BURBERRY

EFFLUENT TESTING TREND ANALYSIS

SEPTEMBER 2023

CONTENTS

1. Executive Summary

The climate crisis, water security and biodiversity loss are significant challenges businesses and society face. Our ability to deliver on our climate and nature commitments over the coming years will determine the long-term success of our business. Our Chemical Management Programme supports Burberry's goals of embedding sustainable manufacturing and protecting nature. Through active participation in the Zero Discharge of Hazardous Chemicals (ZDHC) Foundation, Burberry contributes to driving transformative change throughout the industry, working towards the elimination of unwanted chemicals and their release into the environment. These efforts underscore our commitment to safeguard people and planet, eliminating hazards and associated potential negative impacts across our supply chain and beyond.

This report presents the findings of Effluent Testing performed by Burberry's supply chain partners, who conducted wastewater analysis during the testing rounds of October 2022 and April 2023. By comparing the data from this analysis to previous rounds of testing, the results demonstrate a continuous improvement in meeting the criteria outlined in the Zero Discharge of Hazardous Chemicals Wastewater Guidelines (ZDHC WWG)[1]

Ever since Burberry started implementing the ZDHC WWG in 2017, there has been an overall increasing trend in participation, apart only from a decline due to COVID-19 in 2020.

During the testing rounds held in October 2022 and April 2023, Burberry's supply chain showcased a conformance rate of 99% to the ZDHC WWG for the MRSL parameters. Moreover, 95% of the conventional parameters reached the Foundational level or better, and metals and anions achieved a conformance rate of 99%.[2]

[1] ZDHC Wastewater Guidelines V 2.1

[2] MRSL adherence is analysed for all manufacturing facilities, whereas Conventional parameters, including metals and anions is applicable to manufacturing facilities with DIRECT discharge during the period under study.

2. INTRODUCTION

We are committed[3] to eliminating hazardous substances from our manufacturing value chain, to ensure the safety of our people, planet, and products. As signatories of the ZDHC, we adopt the ZDHC Roadmap to Zero approach, focusing on Input, Process and Output. We address input control through our Manufacturing Restricted Substances List (MRSL), aligned with the latest Zero Discharge of Hazardous Chemicals (ZDHC) list, in addition to restricting all poly- and perfluorinated chemicals (or PFCs)[4]. In relation to Process we implement ZDHC Supplier to Zero (S2Z) programme across our value chain to promote best chemical management practices. In addition, we monitor Output through product and effluent testing. Our products must comply with our Product Restricted Substances List (PRSL)[5], updated annually. Wastewater testing plays a crucial role in monitoring the potential use of these unwanted substances in the manufacturing of Burberry products. Partners must also test their effluents in line with ZDHC's Wastewater Guidelines (ZDHC WWG), which involves conducting testing twice a year (prior to the end of April and October) at a ZDHC accredited laboratory. The results of these tests must be disclosed on the ZDHC Gateway – Wastewater Module[6] a global online platform used to register and share verified wastewater test data against the ZDHC WWG. By adopting a globally unified standard, wastewater testing encourages continuous improvement in the overall quality of wastewater within the industry.

Burberry requires its suppliers[7] of raw materials and vendors[8] of finished goods to engage with their wet processing partners. The data presented in this report includes the latest results that have been disclosed on the ZDHC Gateway - Wastewater Module.

Burberry evaluates the chemical management practices of its partners, including effluent testing in accordance with the ZDHC WWG. In the case of a non-conformity to the ZDHC WWG limits for MRSL or conventional parameters, partners are required to conduct a Root-Cause Analysis, develop a Corrective Action Plan, and share their findings on the ZDHC Gateway and to Burberry.

This document analyses the results reported during October 2022 and April 2023[9] rounds of Wastewater Testing and helps monitor the performance trend since the establishment of the ZDHC WWG in October 2017. This enables to identify areas for improvement.

The comprehensive testing data, including Burberry's own testing programme initiated in 2014, is publicly available on our Codes and Policies page (Environment/Chemical Management).

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[3] Burberry Commitment on Chemical Management in Manufacturing
[4] Burberry MRSL
[5] Burberry PRSL
[6] ZDHC Gateway - Wastewater Module
[7] Any company that supplies goods or services to Burberry directly or indirectly. This includes but is not limited to printing, weaving, knitting, dyeing, etc.
[8] Any company that supplies Burberry with finished goods.
[9] All tests performed and disclosed on ZDHC Gateway from the 1st of May 2022 to the 31st of October 2022 are included in the October 2022 testing round, whereas the tests performed and disclosed from the 1st of November 2022 to the 30th of April 2023 are included in April 2023 testing round.

3. METHODOLOGY

Wastewater analysis was conducted following the ZDHC WWG methodology, using the parameters outlined in Appendix 1. Consequently, the sampling and reporting procedures were performed by ZDHC Approved Laboratories. From April 2023, the ZDHC WWG Version 2.1 was implemented, limiting the applicability of the guidelines to facilities over a threshold average daily effluent generated (>15 m^3/d). The new version of the guidelines also introduced new testing parameters and the sludge ZDHC Disposal Pathways and testing for sludge parameters.

4. TREND ANALYSIS

4.1 Data Overview

In 2022, 83 facilities participated in the October effluent testing round and 81 participated in the April 2023 round (Figure 1). These test reports have been uploaded and disclosed on the ZDHC Gateway – Wastewater Module, in line with the ZDHC WWG.

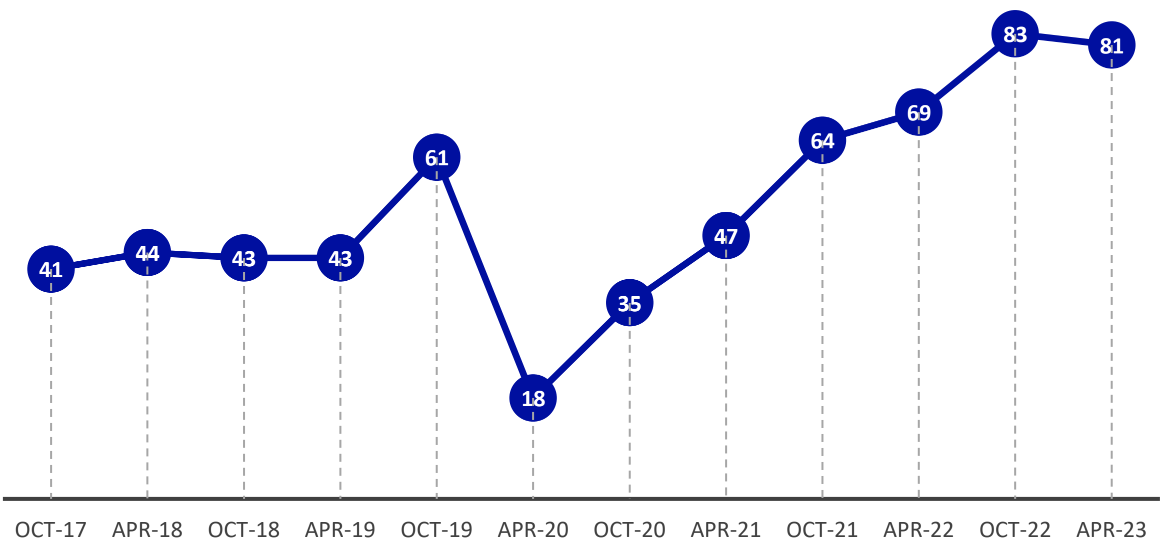

Figure 1: Number of Burberry partners' facilities disclosing effluent test reports on ZDHC Gateway

Since the launch of the ZDHC effluent testing programme in 2017, the highest level of involvement from Burberry partners was observed in October 2022, with 83 reports published on the ZDHC Gateway. This was achieved due to increasing reach of ZDHC in the industry, as well as Burberry partners cascading the request upstream, as required by Burberry and the Supplier to Zero Programme. In April 2023, 81 reports published on the ZDHC Gateway with implementation of ZDHC WWG Version 2.1. This wastewater version includes modifications in the guidelines' applicability in relation to the criteria for daily effluent discharge, which may have influenced participation.

69.9% of Burberry products[10] were processed at facilities that participated in the ZDHC effluent testing programme in the reporting period, covering October 22 and April 23 testing rounds which is a significant improvement with respect to last testing round which was 57.5% (October 2021 and April 2022).

Figure 2 provides an overview of participation categorized by facility type (textile or leather) and direct[11] or indirect[12] discharge.

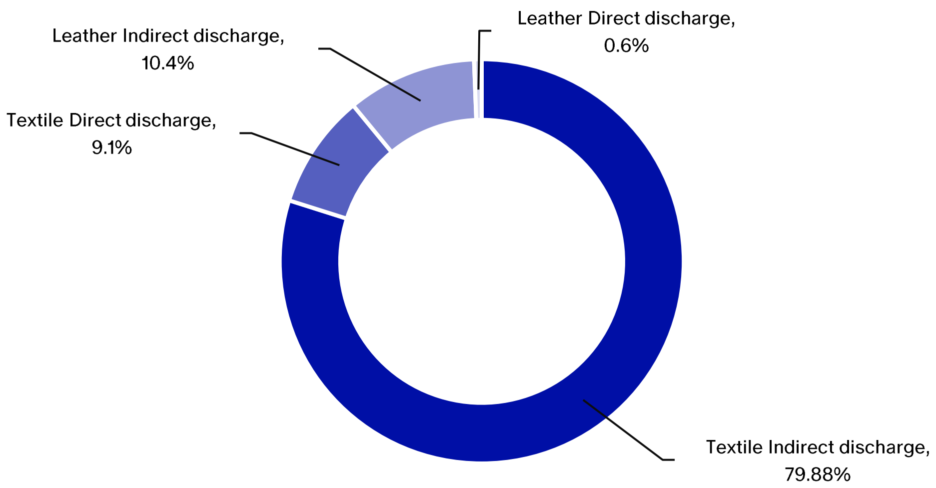

Figure 2: Number of Facilities Participating in October 22 & April 23 WW Testing

[10] The percentage of product delivered by each Direct Raw Material Supplier is equally distributed among its Wet Processors.
[11] Reference: Glossary, definition of direct and indirect facility
[12] Reference: Glossary, definition of direct and indirect facility

In the two rounds of testing under consideration, 74% of the facilities participating were in Europe, while 26% were in Asia (Figure 3).

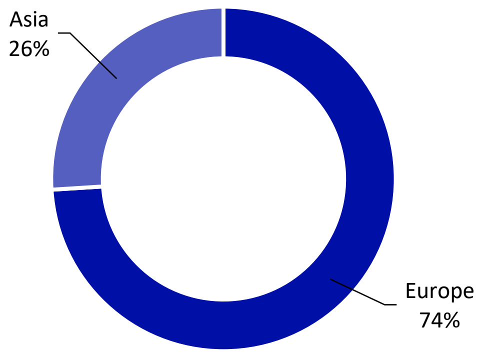

Figure 3: Number of Facilities Participating in Oct 22 & Apr 23 WW Testing by Region

4.2 ZDHC MRSL parameters

To assess conformance to the ZDHC Wastewater Guidelines within Burberry's supply chain, a summary of test reports from participating facilities is provided below. The supply chain demonstrated an overall adherence of 99% to the MRSL wastewater parameters across the two testing rounds in October 2022 and April 2023 (see last bar in Figure 4). This achievement is based on the analysis of a total of 34361 analytes.

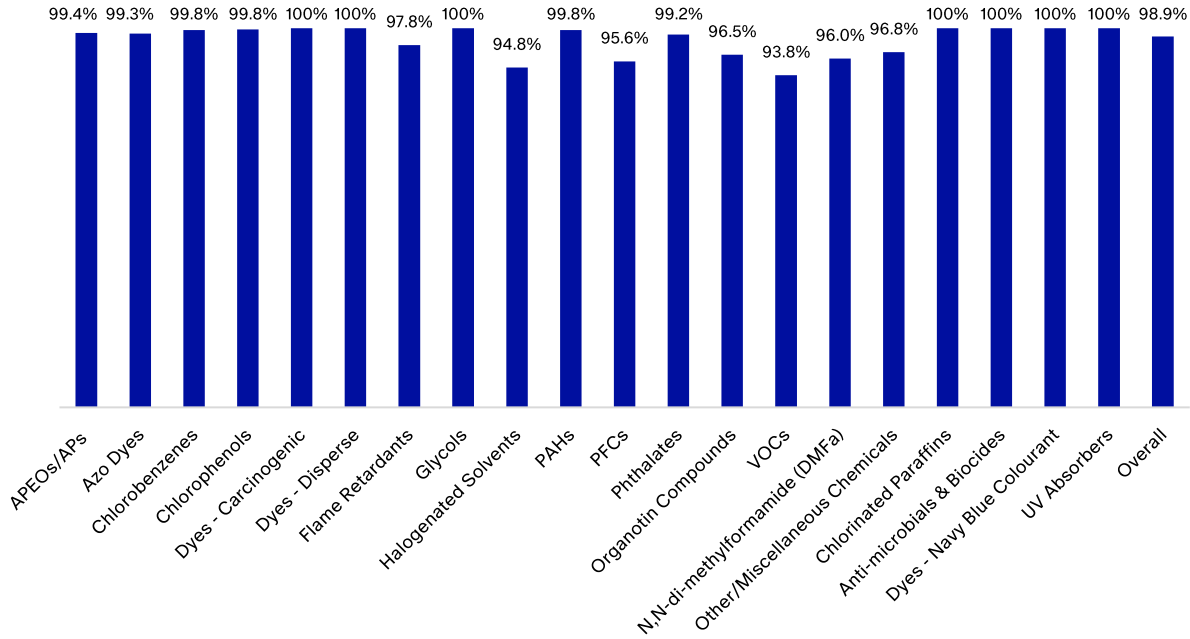

Figure 4: % adherence to ZDHC Wastewater MRSL limits per chemical group in October 2022 & April 2023 rounds of testing

In the latest Version 2.1 of ZDHC WWG, new groups have been introduced for effluent testing. These include DMFA, Other/Miscellaneous chemicals, Chlorinated Paraffins, Anti-microbials and biocides, Navy blue colorants, UV absorbers, and a few analytes in the Flame Retardants group.

During the specified period, no presence of Anti-microbials & Biocides, Carcinogenic Dyes, Chlorinated Paraffins, Disperse Dyes, Navy Blue Colourants, Glycols, and UV absorbers were detected in the wastewater samples, in full adherence to the MRSL. Moreover, the detections of Chlorobenzenes, Chlorophenols and PAHs were marginal. Other chemical groups with decreasing detections rates include APEO/AP and Phthalates, which had a 99.4% and 99.2% level of adherence to the MRSL respectively increasing from a 91% and 93% in 2017. In previous testing rounds, no traces of flame retardants were detected in wastewater. The inclusion of additional analytes in the flame retardants group led to a lower adherence compared to previous testing round. Overall, the wastewater test results demonstrated a 98.9% compliance rate with the MRSL in the testing rounds conducted in October 2022 and April 2023.

Burberry encourages its partners to conduct tests on incoming water in cases where MRSL parameters are identified in the effluent. This practice helps identify potential issues of freshwater contamination in specific areas where Burberry's supply chain operates, enabling Root Cause Analysis.

During this reporting period the detection of MRSL parameters in the incoming water was recorded on 50 occasions, involving 20 different facilities. Notably, the majority of these detections occurred in Italy at 17 facilities. Importantly, all these cases of freshwater contamination belonged to the groups of PFCs, Halogenated Solvents, Organotin Compounds and Flame Retardants, four of the groups with more non-conformities found in the effluent during the same period.

Both in October 2022 and April 2023, 100% of detections in incoming water were subsequently also observed in wastewater. This represented 14% of the total non-conformities both in October 2022 and April 2023. However, there is a large proportion of the effluent failures for which incoming water test results were not available and this correlation cannot be assessed. This was 37% in October 2022 and 53% in April 2023.

4.3 Conventional Parameters

Conventional parameter limits play a crucial role when evaluating Direct Discharge facilities (i.e., facilities with wastewater treatment on-site and discharging into water bodies). Some conventional parameters are typically part of the facilities discharge permits; the three-tiered approach of Foundational, Progressive, and Aspirational limits established in the guidelines, encourages facilities to continuously improve the quality of their wastewater beyond what may be legally required. Only direct discharge facilities are evaluated against the Foundational, Progressive, and Aspirational levels for Conventional parameters.

In the two rounds of testing conducted in October 2022 and April 2023, the results indicated that 75% of the analytes tested by direct discharge facilities reached the Aspirational level, 10% met the Progressive level, and 10% satisfied the Foundational level. Overall, 95% of the analytes complied with the ZDHC Wastewater requirements. Only 13 conventional parameters were found to exceed the guidelines limits, accounting for 5% of the analytes tested. Figure 5 shows a decrease in the number of parameters surpassing the Foundational level, and the Aspirational level increasing from 70% to 79% from October 2022 to April 2023 rounds. The data encompasses all conventional parameters, including metals and anions, and a detailed breakdown of these groups by parameter can be found in Figures 6 and 7.

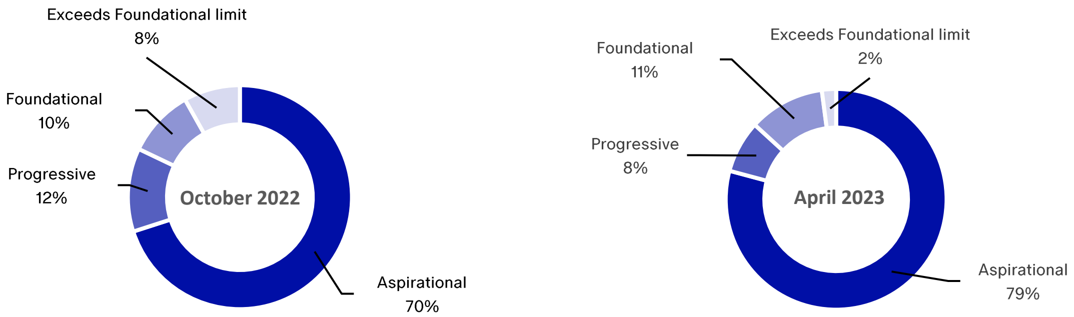

Figure 5: Conformity of Conventional parameters to WWG limits in October 2022 & April 2023 Direct discharge facilities

Conventional Parameters – Excluding Metals and Anions

The parameter that most exceeded Foundational limit was E.Coli. Other exceedances were observed for Ammonium (as N), Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD), Colour, Temperature, pH, Total Nitrogen (as N), and Total Phosphorus (as -P). Figure 6 provides a breakdown of the quality levels achieved by each analyte in direct discharge facilities.

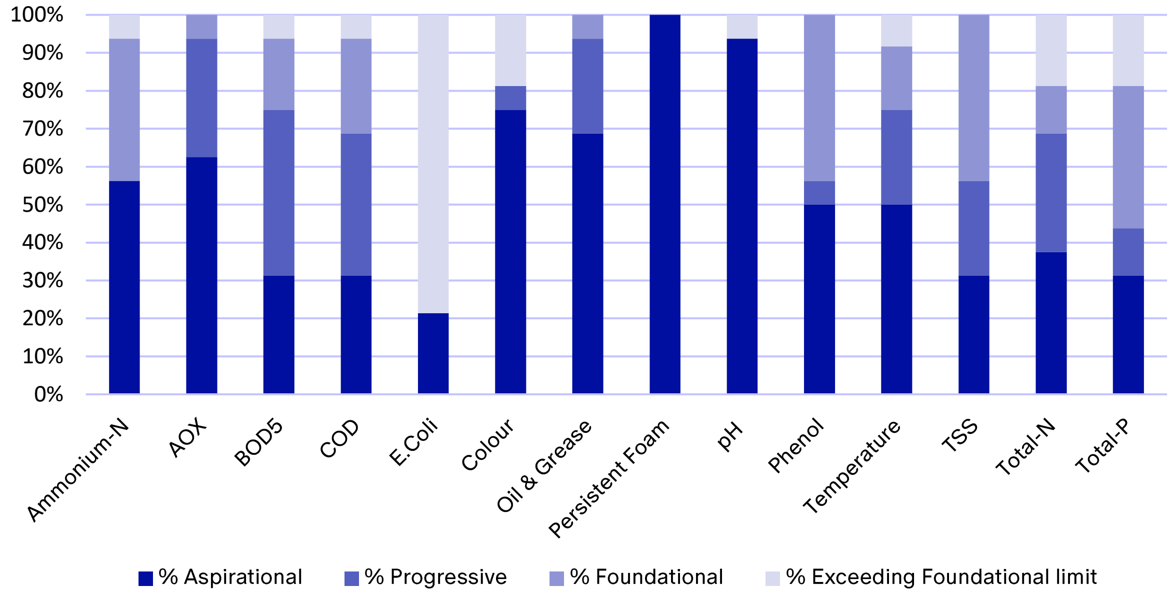

Figure 6: Conformity level of Conventional parameters to WWG limits in October 22 & April 23

Heavy Metals & Anions

The analysis was also conducted on heavy metals and anions. In the rounds of October 2022 and April 2023, direct discharge facilities achieved a conformance of 99% to the ZDHC WWG. This represents an improvement compared to the two previous reporting periods which cover 5 testing rounds from April 2021 until April 2023. In these 2 periods conformance to metal and anions was 95% and 98% respectively. These results indicate that effective measures were taken by wet processors to address non-conformities. Out of the 191 metal and anions parameters tested by Direct discharge facilities, 3 of parameters were found to exceed the Foundational limit.

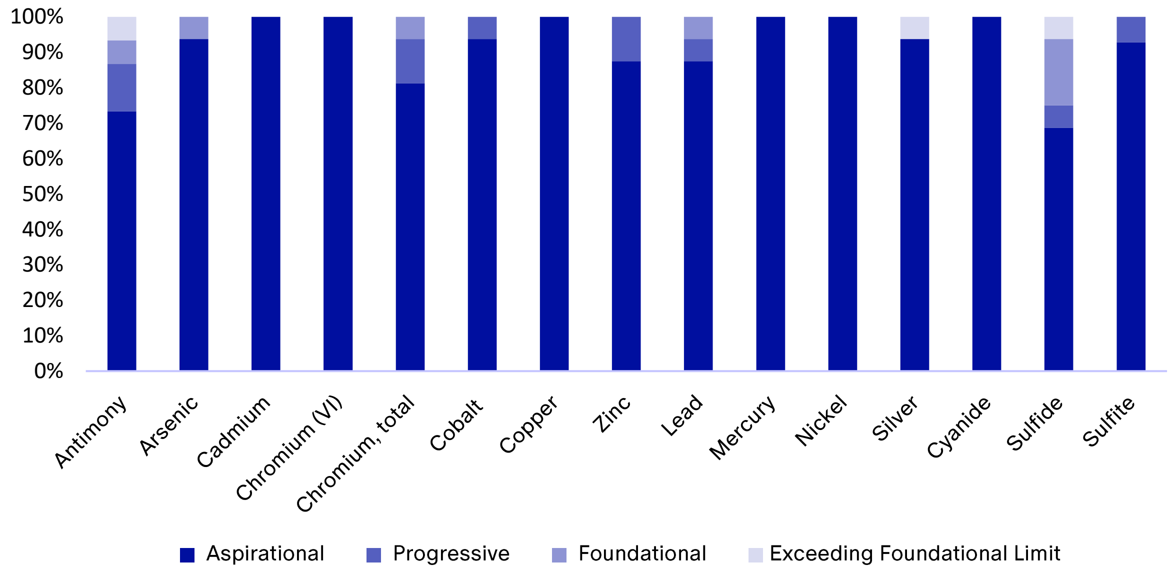

Figure 7: Heavy metals & anions conformance level in October 22 & April 23 - Direct discharge facilities

4.4 Root Cause Analysis

Root cause analysis (RCA) is a problem-solving methodology used for the identification of root causes of problems. In the case of a non-conformity (both for MRSL and Conventional parameters), Burberry requires partners to identify the root cause and develop a Corrective Action Plan (CAP) with defined completion date.

Burberry requires partners to use the ZDHC Root Cause Analysis and Corrective Action Plan templates available in the ZDHC Knowledgebase (outlined in Appendix 2). Burberry encourages its partners with non-conformities to submit their RCA and CAP in the ZDHC Gateway – Wastewater Module and to share with Burberry as well. Partners are required to complete this process within thirty (30) days from the date of the laboratory report.

5. CONCLUSION

Burberry remains committed to the ZDHC Roadmap to Zero and to the adherence to the ZDHC WWG, requesting effluent testing to be completed twice annually across our Supply Chain.

Burberry places a strong emphasis on maintaining ethical and environmental standards across its supply chain. In the event of any non-conformities to the ZDHC WWG during effluent testing, partners must complete a Root Cause Analysis (RCA) and develop a Corrective Action Plan (CAP) to prevent reoccurrence and promote continuous improvement.

During the October 2022 and April 2023 testing rounds, PFCs, Flame Retardants, Halogenated Solvents, Organotin Compounds and Volatile Organic Compounds (VOCs) were identified as the most frequently detected chemical groups. Except for VOCs, in many instances these substances were also detected in the incoming water, indicating contamination of the freshwater resources.

No detectable amounts of Anti-microbials & biocides, Carcinogenic Dyes, Chlorinated Paraffins, Disperse Dyes, Navy blue colorants, Glycols, and UV absorbers analytes have been found.

The overall compliance for conventional parameters was determined to be 95%, with 75% achieving the highest level, which is the Aspirational level as per the ZDHC WWG. When focusing on the conventional parameters, it was found that 99% of metals and anions met the minimum requirements set by the ZDHC WWG.

Wastewater testing plays a crucial role in Burberry's commitment to eliminate unwanted chemicals from its production processes. As a result, targets related to wastewater quality are regularly evaluated and monitored to ensure alignment with Burberry's long-term Responsibility Strategy[13]. Burberry actively encourages the adoption of unified guidelines for wastewater testing and advocates for the disclosure of wastewater quality information using ZDHC tools.

The adoption of a harmonized system offers numerous benefits, including the elimination of redundant testing for wet processors, improved information sharing, and alignment of brands' requirements with suppliers. Burberry remains committed to collaborating with the ZDHC Foundation and industry counterparts to lead the transformation towards cleaner production practices.

[13] Burberry Codes and Policies

6. NEXT STEPS

Burberry remains committed to enhancing participation in wastewater testing and promoting progress towards full conformity to the ZDHC WWG across its supply chain. To achieve this, Burberry will continue to collaborate with the ZDHC and third parties to disseminate learning resources, as well as with Supply Chain partners to continuously improve their chemical management practices, chemicals input control and effluent quality with timely resolution of non-conformities.

Burberry recognises the significance of preserving water resources and strives to deliver products that prioritize water responsibility. We are committed to advocating for change across our industry and beyond. As part of this, in March 2023 at the UN 2023 Water Conference, Burberry participated alongside other industry stakeholders in an event to share our experience and progress made in wastewater management within our value chain, and to highlight the key role of education and knowledge sharing for greater impact at scale. Along with ZDHC initiatives, Burberry will continue to work closely with our supply chain partners, cultivating a culture of openness and transparency to understand and monitor water impacts at the manufacturing stage of the value chain through the Water Conservation programme launched in 2020.

Burberry will ensure that water-related initiatives are embedded into the overall objectives and strategies of the business, with clear responsibilities assigned to relevant teams, including supply chain management and raw materials sourcing.

Burberry will continue to communicate progress on Burberry Plc website and in the Annual Report, as well as through independent reports including CDP Water.

7. GLOSSARY

- **CETP:** Centralized Effluent Treatment Plant.
- **Direct Discharge:** A point source that discharges wastewater to streams, lakes, or oceans. Municipal and industrial facilities that induce pollution through a defined conveyance or system such as outlet pipes are direct dischargers.
- **ETP:** Effluent Treatment Plant.
- **Indirect Discharge:** The discharge of wastewater to a treatment facility not owned and operated by the facility discharging the pollutants, for example a municipal wastewater treatment plant or industrial treatment park.
- **Incoming Water (IW):** Water that is supplied to a manufacturing process, usually withdrawn from surface water bodies, groundwater or collected from rainfall. This includes water supplied by municipalities and condensate from external sources of process stream.
- **Pre-treated Wastewater (Pre-treated WW):** Wastewater that has been pre-treated prior to indirect discharge from the facility to a CETP.
- **Untreated WW:** (previously referred as 'Raw Wastewater') Wastewater that has not yet been treated prior to direct or indirect discharge from the facility, or prior to water recycling efforts.
- **Wet process facility**: facility responsible of carrying out an aqueous stage in its production process.

8. APPENDIX 1

Tables below report the parameters tested, their reporting limits, and the test method applied.

Table 1A: **Alkylphenol (AP) and Alkylphenol Ethoxylates (APEOs): including all isomers**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Nonylphenol ethoxylates (NPEO)	9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0		NP/OP: ISO 18857-2 (modified dichloromethane extraction) or ASTM D7065 (GC-MS or LC-MS(-MS) OPEO/NPEO (n>2): ASTM D7742 ISO 18857-2
Nonylphenol (NP), mixed isomers	104-40-5 11066-49-2 25154-52-3 84852-15-3	Textile and Leather: 5	NP/OP: ISO 18857-2 (modified dichloromethane extraction) or ASTM D7065 (GC-MS or LC-MS(-MS) OPEO/NPEO (n>2): ASTM D7742 ISO 18857-2
Octylphenol ethoxylates (OPEO)	9002-93-1 9036-19-5 68987-90-6		NP/OP: ISO 18857-2 (modified dichloromethane extraction) or ASTM D7065 (GC-MS or LC-MS(-MS) OPEO/NPEO (n>2): ASTM D7742 ISO 18857-2
Octylphenol (OP), mixed isomers	140-66-9 1806-26-4 27193-28-8	Textile and Leather: 5	NP/OP: ISO 18857-2 (modified dichloromethane extraction) or ASTM D7065 (GC-MS or LC-MS(-MS) OPEO/NPEO (n>2): ASTM D7742 ISO 18857-2

Table 1B: **Anti- Microbials & Biocides**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
o-Phenylphenol (+salts)	90-43-7	Textile only: 100	USEPA 8270E Solvent extraction, derivatisation with KOH, acetic anhydride followed by GC-MS BS EN 12673-1999 an alternative method of solvent extraction and derivatisation are included
Triclosan	3380-34-5	Textile and Leather: 100	
Permethrin	Multiple	Textile and Leather: 500	USEPA 8270E Solvent extraction, followed by GC-MS ISO 14154:2005 An alternate method, without derivatisation and determination by

Table 1C: **Chlorinated Parafins**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Medium-chain Chlorinated paraffins (MCCPs) (C14-C17)	85535-85-9	Textile and Leather: 500	Preparation: EPA 3510 Analysis: ISO18219-2:2021 Method for MCCP with GC-MS(NCI) or LC-MS/MS
Short-chain Chlorinated paraffin (C10 – C13)	85535-84-8	Textile and Leather: 25	Preparation EPA 3510 Analysis: ISO18219-1:2021, ISO 12010:2019 Methods for SCCP with GC-MS(NCI) or LC-MS/MS

Table 1D: **Chlorobenzenes and Chlorotoluenes**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
1,2-dichlorobenzene	95-50-1	Textile and Leather: 0.2	USEPA 8260D, 8270E, Purge and Trap, Head Space Dichloromethane extraction followed by GC-MS
Other isomers of mono-, di-, tri-, tetra-, penta- and hexa- Chlorobenzene and mono-, di-, tri-, tetra- and penta- chlorotoluene	Multiple		

Table 1E: **Chlorophenols**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
2-chlorophenol	95-57-8		
3-chlorophenol	108-43-0		
4-chlorophenol	106-48-9		
2,3-dichlorophenol	576-24-9		
2,4-dichlorophenol	120-83-2		
2,5-dichlorophenol	583-78-8		
2,6-dichlorophenol	87-65-0		
3,4-dichlorophenol	95-77-2		
3,5-dichlorophenol	591-35-5		
2,3,4-trichlorophenol	15950-66-0		
2,3,5-trichlorophenol	933-78-8	Textile and Leather: 0.5	USEPA 8270E Solvent extraction, derivatisation with KOH, acetic anhydride followed by GC-MS BS EN 12673-1999 the procedure of solvent extraction and derivatisation are included
2,3,6-trichlorophenol	933-75-5		
2,4,5-trichlorophenol	95-95-4		
2,4,6-trichlorophenol	88-06-2		
3,4,5-trichlorophenol	609-19-8		
2,3,5,6-tetrachlorophenol	935-95-5		
2,3,4,6-tetrachlorophenol	58-90-2		
2,3,4,5-tetrachlorophenol	4901-51-3		
Pentachlorophenol (PCP)	87-86-5		

Table 1F: **N,N-di-methylformamide (DMFa)**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Dimethyl formamide; N,N-dimethylformamide (DMFa)[a]	68-12-2	Textile only: 1000	EPA 8015, EPA 8270E

Table 1G: **Dyes – Carcinogenic or Equivalent Concern**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Basic violet 3 with >0.1% of Michler's Ketone[b]	548-62-9	Textile and Leather: 500	Liquid extraction, LC-MS
C.I. Acid Red 26	3761-53-3		
C.I. Acid Violet 49	1694-09-3		
C.I. Basic Blue 26 (with Michler's Ketone > 0.1%)	2580-56-5		
C.I. Basic Green 4 (Malachite Green Chloride)	569-64-2		
C.I. Basic Green 4 (Malachite Green Oxalate)	2437-29-8		
C.I. Basic Green 4 (Malachite Green)	10309-95-2		
C.I. Basic Red 9	569-61-9		
C.I. Basic Violet 14	632-99-5		
C.I. Direct Black 38	1937-37-7		
C.I. Direct Blue 6	2602-46-2		
C.I. Direct Red 28	573-58-0		
C.I. Disperse Blue 1	2475-45-8	Textile only: 500	Liquid extraction, LC-MS
C.I. Disperse Blue 3	2475-46-9		
Disperse Orange 11	82-28-0		

Table 1H: **Dyes – Disperse (Allergenic)**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Disperse Blue 102	12222-97-8	Textile only: 50	Liquid extraction, LC-MS
Disperse Blue 106	12223-01-7		
Disperse Blue 124	61951-51-7		
Disperse Blue 26	3860-63-7		
Disperse Blue 35	12222-75-2		
Disperse Blue 35	56524-77-7		
Disperse Blue 7	3179-90-6		
Disperse Brown 1	23355-64-8		
Disperse Orange 1	2581-69-3		
Disperse Orange 3	730-40-5		
Disperse Orange 37/59/76	13301-61-6		
Disperse Red 1	2872-52-8		
Disperse Red 11	2872-48-2		
Disperse Red 17	3179-89-3		
Disperse Yellow 1	119-15-3		
Disperse Yellow 3	2832-40-8		
Disperse Yellow 39	12236-29-2		
Disperse Yellow 49	54824-37-2	Textile only: 50	Liquid extraction, LC-MS
Disperse Yellow 9	6373-73-5		

Table 1I: **Dyes – Navy Blue Colourant**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing (parameter has been moved to the archive list)
Component 1: C39H23Cl-CrN7O12S 2Na	118685-33-9	Textile and Leather: 500	Liquid extraction, LC-MS
Component 2: C46H-30CrN10O20S2 3Na	Not Allocated		

Table 1J: **Flame Retardants**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
2,2-bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	Textile: 25 Leather: 5	USEPA 8270E, ISO 22032, USEPA 527 and USEPA 8321B Dichloromethane extraction GC-MS or LC-MS(-MS)
Bis(2,3-dibromopropyl) phosphate (BIS)	5412-25-9		
Decabromodiphenyl ether (DecaBDE)	1163-19-5		
Hexabromocyclodecane (HBCDD)	3194-55-6		
Octabromodiphenyl ether (OctaBDE)	32536-52-0	Textile: 25 Leather: 5	USEPA 8270, ISO 22032, USEPA 527 and USEPA 8321B Dichloromethane extraction GC-MS or LC-MS(-MS)
Pentabromodiphenyl ether (PentaBDE)	32534-81-9		
Polybromobiphenyls (PBB)	59536-65-1		
Tetrabromobisphenol A (TBBPA)	79-94-7		
Tris-(2-chloro-1-methylethyl) phosphate (TCPP)	13674-84-5		
Tris(1-aziridinyl)phosphine oxide) (TEPA)	545-55-1		
Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8		
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8		
Tris(2,3,-dibromopropyl)-phosphate (TRIS)	126-72-7		
Decabromobiphenyl (DecaBB)	13654-09-6	Textile only: 25	
Dibromobiphenyls (DiBB)	Multiple		
Octabromobiphenyls (OctaBB)			
Dibromopropylether	21850-44-2		
Heptabromodiphenyl ether (HeptaBDE)	68928-80-3		
Hexabromodiphenyl ether (HexaBDE)	36483-60-0		
Monobromobiphenyls (MonoBB)	Multiple		
Monobromodiphenylethers (MonoBDEs)			
Nonabromobiphenyls (NonaBB)			

Table 1J: **Flame Retardants (continued)**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Nonabromodiphenyl ether (NonaBDE)	63936-56-1	Textile only: 25	USEPA 8270E, ISO 22032, USEPA 527 and USEPA 8321B Dichloromethane extraction GC-MS or LC-MS(-MS)
Tetrabromodiphenyl ether (TetraBDE)	40088-47-9		
Tribromodiphenylethers (TriBDEs)	Multiple		
Boric acid	10043-35-3 11113-50-1	Textile only: 100[c]	determined as total boron via ICP
Diboron trioxide	1303-86-2		
Disodium octaborate	12008-41-2		
Disodium tetraborate anhydrous	1303-96-4 1330-43-4		
Tetraboron disodium heptaoxide, hydrate	12267-73-1		

Table 1K: **Glycols / Glycol Ethers**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
2-ethoxyethanol	110-80-5	Textile and Leather: 50	USEPA 8270E Liquid extraction, LC-MS GC-MS
2-ethoxyethyl acetate	111-15-9		
2-methoxyethanol	109-86-4		
2-methoxyethylacetate	110-49-6		
2-methoxypropylacetate	70657-70-4		
Bis(2-methoxyethyl)-ether	111-96-6		
Ethylene glycol dimethyl ether	110-71-4	Textile and Leather: 50	USEPA 8270E Liquid extraction, LC-MS GC-MS
Triethylene glycol dimethyl ether	112-49-2		

Table 1L: **Halogenated Solvents**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
1,2-dichloroethane	107-06-2	Textile and Leather: 1	USEPA 8260D Headspace GC-MS or Purge and trap GC-MS
Methylene chloride	75-09-2		
Tetrachloroethylene	127-18-4		
Trichloroethylene	79-01-6		

Table 1M: **Organotin Compounds**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Dipropyltin compounds (DPT)	Multiple	Textile and Leather: 0.01	ISO 17353 Derivatisation with NaB (C2H5) GC-MS
Mono-, di- and tri-butyltin derivatives			
Mono-, di- and tri-methyltin derivatives			
Mono-, di- and tri-octyltin derivatives			
Mono-, di- and tri-phenyltin derivatives			
Tetrabutyltin compounds (TeBT)			
Tripropyltin Compounds (TPT)			
Tetraoctyltin compounds (TeOT)			
Tricyclohexyltin (TCyHT)			
Tetraethyltin Compounds (TeET)			ISO 17353

Table 1N: **Other/Miscellaneous Chemicals**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
AEEA [2-(2-aminoethylamino)ethanol]	111-41-1	Textile only: 500	Liquid extraction, LC-MSMS
Bisphenol A	80-05-7	Textile only: 10	Liquid extraction, LC-MS
Thiourea	62-56-6	Textile only: 50	
Quinoline	91-22-5		
Borate, zinc salt	12767-90-7	Textile only: 100[#]	determined as total boron and total zinc via ICP
Silica* (Used in sand blasting)	14464-46-1	Textile and Leather: N/A	Not a ZDHC Wastewater parameter

Table 1O: **Perfluorinated and Polyfluorinated Chemicals (PFCs)**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Perfluorooctane sulfonate (PFOS) and related substances, Perfluorooctanoic acid (PFOA)	Multiple	Textile and Leather: 0.01	PFCs: EPA 537:2020 FTOH: BS EN 12673-1999, EPA 8270, PFCs: LC-MSMS FTOH: GC-MS Derivatisation with acetic anhydride followed by GC-MS
Perfluorooctanoic acid (PFOA) related substances		Textile and Leather: 1	

Table 1P: **Phthalates – including all other esters of ortho-phthalic acid**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
1,2-benzenedicarboxylic acid, di-C6-8 branched and liearalkyl esters , C7-rich (DIHP)	71888-89-6 84777-06-0	Textile and Leather: 10	USEPA 8270E, ISO 18856 Dichloromethane extraction GC-MS
1,2-benzenedicarboxylic acid, di-C7-11 branched and liearalkyl esters (DHNUP)	68515-42-4 68515-50-4		
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8		
Butyl benzyl phthalate (BBP)	85-68-7		
Di-cyclohexyl phthalate (DCHP)	84-61-7		
Di-iso-decyl phthalate (DIDP)	26761-40-0		
Di-iso-octyl phthalate (DIOP)	27554-26-3		
Di-isobutyl phthalate (DIBP)	84-69-5		
Di-isononyl phthalate (DINP)	28553-12-0		
Di-n-hexyl phthalate (DnHP)	84-75-3		
Di-n-octyl phthalate (DNOP)	117-84-0		
Di-n-pentylphthalates	131-18-0		
Di-n-propyl phthalate (DPRP)	131-16-8		
Di(ethylhexyl) phthalate (DEHP)	117-81-7		
Dibutyl phthalate (DBP)	84-74-2		
Diethyl phthalate (DEP)	84-66-2	Textile and Leather: 10	USEPA 8270E, ISO 18856 Dichloromethane extraction GC-MS
Diisopentylphthalates	605-50-5		
Dinonyl phthalate (DNP)	84-76-4		

Table 1Q: **Polycyclic Aromatic Hydrocarbons (PAHs)**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Acenaphthene	83-32-9	Textile and Leather: 1	USEPA 8270E DIN 38407-39 Solvent extraction GC-MS
Acenaphthylene	208-96-8		
Anthracene	120-12-7		
Benzo[a]anthracene	56-55-3		
Benzo[a]pyrene (BaP)	50-32-8		
Benzo[b]fluoranthene	205-99-2		
Benzo[e]pyrene	192-97-2		
Benzo[ghi]perylene	191-24-2		
Benzo[j]fluoranthene	205-82-3		
Benzo[k]fluoranthene	207-08-9		
Chrysene	218-01-9		
Dibenz[a,h]anthracene	53-70-3		
Fluoranthene	206-44-0	Textile and Leather: 1	USEPA 8270E DIN 38407-39 Solvent extraction GC-MS
Fluorene	86-73-7		
Indeno[1,2,3-cd]pyrene	193-39-5		
Naphthalene	91-20-3		
Phenanthrene	85-01-8		
Pyrene	129-00-0		

Table 1R: **Restricted Aromatic Amines (Cleavable from Azo-colourants)[f]**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
2-naphthylamine	91-59-8	Textile and Leather: 0.1	Reduction step with sodium dithionite, solvent extraction USEPA 8270E and ISO 14362-1 and ISO 14362-3 (if needed) GC/MS and LC/MS/MS
2-Naphthylammoniumacetate	553-00-4		
2,4-xylidine	95-68-1		
2,4,5-trimethylaniline	137-17-7		
2,4,5-trimethylaniline hydrochloride	21436-97-5		
2,6-xylidine	87-62-7		
3,3'-dichlorobenzidine	91-94-1		
3,3-dimethoxylbenzidine	119-90-4		
3,3-dimethylbenzidine	119-93-7		
4-aminoazobenzene	60-09-3	Textile and Leather: 0.1	Reduction step with sodium dithionite, solvent extraction USEPA 8270E and ISO 14362-1 and ISO 14362-3 (if needed) GC/MS and LC/MS/MS
4-aminodiphenyl	92-67-1		
4-chloro-o-toluidine	95-69-2		
4-chloro-o-toluidinium chloride	3165-93-3		
4-chloroaniline	106-47-8		
4-methoxy-m-phenylene diammonium sulphate; 2,4-diaminoanisole sulphate	39156-41-7		
4-methoxy-m-phenylenediamine	615-05-4		
4-methyl-m-phenylenediamine	95-80-7		
4,4-methylene-bis-(2-chloro-aniline)	101-14-4		
4,4-methylenedi-o-toluidine	838-88-0		
4,4-methylenedianiline	101-77-9		
4,4-oxydianiline	101-80-4		
4,4-thiodianiline	139-65-1		
5-nitro-o-toluidine	99-55-8		
6-methoxy-m-toluidine	120-71-8		
Benzidine	92-87-5		
o-aminoazotoluene	97-56-3		
o-anisidine	90-04-0		
o-toluidine	95-53-4		

Table 1S: **UV Absorbers**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec- butyl) phenol (UV-350)	36437-37-3	Textile only: 100	USEPA 8270 ISO 22032, USEPA 527 and USEPA 8321B. Dichloromethane extraction GC-MS or LC-MS(-MS)
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1		
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7		
2,4-Di-tert-butyl-6-(5-chlorobenzotriazole-2-yl) phenol (UV-327)	3864-99-1		

Table 1T: **Volatile Organic Compounds (VOC)**

Substance	CAS Number	Reporting Limit (µg/L)	Standard Method for Analysis/Testing
Benzene	71-43-2	Textile and Leather: 1	ISO 11423-1 Headspace or Purge and trap GC-MS USEPA 8260D Add ISO 20595 Static headspace for determination of VOC in wastewater
m-cresol	108-39-4		ISO 11423-1 Headspace or Purge and trap GC-MS EPA 8270 BS EN 12673-1999
o-cresol	95-48-7	Textile and Leather: 1	ISO 11423-1 Headspace or Purge and trap GC-MS EPA 8270 BS EN 12673-1999
p-cresol	106-44-5		
Xylene	1330-20-7	Textile only: 1	ISO 11423-1 Headspace or Purge and trap GC-MS USEPA 8260D
Toluene[g]	108-88-3	Textile only: 1	HJ 1067 or EPA 8260D or ISO 11423-1

Parameter	Unit	Parameter limit values			Standard methods for analysis and testing Equivalent methods can be used if approved by ZDHC			
		Wastewater Foundational	Wastewater Progressive	Wastewater Aspirational	International/ Europe	USA	China	India
Antimony*	mg/L	Textile and Leather: 0.1	Textile and Leather: 0.05	Textile and Leather: 0.01	ISO 17294	USEPA 200.8 USEPA 6010C USEPA 6020A	HJ 700	IS 3025 (Part 65)
Chromium (VI)	mg/L	Textile: 0.05 Leather: 0.15	Textile: 0.005 Leather: 0.05	Textile: 0.001 Leather: 0.02	ISO 18412	USEPA 218.6	GB 7467	IS 3025 (Part 52) must meet reporting limit
Barium	mg/L	Textile: Sample and report only				EPA 200.8 EPA 6010C EPA 6020A	HJ 700	
Selenium	mg/L							
Tin	mg/L							

Parameter	Unit	Parameter limit values			Standard methods for analysis and testing Equivalent methods can be used if approved by ZDHC			
		Wastewater Foundational	Wastewater Progressive	Wastewater Aspirational	International/ Europe	USA	China	India
Arsenic	mg/L	Textile and Leather: 0.05	Textile and Leather: 0.01	Textile and Leather: 0.005	ISO 17294	USEPA 200.8 USEPA 6010C USEPA 6020A	HJ 700	IS 3025 (Part 65)
Chromium, total	mg/L	Textile: 0.2 Leather: 1.5	Textile: 0.1 Leather: 0.8	Textile: 0.05 Leather: 0.3				IS 3025 (Part 65)
Cobalt	mg/L	Textile and Leather: 0.05	Textile and Leather: 0.02	Textile and Leather: 0.01				
Cadmium	mg/L	Textile and Leather: 0.1	Textile and Leather: 0.05	Textile and Leather: 0.01			GB 7475 HJ 700	IS 3025 (Part 65) IS 3025 (Part 41) AAS Instrumental Method
Copper	mg/L	Textile and Leather: 1	Textile and Leather: 0.5	Textile and Leather: 0.25				IS 3025 (Part 65) IS 3025 (Part 42) AAS Instrumental Method
Lead	mg/L	Textile and Leather: 0.1	Textile and Leather: 0.05	Textile and Leather: 0.01				IS 3025 (Part 65) IS 3025 (Part 47) AAS Instrumental Method
Nickel	mg/L	Textile and Leather: 0.2	Textile and Leather: 0.1	Textile and Leather: 0.05			GB 11912 HJ 700	IS 3025 (Part 65) IS 3025 (Part 54) AAS Instrumental Method
Silver	mg/L	Textile and Leather: 0.1	Textile and Leather: 0.05	Textile and Leather: 0.005			GB 11907 HJ 700 I	IS 3025 (Part 65)
Zinc	mg/L	Textile and Leather: 5	Textile and Leather: 1	Textile and Leather: 0.5			GB 7472 GB 7475 HJ 700	IS 3025 (Part 65) IS 3025 (Part 49) AAS Instrumental Method
Mercury	mg/L	Textile and Leather: 0.01	Textile and Leather: 0.005	Textile and Leather: 0.001	ISO 17294	EPA 200.8-SIM EPA 6020A-SIM EPA 245.1 EPA 245.7	HJ 597 HJ 694	IS 3025 part 48 cold vapor AAS only, IS 3025 part 65-SI

Parameter	Unit	Parameter limit values			Standard methods for analysis and testing Equivalent methods can be used if approved by ZDHC			
		Wastewater Foundational	Wastewater Progressive	Wastewater Aspirational	International/ Europe	USA	China	India
Conventional Parameters (Testing conducted during sample collection for pH, Temperature difference, Persistent Foam, Wastewater flowrate, DO, Total Chlorine)								
pH[a]	pH	Textile and Leather: 6 - 9			ISO 10523	USEPA 150.1 SM 4500-H+	HJ 1147	IS 3025 (Part 11) Electrometric method only
Temperature difference[b]	°C	Textile and Leather: Δ+15	Δ+10	Δ+5	DIN 38 404-4 or equivalent	USEPA 170.1 SM 2550	GB/T 13195	IS 3025 (Part 9)
E.coli	MPN/100-ml	Textile and Leather: 126 MPN/100-ml				SM 9221B presumptive, confirm positive with SM9221F or G		
Colour[c] (436nm; 525nm; 620nm)	m-1	Textile and Leather: 7; 5; 3	5; 3; 2	2; 1; 1	ISO 7887-B			
Persistent Foam[d]	Absent/ Present	Textile and Leather: No indication of Persistent foam in receiving water			N/A			
Wastewater Flowrate[e]	15m³ per day							
Ammonium-Nitrogen	mg/L	Textile: 10 Leather: 15	Textile: 1 Leather: 10	Textile: 0.5 Leather: 1	ISO 11732 ISO 7150	USEPA 350.1 USEPA 350.3 SM 4500 NH3 - D, E, F, G, or H	HJ 535	IS 3025 (Part 34) phenate or ammonia selective electrode only
AOX	mg/L	Textile only: 3	Textile only: 0.5	Textile only: 0.1	ISO 9562	HACH LCK 390 Merck 1.00675.0001	HJ/T 83-2001	
Biochemical Oxygen Demand 5-days concentration (BOD_5)	mg/L	Textile: 30 Leather: 50	Textile: 15 Leather: 30	Textile: 8 Leather: 20	ISO 5815-1	USEPA 405.1 SM 5210-B	HJ 505	IS 3025 (Part 44) seeded dilution water (BOD_3)
Chemical Oxygen Demand (COD)	mg/L	Textile: 150 Leather: 250	Textile: 80 Leather: 150	Textile: 40 Leather: 100	ISO 6060[e] ISO 15705	USEPA 410.4 SM 5220-D	HJ 828 GB/T 11914 e	IS 3025 (Part 58) e
Dissolved Oxygen (DO)[e]	mg/L	Textile and Leather: Sample and report only			ISO 5814	EPA 360.1 SM 4500-O-G	HJ 506	
Oil & Grease	mg/L	Textile: 10 Leather: 20	Textile: 2 Leather: 10	Textile: 0.5 Leather: 5	ISO 9377-2	SM 5520-B/C USEPA 1664 revision B	HJ 637 (total oil and grease)	IS 3025 (Part 39) partition gravimetric or partition Infra-red
Total Phenols / Phenol Index	mg/L	Textile and Leather: 0.5	Textile: 0.01 Leather: 0.3	Textile: 0.001 Leather: 0.1	ISO 6439	SM 5530-B/C	HJ 503 must meet required reporting limit	IS 3025 (Part 43)
Total Chlorine[e]	mg/L	Textile and Leather: Sample and report only			ISO 7393-2	EPA 330.5 SM4500-Cl-G	HJ 586	
Total Dissolved Solids (TDS)[f]	mg/L	Textile and Leather: Sample and report only				SM 2540-C USEPA 160.1	GB/T 5750.4-2006 180ºC (180 degree centigrade)	IS 3025 (Part 16) 179ºC to 181ºC
Total Nitrogen	mg/L	Textile: 20 Leather: 35	Textile: 10 Leather: 20	Textile: 5 Leather: 10	ISO 11905 - Part 1 ISO 29441	USEPA 351.2 SM 4500P-J SM 4500N-B SM 4500N-C	HJ 636	IS 3025 (Part 34) measure and total all forms of nitrogen (ammonia,nitrate, nitrite,organic)
[illegible]	[illegible]	Textile and [illegible]	Textile: 0.5 [illegible]	Textile: 0.1 [illegible]	ISO 17294 [illegible]	USEPA 365.4 SM 4500P-J USEPA 200.7	[illegible]	IS 3025 (Part 31)
Anions								
Chloride	mg/L	Textile and Leather: Sample and report only			ISO 10304-1 ISO 15923-1	SM 4110-B SM 4110-C SM 4500-Cl D or E USEPA 300	HJ 84-2016	IS 3025 (Part 32) potentiometric or automated ferricyanide only
Cyanide, total	mg/L	Textile only: 0.2	Textile only: 0.1	Textile only: 0.05	ISO 6703-1,-2,-3, ISO 14403-1,-2	USEPA 335.2, APHA 4500-CN	HJ 484	
Sulfate	mg/L	Textile and Leather: Sample and report only			ISO 10304-1 ISO 15923-1	SM 4500 SO4, E, F, G SM 4110 B, C USEPA 300 USEPA 9038	HJ 84-2016	IS 3025 (Part 24)
Sulfide	mg/L	Textile: 0.5 Leather: 1	Textile: 0.05 Leather: 0.5	Textile: 0.01 Leather: 0.2	ISO 10530	SM 4500-S2-D, E,G, or I	GB/T 16489	IS 3025 (Part 29) Methylene blue only
Sulfite	mg/L	Textile only: 2	Textile only: 0.5	Textile only: 0.2	ISO 10304-3	SM 4500-SO32-C	HJ 84-2016	

9. Appendix 2

Root Cause Analysis and Corrective Action Plan template

RCA-CAP Template V2.0

Revision Date: 16th May 2023

<table>
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<tr><td colspan="3">Gateway ID:</td><td colspan="2">Reporting cycle: (Month/Year):</td><td colspan="2">TRID:</td><td>Laboratory ID:</td></tr>
<tr><td colspan="3">Sampling date:</td><td colspan="3">Wastewater test report date:</td><td colspan="2">Name of the wastewater testing laboratory:</td></tr>
<tr><td colspan="3">Flow rate (m^3/day)</td><td colspan="5">Type of wastewater discharge (as per ZDHC wastewater guideline description):</td></tr>
<tr><td colspan="8">Parameters identified as non-conformity in the test report/ ClearStream report</td></tr>
<tr><td>Conventional parameter</td><td>Test method mentioned in the report</td><td>Wastewater guideline limit value</td><td>Detected value</td><td>Identified root cause</td><td>Corrective action taken, including any investments planned</td><td>Due date of the corrective action[1]</td><td>Verification date of the corrective action[2]</td></tr>
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<tr><td colspan="3">Date</td><td colspan="5">Details of consultant employed (if any):</td></tr>
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