

# 2013

ZERO DISCHARGE OF  
HAZARDOUS CHEMICALS

## FRAMEWORK FOR THE PRIORITISATION OF HAZARDOUS CHEMICALS

Joint Roadmap, Version 2 Milestone



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# Framework for the Prioritisation of Hazardous Chemicals

The Zero Discharge of Hazardous Chemicals (ZDHC) Joint Roadmap (2013) acknowledges the need to evaluate chemicals used in the apparel and footwear industry<sup>1</sup> and establish a sectorwide list of hazardous chemicals to be further addressed by the ZDHC team.

Workstream 1 of the Joint Roadmap (2013) addresses the need for a technical focus on chemicals critical to achieving the zero discharge goal. In this workstream, the ZDHC team committed to delivering work products in three focus areas, specifically chemical hazard assessment and prioritisation and assigning phase out or research actions. The Workstream 1 objectives (noted in Figure 1) are summarised as:

**Hazard Assessment and Prioritisation.** Develop a transparent, validated process to prioritise hazardous chemical substances used in the apparel and footwear supply chain and publish a list of chemicals for immediate further action for phase out or research.

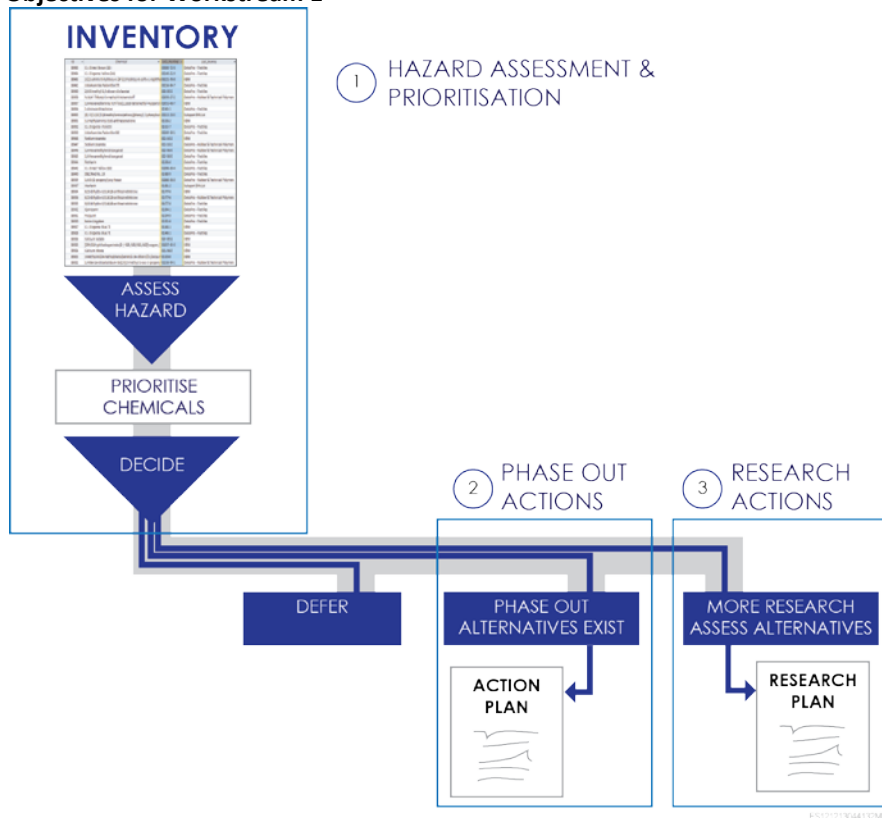
**Phase Out Actions.** Develop key action plans against hazardous chemical substances that the group has identified for elimination or substitution.

**Research Actions.** Encourage research and development of safer and more sustainable alternatives if none currently exist.

This document presents the framework developed for the Hazard Assessment and Prioritisation task.

FIGURE 1

## Objectives for Workstream 1



<sup>1</sup> **Apparel and footwear industry.** We have assumed that the scope of the “apparel and footwear industry” includes the whole supply chain from fiber production to consumer product. If the chemical is an intermediate or monomer, used by the chemical industry, there is an opportunity to include this in the database.



## Framework Background

In March 2013, the ZDHC programme partnered with the Outdoor Industry Association (OIA) to develop a chemical hazard assessment approach specific to the apparel and footwear industry. The framework defined in this document describes the overall, transparent process of assessing chemical hazard and allows for the use of publicly available, transparent hazard assessment tools.

## Methodology

### Database Development

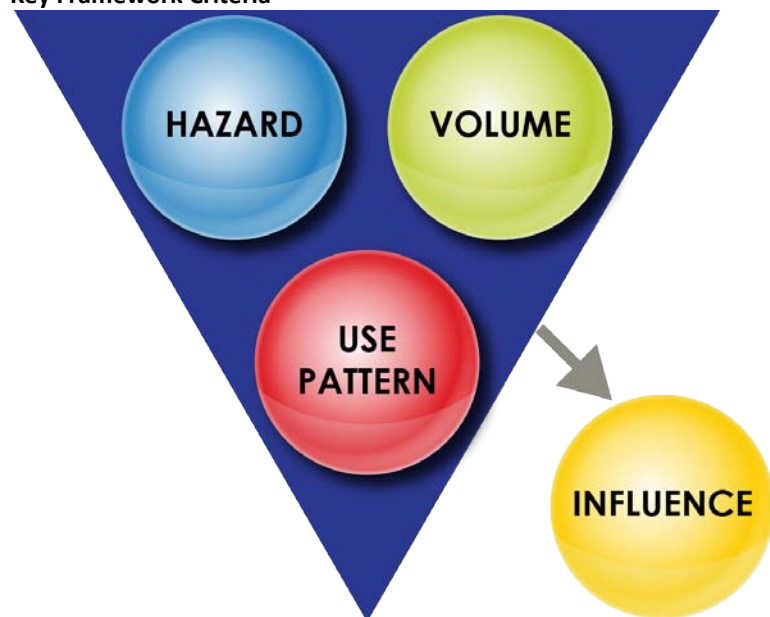
The ZDHC team published a database of chemicals (at the CAS number level) used in the apparel and footwear industry in 2012. To further focus the database of thousands of chemicals for the prioritisation exercise, a pared down list of restricted chemicals was identified as a starting point. The list was a subset to chemicals appearing on restricted or watch lists, such as the bluesign® system substance list (BSSL), brand restricted substance lists (RSLs), the Substitute it Now (SIN) list ([www.chemsec.org/what-we-do/sin-list/sin-database](http://www.chemsec.org/what-we-do/sin-list/sin-database)) and the KEMI hazardous chemicals in textiles list (noted on page 64 of [www.kemi.se/Documents/Publikationer/Trycksaker/Rapporter/Rapport-3-13-textiles.pdf](http://www.kemi.se/Documents/Publikationer/Trycksaker/Rapporter/Rapport-3-13-textiles.pdf)). The team filtered the SIN list by “use in textiles” and highest volume to pare it down to relevant chemicals.

### Prioritisation Criteria

The ZDHC team developed a prioritisation framework based on existing frameworks and guidance. The framework may require continuous improvement which will be modified and adjusted as additional information becomes available or global chemical legislation changes.

The framework takes into account three main criteria (Figure 2) to prioritise chemical substances, specifically hazard, volume and use pattern. After considering the three criteria, the team examined the influence that ZDHC might have in taking action to phase out or find alternatives. Descriptions of the criteria details for each category are listed below.

FIGURE 2  
Key Framework Criteria



## Hazard Criteria

Hazard will be assessed using the GreenScreen<sup>®</sup> 2 method and the GreenScreen<sup>®</sup> list translator.<sup>3</sup> GreenScreen<sup>®</sup> classifies the most hazardous chemicals, including those showing PBT, CMR or endocrine activity, as Benchmark 1 (BM1). Research and implementation of the best available data and methodology for assessing hazardous chemicals is a priority for the ZDHC team. The criteria to evaluate hazard will be reviewed continuously, and we will make adjustments to the Framework as assessment tools continue to evolve.

Using the GreenScreen<sup>®</sup> assessment method, ZDHC developed the hazard ranking described below.

### ZDHC Hazard Ranking

- High GreenScreen<sup>®</sup> BM1 chemicals with very high concerns against the identified hazard endpoints above
- Medium GreenScreen<sup>®</sup> BM1 chemicals with high concerns against the identified hazard endpoints above
- Lower Possible GreenScreen<sup>®</sup> BM2 and BM3 chemicals of high to medium concern
- No Data Need further data

### Volume Criterion

Volume is an important criterion to consider in a prioritisation exercise, as it indicates how pervasive a given substance is in the apparel and footwear supply chain. However, the volume of a specific substance used in the industry is very difficult to identify. Given this challenge, we initially relied on qualitative information and industry experts to help gauge the volume of the chemical used.

The categories for volume are:

- High
- Medium
- Low

### Use Pattern Criterion

The third prioritisation criterion focuses on how a substance may be used or appear in the global supply chain. The categories for use pattern are:

- High Intentional commercial and consumer use (worker, environmental, community)
- Medium Intentional industrial use (chemical industry/fiber formation)
- Low No intentional use (intermediates, by-products, trace)

### ZDHC InfluenceCriteria

Levels of ZDHC influence depend on where a chemical is used in the apparel and footwear supply chain and the contractual relationship that ZDHC members have with their respective suppliers. The influence filter's purpose is to focus the ZDHC team's efforts on substances that the group can influence quickly and identify other collaborations or supply chain stakeholders that may be needed to initiate action on a chemical substance.

- The categories for influence are: High
  - Finished goods manufacturing
  - Textile/material processing (dyeing, washing, finishing, pretreatment)

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<sup>2</sup> GreenScreen<sup>®</sup> is a comparative hazard assessment framework that assigns four benchmarks to chemicals. More information can be found at <http://www.cleanproduction.org/Greenscreen.php>.

<sup>3</sup> The GreenScreen<sup>®</sup> list translator maps authoritative and screening hazard lists to hazard classifications for relevant endpoints. <http://www.cleanproduction.org/Greenscreen.ListTranslator.php>.

- Medium
  - Fiber processing (extrusion, textile spinning)
  - Material preparation and formation (leather tanning, synthetic leather formation)
  - Polymer and metal alloy production/recycling from trim parts
- Low
  - Raw material processing (cotton growing, cattle and sheep rearing/slaughterhouse)
  - Chemical industry intermediates (impurities, contaminants, unintended by-products)

The overall prioritisation framework combines the categories above as follows:

### Hazard, Volume and Use Pattern Criteria

HIGH	MEDIUM	LOW
All three criteria are high	At least two criteria are high	At least one criteria is high

Chemicals that are not prioritized for further action, based on the ranking system above, will therefore not go through the influence filter. Instead these chemicals will be returned to the database and re-evaluated at a later date.

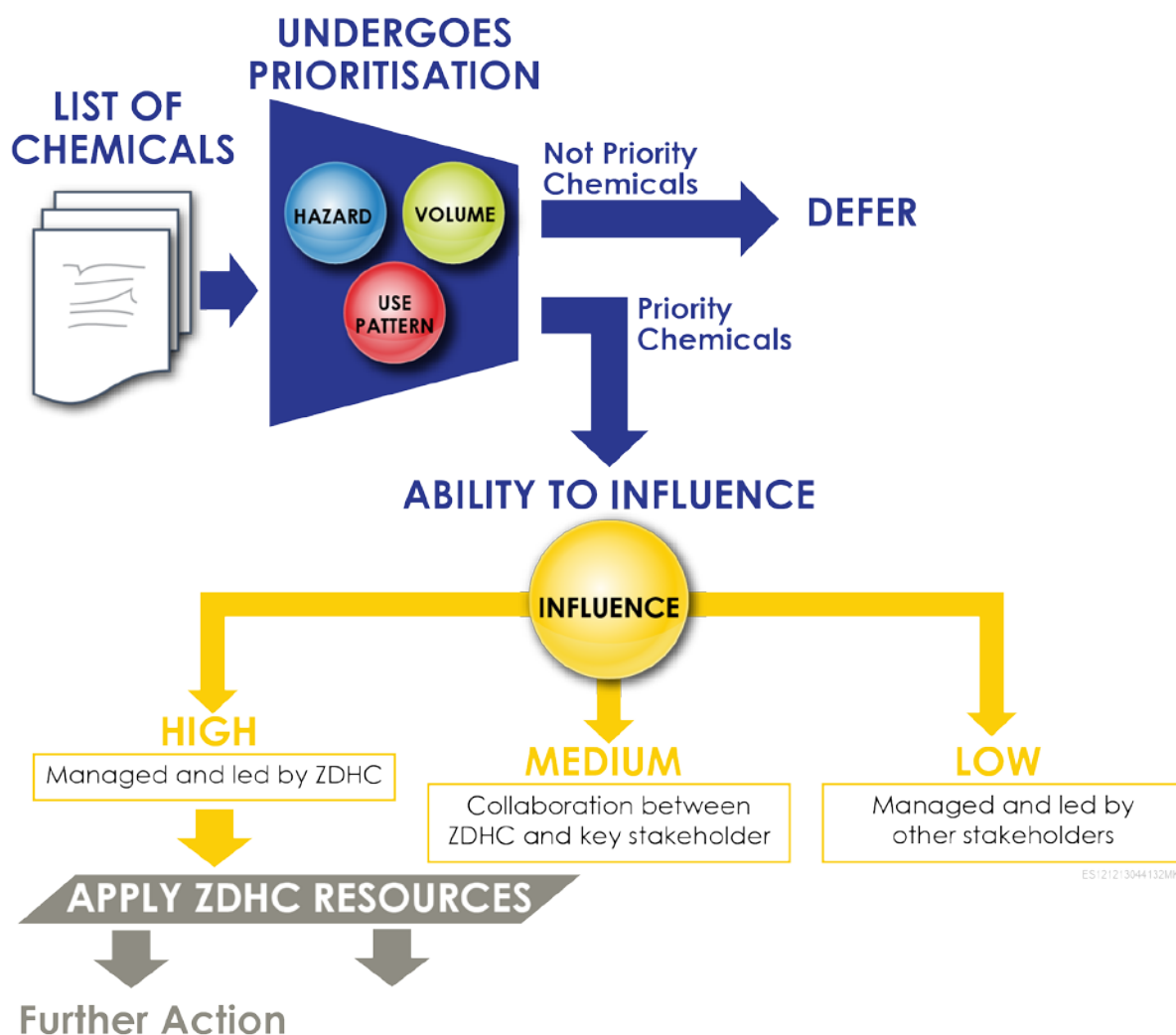
### ZDHC Influence Criteria

HIGH	MEDIUM	LOW
Managed and led by ZDHC	Collaboration between ZDHC and key stakeholder	Managed and led by other stakeholders

A depiction of the prioritisation process is shown in Figure 3. The three prioritisation criteria work in concert to help focus the ZDHC team’s effort. Once the prioritised list is identified using the framework, it will be revisited annually to reflect new information. A chemical that is attributed a lower priority regarding influence, will not be removed from the list; it simply indicates there are other substances the ZDHC team should address before the lower priority substances and those that we believe we can influence more quickly, to create logical and workable change within the industry.

Developed and assessed in collaboration with the ZDHC Technical Advisory Committee and other industry stakeholders, the framework creates a transparent and technically-sound chemical prioritisation hierarchy. As work continues toward 2020, the prioritisation framework will provide a consistent way for the ZDHC programme to align and address the most pressing issues related to the group’s ambitious goal.

FIGURE 3  
**Prioritisation Process**



### Further Action on the Prioritised List

The focus of the framework is to identify hazardous chemicals and apply actions to them. In addition to the framework, ZDHC is also developing a prioritised list of chemicals for further action and a manufacturing restricted substances list (MRSL) that will be published early next year. This tool will help us meet our ZDHC zero discharge goal by 2020.

Chemicals that appear on the list may already be banned by many brands. However, our goal is to ensure that these banned chemicals do not reenter the supply chain. These chemicals will be addressed immediately by placing onto an MRSL. In other cases, the chemicals on the prioritised list may not have safer alternatives available. We are committed to working with key stakeholders to research, develop and implement safer alternatives. This may take many years but an action that we are committed to begin now.

ZDHC is committed to updating the prioritised list and MRSL annually, as more data become available, to reflect the continued effort to phase out hazardous chemicals in the apparel and footwear supply chain.