Chemicals Management Policies in Europe and China

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Executive Summary

There is a long history of environmental cooperation between the European Union and China. Institutions such the EU-China Ministerial Environment Policy Dialogue and the EU-China High-Level Environment and Climate Dialogue, have provided a solid foundation for this cooperation and exchange. European Commission Executive Vice President Frans Timmermans and Vice Premier of the People's Republic of China Han Zheng, reaffirmed chemicals environmental management as a priority area for the two sides to enhance their dialogue and cooperation at the third High-Level Dialogue in July 2022.

Thanks to joint efforts, a technical workshop on chemicals environmental management took place under the EU–China Environment Project, on November 4, 2022. The workshop primarily focused on the EU's legal and policy framework for chemicals environmental management, as well as the current progress in implementing the EU's community rolling action plan (CoRAP). Participants shared their experiences and challenges, aiming to provide insights to inform China's legislative reform process, screening of chemical substances, and environmental risk assessment.

Based on the bilateral technical collaboration, this paper focuses on the recent laws, regulations, and progress in implementing chemical environmental management in the EU and China. In Europe this includes the REACH regulation, the CLP regulation and the EU Chemical Strategy for Sustainability. In China, the paper summarises China's environmental law system, which provides the basis for legal enforcement of chemicals management, the Regulation on the Environmental Risk Assessment and Control of Chemical Substances, which is currently in draft form, and China's evolving system for environmental risks assessment of chemical substances.

The paper also provides recommendations to enhance bilateral cooperation in this field, including in the areas of management policies and systems, risk assessment and management technologies, and awareness raising. Given the extensive European experience in developing systems for addressing environmental and health risks, together with China's intensifying efforts at establishing reliable mechanisms to protect the environment and human health, there is substantial scope for deeper engagement on lessons learned.

The paper suggests regular exchanges about the latest policies on chemicals environmental management, technologies for assessing and controlling chemical risks in the environment and related enforcement experience, and raising awareness of chemicals management among relevant stakeholders. Policy discussions, technical exchanges, and public lectures for businesses could be arranged yearly or on a regular basis under the auspices of the EU-China Environmental Policy Dialogue (EPD). Training aimed at certain technical staff members and management groups could also be carried out. The EU and China could coordinate visits and personnel exchanges, building on previously established frameworks and projects for environmental cooperation.

Acronyms

CARACAL	Competent Authorities for REACH and CLP
CLH	Harmonized classification and labelling
CLP	Classification, Labelling and Packaging
CMR	Carcinogens, mutagens and reprotoxic substances
CoRAP	Community rolling action plan
CSR	Chemical Safety Report
CSS	Chemical Strategy for Sustainability
decaBDE	Decabromodiphenyl ether
ECHA	European Chemicals Agency
ED	Endocrine disruptors
EDC	Endocrine disruptive chemicals
EIA	Environmental Impact Assessment
EU	European Union
GFC	Global Framework on Chemicals
GHS	United Nations Globally Harmonized System
GLP	Good Laboratory Practices
HCBD	Hexachlorobutadiene
IECSC	Inventory of Existing Chemical Substance in China
IR	Information requirements
MEE	Ministry of Ecology and Environment
NGO	Non-government organisation
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, bioaccumulative and toxic
PCCL	Priority Control Chemicals List
PCN	Polychlorinated Naphthalenes
PCP	Pentachlorophenol
PIC	Prior Informed Consent
PMT	Persistent, mobile and toxic properties
POPs	Persistent Organic Pollutants
QSAR	Quantitative structure-activity relationship
RAC	Risk Assessment Committee
REACH	Registration, Evaluation, Authorisation and Restriction of chemical substances
SCCP	Short-chained chlorinated paraffins
SEAC	Socio-Economic Analysis Committee
SPP-CWP	UN Science-Policy Panel to Contribute Further to the Sound Management of Chemicals and Waste and to Prevent Pollution
SVHC	Substances of very high concern
vPvB	Very persistent and very bioaccumulative
WTO	World Trade Organisation

1. Overview of Chemicals Management in the EU

This briefing introduces the regulatory approach taken by the European Union on industrial chemicals, focused on the EU Regulation concerning the Registration, Evaluation, Authorisation and Restriction of chemical substances (REACH), the Regulation on the Classification, Labelling and Packaging of substances and mixtures (CLP). The main content of the report includes the legal mechanisms in question, followed by a brief reflection on implementation results so far, the Chemical Strategy for Sustainability, and planned and already implemented reform elements regarding REACH and CLP.

Apart from REACH and CLP, there is chemicals-related EU legislation to implement international conventions. For example, Regulation (EU) 2019/1021 on persistent organic pollutants implements the Stockholm Convention into EU law, Regulation (EU) No 649/2012 on the export and import of hazardous chemicals implements the Rotterdam Convention, while Regulation (EU) 2017/852 on mercury implements the Minamata Convention.

In addition, there is environmental legislation in place relevant for the manufacturing and use of industrial chemicals. Notably, Directive 2010/75/EU on industrial emissions (IED) aims to provide for integrated emission control related to industrial installations. The directive applies to specific sectors, such as the manufacturing of chemicals as well as selected industries processing chemicals (e.g. manufacturing of products). Directive (EU) 2024/1785 introduced new requirements to the IED relevant for chemicals, e.g. the obligation set up an inventory of chemicals present in an installation as part of the Environmental Management System (EMS). In addition, Directive 2013/39/EU identifies priority substances in the field of water policy, explicitly addressing chemicals.

1.1 REACH

The primary objective of REACH is to "ensure a high level of protection of human health and the environment".[1] In contrast to traditional regulatory approaches that rely on administrative programs to manage chemical safety, REACH places the responsibility on economic actors in the chemical sector and downstream industries. Article 1(3) of REACH establishes that it is the duty of manufacturers, importers, and downstream users of substances, to ensure that the substances they deal with do not harm human health or the environment. Following these objectives and principles, it is for the economic operators to prove that their products can be used safely. Based on the information they provide, authorities can restrict the production and use of chemical substances to prevent risks. Moreover, Article 1(3) emphasizes the application of the precautionary principle in REACH, underlining the need for preventive action in the face of risks characterised by a higher degree of uncertainty. In addition, REACH employs mechanisms centred on information, communication, and cooperation. These mechanisms aim to stimulate innovation in material, technical, or organisational aspects, thereby contributing to enhanced competitiveness and innovation within industry.

1 Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, OJ L 396, 30.12.2006. eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1907

REACH focuses primarily on chemical substances, which are defined as chemical elements and their compounds, including any additives necessary to preserve stability and impurities resulting from the manufacturing process.[2] In addition to individual substances, REACH also addresses mixtures of substances and substances present in articles. Articles, as per Article 3(3), are defined as "object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition".[3] This broad definition encompasses various products, such as articles in furniture, in clothing, in toys, in books, and in electronic devices. Substances may also be of different forms, including in nanoform[4], and REACH covers those forms. Specific information requirements exist for substances with certain forms, such as characterization requirement for nanoforms.

Article 2 of REACH specifies certain products or materials that are exempted from the regulation or from specific provisions. These exempted products include intermediates, polymers, and waste.

To effectively implement REACH, an independent agency, the European Chemicals Agency (ECHA), was established. ECHA's organisational structure is outlined in Article 76(1) of REACH and comprises various bodies, including a secretariat headed by an executive director, a management board, and a board of appeal. The agency collaborates with competent authorities in the member states and supports informal coordination platforms such as CARACAL[5].

The executive director of ECHA is the Agency's legal representative and is expected to perform duties in the best interests of the European Union, independently of any specific interests.[6]

2 See Article 3(1) of REACH: "substance: means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition."

3 See Article 3(3) of REACH.

4 In accordance with Annex VI in REACH nanoform is 'a form of a natural or manufactured substance containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm, including also by derogation fullerenes, graphene flakes and single wall carbon nanotubes with one or more external dimensions below 1 nm.

5 See Register of Commission expert groups and other similar entities (europa.eu).

6 See Article 83 or REACH.

1.1.1 Registration and Evaluation

REACH requires manufacturers or importers to register substances in quantities exceeding one ton per year before placing on the market. The regulation also provides for administrative controls of the submitted data.

(1) Information Requirements (No Data, No Market)

Information requirements for registration follow a tonnage per year concept. The standard data set always includes physicochemical properties and (eco) toxicological effects of substances. The extent of (eco)toxicological data declines with decreasing tonnage bands, ranging from over 1,000 tons per year to 1-10 tons per year. For substances above 10 tons per year, a Chemical Safety Report (CSR) documenting the chemical safety assessment is mandatory. The CSR defines limit values for human exposure above which humans should not be exposed and limits for different environmental compartments below which adverse effects are not expected to occur, except for where such limits cannot be derived, such as PBT/vPvB substances. Hazardous substances require exposure scenarios that quantify the substance's concentration in the environment, followed by risk characterizations and the development of risk management measures.

Almost 23,000 substances are registered under REACH,[7] compared to estimated over 100,000 substances placed on the EU market.[8] Important data endpoints, e.g. on the endocrine disruptive properties of substances, are not provided for in REACH. In addition, polymers are exempt from REACH registration requirements; not because if compared to monomer substances polymers are deemed less problematic per se, but because when REACH was adopted a "practicable and cost-efficient way on the basis of sound technical and valid scientific criteria" (Recital 41) to identify polymers causing risks has not been available. The European Commission estimates that 200,000 polymers are present on the EU market.[9] Moreover, while day to day, people and

7 See REACH registration statistics.

8 Milieu et al. 2017, Study for the strategy for a non-toxic environment of the 7th Environment Action Programme. Final report, 28.

9 This is the "working average" used in an Impact Assessment for the REACH reform, 222.

the environment are exposed to a variety of chemicals from different sources – in the CSR, however, these combined exposures ("cocktail effects") do not have to be assessed. These shortcomings in legal requirements and, consequently, data availability undermine public authorities' capacity to make appropriate risk management decisions about chemicals.

(2) Processing of Registration Dossiers

Upon receiving registration dossiers, ECHA conducts a completeness check to ensure all necessary elements are provided, and registration fees are paid. A registration number and date are assigned to the substance. Once registered, marketing bans are lifted for uses supported by an exposure scenario. Downstream users seeking alternative uses not covered by the registration of their suppliers must prepare separate chemical safety assessments and report them to ECHA.

(3) Dossier Evaluation and Substance Evaluation

ECHA is legally required to examine 20% of the registration dossiers to ensure compliance with requirements. If deficits are found, registrants are requested to rectify them within a reasonable period. Given the high levels of non-compliance detected, the European Commission amended REACH to increase the proportion of dossiers subjected to compliance checks (originally 5%).

In addition to dossier evaluations, REACH also includes a process for in-depth assessments of substances when "the Agency in cooperation with the Member States considers that there are grounds for considering that a substance constitutes a risk to human health or the environment" (Recital 20). Selected substances are listed by ECHA in the community rolling action plan (CoRAP).[10]

The European Commission and ECHA noted in a 2019 'Evaluation Joint Action Plan' that despite steady progress:

> *"there are however key issues that hamper progress, notably the non-compliance of registration dossiers. This is in line with ECHA's findings through the ten years of performing compliance checks. The German Federal Institute for Risk Assessment and the German Environment Agency came up with similar findings in other reports and, in 2018, their study concluded that, out of a set of 3,800 dossiers of substances registered over 1,000 tonnes per year, only one third met the information requirements, whereas one third likely did not. The situation for another third was unclear".*[11]

1.1.2 Authorisation

The authorisation scheme addresses substances of very high concern (SVHC). Authorisation is required for the use of SVHCs listed in Annex XIV of REACH, and this scheme aims to ensure that these substances are progressively replaced with safer alternatives when economically and technically feasible.

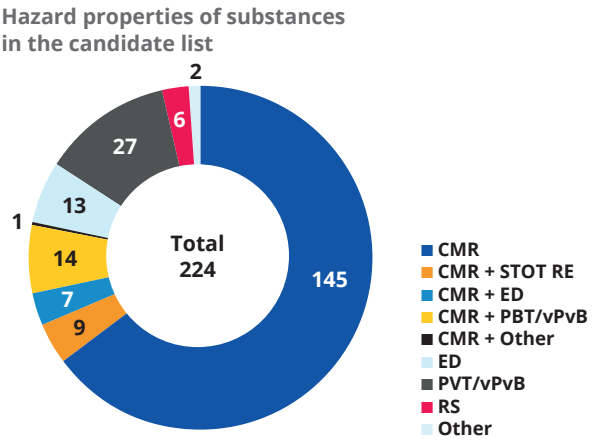
There are two "routes" under which applicants can receive authorisation. The first route is available for certain substances for which it can be shown that risks are adequately controlled i.e. that the SVHC exposure / emission levels during use are below the levels identified as negatively affecting humans or the environment. For most substances, deriving such levels is however not possible with non-threshold substances or PBT/vPvB substances. Therefore, usually, manufacturers, importers, and downstream users applying for authorisation have to show that benefits of using the SVHC outweigh its risks and there are no suitable alternative substances or technologies for the use. In both routes, applicants must "analyse the availability of alternatives and consider their risks, and the technical and economic feasibility of substitution" when applying.[12] ECHA's scientific Committees on Risk Assessment (RAC) and Socio-Economic Analysis are assessing incoming applications, the Commission is mandated to take the final decision on the application for authorisation. After authorisation, the responsibility for risk control remains with industry actors, and they are required to ensure compliance with authorisation requirements. Additionally, they must reduce exposure to SVHCs to the lowest technically and practically feasible levels, which often requires monitoring.

10 ECHA Substance Evaluation: https://echa.europa.eu/regulations/reach/evaluation/substance-evaluation

11 See REACH Evaluation Joint Action Plan, ECHA: https://echa.europa.eu/documents/10162/21877836/final_echa_com_reach_evaluation_action_plan_en/0003c9fc-652e-5f0b-90f9-dff9d5371d17, 1.

12 See Article 55 of REACH.

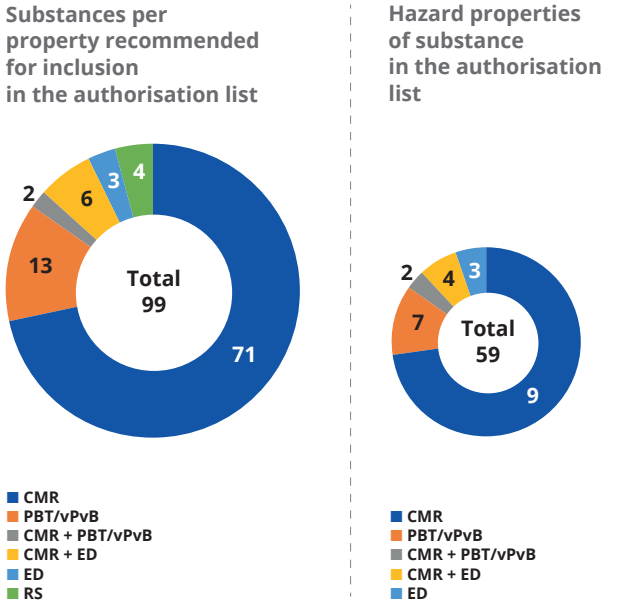
FIGURE 1. Substances or groups on the Candidate List and overview of their hazard properties



CMR Carcinogenic, mutagenic or toxic to reproduction **ED** Endocrine disruptor **PBT/vPvB** Persistent, bioaccumulative and toxic/very persistent, very bioaccumulative **RS** Respiratory sensitisation **STOT RE** Specific target organ toxicity - repeated exposure **Other** Other environmental and/or human health hazards

Source: ECHA 2023, Regulatory Strategy Annual Report 2023, 52.

FIGURE 2. Overview of number and properties of substances recommended for inclusion in Annex XIV and included in Annex XIV (2008-2022)



CMR Carcinogenic, mutagenic or toxic to reproduction **PBT** Persistent, bioaccumulative and toxic **vPvB** Very persistent and very bioaccumulative **ED** Endocrine disruptor **RS** Respiratory sensitisation

Source: ECHA 2023, Regulatory Strategy Annual Report 2023, 55. Four substances are listed in Annex XIV with CMR properties only, while they also have ED properties. This has not yet been updated in Annex XIV and therefore is not reported here.

A substance becomes subject to authorisation by inclusion in Annex XIV, following a multi-stage procedure. The formal process begins with a proposal from ECHA or a Member State, to identify a substance as SVHC, because it meets the criteria set out by Article 57, namely because the substance fulfils the classification criteria for carcinogenity, mutagenity or reprotoxicity in Regulation 1272/2008 (CLP Regulation), has PBT (persistent, bioaccumulative and toxic) properties or vPvB (very persistent and very bioaccumulative) properties or because there is scientific evidence of an equivalent level of concern. Article 59 of REACH defines the procedure for the identification of SVHCs. In essence, the proposal is discussed among Member States and subject to public consultation where "interested parties", including affected industries and NGOs, have the opportunity to provide input and comments. If Member States support the proposal, the substance is added to the "candidate list" of SVHCs to be subjected to authorisation.

Article 58 stipulates the procedure for the inclusion of identified SVHCs in Annex XIV. ECHA recommends which substances should be picked first, whereas, according to Article 58(3) "[p]riority shall normally be given to substances with: (a) PBT or vPvB properties; or (b) wide dispersive use; or (c) high volumes".[13] In the subsequent procedure Member States and all "interested parties" have the possibility to comment on the recommendation. Ultimately, decisions to include a SVHC in Annex XIV are taken in the "regulatory procedure with scrutiny", in which Member States vote on a proposal by the European Commission.

As of May 2024, the candidate list contains 240 entries that sometimes may cover more than one substance (see the slightly outdated Figure 1).[14] Out of these, 59 entries have been added to Annex XIV of REACH (Figure 2).[15] Until December 2023, 327 applications for authorisation have been submitted, many of which covering more than one use.[16]

13 See Article 58(3) of REACH.

14 See Candidate List of substances of very high concern for Authorisation - ECHA (europa.eu)

15 See Authorisation List - ECHA (europa.eu).

16 See Statistics on received applications for authorisation and review reports - ECHA (europa.eu).

1.1.3 Restriction

Title VIII of REACH represents traditional sovereign risk regulation and provides authorities with significant powers to intervene when there are "unacceptable risks" to human health or the environment that require Union-wide regulation. Restrictions can apply not only to the use or marketing of substances but also to their manufacturing process itself.

The burden of proof, demonstrating risks and the adequacy of restrictions, lies with the authorities. As part of the usual restriction procedure,[17] Annex XV of REACH requires authorities to establish the risk based on the Chemical Safety Report, i.e. following the strict procedure designed to make industry ensuring that risks are adequately controlled (see Section 1.1.1). Additionally, "available information on alternative substances and techniques shall be provided", as well as a justification that a restriction is the most appropriate measure in terms of effectiveness, practicability and monitorability.[18] These assessments become part of the restriction dossier, which is submitted to ECHA.

After submission, the dossier is subjected to public consultation. ECHA's Committees on Risk Assessment (RAC) and Socio-Economic Analysis (SEAC) are scrutinizing the dossier, taking into account the consultation submissions. Ultimately, the European Commission has to decide whether there is indeed an "unacceptable risk", which is in the end a political decision, based on all available evidence. This decision is taken at the regulatory procedure with scrutiny, in interplay with the Member States. Annex XVII of REACH lists all restrictions on the manufacture, placing on the market and use of substances, mixtures and articles (see Annex 1 of this report).[19]

The restriction process is therefore slow - between January 2011 and March 2022, an average of around 2.5 restrictions per year were adopted using the normal restriction process, falling short of the 11 restrictions per year predicted at the time of REACH's adoption.[20] To the extent that REACH provides for a fast track restriction process when consumer uses are at stake,[21] this is opened only to carcinogens, mutagens and reprotoxic substances (CMRs) and in consumer products – just a small fraction of hazardous substances. Since REACH came into force, two fast-track restrictions have been adopted concerning substances in consumer articles.[22]

1.1.4 "Learning System" based on inclusive governance

REACH incorporates elements of inclusive governance, ensuring the participation of the general public and stakeholders in various aspects of the regulation. The Management Board of ECHA includes representatives of interested parties appointed by the Commission, although they do not have voting rights. This allows them to participate in deliberations, both in plenary sessions and through written procedures. NGOs, industry representatives and other stakeholders can also participate as observers in expert groups supporting the implementation of REACH.

Additionally, stakeholders including providers of alternatives, and all other "interested parties" are entitled to be involved in various formal processes, such as evaluation, the identification of SVHCs, the assessment of applications for authorisation and the preparation of restrictions (see above). Their contributions to public consultations, along with information submitted by authorities, play a significant role in the implementation of REACH.

REACH is thus designed to create a (implicit) governance framework for a "learning system", fostering cooperative processes to address complex issues related to chemical risk management. Due to the multifaceted conflicts of aims, input from various stakeholders is essential for all processes established by REACH.

17 According to Article 68(1) of REACH. Besides, there is also a fast-track procedure, see below.

18 See Annex XV of REACH.

19 As adopted under REACH and previous regulatory frameworks.

20 Impact Assessment Report, p. 11: https://www.asktheeu.org/de/request/12035/response/42408/attach/5/SWD%20IA%20REACH%20revision%20redacted.pdf

21 See Article 68(2). In these cases, public consultation and scrutiny from ECHA's committees are not foreseen.

22 33 CMRs in textiles – entry 72 Annex XVII and 3 PAH in consumer articles, entry 50 Annex XVII.

1.1.5 Information on chemicals in products

Suppliers of substances or mixtures thereof that are classified as hazardous according to CLP or meet the PBT or vPvB criteria according to Annex XIII of REACH or are for other reasons identified as a SVHC have to provide a safety data sheet to their customers.[23] Another significant mechanism in the field of SVHCs is the "right-to-know" request, which requires suppliers of articles to provide information about SVHC content and safe use instructions upon consumer request. Suppliers of articles have to pass on the SVHC information down the supply chain to provide accurate responses to consumers. This mechanism can be seen as a powerful incentive for the adoption of SVHC-free solutions and promotes innovation.

The SDS should support communication about hazards and safe conditions of use from actors further up in the supply chain to their customers.

In addition, according to Article 33(1), the supplier of an article where this article contains an SVHC above 0.1%, "shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use including, as a minimum, the name of that substance". The same information has to be provided to a consumer upon request, following Article 33(2).

1.2 CLASSIFICATION AND LABELLING

The CLP Regulation,[24] closely linked with REACH, transfers[25] the United Nations' "Globally Harmonized System" (GHS) to the EU internal market. It requires substances with hazardous properties to be classified based on specific criteria. Manufacturers, importers, and downstream users are responsible for self-classifying substances. Authorities can issue 'harmonized' classifications under certain conditions, which are legally binding for all actors. Substances and mixtures must "be labelled and packaged according to their classification" by suppliers.[26] This labelling serves to convey information about associated hazards to those handling the substances or mixtures. The classification system also influences various legal requirements, such as regulations on occupational health, industrial installations, and waste management. It also triggers several mechanisms under REACH (e.g. the duty to perform a 'chemical safety assessment' and to provide a safety data sheet, eligibility of substance to be identified as SVHC).

1.3 CHEMICAL STRATEGY FOR SUSTAINABILITY

Acknowledging many of the challenges identified in the above sections, in October 2020, the European Commission published the EU Chemical Strategy for Sustainability.[27] This strategy derives from the European Green Deal, launched in December 2019, and outlining a wealth of policies to be adopted in order to achieve a climate-neutral, resource-preserving and non-toxic circular economy by 2050.[28]

The Chemical Strategy for Sustainability (CSS) addresses several themes of chemical policy reform out if which this overview will concentrate on supporting innovation, enhanced use of chemical data and improving legal frameworks to be more protective while providing simplification for industry. For each theme, the CSS sets out specific commitments by the European Commission.

1.3.1 Innovation

Recognising the slow pace of the development of substitutes for hazardous chemicals, the CSS aims to shift research and development activities towards more sustainable chemistry. To this end, the Commission recommended criteria be developed for chemicals that are "safe and sustainable-by-design", taking into account their entire life cycle, and a framework how to employ these criteria.[29] These recommendations are not intended to unfold any binding obligations, but public funding is intended to boost the piloting and eventual uptake of the

23 Cf Articles 31 and 32 of REACH.

24 Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, OJ L 353, 31.12.2008, p. 1–1355.

25 CLP however goes beyond UN GHS, see section 1.3.2 below.

26 See CLP Regulation (39).

27 COM(2020) 667, COM(2020) 667 ANNEX.

28 COM(2019) 640.

29 Commission Recommendation (EU) 2022/2510 establishing a European assessment framework for 'safe and sustainable by design' chemicals and materials, OJ L 325, 20.12.2022, p. 179–205.

criteria by industry, academia and Member State authorities. In addition, strengthened rules under chemical policies and related legislation create additional incentives.

1.3.2 Legal framework

The CSS commits to update several pieces of legislation, while the majority of intended amendments however relates to CLP and to REACH.

(1) CLP

REACH introduced to the regulatory system the substance categories PBT and vPvB that cause harm to the environment and, hence, eventually also to humans. Following a CSS commitment, these categories have already been added to the hazard criteria under CLP, as well as endocrine disruptive chemicals (EDCs) and substances with persistent, mobile and toxic properties (PMT) as well as substances that are very persistent and very mobile (vPvM).[30] These new criteria do not yet exist at UN GHS level. With this inclusion, industry has to classify all substances and mixtures they are placing on the market according to these criteria, after a transitional period has passed. Besides, authorities can initiate the harmonized classification and labelling (CLH) of substances that meet these criteria. The latter, in particular, is an important mechanism that triggers risk management obligations. To accelerate the CLH progress, the CSS committed to grant the Commission a right to initiate. This is part of the reform of CLP.[31]

(2) REACH

The CSS commits to legislative changes in most of the regulatory instruments of REACH. This includes, for **registration**:

» Update the information requirements (IR) so that industry must collect and in doubt generate data on the endocrine disruptive properties of chemicals[32] and other critical hazard properties, including effects on the nervous and immune systems.

» Revise IR to "enable identification of all carcinogenic substances manufactured or imported in the EU, irrespective of the volume".[33]

» Introduce IR on the overall environmental footprint of chemicals, i.e. taking into account resource concerns and other sustainability aspects.

» Assess how to best account for the "cocktail effect" (mixture assessment factor(s)).

» Introduce a registration obligation for polymers.

For **evaluation:**

» Ensure compliance checks of all registrations of substances.

» Introduce a mandate for ECHA to revoke registration numbers in cases of persistent incompliance.

For **authorisation:**

» Introduce EDCs, PMTs and vPvMs as categories of SVHCs.

» Additional amendments to revise the authorisation scheme to improve its practical implementation.

For **restrictions:**

» Extend the fast track restriction mechanism to EDCs, PMTs, and vPvBs as well as to professional uses.

» Additional amendments to revise the restriction scheme to improve its practical implementation.

For **authorisation and restriction**:

» Consider defining criteria for "essential uses" in REACH that enhances certainty and thus predictability when it is justified to authorise the use of an SVHC or to derogate such a use from the restriction or when a use is considered non-essential and should be phased out. On 22 April 2024 the European Commission published a Communication[34] setting guiding criteria and principles for incorporation of the essential use concept of the most harmful chemical substances into the

30 Commission Delegated Regulation (EU) 2023/707 amending Regulation (EC) No 1272/2008 as regards hazard classes and criteria for the classification, labelling and packaging of substances and mixtures, OJ L 93, 31.3.2023, p. 7–39.

31 See the Commission proposal COM (2022) 748.

32 Based in these data, companies can classify their substances if the information shows that the EDC criteria are met.

33 COM(2020) 667, Section 2.4.1: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0667

34 C(2024) 1995 final.

EU legislation. The Communication has no legal effect, it aims to provide a blueprint for the harmonised integration of essential use considerations in future legislative proposals.

» Ensure that authorisations and derogations from restrictions for recycled materials under REACH are exceptional and justified.[35]

» Prefer grouping approaches instead of tackling substance by substance.

The CSS announced to release a legislative proposal for the REACH reform in 2022. After several delays, the Commission President announced in July 2024 "a new chemicals industry package, aiming to simplify REACH".[36] A proposal is expected in 2025.[37] Given the "simplification" framing, it is not yet clear to what extent the Commission intends to hold up to its promises made under the CSS as regards the reform of REACH.

35 COM(2020) 667, Section 2.1.2: eur-lex.europa.eu/legal-content/EN/TXT/HTML/?from=ENFaber&uri=CELEX%3A52020DC0667

36 See the "Political Guidelines" for the 2024-2025 European Commission, 9.

37 See European Commission, Jessika Roswall's written answer to the European Parliament (22 Oct. 2024) and Stéphane Séjourné's written answer to the European Parliament (22 Oct. 2024)

2. Overview of Chemicals Management in China

China started managing chemicals gradually from the mid-1980s by taking part in international discussions and negotiations on chemicals. After many years of work, China has put in place a framework for regulating chemicals.

2.1 CHINA'S ENVIRONMENTAL LAW SYSTEM

China's environmental legislation is structured into three tiers, with the Environmental Protection Law at the highest tier, followed by environmental regulations, and finally, specific environmental standards.

Enacted in December 1989, and significantly enhanced in 2014, the Environmental Protection Law was the first legislative document dedicated to addressing environmental issues in China. The Law marks the inception of building a comprehensive environmental law framework in the country. It outlines the environmental management system, establishing a hierarchical structure led by the State Council to oversee and manage environmental matters. The responsibility for environment protection lies with the government at or above the county level, and other administrative agencies are obliged to support when needed. Additionally, the law defines the scope and specific details of its reach, highlighting the importance of its implementation across all sectors, including land, minerals, forestry, agriculture, and water conservation. The competent authorities in public security, transportation, railways, civil aviation, and agriculture are mandated by the Law to assume the duty of safeguarding the environment and diligently undertake environmental protection measures. The system also includes various elements such as the Environmental Impact Assessment (EIA) system, the 'three simultaneities' system,[38] the polluter pays system, and the registration system for major pollutants. These components have been established since the 1980s and remain essential for the legal protection of the environment in China.

Pollution prevention and control laws are a crucial element of China's overall environmental legislation system. China has implemented several laws to address different types of pollution, including the Law on Prevention and Control of Air Pollution, the Law on Prevention and Control of Water Pollution, the Law on Prevention and Control of Soil Pollution, and the Law on Prevention and Control of Solid Waste Pollution of the Environment. These specific pollution control laws are also in line with the Constitution and the general Environmental Protection Law. In these laws, the types of pollutants, treatment methods, prevention and control requirements, among others are stipulated. This type of legislation plays a significant role in China's approach to environmental protection.

Administrative regulations are an essential component of China's legal system and the most prevalent normative documents besides laws. Administrative environmental regulations consist primarily of new regulations issued by the State Council, such as the Regulations on the Management of Pollutant Discharge Permits.

Environmental standards, though not in the form of laws and regulations, have equivalent binding power. Violators of these standards will be held legally liable for their actions. Environmental quality standards and emission standards for stationary sources are the most common examples.

38 This system requires that pollutant reduction facilities should be designed, constructed and put into use at the same time as a major project is being implemented.

2.2 ENVIRONMENTAL MANAGEMENT FRAMEWORK FOR CHEMICALS IN CHINA

China's environmental management of chemicals began later than that of Europe's, and is now still in its infancy. Currently, specific legislation for the environmental management of chemicals in China has not yet been developed.

Currently, China's management of chemical substances involves two main categories: existing chemical substances, and new chemical substances.

2.2.1 Environmental Management of Existing Chemical Substances

Implementing International Conventions on Chemicals

China is a party to the Stockholm Convention on Persistent Organic Pollutants. Accordingly, in June 2023, eleven relevant ministries[39], including the Ministry of Ecology and Environment (MEE), jointly issued an "Announcement on Environmental Risk Control Requirements for 5 Persistent Organic Pollutants (POPs) including PCNs".[40] This announcement outlines measures for the phase-out or regulation of 5 POPs, specifically HCBD, PCN, PCP and its salts and esters, decaBDE, and short-chained chlorinated paraffins (SCCPs) (refer to Annex 2). It is intended to govern the use of these POPs in conjunction with China's national regulations.

Priority Lists of Chemicals for Control

In 2017 and 2020, the MEE, together with the Ministry of Industry and Information Technology and the National Health Commission, released two sets of the Priority Control Chemicals List (PCCL), in support of the implementation of the Water Pollution Action Plan. These lists comprise a total of 40 types/classes of chemical substances (see Annex 3).The primary objective of the PCCL is to prioritise the identification and management of chemicals that are inherently hazardous, persistent in the environment, and potentially risky both to the environment and human health. One or more of the following risk control measures are taken for chemicals listed in the Priority List of Chemicals for Control. These measures are guided by applicable policies and regulations, as well as considered economically and technologically feasible. The goal is to reduce the substantial negative effects that the manufacturing and use of the chemicals will have on the environment and human health.

Provisions incorporated into the management of emissions licensing system

Law on Prevention and Control of Air Pollution: a list of toxic and hazardous air pollutants shall be published by the environmental and health departments under the State Council. Pollutant discharge permits are required for the release of toxic and hazardous air pollutants on the list by enterprises and public institutions.

Water Pollution Prevention and Control Law: in addition to the list of toxic and hazardous water pollutants being published, enterprises, institutions and other producers and operators that discharge toxic and hazardous water pollutants on the list shall monitor the outfall and the surrounding environment, disclose information on toxic and hazardous water pollutants, and implement preventative measures against environmental risks. Enterprises and public institutions shall obtain the discharge permits prior to discharging industrial effluent or sewage, whether directly or indirectly, in accordance with the law.

Restrictive *measures*

(A) Restrict usage

Applicable mandatory national standards should be revised to restrict the use of specific products.

(B) Promote substitution

New substitutes should be included into the "National Catalogue of Encouraged Substitutes for Toxic and Hazardous Raw Materials and Products"[41].

Establish an audit and information disclosure system for cleaner production

The Cleaner Production Promotion Law: enterprises that utilise hazardous and toxic raw materials

39 Namely the Ministry of Ecology and Environment, the Ministry of Foreign Affairs, the Ministry of Science and Technology, the Ministry of Industry and Information Technology, the Ministry of Housing and Urban-Rural Development, the Ministry of Agriculture and Rural Affairs, the Ministry of Commerce, the Ministry of Emergency Management, the General Administration of Customs, the State Administration of Market Supervision and Regulation, and the National Bureau of Disease Control and Prevention.

40 关于多氯萘等5种类持久性有机污染物环境风险管控要求的公告（2023年第20号），accessible at: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/202306/t20230606_1032939.html

41 www.miit.gov.cn/zwgk/zcwj/wjfb/tg/art/2020/art_dc43629922e941628a7c065dad0214d6.html

in their manufacturing processes or release such substances during production shall be required to conduct mandatory audits of their cleaner production operations.

Cleaner Production Audit Measures: in addition to requiring enterprises to conduct mandatory audits of their cleaner production operations, the enterprises carrying out these audits must make sure that relevant information is easily accessible to the public. This includes disclosing the name, quantity, and intended use of any hazardous and toxic raw materials utilised and the name, concentration and quantity of any hazardous and toxic substances released.

Managing the Import and Export of Toxic Chemicals

MEE is also responsible for regularly updating the "List of Strictly-Restricted Toxic Chemicals in China" to comply with the requirements of international conventions such as the Stockholm Convention on Persistent Organic Pollutants, Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC), and the Minamata Convention on Mercury. The updates are also aligned with the Provisions on the First Import of Chemicals and the Import and Export of Toxic Chemicals (1994),[42] as well as the modifications made to the national tariff codes tax headings and customs commodity numbers. On October 16, 2023, MEE, the Ministry of Commerce, and the General Administration of Customs collaborated to release the "List of Strictly Restricted Toxic Chemicals" (2023),[43] which can be found in Annex 4. Individuals and entities engaged in the import or export of the toxic substances mentioned in the list must submit an application to the MEE for the notification of the release of these substances, and subsequently must complete the import and export procedures with Customs, following the acquisition of the notification. The Announcement took effect immediately upon its issuance, and the previous announcement on the issuance of "China's List of Strictly Restricted Toxic Chemicals" (2020)[44] was simultaneously revoked.

Managing new pollutants based on the List of New Pollutants for Priority Control and Management

The Action Plan for New Pollutant Management,[45] released by the General Office of the State Council in May 2022, outlines the following 6 major actions: improving regulations and systems; establishing and improving the new pollutant management system; conducting investigations and monitoring to assess the environmental risks posed by new pollutants; strict source control for prevention of new pollutants; fortifying process control measures; advancing end-of-pipe management and reducing the environmental risk caused by new pollutants; enhancing capacity building and fostering the foundation of new pollutants management. In December 2022, MEE spearheaded the effort of forming an expert committee for the treatment of new pollutants under the Inter-ministerial Coordination Group for the Handling of New Pollutants. The committee's mandate is to strengthen the technical support for the treatment of new pollutants, as well as decision-making guidance and technical assistance for the governance of new pollutants.

The List of New Pollutants for Priority Control and Regulation (2023 Edition) was jointly issued by MEE, the Ministry of Industry and Information Technology, the Ministry of Agriculture and Rural Development, the Ministry of Commerce, the General Administration of Customs, and the State Administration for Market Supervision and Administration on December 30, 2022 (Ministerial Decree) (see Annex 5).

2.2.2 Environmental Management of New Chemical Substances

China started to include new chemical substances into its chemicals management framework since 2003 following China's accession to the World Trade Organisation (WTO). At that time, China issued the Measures for the Environmental Management of New Chemical Substances (hereafter referred to as "the Measures"),[46] so as to establish a chemical substance management system in line with international standards. The Measures have since gone through two revisions in 2010 and 2020, and on

42 化学品首次进口及有毒化学品进出口环境管理规定（环管〔1994〕140号）, accessible at: https://www.mee.gov.cn/gzk/gz/202111/t20211129_962173.shtml

43 关于发布《中国严格限制的有毒化学品名录》（2023年）的公告, accessible at: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/202310/t20231019_1043580.html

44 关于印发《中国严格限制的有毒化学品名录》（2020年）的公告, accessible at: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/201912/t20191231_756318.html

45 新污染物治理行动方案的通知, accessible at: https://www.gov.cn/zhengce/content/2022-05/24/content_5692059.htm

46 新化学物质环境管理登记办法（第12号令）, accessible at: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202005/t20200507_777913.html

January 1, 2021, the latest version became effective. The Measures include: basic requirements, registration, simplified registration and filing requirements, tracking, legal responsibility and supplementary provisions. The Measures manages the registration of new chemical substances engaged in research, production, import and processing activities within China, except for those temporarily stored in the customs after importation before full export without any processing activities within China. Regular registration shall apply if the annual production or import volume of a new chemical substance is above 10 tons; if the annual production or import volume of a new chemical substance is between 1 and 10 tons, simplified registration shall apply; if the planned use of a substance includes industrial purposes other than those permitted in the Inventory of Existing Chemical Substance in China (IECSC), registration for the new use shall be required; if the annual production or import volume of a new chemical substance is less than 1 ton and if the content of monomers or reactants of a new chemical substance is less than 2%, or if it is a polymer of low concern, the new chemical only needs to be filed instead of going through registration procedures. For different types of registration, the requirements for data submission are as follows:

(1) Application materials for regular registration include:
Application form for regular registration;

Attachments:

- Certificate of legal person or business license (can be exempted after information is available on the government service platform), agency contract or agreement (with agent), letter of authorisation;
- Test reports or information;
- Environmental risk assessment report;
- Analysis of socio-economic benefits (if it is a new chemical substance with high hazard);
- Justification for protection of information (if relevant);
- Letter of commitment to implement environmental risk control measures and environmental management requirements;
- Information on the conditions of the testing organisation;
- Other known information on the environmental and health hazards and environmental risks of the substance under application.

(2) Application materials for simplified registration include:
Application form for simplified registration;

Attachments:

- Certificate of legal person or business license (can be exempted after information is available on the government service platform), agency contract or agreement (with agent), letter of authorisation;
- Test reports or information;
- The conclusion with reasons for the persistence, bioaccumulation and toxicity of the substance under application in accordance with the requirements of the Measures;
- Justification for protection of information (if relevant);
- Letter of commitment to implement environmental risk control measures and environmental management requirements;
- Information on the conditions of the testing organisation;
- Other known information on the environmental and health hazards and environmental risks of the substance under application.

(3) The following materials will be needed for a filing procedure
The filing form;

Attachments:

- Certificate of legal person or business license (can be exempted after information is available on the government service platform), agency contract or agreement (with agent), letter of authorisation;
- for filing of polymer, materials should be submitted to explain the substance fits the required circumstances;
- Other known information on the environmental and health hazards and environmental risks of the substance under application.

The minimum required baseline data should be from test reports, except in special cases where actual testing is not possible, the data used for application may also be derived from non-test data generated by methods such as QSAR, cross-referencing, published literature, and authoritative databases. If non-test data are submitted, the reason, method or data source, and basis should be fully explained. The testing of new chemical substances completed within China shall be carried out in accordance with the requirements of the Guidelines for Chemical Testing, more specifically, with the testing methods stipulated in the Methods for Chemical Testing and relevant national standards. Tests of new chemical substances completed outside China shall be carried out following the principle of consistency in test methods, with priority given to the use of relevant Chinese national standards or the OECD Guidelines for Testing of Chemicals, as well as other test methods that are globally recognised.

In addition, in support of the implementation of the Measures, MEE issued the List of Existing Chemical Substances in 2013 and has continued to expand the List to include newly registered chemical substances. So far, China has added 11 batches of chemical substances to the List since 2019, covering a total of about 46,000 substances.

2.3 CHINA'S ENVIRONMENTAL RISK ASSESSMENT SYSTEM FOR CHEMICALS

China's system for environmental risk assessment of chemical substances only started in 2019. Since then, MEE has released of a number of technical documents and standards on the environmental and health risk assessment of chemical substances. However, currently the technical system for environmental risk assessment of chemical substances is still inadequate.

In August 2019, in order to strengthen and standardise the environmental management of chemical substances, as well as to improve the system of technical methodologies, MEE and the China's National Health Commission jointly issued the "Framework Guidelines on Technical Methods for Environmental Risk Assessment of Chemical Substances (for Trial Implementation)" [47]. The Guideline document stipulates the framework for environmental risk assessment of chemical substances and specifies the principles, technical requirements and reporting rules for risk assessment.

In December 2020, MEE issued a Notice on the Publication of Three Technical Guidelines on Assessment of Environmental and Health Hazards of Chemical Substances (for Trial Implementation)[48], which includes three separate guidelines on: assessment of hazards, assessment of exposure, and characterization of environmental and health hazards of chemical substances. They stipulate the procedures, scope of assessment, methods and technical requirements for the assessment of environmental and health hazards of chemical substances; the principles, procedures and methods for the assessment of environmental and health exposures of chemical substances; and the principles, procedures and technical requirements for the characterization of both environmental risks and health hazards of chemical substances caused by indirect environmental exposures. The documents further improve the standardization of environmental risk assessment of chemical substances.

In December 2021, to standardize and guide the screening of priority chemical substances for risk assessment, MEE issued the Technical Guidelines for Screening of Priority Chemical Substances for Assessment,[49] which stipulates the principles, procedures and technical requirements for screening of priority chemical substances for assessment.

Following on in June 2022, MEE issued the Standard for Chemical Environmental Management and for Testing Terminology of Chemical Substances,[50] which clarifies the terms and definitions that are commonly used in the testing of chemical substances during risk assessment.

47 化学物质环境风险评估技术方法框架性指南（试行）, accessible at: www.gov.cn/zhengce/zhengceku/2019-11/25/content_5455313.htm

48 化学物质环境与健康危害评估技术导则（试行）（第69号）, accessible at: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/202012/t20201225_814802.html

49 优先评估化学物质筛选技术导则（HJ 1229—2021）, accessible at: https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/gthw/qtxgbz/202112/t20211227_965407.shtml

50 化学物质环境管理 化学物质测试术语（HJ 1257—2022）, accessible at: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/202206/t20220613_985257.html

In July 2024, in support of the implementation of the registration of new chemical substances for environmental management, to standardize the naming of chemical substances, and to improve the management of the List of Existing Chemical Substances in China, MEE issued and implemented the national standard document "Technical specification for nomenclature of chemical substances for environmental management"[51], establishing requirements for naming of chemical substances.

51 Technical specification for nomenclature of chemical substances for environmental management (HJ 1357—2024): https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/gthw/qtxgbz/202403/t20240327_1069391.shtml

3. Recommendations

Given the extensive European experience in developing systems for addressing environmental and health risks, together with China's intensifying efforts at establishing reliable mechanisms to protect the environment and human health, there is substantial scope for deeper engagement on experience and lessons learned.

In order to advance bilateral cooperation between the EU and China, the EU–China Environmental Policy Dialogue (EPD) should institutionalise cooperation and exchange on chemicals management. Regular exchanges, on at least an annual basis, about the latest policies on chemicals management, technologies for assessing and controlling chemical risks in the environment and related enforcement experience, and raising awareness of chemicals management among relevant stakeholders would be beneficial for both sides.

3.1 Engagement on management policies and institutions

Topics to be covered may include the EU Chemicals Strategy for Sustainability, the most recent REACH and CLP revision progress, uptake of new CLP hazard classes at GHS level, the creation and updating of the list of controlled substances in REACH Annexes (SVHC, Restriction, Authorisation), the development of the community rolling action plan (CoRAP) and subgroup assessment, the EU/OECD Guidelines for the Testing of Chemicals and Good Laboratory Practices (GLP) regulatory practices, the formation of the UN Science-Policy Panel to Contribute Further to the Sound Management of Chemicals and Waste and to Prevent Pollution (SPP-CWP) and the progress in implementing the Global Framework on Chemicals (GFC).

3.2. Engagement on techniques to manage and assess risks

In particular, engagement could cover techniques for managing and assessing risk, including: testing methods, computational toxicology and prediction models required for hazard assessment; models and tools and analysis methods required for exposure assessment; EDs screening and assessment; technical methods for evaluating the socio-economic benefits of chemicals; technical methods for evaluating alternatives; and environmental risk assessment of microplastics, antibiotics, and other substances.

In addition, engagement could compare approaches to the phase-out and restriction of harmful chemicals, which could include the principles and basis for the formulation of regulatory measures, as well as the risk assessment methods for alternatives.

It is also suggested that bilateral exchange take place on the EU's development and implementation of the Safe and sustainable by design (SSbD) framework, as a long term approach to chemicals and materials development.

3.3 Modalities for engagement

Firstly, avenues for two-way communication should be established. Policy discussions, technical exchanges, and public lectures for businesses should be arranged yearly or on a regular basis under the auspices of the EU-China Environmental Policy Dialogue. Training aimed at certain technical staff members and management groups should also be carried out.

Secondly, activities for capacity building should be conducted. It is recommended that both the EU and China coordinate visits and personnel exchanges, building on previously established frameworks and projects for environmental cooperation. This could involve deploying Chinese policy-makers and technical staff to Europe for brief training and personnel exchanges, enlisting Chinese GLP experts to serve as observers in EU GLP inspections, and sending European experts to China for temporary assignments. This can enhance chemical governance and control, while also guaranteeing a thorough comprehension of the latest developments of EU environmental management of chemicals.

Annexes

ANNEX 1. Number of restriction proposals on (groups of) substances adopted or going through the restriction process in the European Union

NUMBER OF RESTRICTION PROPOSALS ON (GROUPS OF) SUBSTANCES ADOPTED OR GOING THROUGH THE RESTRICTION PROCESS					
Step in restriction process	**PBT**	**ED**	**CMR**	**Sensitiser**	**Other**
Included in Annex XVII	Octamethyl-cyclotetrasiloxane (D4), decamethyl-cyclopentasiloxane (D5), PFOA (and related substances), C9-C14 PFCAs (and related substances), decaBDE	NPE	4 phthalates, NMP, phenyl mercury, lead and its compounds (in jewellery, consumer articles and gunshot used in wetlands), mercury, BPA, chrysotile, DCB, DMF, PAH in rubber granules, Formaldehyde and formaldehyde releasers	Chromium VI*, Diisocyanates (consumer uses, professional and industrial uses)	Ammonium salts, methanol, TDFA, tattoo inks (various hazard properties); PAHs, dioxins, furans,
Process ongoing	Chloroalkanes with carbon chain lengths within the range from C14 to C17, creosote and related substances, Terphenyl, hydrogenated	Bisphenols with endocrine disrupting properties for the environment and their salts, DMAC and NPE			PFAS in firefighting foams
RAC/SEAC opinions adopted but not yet in Annex XVII	D4/D5/D6, PFHxA (and related substances), PFHxS (and related substances), Dechlorane Plus	-	lead in PVC, DNT, lead in outdoor shooting and fishing, 2,4-dinitrotoluene, PAHs in clay targets, soluble cobalt salts, single-use baby diapers	Skin sensitisers in textiles	Microplastics calcium cyanamide

* Chromium VI is also a CMR substance, but is here only considered a sensitiser, as this is the scope of the restriction in question ("Chromium VI in leather articles"). Overview of restriction proposals on substances adopted or going through the restriction process from 2009 to December 2022. Some cover groups of substances (Source: ECHA 2023, Regulatory Strategy Annual Report 2023, 58.)

ANNEX 2. List of persistent organic pollutants controlled under the amended Stockholm Convention

Serial No.	POPs name	CAS number	Reference Customs Commodity Number
1	Hexachlorobutadiene	87-68-3	2903299020
2	Pentachlorophenol and its salts and esters	87-86-5 131-52-2 27735-64-4 3772-94-9 1825-21-4	2908110000 2908199023 2908199024 2915900014 2909309017
3	Polychlorinated naphthalenes (PCN), including: dichloronaphthalene, trichloronaphthalene, tetrachloronaphthalene, pentachloronaphthalene, hexachloronaphthalene, heptachloronaphthalene, octachloronaphthalene	-	2903999050, etc.
4	Decabromodiphenyl ether	1163-19-5	2909309018
5	Short-chained chlorinated paraffins*	Example: 85535-84-8 68920-70-7 71011-12-6 85536-22-7 85681-73-8 108171-26-2	3824890000

* Short-chain chlorinated paraffins (SCCPs): straight-chain chlorinated hydrocarbons with chain lengths ranging from C10 to C13 and a content of chlorine greater than 48% by weight, the content of SCCPs in mixtures equals to or greater than 1% by weight.

ANNEX 3. China - List of priority chemicals for control (1st and 2nd batches)

	Priority chemicals for control (1st batch)	Priority chemicals for control (2nd batch)
Released	December 2017	October 2020
Number of substance types	22	18
Chemical substance	1,2,4-Trichlorobenzene; 1,3-Butadiene; 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene); N,N'-dimethylphenyl-p-phenylenediamine; short-chained chlorinated paraffins; methylene chloride; cadmium and cadmium compounds; mercury and mercury compounds; formaldehyde; hexavalent chromium compounds; hexachloro-1,3-cyclopentadiene; hexabromocyclododecane; naphthalene; Lead compounds; perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF); nonylphenol and nonylphenol ethoxylates; trichloromethane; trichloroethylene; arsenic and its compounds; decabromodiphenyl ether (DDE); tetrachloroethylene; acetaldehyde.	1,1-Dichloroethene; 1,2-Dichloropropane; 2,4-Dinitrotoluene; 2,4,6-Tri-tert-butylphenol; Benzene; seven polycyclic aromatic hydrocarbons (PAHs); polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs); Toluene; o-toluidine; tris(2-chloroethyl) phosphate (TCPP); Hexachlorobutadiene (HCBD); two chlorophenyls; Perfluorooctanoic acid (PFOA), its salts, and related compounds; Cyanide; thallium and thallium compounds; pentachlorophenol (PCP) and its salts and esters; pentachlorothiophenol; isopropylphenol phosphate esters

ANNEX 4. List of strictly restricted toxic chemicals in China (2023)

Released	October 2023
Number of substance types	9
Chemical substance	Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOS-type); mercury (including mixtures of mercury and other substances containing at least 95% mercury by weight, including mercury alloys); tetramethyl lead; tetraethyl lead; polychlorinated terphenyls (PCT); Tributyltin compounds (including: tributyltin oxide, tributyltin fluoride, tributyltin methacrylic acid, tributyltin benzoate, tributyltin chloride, tributyltin linoleic acid, tributyltin naphthenic acid); short-chained chlorinated paraffins (defined as straight-chained chlorinated hydrocarbons with chain lengths of C10 to C13, with a chlorine content of more than 48 per cent by weight, and with a concentration of greater than or equal to 1 per cent by weight in the mixture); decabromodiphenyl ether; and perfluorooctanoic acid (PFOA), its salts and related compounds (PFOA category).

ANNEX 5. List of new pollutants under priority control (2023 version)

Serial No.	Name of new pollutant	CAS No.	
1	Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (PFOS-type)	Examples: 1763-23-1, 307-35-7, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8	
2	Perfluorooctanoic acid, its salts and related compounds (PFOA group)	-----	
3	Decabromodiphenyl ether	1163-19-5	
4	Short-chained chlorinated paraffins	Examples: 85535-84-8, 68920-70-7, 71011-12-6, 85536-22-7, 85681-73-8, 108171-26-2	
5	Hexachlorobutadiene	87-68-3	
6	Pentachlorophenol and its salts and esters	87-86-5, 131-52-2, 27735-64-4, 3772-94-9, 1825-21-4	
7	Dicofol	115-32-2, 10606-46-9	
8	Perfluorohexane sulfonic acid, its salts and its related compounds (class PFHxS)	-----	
9	Degron and its cis- and trans-isomers	13560-89-9, 135821-03-3, 135821-74-8	
10	Dichloromethane	75-09-2	
11	Trichloromethane	67-66-3	
12	Nonylphenol	25154-52-3, 84852-15-3	
13	Antibiotics	-----	
14	Phase-out category	Hexabromocyclododecane	25637-99-4, 3194-55-6, 134237-50-6, 134237-51-7, 134237-52-8
		Chlordane	57-74-9
		Mirex	2385-85-5
		Hexachlorobenzene (HCB)	118-74-1
		Dichlorodiphenyltrichloroethane	50-29-3
		Alpha-hexachlorocyclohexane	319-84-6
		Beta-hexachlorocyclohexane	319-85-7
		Hexachlorocyclohexane gamma-isomer	58-89-9
		Endosulfan prodrug and its related isomers	115-29-7, 959-98-8, 33213-65-9, 1031-07-8
		Polychlorinated biphenyl	--

Chemicals Management Policies in Europe and China

December 2024

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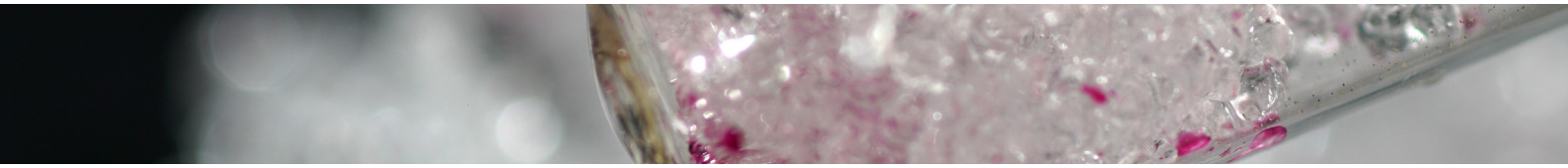

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