lead to unknown and adverse effects, even if those chemicals were singularly tested for their safety).</p>
	<p>Once ambitious, science-based criteria are indeed adopted, the same approach should be taken at the UN GHS level, to avoid weakening the standards and complicating implementation.</p>
	<p>The GHS criteria should also be adapted to include the classification of nanomaterials.</p>
Scientific Tools and Standards	
Commitments	What's Needed to Achieve Them
<p>The Strategy includes a commitment to “promot[ing] the development of common standards and innovative risk assessment tools internationally, notably with the OECD [Organisation for Economic Co-operation and Development], and promot[ing] their use under international</p>	<p>In the development of new test methods, the EU should make sure that reliable and effective identification of substances is ensured, and all relevant endpoints needed for a proper environment and health assessment are covered. Care should be taken that important information isn’t left out when using new computerized tools (for instance, for more complex endpoints such as multigenerational effects or unexpected and non-target effects). This includes swiftly validating and adopting updated OECD test guidelines. Relevant legislation would also need to be updated to include new information/data requirements and provide for systematic identification of the substances’ properties.</p>
	<p>The EU should also use international fora to promote other innovative approaches promised in the strategy, such as addressing cocktail effects via the introduction of mixture assessment factors.</p>
	<p>The EU should take into account the latest scientific advances, being wary of vested interests and taking appropriate steps to limit corporate influence. As demonstrated by the fight against tobacco, the climate crisis, and even most recently with</p>

frameworks, inter alia to shift further away from animal testing.”	endocrine disruptors, the translation of scientific knowledge into prompt and effective policy actions has been recurrently hampered by attempts to manipulate and deny science.
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How the EU Aims to “Promote safety and sustainability standards outside the EU”

In the latest section of the Strategy, the European Commission describes its future approach to its external action, listing the following commitments:

International Cooperation	
Commitments	What’s Needed to Achieve Them
<p>The Strategy includes the promise to “promote the sound management of chemicals through international cooperation and partnerships, in bilateral, regional and multilateral fora, including through cooperation with Africa, as well as cooperation with neighbours and other partners to support their capacity to assess and manage chemicals in a sound manner.” The Strategy’s Action Plan refers in particular to funding and capacity-building support for third countries, and indicates 2020-2022 as a time frame.</p>	<p>The Strategy refers to the European initiative “Towards a comprehensive Strategy with Africa” as a reference for EU cooperation with the African region. However, the document does not currently include substantial or specific actions on chemicals other than broader references to the circular economy. As previously noted, financial resources and capacity building would need to be addressed to ensure the development of self-sustainable legal and institutional systems, including cost recovery measures.</p>
	<p>The implementation of the EU commitment not to export banned chemicals banned in the EU to other regions can also be a first step to support third countries, and should be extended to restricting waste exports. For instance, electronic waste is exported from the EU to African countries under a loophole that considers the items “repairable.”¹⁵ Similarly, European plastic waste exports and their associated chemical hazards have been contaminating countries outside Europe. These practices add burden and pollution to third countries, and are at odds with the EU’s aspiration to be a role model.</p>

Addressing Double Standards	
Commitments	What's Needed to Achieve Them
<p>The promise is to “lead by example, and, in line with international commitments, ensure that hazardous chemicals banned in the European Union are not produced for export, including by amending relevant legislation if and as needed.” The timeframe for this commitment, as indicated in the Strategy’s Action Plan, would be 2023.</p>	<p>To set the example, the EU should swiftly prohibit the production and export of pesticides and other industrial chemicals that have been banned in the EU, as promised in the Strategy, and promote this approach with other countries. In particular, strong action is needed against highly hazardous pesticides, which are already recognised as an “issue of concern” under SAICM. The EU should be championing a global ban on the production and use of highly hazardous pesticides. Such an initiative could be taken in the context of the new SAICM or the United Nations Environment Assembly (UNEA).</p>
	<p>The EU should advance its position as a model regulator through the prohibition of the import of food treated with pesticides banned in the EU. This should include banning the importation of food with residues of pesticides that have been banned or severely restricted in the EU.</p>
Due Diligence	
Commitments	What's Needed to Achieve Them
<p>In one of its final commitments on future chemicals initiatives, the EU promises to “promote due diligence for the production and use of chemicals within the upcoming initiative on sustainable corporate governance.” The indicative timing set in the Strategy’s Action Plan is 2020-2024.</p>	<p>The Strategy acknowledges that chemical pollution has been recognised as a threat to the right to a life with dignity, particularly for children. However, the recognition of the link between hazardous chemicals and their human rights impacts is often limited and incomplete. The European Commission should continue breaking the silos, for instance in its upcoming EU Strategy on the rights of the child, and in international fora.</p>
	<p>The European Commission promised to develop legislation in 2021 on both corporate due diligence and directors’ duties. Mandatory human rights and environmental corporate due diligence should be used to compel companies to identify, monitor, prevent, and address the risks of exposure to hazardous chemicals in their supply chains, and to ensure that chemicals come from responsible sourcing.</p>

Conclusion

The Strategy is the vision the EU needs to achieve a toxic-free environment for Europe and for the world. It is the first step towards a future where chemical companies innovate transitioning to safer chemicals, comply with legislation, and enable a toxic-free circular economy; a future where all people, including vulnerable groups, are no longer exposed to harmful substances in the products they use every day.

The Strategy, if implemented, would enable the EU to make human health and the environment priorities. A true implementation requires avoiding loopholes and adhering to the commitments made. If this can be accomplished, the impacts will last decades, and create a ripple effect in the rest of the world. This is why it's crucial that key concepts such as the “safe and sustainable by design” criteria, and policies such as the end of double standards in the EU chemicals exports are done right, starting this year.

Operationalizing and implementing the Strategy are now the most challenging tasks. The **European Commission** will need adequate resources to move swiftly. Implementation should not be delayed by analysis paralysis, or the Strategy will remain a compilation of wishful thinking. The Strategy brings the need and opportunity to ensure internal coordination with other European policies, ranging from the Beating Cancer Plan to the Circular Economy to the Farm to Fork Strategies. It also requires consistency towards the rest of the world in applying the same ambitious policies and standards that are upheld in the EU to international negotiations and in cooperation with other regions, such as Africa. **EU Member States** need to be ready and support the implementation of the Strategy, and decision making processes should ensure transparency.

Chemical companies will have the opportunity to demonstrate where they stand -- whether they will oppose progress by investing in lobbying efforts to weaken the Strategy's implementation or innovate and forge a new vision for a future of safer chemicals.

With complete and proper implementation of the Strategy, the EU is poised to set a high bar for the international community to meet regarding chemicals management. Anything less will instead set a dangerous precedent of allowing corporate interests to trump human and environmental health and worsen citizens' mistrust of the EU. As civil society organizations, we must be steadfast in holding the EU to these commitments in order to make a toxics-free future a reality.

Endnotes

1. These aspects are set in section 2.5. “Setting the example for a global sound management of chemicals” of the Chemicals Strategy for Sustainability.
2. <http://www.saicm.org/Portals/12/documents/saicmtxts/SAICM-publication-EN.pdf> Dubai Declaration on International Chemicals Management and paragraph 23 of the Johannesburg Plan of Implementation.
3. Eurostat, Sustainable development in the European Union - Monitoring report on progress towards the SDGs in an EU context - 2020 edition. <https://ec.europa.eu/eurostat/documents/3217494/11011074/KS-02-20-202-EN-N.pdf/334a8cfe-636a-bb8a-294a-73a052882f7f> page 222.
4. *Ibidem*.
5. CEFIC Facts & Figures Report, 2020, page 11. <https://cefic.org/app/uploads/2019/01/The-European-Chemical-Industry-Facts-And-Figures-2020.pdf>
6. Commission Staff Working Document, Country Report Germany 2020, SWD(2020) 504 final
7. “The objective is to eliminate brominated diphenyl ethers from the recycling streams as swiftly as possible. [...] Failure to do so will inevitably result in wider human and environmental contamination and the dispersal of brominated diphenyl ethers into matrices from which recovery is not technically or economically feasible and in the loss of the long-term credibility of recycling.” Annex to decision POPRC-6/2, Recommendations on the elimination of brominated diphenyl ethers from the waste stream and on risk reduction for perfluorooctane sulfonic acid (PFOS) and its salts and perfluorooctane sulfonyl fluoride (PFOSF).
8. “3. Each Party that has one or more regulatory and assessment schemes for new pesticides or new industrial chemicals shall take measures to regulate with the aim of preventing the production and use of new pesticides or new industrial chemicals which, taking into consideration the criteria in paragraph 1 of Annex D, exhibit the characteristics of persistent organic pollutants. 4. Each Party that has one or more regulatory and assessment schemes for pesticides or industrial chemicals shall, where appropriate, take into consideration within these schemes the criteria in paragraph 1 of Annex D when conducting assessments of pesticides or industrial chemicals currently in use.”
9. See the comments of the EU and its Member States on low POPs content values <http://www.basel.int/Implementation/POPsWastes/TechnicalGuidelines/LowPOPcontent/tabid/6360/Default.aspx>
10. UN Comtrade, trade of amalgam (HS 2843) exported from the EU-28 to the rest of the world, 2015-2019.
11. United Nations Environment Programme (2019), Independent Evaluation of the Strategic Approach from 2006 – 2015, SAICM/IP.3/INF/3, page 52.
12. Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation).
13. See ClientEarth, 3 actions to protect people and wildlife from EDCs, 2020 <https://www.documents.clientearth.org/wp-content/uploads/library/2020-09-16-3-actions-to-protect-people-and-wildlife-from-edcs-ce-en.pdf>
14. See CHEMTrust, A new path for EU control of Endocrine Disruptors, 2020 <https://chemtrust.org/wp-content/uploads/CHEMTrust-newEDPolicy-July2020.pdf>
15. BAN, Holes in the Circular Economy - WEEE Leakage from Europe, 2019, http://wiki.ban.org/images/f/f4/Holes_in_the_Circular_Economy- WEEE_Leakage_from_Europe.pdf