Council of the European Union

Brussels, 18 January 2018
(OR. en)

5479/18
ADD 1

ENV 38
COMPET 31
IND 24
RECH 26
ECOFIN 40
ECO 7
SOC 23
SAN 35
CONSOM 15
MI 38
CHIMIE 3
ENT 8

COVER NOTE

From:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	17 January 2018
To:	Mr Jeppe TRANHOLM-MIKKELSEN, Secretary-General of the Council of the European Union
No. Cion doc.:	SWD(2018) 20 final
Subject:	COMMISSION STAFF WORKING DOCUMENT Accompanying the document COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on the implementation of the circular economy package: options to address the interface between chemical, product and waste legislation

Delegations will find attached document SWD(2018) 20 final.

Encl.: SWD(2018) 20 final

EUROPEAN
COMMISSION

Strasbourg, 16.1.2018
SWD(2018) 20 final

COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

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

on the implementation of the circular economy package: options to address the interface between chemical, product and waste legislation

{COM(2018) 32 final}

COMMISSION STAFF WORKING DOCUMENT

accompanying the document

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

on the implementation of the circular economy package: options to address the interface between chemical, product and waste legislation

(Text with EEA relevance)

INTRODUCTION

The Commission adopted, in its Circular Economy Communication of December 2015[1], the circular economy action plan which stressed the importance of developing a well-functioning single market for secondary raw materials. This challenge can be met if the legislative framework for materials that travel through the cycle (primary materials, products, waste, secondary raw materials) functions at all levels within the single market.

The development of strategic approaches on chemicals and on plastics was also announced in that Communication. At the heart of the strategic approach on chemicals is the task of analysing, developing and choosing options on the interface between chemicals, products and waste legislation. The results of the interface analysis, which are relevant to all waste streams and recycled materials, will feed into the future EU strategy for a non-toxic environment and will also inform the implementation of the plastics strategy, in particular its objective of improving the economics and quality of plastics recycling.

The objectives of the task, as set out in the Circular Economy Communication are two-fold:

> (1) enabling recycling and improving the uptake of secondary raw materials, by limiting unnecessary burdens, and facilitating the cross-border circulation of secondary raw materials to ensure that they can be traded easily across the EU; and
>
> (2) substituting chemicals of concern and, where this is not possible, reducing their presence and improving the ability to track such substances in both products and waste.

These two objectives, one stemming from waste policy and the other from chemicals policy, have often been perceived to be in opposition and have given rise to claims that the one policy area impedes on the fulfilment of the objectives of the other (see Box 1).

Furthermore, policies on product design have until now focused more on energy efficiency achieved in the use phase of the product and less on material design and composition for

[1] COM(2015) 614 final of 02.12.2015.

circularity, durability and reparability. The Communication on options to address the interface between chemical, product and waste legislation puts forward the idea that the chemical objectives of substitution, reduction and control of substances of concern are not only complementary, but necessary policy elements which embody the implementation of waste prevention which is the first priority of the waste hierarchy in the Waste Framework Directive[2].

Box 1: An example of the interface problem — DEHP in PVC

Flexible PVC from post-consumer waste can contain up to 20 % of the plasticiser substance DEHP[3]. This plasticiser is classified as hazardous due to its adverse effects on the human reproductive system. It is known to be an endocrine disruptor and is subject to certain use restrictions and to authorisation under REACH[4].

PVC containing DEHP is classified as a hazardous mixture under the Regulation on Classification, Labelling and Packaging[5] (CLP Regulation) but in practice, the mixture is sometimes misclassified and managed as non-hazardous waste by some waste operators based on claims of lack of bioavailability of the substance. When such PVC containing DEHP is then recovered in the EU, it must comply with REACH restrictions, is subject to authorisation under REACH and must comply with the REACH and CLP rules for hazardous mixtures in order for it to reach end-of-waste status.

There are no EU harmonised or national end-of-waste criteria applicable for PVC waste containing DEHP and there are no relevant national case-by-case decisions. Yet, a number of recycling companies applied for authorisation to use the recycled material under REACH considering their PVC containing DEHP no longer to be in the waste phase. Authorisation was granted under REACH on the condition that the recycled PVC containing DEHP actually had ceased to be waste in accordance with the Waste Framework Directive[6].

Lack of harmonisation and different interpretations between Member States of waste classification and end-of-waste provisions in the Waste Framework Directive have led to significant uncertainties about the conditions under which operators must continue to manage and trade the material as waste rather than as a product. This leaves such operators in a difficult situation. Given that some 231 000 tonnes of flexible PVC are reported to be recycled in Europe in 2016[7], these uncertainties do not promote confidence in the recovered material or further investment by recovery operators.

[2] Directive 2008/98/EC of the European Parliament and of the Council on waste (OJ L 312, 22.11.2008, p. 3–30). Article 4(1) of the Directive establishes the following waste hierarchy to apply as a priority order in waste prevention and management legislation and policy: prevention; preparing for re-use; recycling; other recovery, e.g. energy recovery; and disposal.
[3] Bis(2-ethylhexyl) phthalate.
[4] 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) (OJ L 396, 30.12.2006, p. 1–849)
[5] 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 (OJ L 353 31.12.2008, p.1)
[6] Article 6 of the Directive 2008/98/EC sets out the conditions necessary to achieve end-of-waste status.
[7] VinylPlus Progress report 2017. Figure includes the sum of material reported recycled as flexible PVC, flexible PVC applications and cable waste.
https://vinylplus.eu/uploads/downloads/VinylPlus_Progress_Report_2017.pdf

This case illustrates the following frictions:

- PVC containing DEHP is considered not hazardous by certain operators under waste legislation, but as hazardous under CLP and REACH leading to confusion and possible market disruption when PVC containing DEHP ceases to be waste;

- PVC containing DEHP is subject to different risk management measures in the waste phase, where it is not necessarily considered hazardous, and under REACH, where it is hazardous, leading to competitive inequalities and different levels of protection; and

- Uncertainties regarding if and when PVC containing DEHP ceased to be waste, complicating national enforcement and suboptimal use of resources.

This staff working document accompanying the Communication on Options to Address the Chemical, Product and Waste Interface, reports on the analysis performed by the Commission on the interface between chemical, products and waste legislation. It identifies the pertinent issues at the interface between chemical, products and waste legislation, largely supported by the responses from interested parties to the targeted consultation and proposes options on the way forward.

The policy options have emerged based on broad discussions between, and feedback received from, Member State authorities for waste management and chemicals management and other interested parties but do not indicate a final position of the Commission and are only listed to enable an informed debate. Future discussions with the European Parliament, the Council and interested parties will enable choosing options and defining specific actions at a general or sectorial level for the development of markets for sustainable secondary raw materials.

1. THE VISION

For any recovered material[8], its competitive position in the market, vis-à-vis the primary material it replaces, is strongest when it is as close as possible to the primary material in its price, performance and quality, ensuring that the recovered material may be suitable for a broad range of uses. This does not necessarily mean direct equivalence to primary materials- rather, recovered materials, just like primary materials, can be marketed under different grades or qualities.

The overarching vision inspiring the development of the policy options in this document is therefore:

[8] It should be noted that, in the framework of waste and chemical legislation, it is legally possible for a "recycled material" to still be regarded as "waste" (see Case C-444/00: The Queen on the application of Mayer Parry Recycling Ltd v. Environment Agency and Secretary of State for the Environment, Transport and the Regions). In order to avoid confusion in the Communication and staff working document as to whether a material that has undergone a recycling operation is a "waste" or a "product", the Commission makes the following distinction:

a) "recycled material" refers to material that has undergone a recycling operation but in some cases may still be regarded as "waste" (for example because the resulting material has not been reprocessed into materials comparable to the original one from which they originate and thereby the recycling process cannot be seen as completed);

b) "recovered material" refers to substances, mixtures and articles that have ceased to be waste in accordance with Article 6 of the Waste Framework Directive and meet their REACH requirements.

Materials should be safe, fit-for-purpose and designed for durability, recyclability and low environmental impact. These materials and the articles made from them should, to the extent possible, be designed, manufactured, traded and recycled free from substances of concern. The reason being that they may be reused and eventually disposed of in a way that maximises the materials' economic benefits and utility to society while maintaining a high level of human health and environmental protection.

For materials not fulfilling this overarching vision, the policy options in this document aim to launch a reflection on the appropriate balance between the overall long term benefits from circular use of a material and the overall long term health and environmental concerns relating to substances present in that material.

2. THE INTERACTION BETWEEN CHEMICALS, PRODUCTS AND WASTE POLICIES

The chemicals and waste policy areas have been converging over the last decade. This is illustrated by the synergies work undertaken by the three UN conventions on chemicals and waste (the Basel Convention[9], the Rotterdam Convention[10] and the Stockholm Convention[11]), but most clearly recognised by mutual target 4 of the Sustainable Development Goal 12:

"By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment."

The chemicals policy objective indeed fits well with the waste policy objective. This becomes evident when both policies are viewed using the waste hierarchy. Eliminating substances of very high concern, substituting hazardous chemicals with less hazardous ones and, where this is not possible, minimising the use of substances of concern and tracking them, are pre-requisites of the first step in the waste hierarchy: prevention. The best way to prevent substances of concern in waste is by avoiding their use in products in the first place. This in turn is consistent with the priorities of the waste hierarchy, leading to high quality recovery, including preparation for re-use and recycling, in an environmentally sound way while ensuring high standards of protection of human health.

Friction between the two policy objectives occurs when the contamination of the waste material is due to the presence of legacy substances. The term, legacy substances, refers to substances whose use was lawful in products at the time of their production but which have subsequently been subjected to regulatory control by the time those products become waste. As our knowledge about substances of concern improves, the problem arises of how to deal with newly regulated substances present in older products- see the example in Box 1. Legacy substances in waste are therefore an inherent problem caused by the time difference between restrictions on substances entering into force and the time it takes for products containing such substances to reach the end of their service life and become waste.

[9] Basel Convention on the control of transboundary movements of hazardous wastes and their disposal, which was adopted on 22 March 1989 (OJ L 39, 16.2.1993, p. 3)
[10] Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade, which was adopted on 10 September 1998 (OJ L 63, 6.3.2003, p. 29)
[11] Stockholm Convention on Persistent Organic Pollutants, which was adopted on 22 May 2001(OJ L 209, 31.7.2006, p. 3)

The composition of waste streams is not fully predictable or constant. Beyond the presence of substances of concern, materials may also be affected by incidental contamination. Such contamination originates from multiple sources, and includes for instance impurities in the waste materials, substances from the use-phase and misuse, degradation products of the material, incomplete separation of materials between waste streams, and cross contamination with other products. This can jeopardise future uses of the material in demanding applications, such as in food packaging. In such cases, decontamination technology or analytical and quality control approaches, may be the only feasible way to guarantee that the supply of recycled materials is safe for specific end-uses.

The chemicals and product policy objectives are identical from the perspective of chemical safety. In a circular economy context, product policy adds the additional objectives of durability, reparability and recyclability of materials. Additionally, there is potential to adapt existing specific product legislation (e.g. on toys, cosmetics, electrical and electronic equipment[12], fertilisers, etc.) and to explore the potential of the Ecodesign Directive to further control the presence of substances of concern in articles.

3. CONTEXT, FUTURE OUTLOOK AND CHALLENGES

Progressing towards circularity will require a much better understanding of the barriers that currently exist to the uptake of secondary raw materials that can replace primary material at a reasonable cost and with the lowest possible use of resources (energy, water, etc.). Elements such as availability and sourcing of suitable waste streams for recycling, cross-border transport of waste, availability of innovative sorting and decontamination technologies, final recovered material quality, profit margins and price of the final recovered material and the existence of economic incentives are all relevant elements that have been identified. Furthermore, reputational and market perception issues can create barriers to the uptake of recycled materials (for instance some operators will never buy recycled material that has not exited the waste stage in accordance with Article 6 of the Waste Framework Directive).

Almost no products are produced without industrial chemicals. Therefore, they contribute significantly to human wellbeing and economic growth. Plastics, as well as many other materials such as paper, rubber, glass and steel, are man-made materials which require the use of multiple chemicals in their production. There are around 140,000 chemicals in use today and all goods on the market are made of chemicals.

However, many chemicals also pose human health and environmental threats[13]. As our knowledge about the properties of many chemicals increases, more substantial concerns arise about the negative impacts that chemicals may have on human health and the environment. When a chemical is identified as hazardous in accordance with EU legislation, the reality of decades of prior use of that chemical must be seen in a new light: it is not that the chemical

[12] The Commission is mindful about concerns on potential overlaps between REACH and specific product legislation. This matter has been addressed in relation to the RoHS Directive and the POPs Regulation via the publication of 'Common understanding papers' which define how to address the interaction between the two legislations and REACH.

[13] A 2017 study carried out by consumer groups in a number of Member States found that a third of the 65 samples of fast food packaging tested contained high levels of certain fluorinated substances (PFAS) which are highly persistent and tend to accumulate in material cycles. A Danish test of three random pizza boxes found levels of PFAS which were far in excess of the national guideline limit value (Forbrugerrådet 2015) http://kemi.taenk.dk/bliv-groennere/fast-food-packaging-contains-unwanted-fluorinated-substances

has suddenly become hazardous, rather it has always been hazardous throughout those years of use. Decisive action will therefore be required to manage the risks of current uses of the substance and also to address the issue of historic uses of the substance which may have resulted in exposure, including via legacy substances in products. Concerns for some substances such as lead and arsenic have been known or suspected for centuries, whereas for other substances, such as substances associated with smoking or asbestos, concerns are much more recent. Some substances are only coming under scrutiny in the last few years, such as per-fluorinated compounds, and endocrine disrupting chemicals. In the EU, REACH is the main tool to obtain information about the properties of relevant chemicals and to ensure their safe use.

Most materials are currently produced, consumed and disposed of in a linear economy and the presence of ever increasing numbers and volumes of chemicals and the ever increasing complexity of materials might even reinforce such linearity in the future due to difficulties associated with removing or managing the component chemicals in a way that enables their further use after the initial material becomes waste.

More than 80% of the environmental impact of a product is determined at the design stage[14]. It is therefore at the design stage that, to a large extent, a substance of concern (discussed further in Section 4.1.2) can be avoided, substituted or limited, that the use of secondary raw materials is decided, and where decisions to enable durability, repair, reuse, remanufacturing and recycling at the end of product life are made.

Society's demands on materials keep increasing which leads to more complex and specialised development of materials (sometimes towards single intended uses), greater variety of compositions, smaller parts and the use of larger quantities of chemicals. These demands also lead to more specifications on the quality of starting materials. Supply chains are getting ever more global and specialised and demand for products keeps growing with an increasing share of the population in developing countries gaining access to consumer markets.

In effect, circularity will require making better and sustainable decisions at the material design stage, for product designers to work closer together with recycling engineers and may also need recycling activities to be as sophisticated and innovative as the original material production. This means developing materials:

1) which, through recycling, maintain their original material properties;
2) where unwanted substances can be extracted; and
3) which are compatible with a safe and sustainable performance throughout their life-cycle, including final disposal, with respect to human health and the environment.

This in turn requires sustained long term investment and support, from both public and private sources, into research, development and creation of infrastructures to develop and implement innovative collection, sorting and decontamination technologies. This should enable better separation of materials by categories (for example, by type of constituent material or product type) and the effective removal of substances of concern in economically viable industrial

[14] Eco-design your future – How ecodesign can help the environment by making products smarter. European Commission 2012. https://publications.europa.eu/en/publication-detail/-/publication/4d42d597-4f92-4498-8e1d-857cc157e6db/language-en

processes[15]. The development of rapid and cost-effective analytical methods for the on-site screening of relevant substances of concern and the development of information systems and tracking technologies for substances of concern in articles are also important areas where further efforts are needed.

The switch from a linear to a circular economy therefore requires a long term strategy with a two-fold objective:

1) to embed circularity in the design of new materials; and
2) to address the challenges related to current and future materials which are not circular.

The options developed in this document aim to support these two objectives.

4. THE OPTIONS

The Commission has identified four main issues that are the focus of the chemical, product, waste interface. These four issues have been discussed with interested parties[16], who largely agreed with the Commission about their relevance and that options and possible actions to address them should follow. Another area identified by those interested parties is the use of ecodesign and other product policy instruments to address the chemical and waste related issues in products. The policy options proposed below are not necessarily exclusive of each other.

4.1. Insufficient information about substances of concern in products and waste

4.1.1. The issue

The information flow about the presence of hazardous substances in mixtures is ensured and regulated by the CLP Regulation and REACH. However, the provision of this information is not always ensured and its availability in the supply chain is reduced when substances or mixtures are incorporated into articles. Even less information is available when products become waste and are subject to recovery operations. The absence of this information may hinder the transition of materials from waste to product status and, further downstream, make it difficult to apply product, chemical and other legislation where such knowledge is needed. Some legislation does contain provisions requiring information exchange concerning mixtures and products (e.g. legislation on food contact materials) but, to date, it has proven difficult to apply these requirements as issues of confidentiality, complexity and lack of knowledge arise.

Our knowledge about the presence and content of chemicals of concern in imported products and access to information about such imports is a matter of particular relevance given that imported products are a large fraction of the total flow of many product types in the EU.

The rules set in REACH authorisation for substances in articles place the European producers at a disadvantage vis-à-vis non-EU producers importing into the EU. This lack of level playing field has been of concern since the adoption of REACH due to its consequences on

[15] A number of demonstration projects can be found on the web www.circularly.eu. For example, "Polystyrene Loop: Demonstrating the economic and technical viability of closed-loop recycling of polystyrene foam construction waste". http://www.circulary.eu/project/polysterene-loop/

[16] The Roadmap for the communication on the Options to Improve the Chemical, Product and Waste Interface was subject to public consultation. An outline of the Commission analysis on the interface was also subject to a targeted stakeholder consultation and has also been discuss in a dedicated meeting with national authorities competent for waste and chemicals.

the competitiveness of EU industry. Consequently, the options proposed to improve the flow of information in the supply chain for substances of concern in products and particularly the availability of relevant information to waste operators must also take into account this factor.

This means that:

- Recyclers often have at their disposal very limited or no information about substances of concern in the waste they treat. This leads to difficulties complying with REACH. For example, the exemption for recovered materials from the obligation to register in REACH[17] generates uncertainty about quality/fitness-for-purpose of recovered material. It also results in high reliance on complex and costly assessment strategies on incoming waste batches and on the final recycled material, including exhaustive sampling and analytical work.
- It is unclear whether recovered materials can be used for sensitive applications, such as medical devices, furniture, clothing, toys, or food contact materials. For example, in the latter sector, where the safety of recycled plastics is already regulated, only recovered PET is currently suitable to be used in food contact materials provided that adequate decontamination processes are used, while other recovered plastics cannot be used because of a lack of information on the possible presence of contaminants.
- Consumers have limited information about substances of concern in articles making it difficult for them to make informed purchase decisions.

This results in reduced trust in recovered materials, hinders investment in new recycling installations and impedes the market for secondary raw materials. In addition, reports by some consumer associations[18] and the Commission[19] indicate poor implementation of the limited supply chain communication obligations imposed by REACH[20].

4.1.2. Policy Objective and Options

The policy objective is *to ensure that appropriate information on substances of concern in products is available to all actors in the supply chain and ultimately also becomes available to waste operators. This will contribute to the promotion of non-toxic materials cycles and improve the risk management of chemicals during repair, reuse, remanufacture and in the waste recycling process*.

Challenge 1: Defining substances of concern

The implementation of the different options set out in this document is, to a large extent, influenced by the meaning given to the concept of 'substances of concern'.

[17] Subject to conditions as laid down in Article 2(7)(d) of REACH.
[18] ANEC Position Paper- July, 2017: https://www.anec.eu/publications/position-papers/694-keeping-hazards-in-the-circle-anec-position-paper-on-the-interface-between-chemicals-products-and-waste-legislation and BEUC Position Paper- July, 2017: http://www.beuc.eu/publications/beuc-x-2017-084_how_to_detoxify_the_circular_economy.pdf
[19] REACH Evaluation, 2017 Report [Adoption pending at the time of publication of this Staff Working Document]
[20] Title IV of REACH contains a number of obligations to communicate information on substances and mixtures, including the requirements for safety data sheets (Article 31), the duty to communicate information down the supply chain for substances and mixtures not requiring a safety data sheet (Article 32), the duty to communicate information on substances in articles (Article 33) and the duty to communicate information on substances and mixtures up the supply chain (Article 34). In particular Article 33 has been reported to be very poorly implemented.

Option 1 A: substances of concern are all substances identified under REACH as substances of very high concern ('candidate list substances') or listed in Annex VI to the CLP Regulation for classification of a chronic effect.

Option 1B: substances of concern are those identified under REACH as substances of very high concern, substances prohibited under the Stockholm Convention (POPs), specific substances restricted in articles listed in Annex XVII to REACH as well as specific substances regulated under specific sectorial/product legislation[21].

Precise identification of substances of concern, either in general or sectorial substance lists is important to provide certainty to operators and to keep the tracking of substances manageable. Such tracking solutions are not suitable for addressing the risk from incidental contamination, and other approaches, such as analytical methods, need to be considered.

Challenge 2: Tracking substances of concern

The options to be considered depend on the speed and means by which tracking of substances of concern should be introduced.

Option 2A: all substances of concern should be tracked by a set date, for example 2030.

Option 2B: sector-specific tracking solutions: information on relevant substances of concern should be available to recyclers in a form commensurate to what is required[22].

Option 2C: tracking of substances of concern should remain voluntary.

Option 2D: tracking of substances of concern is not necessary or suitable[23] because information on chemicals is obtained directly by analytical means (incoming waste batches, including imported waste, and outgoing recycled or recovered materials).

The role of enhanced supply chain collaboration, promoted by sectorial platforms[24], their associations or existing extended producer responsibility schemes will contribute to this objective.

Certain industries have recognised the necessity to track certain substances in their supply chains. A compilation of existing tracking systems has been published[25]. The costs would be

[21] Substances which pose technical problems for recovery operations, even if not specifically flagged from the toxicological point of view, could also be considered. Eurometaux reports in its contribution to the targeted stakeholder consultation that presence of bismuth is problematic for the recycling of copper, given it is very difficult to separate both metals.

[22] A recent study commissioned by the Swedish EPA to the company Goodpoint AB, regarding transfer of information on hazardous substances in the life-cycle of electrical and electronic equipment revealed that recyclers cannot manage detailed product information in an effective manner. This view has been supported on the consultation by a number of recyclers and engineering associations which point to the need for meaningful aggregated information per product type / category (e.g. flat-screens).

[23] It is noted that analytical means to determine the presence of incidental contaminants may already be in place in some supply chains and may become increasingly used for other materials as well. In such supply chains, the analytical approach may be more effective than tracking.

[24] Vinyl Plus, a programme developed by the PVC value chain is an example of such platforms. https://vinylplus.eu/

[25] Scientific and technical support for collecting information on and reviewing available tools to track hazardous substances in articles with a view to improve the implementation and enforcement of Article 33 of REACH. Published: 11/08/2017. https://publications.europa.eu/en/publication-detail/-/publication/58f951af-809b-11e7-b5c6-01aa75ed71a1/language-en/format-PDF

higher depending on the number of substances that are tracked, the earlier a system would be introduced and if the system would be obligatory. However the knowledge generated would also be higher, hence enabling an earlier switch to circularity and providing better protection for humans and the environment. The introduction of mechanisms that allow the legitimate protection of confidential business information will need to be taken into account.

4.2. Addressing the presence of substances of concern in recycled materials

4.2.1. The issue

Substances of concern may be present as constituents or impurities in recovered substances, mixtures or products made of recycled materials. The use of some of these substances of concern may now be banned or otherwise restricted even though they might be present in products already on the market or in waste streams as a consequence of their legitimate use in the past.

These substances of concern (known as 'legacy substances') may sometimes be very difficult or impossible to detect and remove in a viable manner from the material being recycled. They may present certain hazards that could pose a risk, during recycling or in subsequent stages in the life of the recovered material.

Currently there is no specific framework to deal with the presence of substances of concern in recycled materials and in articles made thereof. In particular, there is no agreed methodology to determine the overall costs and benefits for society of the use of recycled materials containing such substances compared to disposal, including, inter alia, the potential of recovering energy from the waste and the impacts of production of primary materials in case recycling is prevented. Specific solutions have been taken on an ad hoc basis (e.g. in considering some restrictions or authorisations under REACH or in the development of end-of-waste criteria), but overall, there is uncertainty for all interested parties.

4.2.2. Policy Objective and Options

The policy objective is *to enable recycling and improve the uptake of secondary raw materials by promoting non-toxic material cycles.*

Challenge 3: Level playing field between secondary and primary material

Uptake of secondary raw materials is governed, not only by price considerations but largely by the credibility of the material itself, which may be able to perform similarly to the equivalent comparable grade of the primary material and may ensure safe use. The current technical and economic feasibility of removing substances of concern is very case-dependent. In such cases where the recovered substance cannot fully match the quality of the primary substance, several options on how to proceed are possible.

> **Option 3A**: all primary and secondary raw materials should be subject to the same rules. For example, under REACH, restrictions and authorisation conditions imposed on primary substances should apply equally to recovered materials. Materials not meeting such requirements cannot be recycled and can only be destined to energy recovery, final disposal or to destructive chemical recycling (feedstock recycling).
>
> **Option 3B**: rules on primary materials could be derogated from for secondary materials, subject to conditions and to review within a defined time period. Such decisions should be substance-specific and based on overall costs and benefits to society according to an agreed methodology. The methodology includes considerations of risk, socioeconomic factors and overall environmental outcome

based on life cycle thinking[26]. Such analysis could lead to derogations resulting in closed-loop or controlled loop uses or other specific use restrictions. This is also applicable to products containing legacy substances where, in some cases, a careful analysis will have to be made, for example, on the trade-off between allowing reparability with spare parts containing substances of concern versus early decommissioning or obsolescence of equipment[27].

The ultimate aspirational goal should remain to approximate the performance and chemical composition of recovered materials as much as possible to that of comparable primary materials.

Challenge 4: Level playing field between EU-produced and imported articles

A very significant proportion of the products that become waste in the EU are imported from outside the EU, where often less restrictive chemical-related requirements apply. The difficulties in ensuring even minimal supply chain communication with non-EU suppliers and the legal impossibility to apply the REACH authorisation obligation to articles containing substances of very high concern manufactured outside of the EU clearly represents a barrier to achieving waste streams without substances of concern. Two options have been identified to address this challenge:

Option 4A: promoting the timely use of restrictions. Ensure the timely use of restrictions in REACH and other product legislation so that EU produced and imported products are subject to the same rules. In the case of REACH, restrictions are the only means to address the favourable treatment that imported articles (incorporation of substances of very high concern in imported articles is not subject to authorisation) have vis-à-vis EU produced articles (subject to authorisation).

Option 4B: promoting enforcement of chemicals and product legislation at EU borders.

The enhanced enforcement of existing legislation to prevent the entry of non-compliant products into the EU is necessary, not only to protect human health and the environment, but also to contribute to the availability of high quality material for recycling.

Challenge 5: Design for circularity

Option 5A: use of the Ecodesign Directive, or of other dedicated product specific legislation as appropriate (for example, WEEE or ROHS), to introduce requirements for substances of concern with the purpose of enabling recovery.

Option 5B: make use of the extended producer responsibility requirements under the Waste Framework Directive to promote the circular design of products. This could be implemented through the guidelines on the application of fees modulation.

[26] The Commission has launched a study on the development of an evidence-based approach as support to regulators when assessing how to manage the presence of substances of concern in recycled materials. This study, when completed by the end of 2018, will provide some insights on how this option could be implemented.
[27] The concept of 'Repair as produced', as applied under ROHS, allows spare parts for legacy equipment (i.e. sold before the phase-in date) to contain substances of concern which would otherwise be limited or restricted. Under REACH, the latest application dates and sunset dates for certain substances subject to authorisation have been extended to allow the use of those substances in spare parts for certain long life-cycle product sectors (e.g. automotive).

Option 5C: make use of voluntary methods of environmental performance certification (e.g. national or EU Ecolabel of green public procurement) to introduce rules for substances of concern.

Option 5D: promote voluntary approaches such as value chain platforms for exchange of good practice in the substitution of materials in the design phase.

These options, which can be combined, could be further explored in the context of the circular economy action plan under the action related to the development of a more coherent product policy framework which is better able to contribute to the circular economy. This action is planned for the end of 2018.

4.3. Uncertainties about how materials can cease to be waste

4.3.1. The issue

There are different interpretations and procedural regimes on the way waste can cease to be waste under the Waste Framework Directive. This situation generates legal uncertainty for operators (which in some cases has been reported to affect business opportunities)[28] and authorities. It may create difficulties in the application and enforcement of chemical and product legislation, which requires, as a starting point, to know whether a given material remains subject to waste legislation (either as hazardous or non-hazardous waste) or has ceased to be waste[29].

The procedural options open to Member States to allow waste to achieve end-of-waste status include *ex-ante* verification and decisions by competent authorities (on the basis of European, national or *ad hoc* criteria) and/or *ex-post* verification of 'self-assessment' by industry (be it or not underpinned by effective enforcement and/or notification systems). These options are currently being discussed by the Council and the European Parliament under the ordinary legislative procedure in the context of the Commission's proposal to review the EU Waste Framework Directive.

Millions of tonnes of substances, which industry believes have ceased to be waste under the general criteria provided in Waste Framework Directive, are placed on the EU market, having been registered under REACH, or benefiting from an exemption based on their recovered origin[30]. It is unclear to what extent Member States are currently allowing recyclers to place recovered substances and mixtures on the market as 'non-waste', without any effective oversight confirming or checking their non-waste status or whether the claimed REACH registration exemption actually applies.

This situation may:

[28] Eurofer and Eurometaux provided in their response to the consultation examples where discrepancies or difficulties in obtaining end-of-waste consideration (or by-product consideration) limit the possibility of recycling relevant high volume inorganic materials such as final copper slags, ferro-chromium and ferromolybdenum slags, all of which are considered products by the producers and have been registered under REACH.

[29] As referred to earlier (footnote 8), only materials (substances, mixtures) or articles that have ceased to be waste fall under chemicals and product legislation.

[30] Article 2(7)(d) of REACH exempts from registration substances which are recovered from waste in the EU, subject to certain conditions.

- generate legal uncertainty for operators and authorities (responsible for either waste, product or chemical legislation in a Member State where it is recovered and the Member State where it is used as a secondary raw material);
- create difficulties, in establishing and checking that all the conditions set in the Waste Framework Directive are met for a waste material;
- create difficulties, in the application and enforcement of chemicals and product legislation, which requires, as a starting point, to know whether a given material is still waste or has ceased to be waste (in order to determine the applicability of the appropriate legislation).

The current lack of certainty on how end-of-waste status can be achieved may hinder investment in recycling and deter the take-up of recovered materials. The reason for this is that operators often, for commercial and reputational reasons, are willing to acquire a material that is deemed to be 'recovered' but not a material that is deemed to be 'waste'[31].

Different approaches between Member States on end-of-waste considerations lead to delays or blockages in cross-border movement of recovered materials/waste, which, if not justified, could hinder achieving a single market for recovered materials.

In the targeted consultation of interested parties, a number of respondents have noted that similar problems to those reported here for end-of-waste also arise with regard to the classification of production residues as 'by-products' under EU waste legislation.

4.3.2. Policy objective and options

The policy objective is *to enable a well-functioning single market for waste and for recovered materials where no barriers exist to their free-movement within the EU due to lack of harmonisation in the interpretation or implementation of provisions on end-of-waste*.

Challenge 6: Improving certainty in the implementation of end-of-waste provisions

Option 6A: take measures at EU level to bring about more harmonisation in the interpretation and implementation by Member States of end-of-waste provisions laid down in the Waste Framework Directive. This option could include:

i. radically stepping up work on the development of EU end-of-waste criteria. This would therefore ensure that more waste streams are covered by clear EU-wide rules specifying which conditions need to be met to exit the waste regime and introducing support measures that would enable Member States to check compliance by recyclers with the exemption from REACH registration; or

ii. removing the registration exemption for recovered substances provided in REACH thus requiring that all recovered substances should be registered under REACH and thereby achieving end-of-waste status; or

[31] Eurometaux refers to the difficulties to overcome the prejudice associated with waste in a waste to product approach and explains how in Flanders (Belgium) FeMo slags are required to fulfil requirements both under the waste legislation as well as under product requirements for EC certification. Other examples include plastic converters, unwilling to accept plastic pellets which is still waste (source EuPR) or brick factories unwilling to accept end-of-life mineral wool growing media (source Rockwool BV Grodan).

iii. where other specific product legislation provides different instruments laying down conditions that ensure the safe placing on the market of a substance or mixture, recognise these conditions as effective end-of-waste criteria[32] and, where justified, introduce a specific exemption from REACH registration.

If rolled out ambitiously, option 6A(i) would require significant additional resources (e.g. in the form of an EU Waste Agency similar to European Chemicals Agency). As past experience shows that developing end-of-waste for individual waste streams typically takes two to three years, the criteria are likely to be controversial and rejected by decision-makers (example of paper end-of-waste criteria), suffer from low use by operators (metals, glass end-of-waste criteria) and may end up in complex legislative texts (similar to the Fertilisers Regulation).

Option 6A(ii) would place additional burdens on users of recovered substances as they would now be required to register under REACH, meaning that they will need to contribute to the data sharing agreements for registered substances (that are found to be the same as the recovered substance) and pay the registration fee.

Whichever option or combination of options above is chosen, a recurring request from waste operators, which is in line with the principles of better regulation, is to avoid duplicating burdens that result from having to comply with two sets of rules: one to exit the waste phase and one to comply with product requirements. It is imperative that there is adequate coherence between the waste and the product legislation to ensure that, by compliance with a single and clear set of requirements, the transition from waste to product can be achieved.

Option 6B: take measures to ensure more consistency of practices at Member State level. This option could include:

i. End-of-waste status can only be achieved following an *ex-ante* decision by a Member State competent authority;

ii. A recovery operator can make the assessment of whether end-of-waste status is achieved (in combination with an *ex-post* checking regime by competent authorities); or

iii. A combination of these approaches, e.g. distinguishing on the basis of the nature of specific waste streams.

The discussion on these three different approaches is currently ongoing as part of the ordinary legislative procedure of the waste proposals.

4.4. Difficulties in the application of EU waste classification methodologies and impacts on the recyclability of materials (secondary raw materials)

4.4.1. The Issue

The classification of waste as hazardous or non-hazardous, and, in particular, understanding when and under what circumstances waste is to be considered hazardous, is a crucial decision in the whole waste management chain, from generation to final treatment.

[32] An example of this could be the approach defined in Article 18 of the Commission proposal for a Regulation on Fertilisers, whereby end-of-waste status is recognised via compliance with the criteria set out for the different constituent material categories in the annex of this draft regulation.

When waste is correctly classified as hazardous, a number of important obligations are triggered, for instance on labelling and packaging, but also in terms of the appropriate compliant treatment. Incorrect classification of hazardous waste as non-hazardous may have significant negative consequences on the handling and treatment, including recyclability of the waste (e.g. contamination of recycling streams). On the other hand, the incorrect classification of waste as hazardous also has consequences, such as impacts on its management costs, including transport which, beyond other considerations, may directly affect the economic viability of its collection and recycling.

The main rules for the classification of waste are laid down in the 'List of Waste' and in Annex III to the Waste Framework Directive which lists 15 properties that may render waste hazardous. These rules determine whether the holder of waste needs to obtain a hazardous waste management permit.

Waste classification legislation was amended to be aligned with CLP, resulting in similar criteria for classification in CLP being applied to waste. However the rules sometimes include less restrictive limit values or criteria applied for the classification of waste. This process was a cumbersome and controversial exercise, taking seven years. The difficulties and differences were due to the relative cost and administrative burdens of identifying the chemical composition of waste streams and of handling hazardous waste compared to their value, together with the limited capacities of hazardous waste treatment facilities.

Inconsistent application and enforcement of waste classification methodologies, leading to waste being misclassified, or classified differently in different Member States or in different regions of the same Member State, may lead to uncertainty about the legality of waste management practices of certain important waste streams containing substances of concern. This is particularly relevant in the case of complex material such as minerals, plastics or glass.

The situation described has also been reported to lead to uncertainty for operators and authorities in cross-border movement of waste, resulting in delays or even refusal of entry and thereby resulting in an inefficient internal market for waste materials in the EU. Furthermore, in some cases, misclassification of waste could lead to poor management of risks during waste management and to potential risks to human health and to the environment.

4.4.2. Policy Objective and Options

The policy objective is *to ensure a more consistent approach between chemicals and waste classification rules*

Challenge 7: Approximating the rules for classification of chemicals and waste.

> **Option 7A**: the rules for classifying waste as hazardous or non-hazardous in Annex III of the Waste Framework Directive should be fully aligned with those for the classification of substances and mixtures under CLP. This should enable a smooth transition and placing on the market of secondary raw materials in full knowledge of their intrinsic properties.
>
> **Option 7B**: hazardousness of waste should be inspired by the classification of substances and mixtures under CLP, but not fully aligned with it. Specific considerations of each waste stream and its management may allow wastes to be considered as non-hazardous even if the recovered material will be hazardous when placed on the market as secondary raw material.

The significant difficulties in agreeing on new waste classification rules suggest that Option 7A may prove very challenging.

Challenge 8: Classifying waste taking into account the form in which it is generated.

Like some primary materials, the constituent substances of some types of waste may be retained, to a greater or lesser extent, in a matrix[33]. The issue of the bioavailability/bioaccessibility of such constituent substances and their bearing on the hazard properties of the material is currently being assessed by the Commission. Under product legislation, there is potential for the CLP Regulation to introduce such bioavailabilty considerations in hazard classification of substances and mixtures, although methodologies to assess this are still being developed. The waste legislation only recently provides this option for classifying waste for their ecotoxicity.

Given the relevance that proper classification of waste as hazardous or non-hazardous has in its subsequent management and potential for recovery, several options exist to address this issue.

> **Option 8A**: once the rules have been established under CLP, waste should also be classified taking into account the form in which it is produced, taking account of the bioavailability/bioaccessibility of the substances it contains, subject to reliable scientific information to support claims for reduced hazard classification.
>
> **Option 8B**: under Annex III of the Waste Framework Directive, waste should be classified exclusively based on the concentration of hazardous substances it contains, without further consideration of bioavailability or bioaccessibility.

5. NEXT STEPS

Following the publication of the Communication and of this document the Commission will launch a public consultation and encourage discussions with the European Parliament, the Council and interested parties to choose options and define specific actions at a general or sectorial level for the development of markets for sustainable secondary raw materials

The Commission will also cooperate with ECHA, Member States and interested parties on the relevant technical elements identified in this document.

[33] For example, in relative terms, certain plastic matrices could release a given substance more than a glass matrix; this means that the same hazardous substance (e.g. lead in plastics, lead in glass) would be less bioavailable from certain matrices than from others.