Discharge Analysis 2023

H&M Group

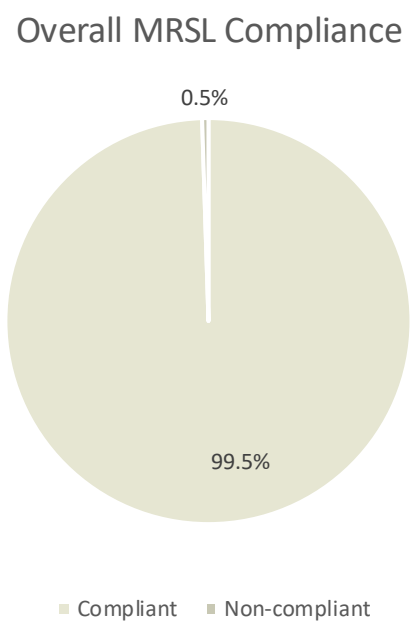
July 2024

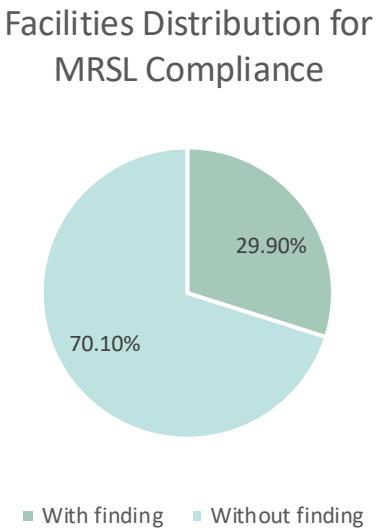
Summary

In 2023, 98% of our chemical scope factories* were enrolled in ZDHC programs. This equals 557 facilities and 460 of them are in scope for ZDHC wastewater testing. The results are uploaded on ZDHC Gateway and published on Detox Live. Using direct data download from ZDHC Gateway API, we have data from 448 units that are connected to us and tested in the 2022 period.

We tested 200 chemical analytes from 20 MRSL chemical groups according to ZDHC Wastewater and Sludge Guidelines v.2.1, a significant increase from the previous year (183 analytes from 13 groups). 99.5% of our wastewater results had no trace of hazardous chemicals as defined by ZDHC MRSL v.2.0. The remaining findings (0.05%) were spread across 29.9% of our facilities.

* T1 and T2 suppliers with high use of chemicals in textile and leather supply chain)





What does it mean to be in ZDHC program?

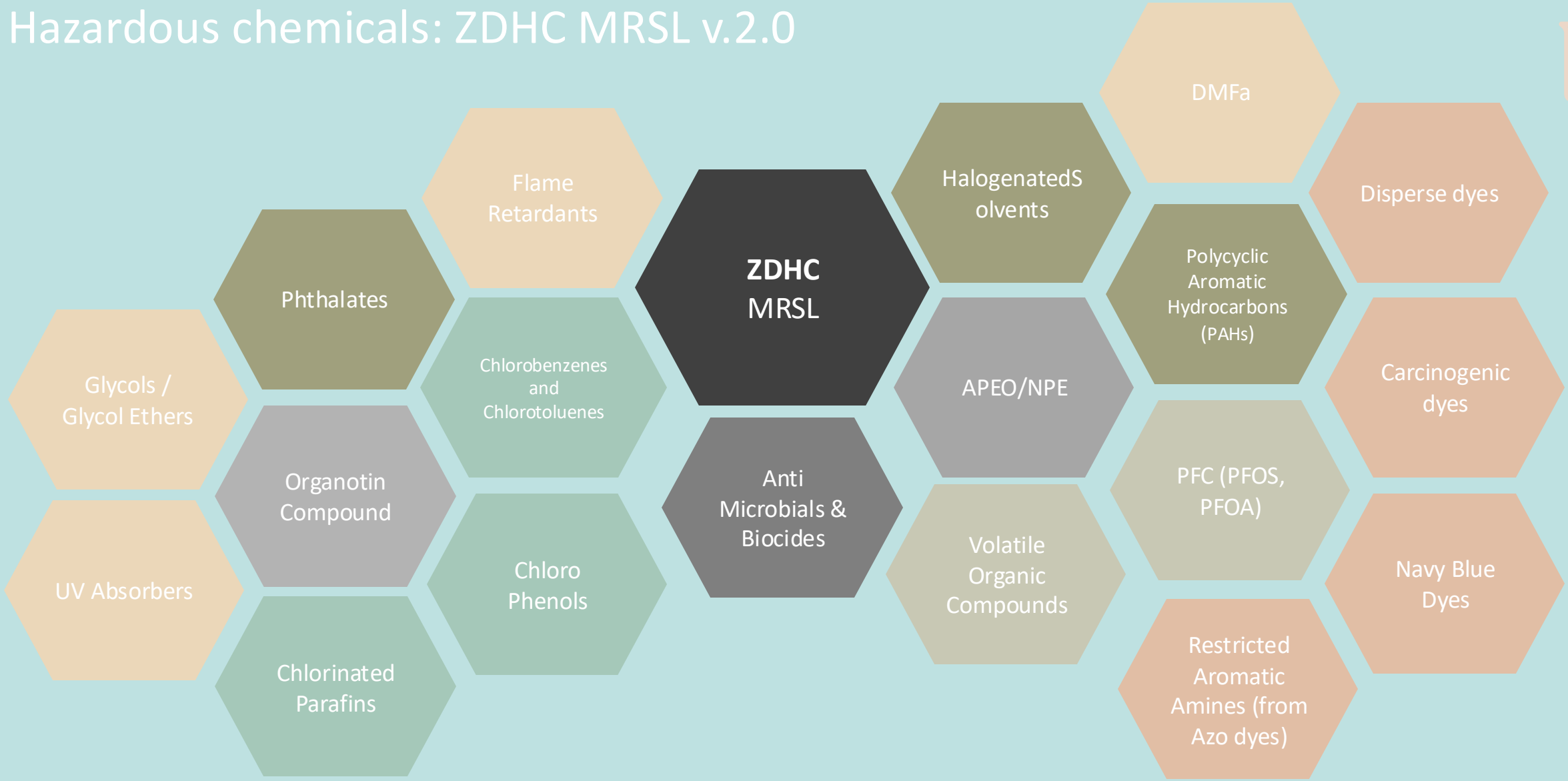
In 2011, H&M Group committed to phasing out hazardous chemicals in the supply chain.

All tier one and two facilities in the textile and leather supply chain that heavily use chemicals are in scope of the ZDHC programme.

In scope facilities must:

- Conduct wastewater tests annually and upload the results onto ZDHC Gateway with ClearStream report
- Publicly disclose the wastewater test results on the DetoxLive platform
- Input all production chemicals into a ZDHC-approved input chemical management tool with InCheck reports
- Develop chemical management practices according to ZDHC CMS TIG Guideline

Hazardous chemicals: ZDHC MRSL v.2.0



Results overview

INCOMING WATER

As of 2023 incoming water is no longer part of the ZDHC Gateway data download. It is only used as a comparison for findings.

UNTREATED (Raw wastewater)

54 out of **200** ZDHC MRSL analytes found.

The Wastewater Guidelines v.2.1. does not test untreated water for conventional, anions and heavy metal parameters.

EFFLUENT (Discharged wastewater)

ZDHC MRSL is **NOT tested** for Effluent.

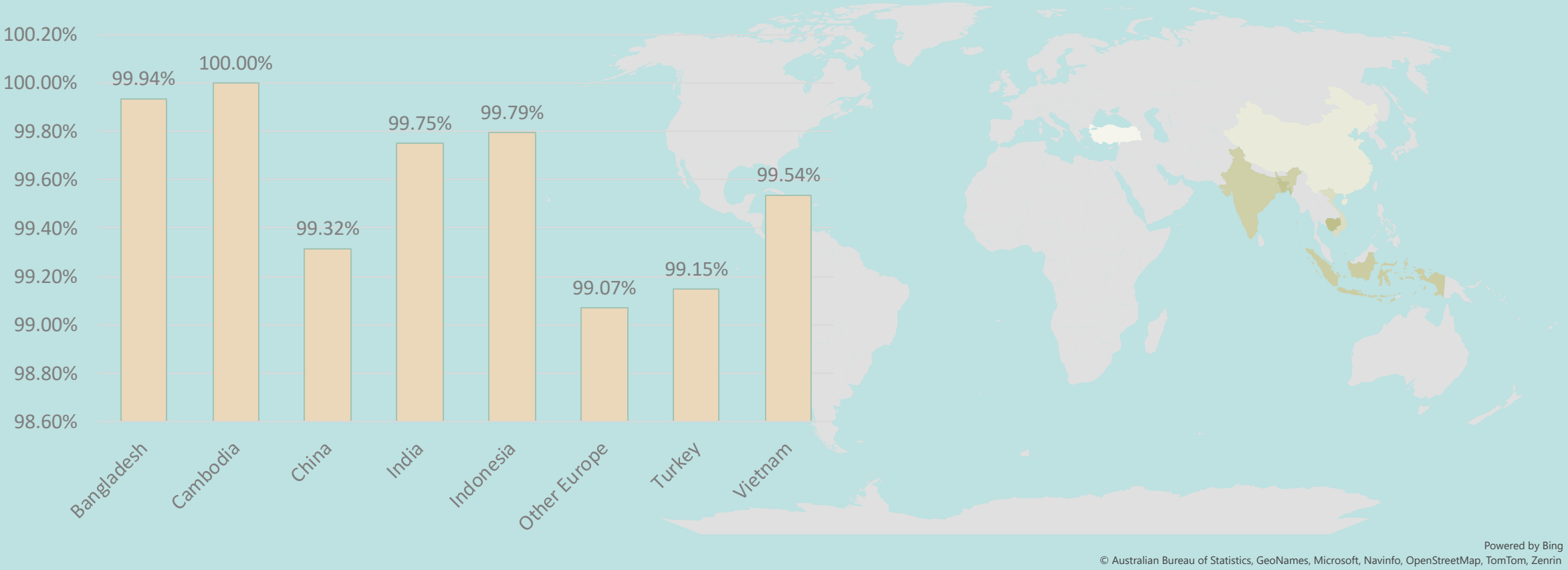
15 out of 25 conventional and anions parameter analytes and 5 out of 15 heavy metals exceeded the foundational limit.

SLUDGE

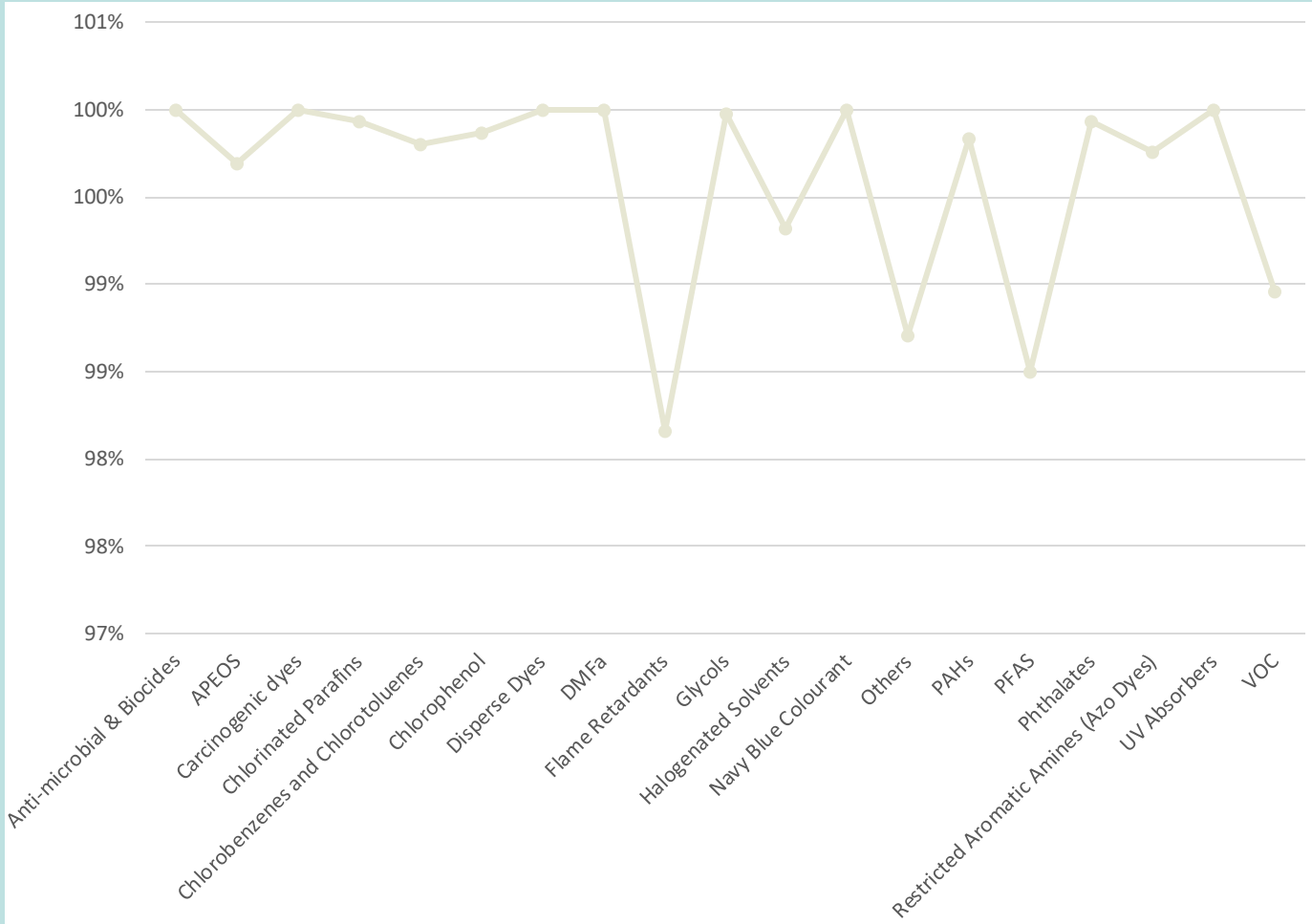
22 out of **200** ZDHC MRSL analytes found.

2 out of 25 conventional and anions parameter analytes and 2 out of 15 heavy metals exceeded the foundational limit.

Global distribution: MRSL compliance



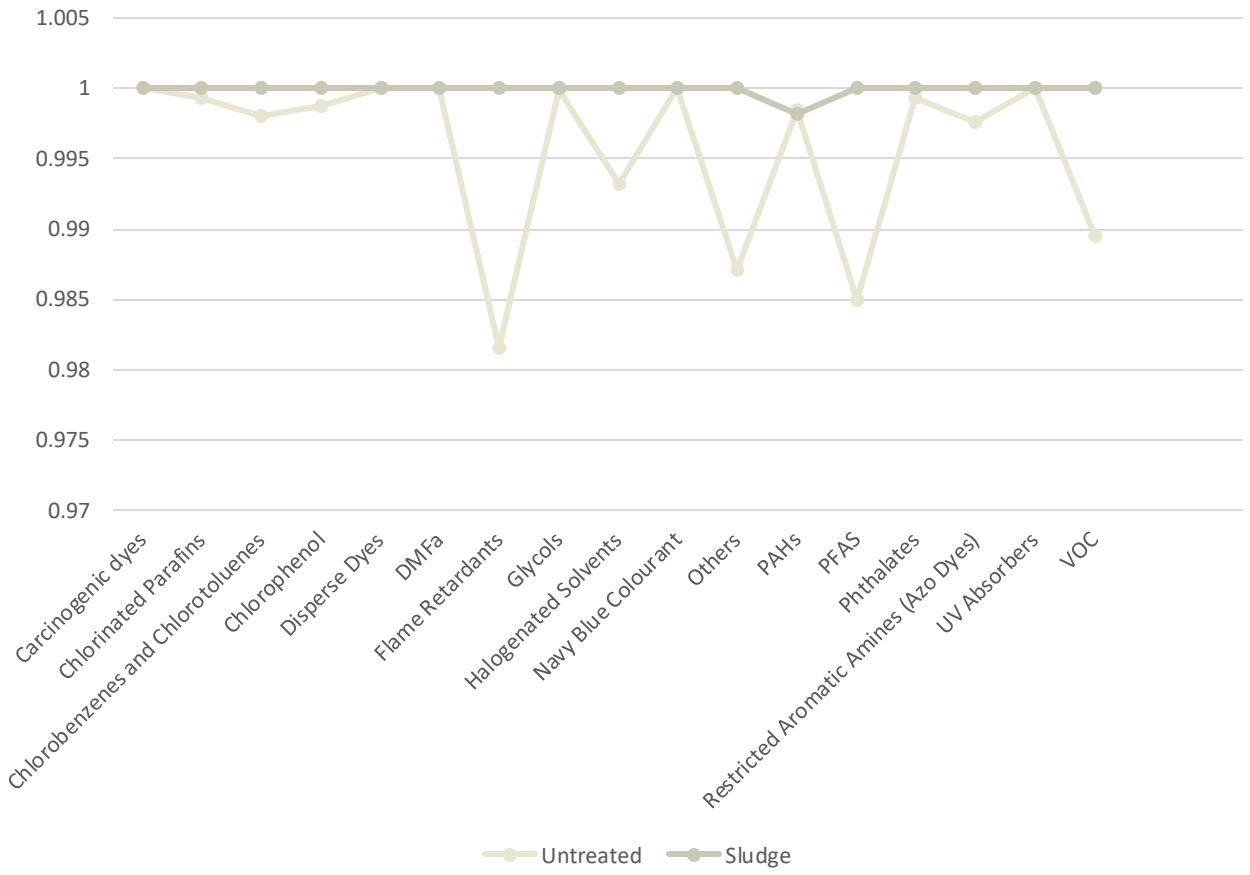
ZDHC MRSL compliance



In 2023, many substances were added to MRSL which has resulted in lower compliance for some chemical groups, i.e. flame retardants.

PFAS and VOC continue to be areas of concern.
We monitor input chemicals and our data shows that our supply chain does not use these substances in production. This indicates that these findings may result from contamination, impurities or chemicals that are not tracked in the input chemical management tools (such as commodity and facility maintenance chemicals).

ZDHC MRSL findings in detail

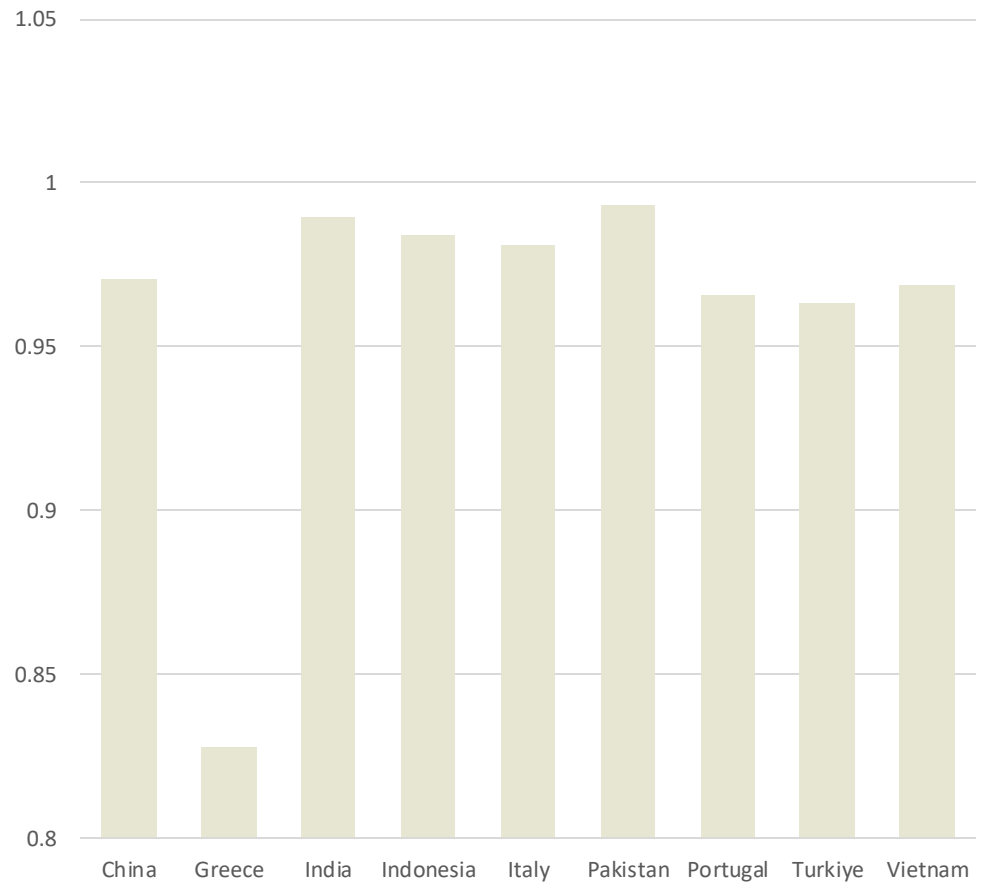


This year, incoming water and treated wastewater were not tested in order to focus on whether MRSL substances have been used in production. Not testing incoming water means we cannot analyse if contamination is already present when water enters a production unit.

From this result, we see that only PAHs are also detected in sludge and the rest of the substances stay in wastewater.

Despite implementing ZDHC MRSL and promoting the use of chemicals from ZDHC Gateway, these findings suggests that our work is far from done. We need to evaluate the methods used to prove MRSL compliance and ensure that MRSL is being used effectively—not only for production chemicals but all chemicals used in the facility.

Flame retardants

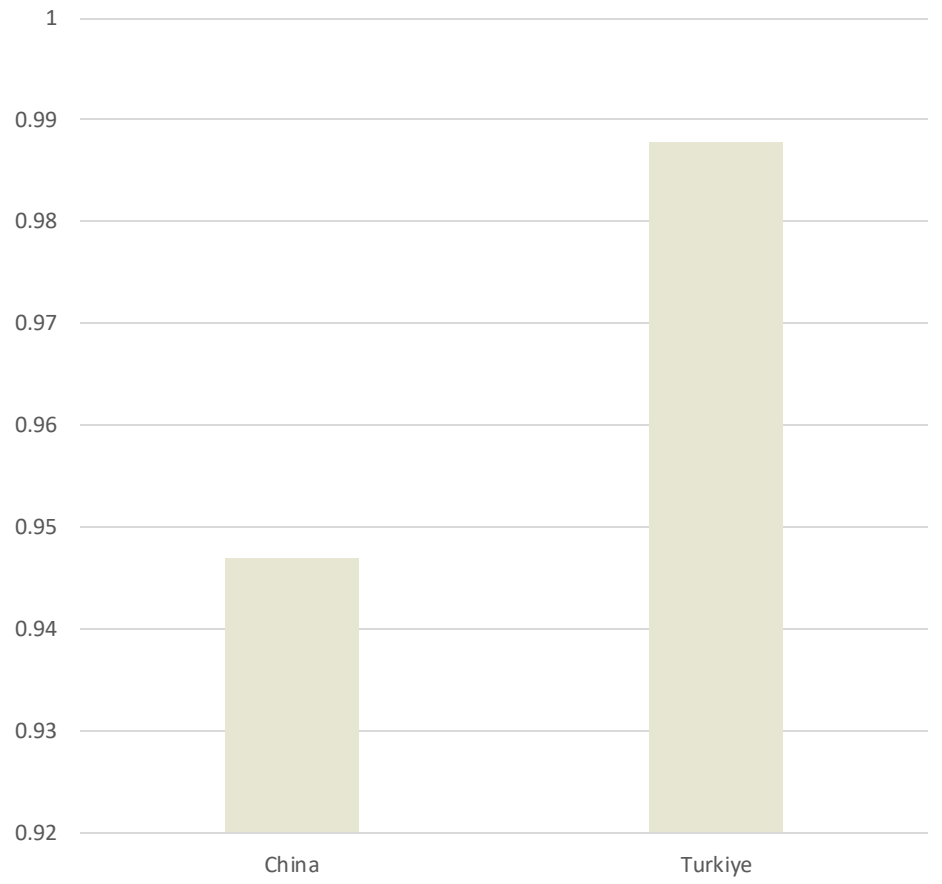


In 2023 flame retardants were detected in wastewater for the first time, achieving the lowest compliance levels of all the chemical groups. Borate-related flame retardants were most detected. Because previous versions of MRSL did not include them, it is likely that they have always been used in the supply chain, but not detected. This highlights the importance of MRSL update.

Boric acid, diboron trioxidcde, disosdium octaborate, disodium tetraborate, tetraboron disodium heptaoxide and borate (grouped in “Others”) were detected. This points to the use of borate-based substances that react and dissociate into these different substances.

Borates are can be used to soften water and as bleaching or biocidal agents. These other functions could be why they were undetected in input chemicals. Water softener is not classified as a production chemical and would not be tracked by the system. This highlights the importance of having strong chemical traceability, not only for production chemicals but for all chemicals used in a facility.

PFAS

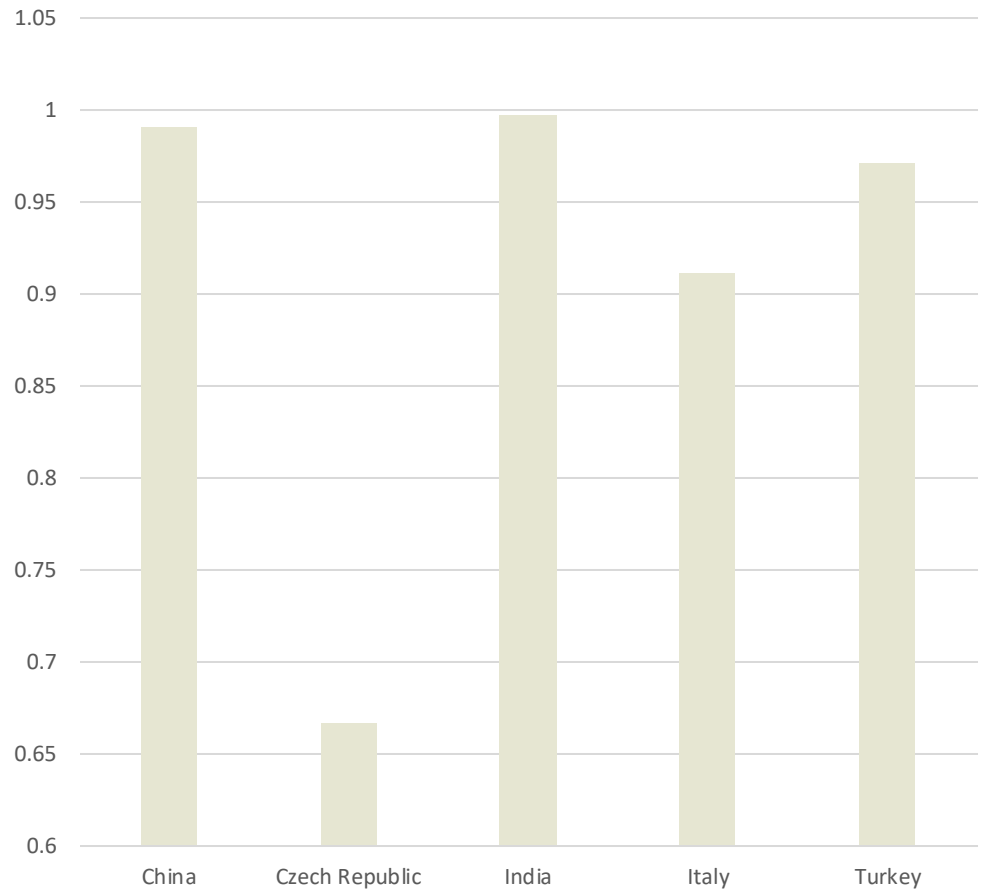


In the latest version of MRSL, PFAS are not separated into different substances. Therefore, we do not know exactly which substances were found.

In addition, we cannot compare if PFAS are present in incoming water because this is no longer analysed.

PFAS remain under a lot of scrutiny. As a “forever chemical”, it is most likely that the substance will remain in water and continue to contaminate, even if they are banned from the supply chain.

VOCs

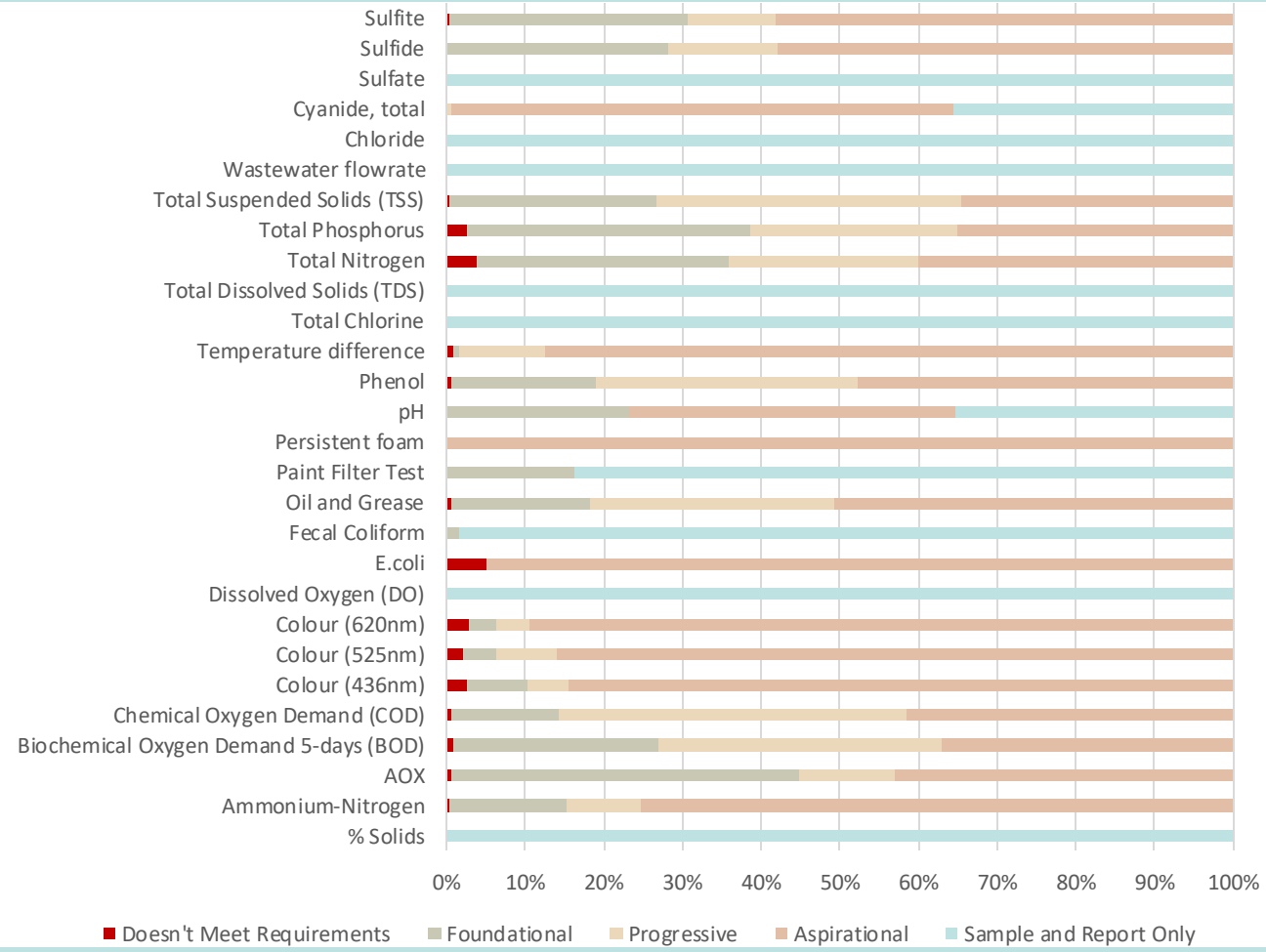


In terms of VOCs, benzene, toluene, xylene, p-cresol and m-cresol were detected in our data.

Both xylene and p-cresol are used as solvents in dyeing and printing processes, as well as cleaning and coating agents. In 2023, we only saw rare cases of these substances used in our input chemicals. This shows us that suppliers are dependent on these chemicals, and we need work together as an industry to better manage solvent use and promote less hazardous solvents.

When VOCs are used for cleaning agents or other non-production purposes, they are excluded from our input chemical data. Therefore, we need to work together with ZDHC on how to better capture the risks presented by these non-production chemicals.

Conventional and anions parameters



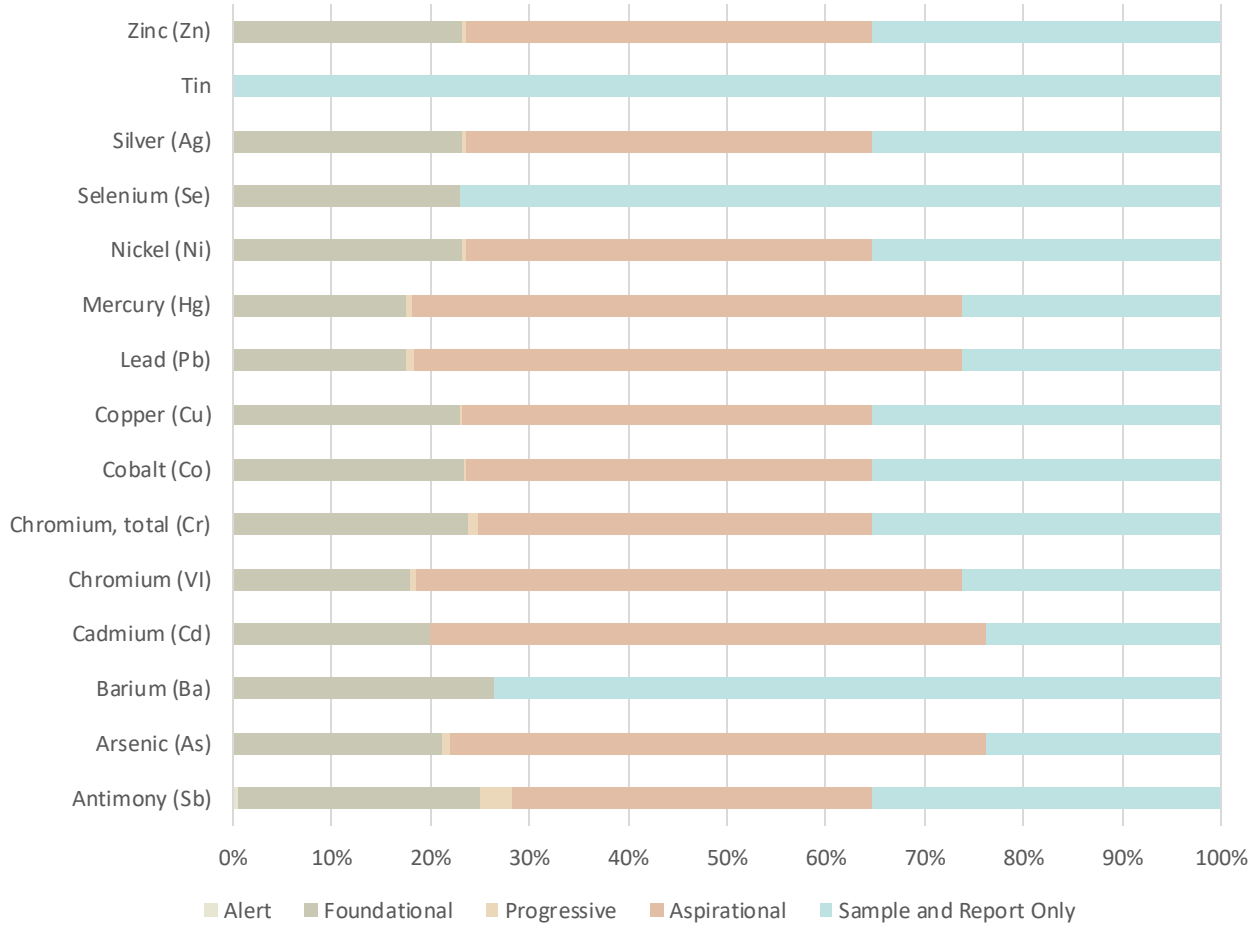
This result shows that total phosphorus, total nitrogen, E.coli, and color remain areas of issue.

E.coli's result corresponds with the total phosphorus and total nitrogen in wastewater. This indicates nutrient overload in the wastewater allowing for higher E.coli population. High level of total phosphorus and total nitrogen also corresponds to eutrophication, which is a negative impact to biodiversity in water bodies.
This result indicates the need for improvement in the ETP's biological treatment to balance these levels and prevent eutrophication.

Colour continues to be the parameter which drew the public's highest attention as it is easily recognisable. This is a complex issue as our industry uses high volume and variety of colorants. Better dyeing technology and color removal technology must be in place to correct this issue, as well the use of better colorant chemistry.

In the new ZDHC Wastewater Guideline, the effluent data is only reported for direct dischargers for conventional and anions parameters. Therefore, indirect dischargers are excluded from this result.

Heavy metals parameters



We had minimal findings on antimony, arsenic, cadmium, chromium, mercury, and nickel.

Like previous years, antimony exceeded foundational levels the most. Antimony is a raw material used to make polyester and therefore, it is mostly found in facilities with polyester products. Meanwhile, mercury and arsenic are part of cotton pesticides. Both findings indicate that these heavy metals used in raw material production can still be detected in our fabric manufacturer's wastewater highlighting the importance of an end-to-end approach to securing a safe value chain.

Chromium can be found as an impurity in certain textile dyes and is used in tanning agents. Although our leather products are chrome-free, they are produced in tanneries who also tan using chrome. This finding indicates the importance of continuing our work with chrome.

Cadmium and nickel are part of dye components. This result indicates that better chemistry is needed to limit the exposure of heavy metals in the supply chain.

Next steps from H&M Group

- **Input Chemical Management:** From this version of ZDHC Wastewater Guideline, we no longer test and report MRSL in treated wastewater because ETPs are not designed to eliminate these substances. Therefore, the best way to eliminate these substances from wastewater would be to secure them at the input stage. We have maximised our MRSL compliance by using chemicals from ZDHC Gateway. In 2023, we achieved our highest ever performance of 97% MRSL compliance with 90% from the ZDHC Gateway. However, the wastewater result is still not perfect, which suggests that the current standards of input chemical management does not guarantee clean wastewater. Therefore, we believe that the industry should go beyond MRSL compliance and put more effort into hazard-based assessment to both address today's challenges and future proof supply chains. We continue to support ZDHC's initiative to create an industry definition of sustainable chemicals which includes hazard assessment as one of the pillars through their Chemicals to Zero framework.
- **ZDHC Programmes:** Through input chemicals management, we also monitor the use of ZDHC Gateway database chemicals. This is an industry tested and reviewed database of chemicals compliant to ZDHC MRSL. However, our wastewater results show that more work is required to further secure the system. We are working with ZDHC and other ZDHC brands to improve the ZDHC chemical module and wastewater module, as well as improving connectivity between both systems.
- **General Chemicals:** In some rare instances, we detected uses of VOCs in our facilities in input chemicals. In most cases, they were used as cleaning agents which are not captured well in ZDHC Gateway. We are supporting ZDHC to develop a better framework that captures the use of commodity chemicals, improves their quality and better manages chemicals. However, since this is a global issue with local challenges, we will also work with public affairs to strengthen chemical manufacturing regulations in our markets and engage with the chemical industry.
- **ETP Functionality**: At H&M Group, our internal team or third-party engineering companies assess all on-site ETPs regularly to ensure all direct dischargers are functioning optimally. In 2023, we also implemented a more rigorous testing and monitoring strategy to secure ETP functionality for our suppliers with direct discharge in addition to the existing ZDHC wastewater testing routine.
- **Data Quality:** Because 2023 is the first year we started using the new ZDHC Wastewater Guidelines, there are many things that are different and not comparable with previous years. Therefore, this may impact the data quality, as well as our understanding of the data.
- **Public Policy and Stakeholder Engagements:** We will continue to engage with partners in setting higher environmental standards and safer practices to eliminate hazardous chemicals at both a local and global level. We are pushing for better transparency and chemical restrictions to be included in EU regulations such as Safe and Sustainable by Design framework and the REACH update, as part of the EU Green Deal. On a local level in production countries, we are working to ensure that the Global Harmonised System (GHS) is part of the regulation framework and is strongly implemented in the supply chain.