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主旨：有關歐盟執委會通過化學品策略，及限用有害化學物質於成衣、紡織及鞋襪製品事，敬請卓參。

說明：

一、依據歐盟執委會本(109)年10月14日及30日新聞資料(如附件)辦理。

二、為達成歐盟綠色新政所揭櫫邁向零污染無毒環境之政策目標，歐盟執委會頃通過化學品策略文件(Chemical Strategy for Sustainability Towards a Toxic-Free enviornment, COM (2020) 667 final)，旨在促進安全及永續化學品創新，及保護人類與環境免於有毒化學物質侵害，包括禁用最有害化學物質於玩具、嬰幼兒用品、化粧品、清淨劑、與食物接觸物質及紡織品等消費品。

三、前揭歐盟化學品策略擬定具體行動增進化學品之安全、永續設計，及確保最有害化學物質禁用於消費品及弱勢族群。歐盟執委會亦提示會員國可運用歐盟下世代復甦基金之「復甦韌性計畫」(Recovery and Resilience Facility, RRF)，投資於化學品產業之綠色及數位轉型。

四、歐盟化學品策略在確保人類健康及無毒環境之旗艦倡議，包括：

(一)於消費產品禁用最有害物質，如：內分泌干擾物(endocrine disruptors)、影響免疫及呼吸系統化學物質、全氟烷基化合物(PFAS)等，除非可證明係為社會之必要使用；

(二)儘可能最小化及取代有害物質於所有產品出現，尤以影響弱勢族群之產品及具高度循環經濟潛力者為優先；

(三)因應解決人類及環境每日曝露於不同來源化學品風險之混合效果(combination/ cocktail effect)；

(四)於歐盟永續產品政策倡議(Sustainable Product Policy Initiative)研擬資訊揭露要求，確保生產者及消費者得以獲取化學品成份及安全使用等資訊。

五、歐盟化學品策略亦臚列具體作為支持產業創新，促使安全及永續性化學品之生產與使用，成為歐盟市場典範及全球標竿：

(一)發展安全及永續設計(safe-and-sustainable-by-design)標準，及對其商業化給予財務支持；

(二)透過歐盟基金、投資工具及公私夥伴合作，確保具安全及永續設計物質、材料及產品的開發；

(三)加強於歐盟邊境及內部市場執行相關歐盟規範；

(四)研訂歐盟化學品之研究發展議程，以補足對化學品影響之知識落差、促進創新及減少動物測試；

(五)簡化及整合歐盟法令框架，如：採行「1物質、1評估」(One substance, one assessment)程序，強化「無資料、無市場」(no data, no market)原則，並就歐盟REACH化學品及部門別法規進行修訂。

(六)歐盟執委會亦將推廣全球安全及永續性化學品標準，尤

將以身作則，並擬推行一致作法限制歐盟所禁用有害化學物質之生產及出口。

六、另依歐盟REACH化學品管理規範(Regulation(EU) 2018/1513)之規定，自本(2020)年11月1日起，歐盟限用33種具致癌性、生殖細胞突變性之毒性化學物質(CMR)用於成衣、紡織品及鞋襪等製品，無論該等產品係於歐盟製造或為進口品。

七、承上，前揭規定主要針對相關紡織產品中單個或一組物質，包括多環芳烴(PAHs)、鎘、鉻、鉛及其化合物、鄰苯二甲酸鹽等建立最高濃度上限，此將減少該等有害物質釋放於環境中，例如在洗滌過程可能的排放，並提高回收紡織材料之質量。歐盟內部市場執委Thierry Breton對此表示，歐盟公民健康及福祉至為重要，歐盟執委會須確保用於日常用品之化學物質安全性，該項規定係經歐盟執委會與歐洲化學局(ECHA)，化學及紡織品產業、非政府組織及醫學專家間良好合作結果。

八、根據統計，2018年歐盟係全球第2大化學品生產者，佔全球營收(3.3兆歐元)之16.9%，由於全球化學品產出預估將於2030年達倍數成長，爰歐盟在全球營收佔比可能下滑。化學品為歐盟第4大產業，企業家數約達3萬家，其中95%為中小企業，直接僱用人數達120萬人，近6 成化學品係用以供應其他業別，包括醫藥、營建、汽車、電子及紡織業等。

正本：經濟部工業局
副本：經濟部國際貿易局、經濟部標準檢驗局、財團法人全國認證基金會 電子公文交換章 2020/11/04 08:48:05

European Commission - Press release

Green Deal: Commission adopts new Chemicals Strategy towards a toxic-free environment

Brussels, 14 October 2020

Today, the European Commission adopted the EU Chemicals Strategy for Sustainability. The Strategy is the first step towards a zero pollution ambition for a toxic-free environment announced in the European Green Deal. The Strategy will boost innovation for safe and sustainable chemicals, and increase protection of human health and the environment against hazardous chemicals. This includes prohibiting the use of the most harmful chemicals in consumer products such as toys, childcare articles, cosmetics, detergents, food contact materials and textiles, unless proven essential for society, and ensuring that all chemicals are used more safely and sustainably.

Chemicals Strategy fully recognises the fundamental role of chemicals for human well-being and for the green and digital transition of European economy and society. At the same time it acknowledges the urgent need to address the health and environmental challenges caused by the most harmful chemicals. In this spirit, the Strategy sets out concrete actions to make chemicals safe and sustainable by design and to ensure that chemicals can deliver all their benefits without harming the planet and current and future generations. This includes ensuring that the most harmful chemicals for human health and the environment are avoided for non-essential societal use, in particular in consumer products and with regard to most vulnerable groups, but also that all chemicals are used more safely and sustainably. Several innovation and investment actions will be foreseen to accompany the chemicals industry through this transition. The Strategy also draws the attention of Member States to the possibilities of the Recovery and Resilience Facility to invest in the green and digital transition of EU industries, including in the chemical sector.

Increasing protection of health and the environment

The Strategy aims to significantly increase the protection of human health and the environment from harmful chemicals, paying particular attention to vulnerable population groups. Flagship initiatives include in particular:

- Phasing out from consumer products, such as toys, childcare articles, cosmetics, detergents, food contact materials and textiles, the most harmful substances, which include among others endocrine disruptors, chemicals that affect the immune and respiratory systems, and persistent substances such as per- and polyfluoroalkyl substances (PFAS), unless their use is proven essential for society;
- Minimising and substituting as far possible the presence of substances of concern in all products. Priority will be given to those product categories that affect vulnerable populations and those with the highest potential for circular economy;
- Addressing the combination effect of chemicals (cocktail effect) by taking better account of the risk that is posed to human health and the environment by daily exposure to a wide mix of chemicals from different sources;
- Ensuring that producers and consumers have access to information on chemical content and safe use, by introducing information requirements in the context of the Sustainable Product Policy Initiative.

Boosting innovation and promoting EU's competitiveness

Making chemicals safer and more sustainable is a continued necessity as well as a great economic opportunity. The Strategy aims to capture this opportunity and enable the green transition of the chemicals sector and its value chains. As far as possible, new chemicals and materials must be safe and sustainable by design i.e. from production to end of life. This will help avoid the most harmful effects of chemicals and ensure the lowest possible impact on climate, resource use, ecosystems and biodiversity. The Strategy envisages the EU industry as a globally competitive player in the production and use of safe and sustainable chemicals. The actions announced in the Strategy will support industrial innovation so that such chemicals become the norm on the EU market and a benchmark worldwide. This will be done mainly by:

- Developing safe-and-sustainable-by-design criteria and ensuring financial support for the commercialisation and uptake of safe and sustainable chemicals;
- Ensuring the development and uptake of safe and sustainable-by-design substances, materials and products through EU funding and investment instruments and public-private partnerships;
- Considerably stepping up enforcement of EU rules both at the borders and in the single market;
- Putting in place an EU research and innovation agenda for chemicals, to fill knowledge gaps on the impact of chemicals, promote innovation and move away from animal testing;
- Simplifying and consolidating the EU legal framework – e.g. by introducing the 'One substance one assessment' process, strengthening the principles of 'no data, no market' and introducing targeted amendments to REACH and sectorial legislation, to name a few.

The Commission will also promote safety and sustainability standards globally, in particular by leading by example and promoting a coherent approach aiming that hazardous substances that are banned in the EU are not produced for exports.

Executive Vice-President for the European Green Deal Frans **Timmermans** said: *"The Chemicals Strategy is the first step towards Europe's zero pollution ambition. Chemicals are part and parcel of our daily life, and they allow us to develop innovative solutions for greening our economy. But we need to make sure that chemicals are produced and used in a way that does not hurt human health and the environment. It is especially important to stop using the most harmful chemicals in consumer products, from toys and childcare products to textiles and materials that come in contact with our food".*

Commissioner for the Environment, Oceans and Fisheries Virginijus **Sinkevicius** said: *"We owe our well-being and high living standards to the many useful chemicals that people have invented over the past 100 years. However, we cannot close our eyes to the harm that hazardous chemicals pose to our environment and health. We have come a long way regulating chemicals in the EU, and with this Strategy we want to build on our achievements and go further to prevent the most dangerous chemicals from entering into the environment and our bodies, and affecting especially the most fragile and vulnerable ones."*

Commissioner for Health and Food Safety Stella **Kyriakides** said: *"Our health should always come first. That is exactly what we have ensured in a Commission flagship initiative such as the Chemical Strategy. Chemicals are essential for our society and they must be safe and sustainably produced. But we need to be protected from the harmful chemicals around us. This Strategy shows our high level of commitment and our determination to protect the health of citizens, across the EU."*

Background

In 2018, Europe was the second biggest producer of chemicals (accounting for 16.9% of sales). Chemical manufacturing is the fourth largest industry in the EU, directly employing approximately 1.2 million people. 59% of chemicals produced are directly supplied to other sectors, incl. health, construction, automotive, electronics, and textiles. Global chemicals production is expected to double by 2030, and the already widespread use of chemicals is likely to also increase, including in consumer products.

The EU has a sophisticated chemicals legislation, which has generated the most advanced knowledge base on chemicals in the world and set up scientific bodies to carry out the risk and hazard assessments of chemicals. The EU has also managed to reduce the risks to people and the environment for certain hazardous chemicals like carcinogens.

Yet, EU's chemicals policy needs to be further strengthened to take into account the latest scientific knowledge and citizens concerns. Many chemicals can harm the environment and human health, including future generations. They can interfere with ecosystems and weaken human resilience and capacity to respond to vaccines. Human biomonitoring studies in the EU point to a growing number of different hazardous chemicals in human blood and body tissue, including certain pesticides, biocides, pharmaceuticals, heavy metals, plasticisers and flame retardants. Combined prenatal exposure to several chemicals has led to reduced foetal growth and lower birth rates.

For more information

Communication on Chemicals Strategy for Sustainability: Towards a toxic-fee environment

Questions and Answers on Chemicals Strategy for Sustainability

Factsheet on Chemicals Strategy for Sustainability

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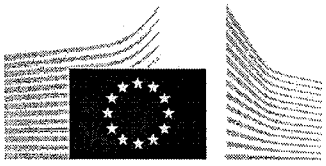
Related media

Illustration 2020/2



EUROPEAN
COMMISSION

Brussels, 14.10.2020
COM(2020) 667 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Chemicals Strategy for Sustainability
Towards a Toxic-Free Environment

{SWD(2020) 225 final} - {SWD(2020) 247 final} - {SWD(2020) 248 final} -
{SWD(2020) 249 final} - {SWD(2020) 250 final} - {SWD(2020) 251 final}

1. SUSTAINABLE CHEMICALS FOR THE GREEN AND DIGITAL TRANSITION

The European Green Deal[1], European Union's new growth strategy, has set the EU on a course to become a sustainable climate neutral and circular economy by 2050. It has also set a goal to protect better human health and the environment as part of an ambitious approach to tackle pollution from all sources and move towards a toxic-free environment. **Chemicals are everywhere in our daily life and play a fundamental role in most of our activities**, as they form part of virtually every device we use to ensure our well-being, protect our health and security, and meet new challenges through innovation. Chemicals are also the building blocks of low-carbon, zero pollution and energy- and resource-efficient technologies, materials and products. The increased investment and innovative capacity of the chemicals industry to provide safe and sustainable chemicals will be vital to offer new solutions and support both **the green and the digital transitions of our economy and society.**

At the same time, **chemicals with hazardous properties** can cause harm to human health and the environment. While not all hazardous chemicals raise the same concerns, certain chemicals cause cancers, affect the immune, respiratory, endocrine, reproductive and cardiovascular systems, weaken human resilience and capacity to respond to vaccines[2] and increase vulnerability to diseases[3].

Exposure to these harmful chemicals is therefore a threat to human health. In addition, chemical pollution is one of the key drivers putting the Earth at risk[4], impacting and amplifying planetary crises such as climate change, degradation of ecosystems and loss of biodiversity[5]. New chemicals and materials must be inherently safe and sustainable, from production to end of life, while new production processes and technologies must be deployed to allow the chemical industry's transition to climate neutrality.

The **EU already has one of the most comprehensive and protective regulatory frameworks for chemicals, supported by the most advanced knowledge base globally.** This regulatory framework is increasingly becoming a model for safety standards worldwide[6]. The EU has been undeniably successful in creating an efficiently functioning internal market for chemicals, in reducing the risks to humans and the environment posed by certain hazardous chemicals, such as carcinogens[7] and heavy metals[8], and in providing a predictable legislative framework for companies to operate in.

[1] COM(2019) 640.
[2] Substances such as PFOS and PFOA are associated with reduced antibody response to vaccination; EFSA, Scientific opinion on PFAS.
[3] Linking pollution and infectious disease, C&en, 2019; Environmental toxins impair immune system over multiple generations, Science Daily, October 2, 2019.
[4] Rockström, J. et al., Planetary Boundaries: Exploring the Safe Operating Space for Humanity. *Ecology and Society*, 2009.
[5] Examples include negative effects on pollinators, insects, aquatic ecosystems and bird populations.
[6] A. Bradford, The Brussels effect, 2020.
[7] 1 million new cancer cases are estimated to have been prevented in the EU over the last 20 years; SWD(2019)199.
[8] Including mercury, cadmium and arsenic, SWD(2019)199.

Facts and figures about chemicals, the chemicals industry[9] and chemicals legislation

- Global sales of chemicals were 3347 billion euro in 2018 where Europe was the second biggest producer (accounting for 16.9% of sales) although this share has halved over the last 20 years and forecasts predict a further decline by 2030 to move from second to third position.
- Chemical manufacturing is the fourth largest industry in the EU comprising 30 000 companies, 95% of which are SMEs, directly employing approximately 1.2 million people and 3.6 million indirectly.
- The EU has a comprehensive framework comprising approximately 40 legislative instruments including the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)[10], the Regulation on the Classification, Labelling and Packaging of hazardous substances (CLP)[11] and amongst many others the legislation addressing the safety of toys, cosmetics, biocides, plant protection products, food, carcinogens in the workplace as well as legislation on environmental protection.
- Human biomonitoring studies in the EU point to a growing number of different hazardous chemicals in human blood and body tissue, including certain pesticides, biocides, pharmaceuticals, heavy metals, plasticisers and flame retardants[12]. Combined prenatal exposure to several chemicals has led to reduced foetal growth and lower birth rates[13].
- 84% of Europeans are worried about the impact of chemicals present in everyday products on their health, and 90% are worried about their impact on the environment[14].

Nevertheless, in order to develop and deploy the sustainable chemicals that enable the green and digital transitions and to protect environment and human health, in particular that of vulnerable groups[15], **innovation for the green transition of the chemical industry and its value chains must be stepped up and the existing EU chemicals policy must evolve and respond more rapidly and effectively to the challenges posed by hazardous chemicals.** This includes ensuring that all chemicals are used more safely and sustainably, promoting that chemicals having a chronic effect for human health and the environment - substances of concern[16] – are minimised and substituted as far as possible, and phasing out the most harmful ones for non-essential societal use, in particular in consumer products.

[9] CEFIC, Facts and Figures Report, 2020.

[10] Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals. *OJ L 396, 30.12.2006.*

[11] Regulation (EC) No 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures. *OJ L 353, 31.12.2008.*

[12] European Commission, Study for the Strategy for the Non-Toxic Environment, p. 123.

[13] *Ibid.*

[14] Eurostat, Eurobarometer, 2020.

[15] For the scope of this Strategy, vulnerable groups are those populations more vulnerable to chemicals exposure, because for different reasons have a higher sensitivity or a lower threshold for health effects, are more exposed or more likely to be exposed, or have a reduced ability to protect themselves. Vulnerable groups typically include pregnant and nursing women, the unborn, infants and children, the elderly people as well as workers and residents subject to high and/or long term chemical exposure.

[16] These include, in the context of this strategy and related actions, primarily those related to circular economy, substances having a chronic effect for human health or the environment (Candidate list in REACH and Annex VI to the CLP Regulation) but also those which hamper recycling for safe and high quality secondary raw materials.

A more coherent, predictable and stronger regulatory framework, combined with non-regulatory incentives, will drive the necessary innovation, deliver increased protection, while enhancing the competitiveness of the European chemical industry and its value chains. To ensure a level playing field between EU and non-EU players, the EU must ensure **full enforcement** of its rules on chemicals both internally and at its borders, and promote them as a gold standard worldwide, in line with our international commitments.

The **COVID-19 pandemic** has not only added to the urgency to protect human and planetary health but it has also made us aware that manufacturing and supply chains have become increasingly complex and globalised for some critical chemicals, such as those to produce pharmaceuticals. The EU must strengthen its **open strategic autonomy** with **resilient value chains** and diversify sustainable sourcing for those chemicals that have essential uses for our health and for achieving a climate-neutral and circular economy.

This strategy highlights the areas where the Commission wants to make greater progress, in **close concertation with stakeholders** to fine-tune these objectives as part of rigorous impact assessment processes building on the ample evidence already gathered on the performance of existing legislation[17]. The Commission will establish a **high-level roundtable** with representatives from industry including SMEs, science and the civil society to realise the strategy's objectives in dialogue with the stakeholders concerned. Discussions of the roundtable are envisaged to focus in particular on how to make the chemicals legislation work more efficiently and effectively and how to boost the development and uptake of innovative safe and sustainable chemicals across sectors.

2. TOWARDS A TOXIC-FREE ENVIRONMENT: A NEW LONG-TERM VISION FOR EU CHEMICALS POLICY

Almost 20 years after the first strategic approach to chemicals management in Europe[18], the time has come to chart a **new long-term vision for the EU's chemical policy**. In line with the European Green Deal, the strategy strives for a toxic-free environment, where **chemicals are produced and used in a way that maximises their contribution to society including achieving the green and digital transition, while avoiding harm** to the planet and to current and future generations. It envisages the EU industry as a **globally competitive player** in the production and use of **safe and sustainable chemicals**. The strategy proposes a clear roadmap and timeline for the transformation of industry with the aim of attracting investment into safe and sustainable products and production methods.

[17] This includes recent fitness checks and evaluations of EU chemical legislation.
[18] COM(2001) 88.

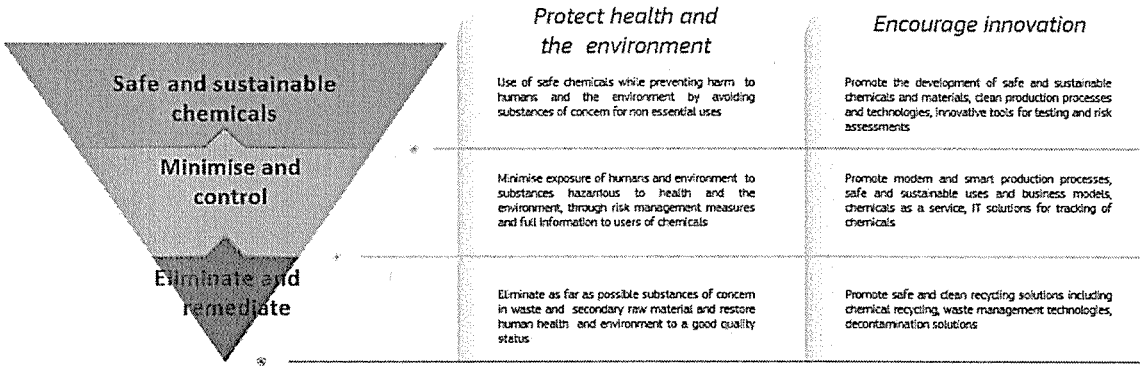


Figure: The toxic-free hierarchy – a new hierarchy in chemicals management

This strategy sets a pathway towards implementation of this vision through actions to support innovation for safe and sustainable chemicals, strengthen the protection of human health and the environment, simplify and strengthen the legal framework on chemicals, build a comprehensive knowledge base to support evidence-based policy making, and set the example of sound management of chemicals globally.

2.1. Innovating for safe and sustainable EU chemicals

The transition to chemicals that are **safe and sustainable by design** is not only a societal urgency but also a great economic opportunity, as well as a key component of EU's recovery from the COVID-19 crisis. Considering the trends in global chemical production, this is an opportunity for the EU chemical industry to regain competitiveness by further developing safe and sustainable chemicals and to bring sustainable solutions across sectors, notably for construction materials, textiles, low-carbon mobility, batteries, wind turbines and renewable energy sources. The Commission proposal on Next Generation EU, and its Recovery and Resilience Facility, provides for EU Member States to invest in projects that facilitate the green and digital transition of EU industries, including in the chemical sector, and boost the competitiveness of sustainable EU industry. The transition to sustainable chemicals will also be mindful of socio-economic consequences including employment impacts on specific regions, sectors, and workers.

2.1.1. Promoting safe and sustainable-by-design chemicals

Europe has frontrunner companies and the scientific and technical capacity to lead the transition to a **safe and sustainable-by-design approach**[19] **to chemicals.** Regulatory and market initiatives have to a large extent been established, but substitution of most harmful substances has not occurred at the expected pace[20] and frontrunners still encounter major economic and technical barriers[21]. This transition needs **stronger policy and financial**

[19] At this stage, safe and sustainable-by-design can be defined as a pre-market approach to chemicals that focuses on providing a function (or service), while avoiding volumes and chemical properties that may be harmful to human health or the environment, in particular groups of chemicals likely to be (eco) toxic, persistent, bio-accumulative or mobile. Overall sustainability should be ensured by minimising the environmental footprint of chemicals in particular on climate change, resource use, ecosystems and biodiversity from a lifecycle perspective.

[20] Eurostat, Chemicals production and consumption statistics, 2020.

[21] Wood and Lowell Center for Sustainable Production, Report for the European Commission 'Chemicals innovation action agenda', 2019.

support, as well as advice and assistance in particular for SMEs, and requires a concerted effort from all: authorities, businesses, investors and researchers.

Regulatory tools[22] need to be exploited to **drive and reward** the production and use of safe and sustainable chemicals. It is particularly important to incentivise industry to prioritise innovation for substituting, as far as possible, substances of concern[23]. Moving to safe and sustainable-by-design chemicals, including to sustainable bio-based chemicals[24], and investing in finding alternatives to substances of concern is crucial for human health and the environment, as well as an important precondition for reaching a clean circular economy.

SAFE AND SUSTAINABLE-BY-DESIGN

The Commission will:

- develop **EU safe and sustainable-by-design criteria for chemicals**;
- establish an **EU-wide safe and sustainable-by-design support network** to promote cooperation and sharing of information across sectors and the value chain and provide technical expertise on alternatives;
- ensure the **development, commercialisation, deployment and uptake of safe and sustainable-by-design** substances, materials and products through financial support[25] – in particular to SMEs – under Horizon Europe, cohesion policy, the LIFE programme, other relevant EU funding and investment instruments and public-private partnerships;
- map and address **safe and sustainable-by-design skills** mismatches and competence gaps, and ensure adequate skills at all levels - including in vocational and tertiary education, research, industry and among regulators;
- establish, in close cooperation with stakeholders, **Key Performance Indicators** to measure the industrial transition towards the production of safe and sustainable chemicals;
- ensure that the **legislation on industrial emissions** promotes the use of safer chemicals by industry in the EU by requiring on-site risk assessments and by restricting the use of substances of very high concern.

2.1.2. Achieving safe products and non-toxic material cycles

In a clean circular economy it is essential to boost the production and uptake of **secondary raw materials** and ensure that both primary and secondary materials and products are always safe. The recently adopted circular economy action plan[26] has shown that this requires a combination of actions upstream, to ensure that products are safe and sustainable-by-design, and downstream, to increase safety of and trust in recycled materials and products. However, the creation of a well-functioning market for secondary raw materials and the transition to

[22] Under REACH, in line with the review of REACH, COM(2018)0116, action 5, and other legislation, such as the Ecolabel Regulation, the Ecodesign and Industrial Emissions Directives.
[23] Please see footnote 16.
[24] In line with the Bioeconomy Strategy, COM(2018) 673; the environmental sustainability of bio-based chemicals should be proven from a full life-cycle perspective.
[25] Subject to compliance with applicable State aid rules.
[26] COM(2020) 98.

safer materials and products is being slowed down by a number of issues, in particular the **lack of adequate information on the chemical content** of products[27]. Consumers, value chain actors as well as waste operators therefore cannot make informed choices.

To move towards toxic-free material cycles and clean recycling and ensure that **"Recycled in the EU"** becomes a benchmark worldwide, it is necessary to ensure that **substances of concern in products and recycled materials** are minimised. As a principle, the same limit value for hazardous substances should apply for virgin and recycled material. However, there may be exceptional circumstances where a derogation to this principle may be necessary. This would be under the condition that the use of the recycled material is limited to clearly defined applications where there is no negative impact on consumer health and the environment, and where the use of recycled material compared to virgin material is justified on the basis of a case by case analysis.

Regulatory actions need to go hand-in-hand with increased investments in **innovative technologies** to address the presence of **legacy substances in waste streams,** which could in turn allow to recycle more waste[28]. This is particularly important for certain plastics and textiles. Sustainable innovations and technologies will have to be developed for this purpose. Technologies such as chemical recycling could also have a role but only if they ensure an overall positive environmental and climate performance, from a full life cycle perspective.

NON-TOXIC MATERIAL CYCLES

The Commission will:

- minimise the **presence of substances of concern in products** by introducing requirements, also as part of the Sustainable Product Policy Initiative, giving priority to those product categories that affect vulnerable populations as well as those with the highest potential for circularity, such as textiles, packaging including food packaging, furniture, electronics and ICT, construction and buildings;
- ensure availability of **information on chemical content and safe use**, by introducing information requirements in the context of the Sustainable Product Policy Initiative and tracking the presence of substances of concern through the life cycle of materials and products[29];
- ensure that **authorisations and derogations** from restrictions for recycled materials under REACH are exceptional and justified;
- support **investments in sustainable innovations**[30] that can decontaminate waste streams, increase safe recycling and reduce the export of waste, in particular plastics and textiles;
- develop **methodologies for chemical risk assessment** that take into account the whole life cycle of substances, materials and products.

[27] COM(2018) 32.
[28] *Ibid.*
[29] Notably, building on ECHA's SCIP database, ongoing work on REACH review (action 3), COM(2018)0116, and the development of product passports.
[30] Taking into account the relevant State aid rules.

2.1.3. Greening and digitalising the production of chemicals

Chemical production is one of the most polluting, energy and resource-intensive sectors and is closely integrated with other energy-intensive sectors and processes. While the European chemical industry has already invested in improved manufacturing plants, the green and digital transition still requires significant investments for the sector[31]. **Novel and cleaner industrial processes and technologies** would help not only to lower the environmental footprint of chemicals production but also to reduce costs, improve market readiness and create new markets for the European sustainable chemicals industry.

Energy efficiency must be prioritised in accordance with the ambition of the European Green Deal, and fuels such as renewable hydrogen and sustainably produced biomethane could play a decisive role for the sustainability of energy sources[32]. **Digital technologies** – such as the internet of things, big data, artificial intelligence, smart sensors and robotics – can also play an important role in greening manufacturing processes. In addition, **chemical innovations** can bring sustainable solutions across sectors to reduce the overall environmental footprint of production processes.

Beyond the role played by technology, **innovations in business models** can be an important driver for the green transition of the industry producing and using chemicals. Opportunities to shift from traditional production and use of chemicals to **chemicals as a service**[33] should be explored and promoted. Such innovations could optimise the use of expertise and ensure resource efficiency during the entire life cycle, as well as encourage place-based innovation and the involvement of SMEs. These developments will be supported by the EU sustainable finance taxonomy[34], to help guide funds towards the manufacturing and use of environmentally sustainable chemicals.

INNOVATING INDUSTRIAL PRODUCTION

The Commission will support, through its financial instruments and research and innovation programmes[35]:

- research and development in **advanced materials** for applications in the energy, construction, mobility, health, agriculture and electronics sectors to deliver the green and digital transition;
- research, development and deployment of **low-carbon and low environmental impact chemical and material production processes;**
- research and development of **innovative business models** such as performance-based business model to ensure a more efficient use of chemicals and other resources and

[31] EEA, Industrial pollution in Europe; State of the environment and outlook report, 2020.

[32] The hydrogen strategy for a climate-neutral Europe underlines the need for demand-side support measures, and for an uptake of renewable hydrogen in specific end-use sectors such as the chemical sector. Such quotas or minimum shares could also be considered for other renewable fuels such as bio methane. COM(2020) 301.

[33] 'Chemicals as a service' includes chemicals leasing but also the leasing of services such as logistics, development of specific chemical processes and applications, and waste management.

[34] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088. The Commission will adopt delegated acts to specify technical screening criteria for how and when economic activities can qualify as environmentally sustainable.

[35] The European structural and investment funds, the Just Transition Mechanism, InvestEU, the Strategic Investment Facility, React-EU, Horizon Europe and the Digital Europe programme.

the minimization of wastes and emissions;

- **re-skilling and up-skilling the workforce** involved in the production and use of chemicals towards the green and digital transition;
- **access to risk finance**, in particular for SMEs and start-ups;
- development and deployment of infrastructure allowing to switch to the **use, transport and storage of electricity** from renewable / carbon-neutral energy sources for the production of chemicals;
- increase the **current deployment rate of available technologies** for manufacturing purposes such as internet of things, big data, artificial intelligence, automation, smart sensors and robotics.

2.1.4. Strengthening the EU's open strategic autonomy

Over the past decades, manufacturing and supply chains have become increasingly complex and globalised for **some critical chemicals**, e.g. raw materials, intermediates, active pharmaceutical ingredients. The COVID-19 pandemic has highlighted that the **limited number of suppliers** for some chemicals used in essential societal applications may pose risks, for example to the availability of medicines and to EU's capacity to **respond to health crises**. EU's resilience to supply disruptions is not only key to guarantee availability of chemicals used in health applications but also for achieving the overall **sustainability goals as set in the European Green Deal**, including technologies for climate neutrality, such as batteries, wind turbines and photovoltaics, for clean material circularity and for the zero pollution ambition.

A more resilient economy and healthcare systems requires the existing chemical production capacity in the EU to thrive, sufficiently diversified sources of supply and a better management of the risk of disruption at all levels, strategic reserves and stockpiling, as well as mechanisms to ensure that supply chains can continue to operate unaffected in case of a crisis.

STRENGTHENING EU'S OPEN STRATEGIC AUTONOMY

The Commission will:

- in line with the European Council Conclusions of October 2020 and the announced update of the Industrial Policy Communication, identify **strategic dependencies** and propose measures to reduce these dependencies;
- identify **strategic value chains** in particular for technologies and applications relevant for the green and digital transition where critical chemicals are important building blocks;
- engage with stakeholders to increase the Union's **strategic foresight on chemicals**;
- promote **interregional collaboration along sustainable chemicals value chains**, through smart specialisation[36], in order to accelerate the development of joint investment projects;
- promote the EU's **resilience of supply** and **sustainability** of chemicals used in

[36] Within the EU's cohesion policy, smart specialisation is a place-based approach.