

5.1. Guidance

Prioritisation of CoCs for Action

This document is part of the *International Chemicals Management Toolkit for the Toy Supply Chain* developed by the United Nations Environment Programme (UNEP) in collaboration with the Baltic Environmental Forum (BEF) within the framework of the Global Environment Facility (GEF) project ID: 9771 on Global Best Practices on Emerging Chemical Policy Issues of Concern under the Strategic Approach to International Chemicals Management (SAICM).

This section offers guidance to users on how CoCs can be prioritised for action. It can be used by any actor in the toy supply chain and is supported by using a [chemicals inventory](#) to compile relevant information across different CoCs that may be contained in input materials and the own products. The [possibilities to act](#) include among other things the substitution of CoCs, which should include [a thorough assessment of alternatives](#) to identify suitable and sustainable solutions.

Overview of prioritisation steps

The following flow scheme suggests a structured approach to prioritising [chemicals of concern](#) for action. Start at the upper left corner of the scheme.

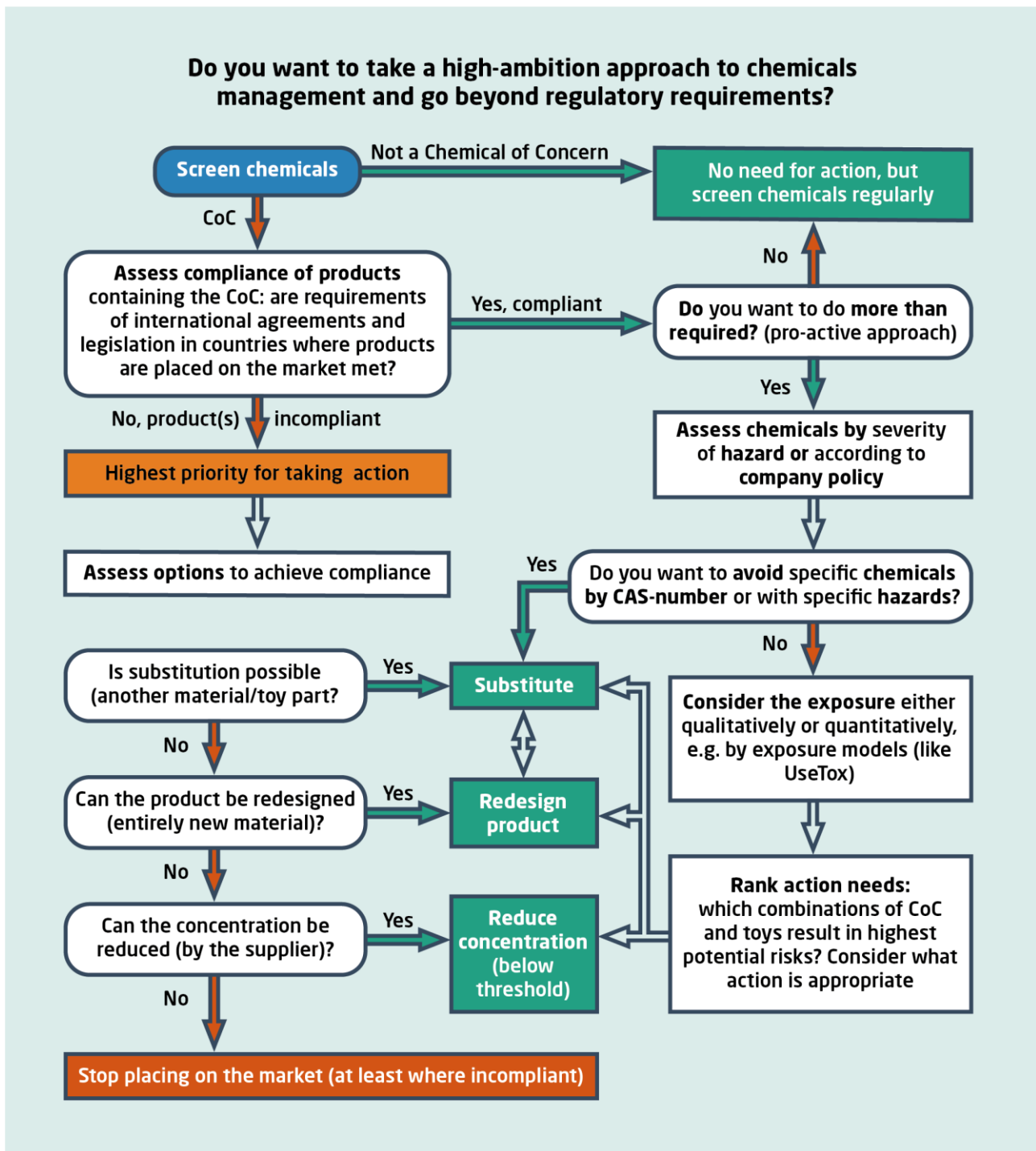


Figure 1: Flow scheme for prioritising CoCs for taking action.

Screen chemicals

Use [the inventory](#) to screen all of the chemicals that you know are contained in your input materials and identify which of them are CoCs, i.e., are regulated at international level or at national level in your target markets (Category 1 and 2) or have [chemical properties that could cause harm](#) to humans and the environment (Category 3). Exclude all chemicals that are not CoCs from your further work.

Assess compliance of products

For all CoCs, assess if they cause non-compliance with [relevant legislation](#). You may identify that the chemicals are regulated in international agreements (mostly in the form of bans or restrictions) or in national

legislation where you place your product on the market. Compliance is of utmost importance! Any non-compliance identified should therefore trigger immediate action to achieve compliance as soon as possible.

The bottom part of the flow chart presents a step-wise approach to manage chemicals in products that takes into account the achievable reduction in [risk and the opportunities to act](#). If less hazardous alternatives are available to replace a CoC and can be used, [substitution](#) is the most effective risk reduction option. However, it may also be the option requiring the highest effort.

It may also be possible to redesign a product, for example by choosing a different material or changing the production process (e.g., avoid glueing of parts by using other binders like screws). This option can be attractive as it may solve several aspects of non-compliances as well as technical issues and would also achieve a reduction in risk, if the alternative design eliminates the use of CoCs.

If the reason for non-compliance is an exceedance of legal concentration (or migration) limits, another option may be to reduce the concentration in the product. This may or may not require the use of additional chemicals to compensate for the concentration reduction.

There may be other requirements, e.g., on indicating the content of CoCs in toys in the documentation or the provision of proof that the concentrations are below the threshold values defined in the legislation. This is not indicated in the flow chart, as it requires managerial rather than material changes in the product and is less complex to implement.

If none of the options are possible, placing the non-compliant product on the market must be stopped.

Applying a high-ambition approach

The input materials of toys and the toys themselves may contain CoCs which are not (yet) regulated. In this case, you should consider whether your company wants to take a proactive approach [to go beyond legislation](#) and improve product performance as a [general policy and ambition](#).

If you **want to improve product performance**, you should be clear on which priorities you want to implement in the improvement of chemical safety. There are different options for how to define which CoCs you would like to address.

Hazard-based prioritisation criteria for acting on CoCs

The following are the potential **criteria to prioritise CoCs** for action, which may be combined with considerations of exposure (c.f. below). Please note that apart from a company policy of avoiding certain CoCs in general, the priorities are product specific, i.e. differ from one product to another. They may be driven by the substance classification (hazards) and the concentration of the CoC in the product or the migration rate (exposure). However, also other non-chemical reasons may support a priority such as the availability of safer alternatives, alternative design options, etc. An important criterion is the product use and potential exposure modes (e.g. mouth or skin contact) as an additional indicator for the need to act. This takes into account that exposure determines the level of risk and action is particularly needed to protect [children if exposure is relevant](#).

You may use one or several of the following criteria to guide your assessment of which CoCs need further action:

- Regulated chemicals in countries outside of your target market.
- Requests by customers to avoid the use of certain CoCs or sector standards.
- [CoCs with severe hazardous properties](#) that could cause harm to children, in particular:
 - carcinogenic, mutagenic and reprotoxic substances,

- respiratory and/or dermal sensitisers.
- CoCs which have been identified as causing damage to the environment: persistent, bioaccumulative and toxic substances (PBTs).
- Endocrine disruptors, which are currently being discussed as an [emerging concern, in particular for children as well as neurotoxic chemicals](#).

Regulated chemicals in countries outside of your target market

Complying with chemicals regulations in countries that are not your target markets and that have stricter requirements # Section 2_5_going beyond on toy safety can have two advantages: a) the need to take action has been identified by the authority in that country, indicating that there is a strong concern, i.e., prioritisation is reliable and based on expert assessments b) ensuring compliance with those regulations can enable the expansion of your market.

Requests by customers to avoid the use of certain CoCs or sector standards

If your customers ask for the use of certain chemicals to be avoided, this can be a strong incentive to prioritise chemicals for action.

CoCs with chemical properties of concern

Many companies have policies to phase out chemicals which are hazardous to human health and the environment (ECHA 2020). In particular, substances that might cause severe health problems, like cancer, could be a high priority for you to take action on because they are candidates for future regulation. Additionally, acting on these substances can be a strong marketing argument as everybody will immediately understand the benefit and/or improvement in safety (e.g., reduced cancer risk).

The following table is based on the prioritisation criteria of the Green Screen™ methodology, which are based on the GHS classification (Green Screen 2018). The methodology is very complex and includes several other prioritisation criteria, which can be accessed [online](#). The criteria **marked in green** are mainly relevant for production processes, i.e., to protect workers from exposures to CoCs, or for chemical products that are used by consumers (e.g. finger paints for children; slimy toys). They are less relevant when prioritising CoCs for action in toys that are no chemical products (e.g. dolls, toy bricks).

Table 1: Possible prioritisation criteria based on the GHS suggested by GreenScreen™

Priority for taking action	GHS hazard classification
Very high	<ul style="list-style-type: none"> ● Acute Toxicity Categories 1 or 2 ● Systemic toxicity (Category 1, single exposure) ● Skin irritation (Category 1) and Eye irritation (Category 1) ● Acute aquatic toxicity (Category 1)
High	<ul style="list-style-type: none"> ● Carcinogenicity, Mutagenicity, Reproductive toxicity, Developmental Toxicity (Categories 1A and 1B) ● Acute Toxicity Category 3 ● Systemic toxicity (Category 2, single exposure and Category 1, repeated exposure) ● Skin and respiratory sensitisation (Category 1A) ● Skin irritation (Category 2) and Eye irritation (Category 2A) ● Acute aquatic toxicity (Category 2)
Moderate	<ul style="list-style-type: none"> ● Carcinogenicity, Mutagenicity, Reproductive toxicity, Developmental Toxicity (Category 2) ● Acute Toxicity Category 4 ● Systemic toxicity (Category 3, single exposure and Category 2, repeated exposure) ● Skin and respiratory Sensitisation (Category 1B) ● Skin irritation (Category 3) and Eye irritation (Category 2B) ● Acute aquatic toxicity (Category 3)

Low	Not classified based on sufficient data
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In addition to the above criteria, the [GreenScreen™](#) suggests criteria that are relevant for environmental concerns and emerging concerns that relate to the persistence, chronic aquatic toxicity and endocrine activity of substances.

PBTs and EDCs

If you aim at a high level of ambition and/or do not use any chemicals of concern in the groups listed before, you may choose to prioritise further CoCs, which are considered as ‘of emerging concern’. These include chemicals that are persistent, bioaccumulative and toxic or have endocrine disrupting properties. As these types of hazardous properties have only recently become a subject of discussion, few chemicals with these properties have already been regulated.

Exposure-based criteria for prioritising CoCs

The chemical hazards indicate the potential of chemicals to cause harm, while the exposure level will determine if and to what extent humans (children) will be in contact with the CoCs and thereby indicate the likelihood that damage will occur, i.e., is relevant to evaluate whether there is a [risk](#).

When prioritising CoCs based on the (expected) exposure and (potential) risk, the following table may support decision making and give some indication of the relevance of exposure. Several questions may apply to a single toy and the resulting priorities may contradict one another; here you must decide which question is the most far-reaching regarding exposure and the use of the toy. Further aspects may be considered and the following list of examples is not conclusive.

Table 2: Examples of questions indicating exposure levels of CoCs from toys

Question – Indication of exposure	Priority	Reason
Is the toy a chemical product (e.g. finger paint)?	Very high	Chemicals in mixtures are most likely to emit (over time), i.e. there is a high exposure level to be assumed in general.
Is the toy (to be produced from the polymer pellets, toy parts and other input materials) intended for children under 3 years?	High	Small children put anything into their mouth (close contact, possible ingestion) and are particularly vulnerable to chemicals
Is the CoC contained in outer parts of the toy (e.g. surface, accessible to the child) and may be scrubbed off (e.g. a lacquer)?	High	Direct contact possible, mouthing and touching Potential accumulation in house dust
Is the CoC diluted into a matrix material, for example, as an additive in a polymer compound	Medium	Migration of the CoC possible with eventual skin contact or evaporation
Is the CoC located in the interior of the toy (and enclosed in a container, e.g. a battery) and cannot be directly accessed by children?	Low	CoC is not accessible and is unlikely to migrate from the interior
Is /may the toy be used in water?	Medium	Leaching of CoCs is possible followed by exposure of child

Emissions and potential exposures from CoCs in toys can also be assessed in more detail, e.g., using the [UseTox](#) model developed specifically for toys.

Table 3 can help you to gain an overview of present issues associated with certain chemicals and to rank them (from 1 (little importance) to 5 (very important)) based on the judgement of your company's experts. After filling out the table in a similar way as the example indicated below, you will better know where to start and which chemicals to substitute.

Table 3: Examples of how CoCs could be prioritised (fictional)

Chemical or product (examples)	Regulation	Hazards	Exposures	Other issues	Priority 1 = low 5 = high
Di(2-ethylhexyl) phthalate (DEHP) (CAS: 117-81-7)	Regulated in many standards and legislation, also in target markets	Toxic to reproduction, endocrine disruption	High concentrations in polymers; exposure possible (migration, house dust --> skin contact, inhalation and ingestion possible)	Customer requests likely	5
Cadmium zink sulfide yellow CAS: 8048-07-5	Restricted in some applications	Hazards unclear (not classified in EU) Contains Cadmium (heavy metal)	Authorities found pigment yellow 35 in toys (polymers) High exposure potential in application	Future legislation possible	2
Solvent ABC	No legal requirements	Neurotoxic (STOT); dries skin; employees complain about headaches	Used in the production for several purposes, workers exposed Residues in toys unlikely	Workers, not product issue	4

Consider discussing your list with your colleagues from the sales department, the purchasing department and the technical staff to discuss the priorities and get a complete understanding of the priorities.

Based on your list of priorities, start [identifying options to act](#).

References:

- European Chemicals Agency (2018). *How to substitute?*. <https://echa.europa.eu/know-your-substances-and-needs-substitution> . Accessed 23 December 2021.
- European Chemicals Agency (2020). *Impacts of REACH restriction and authorisation on substitution in the EU*. https://echa.europa.eu/documents/10162/24152346/impact_rest_auth_on_substitution_en.pdf/7c95222f-5f84-57f7-4cba-65b8463c79d4. Accessed 23 December 2021.
- Lowell Center for Sustainable Production on behalf of European Chemicals Agency (2019). *Online training on analysis of alternatives, S2. Identifying and screening alternatives*. <https://echa.europa.eu/online-training-on-analysis-of-alternatives>. Accessed 22 December 2021.
- Green Screen (2018). *GreenScreen Chemical Hazard Criteria™*. <https://www.greenscreenchemicals.org/learn/guidance-and-method-documents-downloads>. Accessed 29 December 2021.