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# Annual Report 2024

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10 ZDHC





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# CEO's Letter

As we look back at 2024, I feel both grateful and encouraged by the direction we are taking together at ZDHC. This past year has not just been about progress in numbers or milestones, but about deepening our purpose and maturing as a global community. What has stood out is a growing sense of shared responsibility. A quiet but steady movement where collaboration is no longer just a value, but a practice shaping how we work.

A key element of this has been the continued development of our team. Across programme delivery, operations and leadership, we welcomed new colleagues who bring both expertise and heart. These additions have not only strengthened our ability to support stakeholders but have also allowed us to respond to opportunities and challenges with more clarity, pace and confidence. What we are building is not just an organisation fit for the future, but one that is more connected, more agile and more aligned with the needs of those we serve.

This year also marked a turning point in how we engage with stakeholders. The renewed Advisory Groups have brought new energy and structure to our dialogues with brands, suppliers, chemical companies and solution providers. By fostering more inclusive and transparent conversations, we are making co-creation a reality. This is essential. Because the complexity of the challenges we face requires not just better tools, but better relationships and deeper trust.

## 2024 has brought meaningful progress across the board:

- We released important updates to the ZDHC MRSL (version 3.1) and the Wastewater Guidelines (version 3.0), reinforcing the technical backbone of our work.
- Our training programmes reached more than 20,000 participants worldwide, enabling local ownership and capacity building where it matters most.
- We strengthened partnerships with governments, NGOs and academia, creating space for alignment and innovation beyond our immediate network.
- And through our 2024 Impact Report, we shared tangible progress on reducing hazardous chemical discharges and improving wastewater performance.

Alongside these achievements, something less visible but equally important is taking root. Over the past two years, we have begun to shift our internal leadership culture. In 2024, we placed a stronger focus on what we call "Aligned Autonomy" — empowering teams to lead with accountability and purpose, while staying grounded in a shared direction. This shift is already helping us reduce dependency on central decision-making and paving the way for a more resilient and distributed organisation.

Looking ahead, we remain conscious of the broader context. Climate change, biodiversity loss and social equity are not peripheral issues. They are deeply interconnected, and they shape the urgency of our mission. We know we cannot solve them alone, but we can contribute — with consistency, humility and determination.

I want to thank the ZDHC team, our contributors, signatories and all those who walked with us this year. Your commitment, your questions and your collaboration are what keep this work moving forward.

Let us continue shaping a future that serves both people and planet. With courage, with care and — always — together.



Frank Michel  
Chief Executive Officer  
ZDHC Foundation

# ZDHC Signatory Growth

## Signatory Brands

Bosideng	Ermenegildo Zegna Group	Golden Goose S.p.A.
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## Signatory Chemical Formulators

CPL PRODOTTI CHIMICI srl	Dymatic Chemicals, Inc.
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## Signatory Suppliers

CID - Consorzio Italiano Implementazione Detox	Tong Hong Tannery Group
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## Signatory Textile Machinery Manufacturer

LAFER S.P.A.
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## Signatory Association

Leather Working Group
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## Signatory Friends of ZDHC - Vendors

CONCERIA TIRRENA S.p.A.	Hop Lun (Hong Kong) Limited	Korea Silkroad Co. ,Ltd
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## Signatory Friends of ZDHC - Brands

CBR Fashion Group	Eileen Fisher, Inc	KIABI
Komar Brands	Oxford Industries, Inc	Pepco
Profuomo BV	Valentino S.p.A.	VIVIENNE WESTWOOD S.r.l.

## Signatory Approved Solution Providers

ALGI HOLDING COMPANY LLC	BEST S.r.l.	Bureau Veritas Consumer Product Services Pakistan Pvt. Limited
Bureau Veritas Consumer Products Service (Guangzhou) Co., Ltd Quanzhou Branch	Bureau Veritas Dacheng (Zhejiang) Testing Technology Service Co., Ltd.	Ecocert Greenlife
EsTex International Limited	Eurofins Modern Testing Services Ltd (Bangladesh)	GEO CHEM CONSUMER PRODUCTS SERVICES (CPS) LTD. (Bangladesh)
GreenPont Sustainability Solutions (Shenzhen) Co.,Ltd.,	Guangdong Bronco Digital Technology Co.,Ltd	IDFL Laboratory and Institute Inc.
IndiGo Quality Management Consultancy Plc.	PDCA International Ltd.	RST Co., Ltd
Shaoxing Testing Institute of Quality Technical Supervision	Techno Science Co., Ltd.	Teks Tech Inspection India Pvt. Ltd.
ToxServices	TUV Rheinland / CCIC (Qingdao) Co., Ltd.	UNIC Lineapelle Srl
Virgula Habil		

### Transitioned to Full Signatory Brands

- Brooks Runnings
- Gymshark
- John Lewis
- Kohl's, Inc
- LPP SA
- Marc O'Polo International GmbH
- Mustang
- Ralph Lauren Cooperation
- Takko Fashion
- Under Armour
- Vaude Sport GmbH & Co. KG
- Varner
- Zimmermann

### Year-on-Year Growth

	2023	2024
ZDHC Signatory Brands	41	57*
ZDHC Signatory Chemical Formulators	58	58
ZDHC Signatory Suppliers	46	45
ZDHC Signatory Associates	18	19
ZDHC Signatory Textile Machinery Manufacturer		1
ZDHC Approved Solution Providers	158	153
Signatory Friends of ZDHC - Brands	25	17*
Signatory Friends of ZDHC - Vendors	18	19
Total	364	369

\*After two years, brands that join as "Friends of ZDHC" are required and supported to transition to full Signatory Brand status. In 2024, 14 brands made this transition, 3 new brands joined directly as Signatory Brands, and 1 brand exited, explaining the increase in Signatory Brands and the decrease in Friends of ZDHC - Brands.

# Key Highlights of ZDHC Activities and Collaborations from 2024

### Key Publications and Industry Standards

- ZDHC Guidelines and Reports:
  - Commodity Chemicals Guide V1.0
  - ZDHC Air Emissions Guidelines V1.0
  - ZDHC Dissolved Pulp Guidelines V1.0 and ZDHC Industry Standard Implementation Approach Guide V1.1
  - Recycled Polyester Guidelines V1.0 and Industry Standard Implementation Approach V1.0
  - ZDHC MRSL V3.1 – Updated in Performance InCheck Reports.
  - ZDHC Wastewater Guidelines V2.2 – Implementation update on ZDHC Gateway.
  - ZDHC MRSL Conformant Chemical Products – Updates in the ZDHC Gateway Chemical Module.
- 2023 Impact Report – Published to highlight industry progress.

### Strategic Collaborations and Partnerships

- CFMI Academy Collaboration – Contributed to the first sustainability training module in Florence.
- Leather Working Group Partnership – Announced a joint initiative to advance sustainable chemical management in leather manufacturing.
- UNIDO Southern Africa Project – Partnered with UNIDO to launch sustainability efforts in Sub-Saharan Africa.
- Sustainable Textiles Switzerland 2030 (STS2030) – Signed an agreement to implement global chemical management standards.
- Cascale Partnership – Issued a joint press release reaffirming commitment to sustainability in consumer goods.

### Industry Engagement and Conferences

- ZDHC Regional Conferences – Hosted events in:
  - Chennai, India (5th South Asia Regional Conference)
  - Milan, Italy (Southern Europe Regional Conference)
  - Shanghai, China (East Asia Regional Conference)
- FEBRATEx (Brazil) – Marked our first participation in the country's premier textile industry trade fair.
- PHD CCI Conference – ZDHC participated in key discussions on sustainable chemical management.
- World Environmental Education Conference (WEEC) – Hosted a side event roundtable.
- Filo 2024 (Milan, Italy) – Joined the International Exhibition of Yarns and Fibres.
- 41st International Footwear Conference (IFC) – Presented at the event organised by the Confederation of International Footwear Associations (CIFA).

- Africa Sourcing & Fashion Week (Ethiopia) – Took part in the 10th edition and engaged with industry leaders.
- United Nations Environment Assembly – Represented ZDHC’s mission in global sustainability discussions.
- 1st ZDHC Technical Conference, Bonding with Sustainable Chemistry (Mumbai, India)

#### Education and Capacity Building

- New Online Course on Fibre Fragments in Wastewater – Hosted by ZDHC Academy in collaboration with The Microfibre Consortium (TMC).
- ZDHC Chemical Management System Technical Industry Guide (CMS TIG) Training for Leather – Launched for industry professionals.
- ZDHC Academy Platform Relaunch – Introduced a new and improved learning platform.
- Circular Economy Workshop (Ethiopia) – Participated as part of the UNIDO Southern Africa Project.
- Workshops & Stakeholder Engagements –
  - Conducted a workshop in Delhi (India).
  - Organised a stakeholder event in Dhaka (Bangladesh).
  - Led an implementation and sustainability workshop with Bursa Chamber of Commerce and Industry.
  - Held an online regional conference for the Türkiye region.

#### Special Initiatives and Announcements

- ZDHC Supplier Platform Expansion – Now supporting Turkish and Simplified Chinese.
- Supplier to Zero – Level 2 Certification – Special promotion announced.
- First ZDHC Technical Conference – A new format for in-depth discussions and technical advancements.

# Roadmap to Zero Programme: Our Progress in 2024

## Competence Centres

### Executive Summary

In 2024, the Competence Centres team laid the technical groundwork for several major ZDHC guidelines updates and new developments. A key milestone was initiating the ZDHC MRSL updating process from Version 3.1 to Version 4.0. This included improvements to the MRSL Submission Platform, renewed governance through an in-person MRSL Council meeting, and launching a substances phase-out study in collaboration with industry stakeholders.

Published several new and updated guidelines—including Wastewater Guidelines V2.2, Air Emissions Guidelines V1.0, Dissolved Pulp Guidelines V1.0, Recycled Polyester Guidelines V1.0, and the Commodity Chemicals Guide V1.0. Technical alignment with external partners, such as Canopy and Textile Exchange, helped ensure ZDHC guidelines remain interoperable with broader industry frameworks.

While some deliverables, like the Chemicals to Zero – Progressive framework, required extended development due to its technical complexity, the Competence Centres continued to drive ZDHC’s role as a science-based standard setter. They prepared the foundation for future impact areas.

### 1. Key Achievements

- Initiated the update process for ZDHC MRSL V4.0, including the launch of the updated MRSL Submission Platform and an in-person MRSL Council meeting to align on governance and technical direction.
- Published:
  - ZDHC Wastewater Guidelines V2.2, introducing new parameters such as fibre fragmentation and sludge handling.
  - ZDHC Air Emissions Guidelines V1.0, addressing Volatile Organic Compounds (VOCs) and Greenhouse Gas (GHG) emissions.
  - ZDHC Dissolved Pulp Guidelines V1.0 and ZDHC Recycled Polyester Guidelines V1.0, in collaboration with Textile Exchange.
  - ZDHC Commodity Chemicals Guide V1.0, addressing general-use chemicals in production.
- Advanced the Chemicals to Zero – Progressive (CtZ-P) framework and accompanying quality control plan.
- Developed a draft ETP Efficiency Verification Protocol to support evaluating wastewater treatment plant performance.
- Integrated MMCF supplier evaluations into Canopy’s Hot Button Report based on ZDHC-aligned data.



- Initiated an industry-wide phase-out study on MRSL substances, in partnership with PwC India and chemical formulators.

## 2. Challenges

- The complexity of technical alignment delayed the finalisation of the Chemicals to Zero – Progressive framework and the ETP Efficiency Verification Protocol.
- Continued challenges aligning implementation expectations between Roadmap to Zero and Supplier to Zero Programme elements.

## 3. Metrics

- 7 new or updated guidelines and technical documents published.
- 6 new substance proposals submitted through the MRSL Submission Platform.
- 1 industry-wide MRSL phase-out study launched.
- ZDHC performance data used in Canopy's Hot Button Report for MMCF suppliers.

## 4. Key Initiatives/Projects

### Initiative 1: MRSL Substances Phase-Out Study

- Objective: Evaluate the chemical industry's progress in phasing out substances listed on the ZDHC MRSL.
- Impact: Will provide a clear picture of market availability, substitution progress and gaps in innovation.
- Challenges: Data collection from a fragmented and diverse global industry.
- Lessons Learned: Strong stakeholder engagement and clear data definitions are essential for meaningful insights.

### Initiative 2: Technical Conference on Sustainable Chemistry

- Objective: Strengthen ZDHC's role as a technical thought leader and provide a platform for peer learning.
- Impact: Enabled global knowledge exchange and built momentum around sustainable chemistry practices.
- Challenges: Limited engagement in virtual formats.
- Lessons Learned: Hybrid or in-person formats are better suited to deep technical dialogue and relationship building.

### Initiative 3: Collaboration with Textile Exchange

- Objective: Align ZDHC implementation guidelines with Textile Exchange's Material Matter Standard to ensure consistent industry frameworks.
- Impact: Reinforced ZDHC's role in guiding upstream fibre and material sustainability practices.
- Challenges: Coordinating timelines and harmonising technical content across programmes.

- Lessons Learned: Early collaboration and co-developed rollout plans are key to harmonisation.

## 5. Future Goals:

- Finalise and implement the Chemicals to Zero - Progressive Framework.
- Integrate the ETP Assessment Protocol into the Supplier Implementation Framework.
- Integrate the Wastewater Guidelines V3.0 into the Supplier Roadmap to Zero with updated water use targets and smart testing features.
- Expand ZDHC MRSL to new industries beyond textiles and leather.
- Align ZDHC MRSL V4.0 with CSRD/ESPR reporting frameworks.
- Develop a Substances of Concern (SoC) list to support CSRD/CSDDD reporting via InCheck.
- Release MMCF Guidelines V3.0 in line with EU BREF requirements.
- Launch a cohesive Supplier Roadmap to Zero (formerly known as the Supplier Implementation Framework) linked to performance criteria.
- Introduce new guidelines supporting ZDHC impact areas like circularity, biodiversity, climate and water stewardship.

# Implementation

## ZDHC Academy

### Executive Summary

In 2024, the ZDHC Academy significantly expanded its role in supporting sustainable chemical management through in-person, online and hybrid training. The Academy delivered a record number of training sessions, introduced platform improvements, launched new course offerings, and deepened its collaborations with academic institutions and multilateral partners. The Academy also supported multiple global initiatives, including the UNIDO Southern Africa Project, Erasmus+, UNEP collaborations, and the Better Mill Initiative.

Strategic advancements included the launch of the University Engagement Strategy, the Gender & Chemicals Workplan, and the integration of training into ZDHC's broader guideline rollout efforts. While the year presented challenges related to shifting timelines, platform integration and stakeholder coordination, the Academy remained a key driver of awareness and capacity building across the textile, footwear, and leather industries.

### 1. Key Achievements:

- Launched the University Engagement Strategy, collaborating with 19 academic institutions and presenting at the World Environmental Education Conference.

- Released the Gender & Chemicals Workplan 2025–2027 and assumed co-chair role of the Gender & Chemicals Partnership (G&CP) Training and Education Working Group.
- Publicly launched the Fibre Fragments in Wastewater course in partnership with The Microfibre Consortium (TMC).
- Rolled out new training programmes including CMS TIG for Leather, Climate Action Training, Climate Action Train-the-Trainer, and several guidelines webinars.
- Supported the launch of the UNIDO Southern Africa Project and continued implementation of the Better Mill Initiative with Solidaridad.
- Initiated training activities in partnership with CBI and contributed to regional events in Tunisia, Egypt, and sub-Saharan Africa.
- Deployed significant ZDHC Academy online platform enhancements, including automated invoicing, partner pages, trainer bios and integrated payment features.
- Represented ZDHC at Africa Fashion Week, UNEA-6 in Nairobi, and two UNEP project kick-offs.
- Integrated MMCF Module results into Canopy's Hot Button Report and released implementation approaches for ZDHC Dissolved Pulp V1.0 and ZDHC Recycled Polyester Guidelines V1.0.
- Co-hosted a booth at the 10th Anniversary of the German Partnership for Sustainable Textiles (PST), supporting KPI finalisation on wastewater and chemicals.
- Awarded Brands to Zero 2024 Champion Brands during Impact Day.

## 2. Challenges:

- Project delays due to evolving timelines and internal alignment needs.
- Lack of clear ownership in collaborative projects hindered decision-making.
- Difficulties ensuring inclusivity for diverse facilities while maintaining quality assurance.

## 3. Metrics:

- Training sessions increased from 151 (2023) to 297 (2024) — a rise of 83%.
- 2,620 learners trained (+24% YoY), with courses delivered in 20 countries and two new languages.
- 3 new ZDHC Approved Training Providers onboarded.
- 3 new courses launched; multiple existing courses updated.
- 3 new partner-led training programmes initiated.
- 4 new projects with multilateral organisations commenced.
- 22 MMCF Module V2.0 completions.
- 235 Supplier to Zero Level 2 completions (+86%).
- 35 participants joined ZDHC Dissolved Pulp Guidelines V1.0 webinars.
- 475 participants joined ZDHC Recycled Polyester Guidelines V1.0 webinars.

## 4. Key Initiatives/Projects:

### Initiative 1: University Engagement Strategy

- Objective: Strengthen academic engagement through curriculum integration, research collaboration and increased student awareness.
- Impact: Enhanced visibility of ZDHC in academic circles; 19 partnerships established.
- Challenges: Defining strategic institutions; balancing regional needs.
- Lessons Learned: A flexible, region-specific approach is critical to success.

### Initiative 2: Gender and Chemicals Workplan

- Objective: Establish a long-term strategy for integrating gender considerations into chemical management.
- Impact: Launched workplan, initiated activities, appointed internal focal points, and gained board seat at G&CP.
- Challenges: Varied stakeholder understanding and engagement.
- Lessons Learned: Clear framing and inclusive approaches are essential.

### Project 3: UNIDO Southern Africa

- Objective: Scale Roadmap to Zero implementation in Ethiopia, South Africa, Lesotho and Madagascar.
- Deliverables: Training, workshops, implementation support and a knowledge-sharing platform.
- Status: Ongoing.
- Challenges: Timelines, cultural differences and visa-related logistics.
- Lessons Learned: Plan for travel and partner mobilisation well in advance.

### Initiative 4: Implementation of ZDHC MMCF Guidelines V2.2

- Objective: Streamline the MMCF Module review process and integrate data with Canopy's Hot Button Report.
- Impact: Increased engagement and recognition in the MMCF sector.
- Challenges: Different roadmaps among MMCF producers; lab and brand involvement gaps.
- Lessons Learned: Flexibility and proactive brand engagement are vital.

### Initiative 5: Implementation of ZDHC Dissolved Pulp Guidelines V1.0

- Objective: Launch and promote adoption through webinars and support materials.
- Impact: Strengthened ZDHC's credibility in a new sector.
- Challenges: Limited lab availability; disconnect between upstream producers and downstream influencers.
- Lessons Learned: Clear ownership structures are needed for effective collaboration.



## Initiative 6: Implementation of ZDHC Recycled Polyester Guidelines V1.0

- Objective: Promote circularity and raise awareness through guideline rollout.
- Impact: Increased engagement in a rapidly evolving market segment.
- Challenges: Balancing ambition with the pace of innovation and adoption.
- Lessons Learned: Flexibility is crucial; responsibilities must be clearly defined.

## 5. Future Goals:

- Fully implement the University Engagement Strategy, including curriculum pilots and research activities.
- Develop and deliver Gender and Chemicals training and establish a formal ZDHC working group.
- Align training quality management with broader solution provider standards.
- Launch the Training Endorsement Framework and continue to update courses alongside ZDHC guidelines releases.
- Begin Erasmus+ projects and progress in multilateral collaborations with UNIDO, UNEP, and Solidaridad.
- Integrate Academy training with the ZDHC Leader Programmes and core platforms.
- Enhance communication and visibility of capacity-building activities.
- Expand the MMCF Module scope to include viscose filament yarn, lyocell, and acetate.
- Launch MMCF Guidelines V3.0 and associated industry standard implementation tools.
- Pilot and roll out self-assessment modules for dissolved pulp and recycled polyester.
- Deepen collaboration with the German Partnership for Sustainable Textiles and stakeholder groups in Germany.
- Continue scaling Supplier to Zero participation and improve the review process via the Supplier Platform.

## Project: IPEV – Industrial Parks in Ethiopia and Vietnam

### Objective:

The ZDHC Chemical Management System Capacity-Building in Industrial Parks in Ethiopia and Vietnam (IPEV) Project was launched in 2021 as part of IDH's In Sustainable Textile and Apparel Parks (INSTEP) Programme. Sponsored by ZDHC Signatory Brands Target and Tchibo, the project aimed to build and strengthen sustainable chemical and wastewater management practices in selected industrial parks and supplier facilities in Ethiopia and Vietnam.

### Deliverables:

Over its three-year duration, the IPEV Project served as a testbed for implementing ZDHC's sustainable chemical management approach at the industrial park level. Key deliverables included:

- ZDHC Academy-led capacity-building activities tailored to local suppliers and industrial parks.
- Active engagement with park administrators and regional stakeholders to embed sustainable practices.
- In Ethiopia, collaboration with the Industrial Park Development Cooperation (IPDC) led to creating a chemical management guideline for adoption across all Special Economic Zones.
- While 223 certificates were issued in Ethiopia, 51 individual participants trained through ZDHC Academy programmes in Vietnam.

### Status:

The IPEV Project was completed in December 2024.

### Challenges:

- Difficulty recruiting industrial parks in Vietnam.
- Limited effectiveness of online training formats, requiring a shift to in-person capacity building.

### Lessons Learned:

- In-person training yielded stronger engagement and more effective learning outcomes than virtual sessions.
- Establishing strong stakeholder relationships, especially with industrial park authorities, requires more time than initially expected, highlighting the need for flexible project planning and timelines.
- Local context and on-the-ground facilitation are essential for success in regional implementation.

## Regions

### Executive Summary

In 2024, the ZDHC Regions Team significantly expanded the geographical reach and local implementation of the Roadmap to Zero Programme. With Türkiye and Brazil added to the existing focus regions of East Asia, South Asia and Southern Europe, the team now covers five global hubs. Despite being a small team of eight regional leads, they delivered over 150 events in 10 languages, engaging over 17,000 participants.

These efforts strengthened regional visibility and enabled deeper engagement with local stakeholders, including brands, suppliers, formulators, solution providers, governments, and associations. Highlights included the rollout of a standardised event framework, the launch of a dedicated Footwear Sector Engagement Strategy and strategic partnerships such as ZDHC's role in the EU-funded LIFE Cascade Project. The year also saw tangible adoption increases in ZDHC platforms and tools across the five regions. In 2025, the focus will remain on deepening local adoption, scaling outreach in the footwear sector, and fostering proactive participation across value chains.

## 1. Key Achievements

- Successfully expanded regional operations to include Türkiye and Brazil, increasing strategic coverage to five global hubs.
- Hosted and co-hosted over 150 events (e.g. InConnect, Solutions Roadshows, webinars and regional conferences), with participation from 25% of ZDHC Signatory Brands and 45% of Approved Solution Providers.
- Engaged 17,000+ stakeholders in 10 languages through event-driven implementation and localised outreach.
- Developed and launched a dedicated Footwear Sector Engagement Strategy based on extensive sector mapping and analysis.
- Acted as dissemination partner in the four-year EU-funded LIFE Cascade Project, which aims to evaluate PFAS and microplastic removal technologies.
- Strengthened relationships with regional brands, associations, local governments, and supplier networks to improve programme implementation.
- Played a key role in increasing the number of registered suppliers and formulators on the ZDHC Gateway and enhancing their programme implementation, thereby significantly strengthening RtZ Programme execution across the supply chain.

## 2. Challenges

- Expanding ZDHC adoption beyond European and North American brands and their value chain.
- Low implementation rates in the footwear and leather sectors are due to limited signatory presence and the availability of MRSL-compliant formulators.
- Many stakeholders continue to engage reactively, driven by buyer requests rather than proactively adopting sustainable practices.

## 3. Metrics

- 150+ regional events hosted/co-hosted.
- 17,000+ participants engaged across 10 languages.
- 14 new ZDHC Signatories onboarded in 2024.
- 18.43% increase in ZDHC Gateway-registered suppliers across the five regions.
- 24.74% increase in ZDHC Gateway-registered chemical formulators.
- Verified InCheck Level 1 adoption grew by 37,300%.
- Performance InCheck usage increased by 54%; ClearStream by 7.56%.
- 55.4% increase in published formulations on the ZDHC Gateway.
- 3.8% increase in Supplier to Zero certifications.
- 91% of ZDHC Gateway suppliers and 94–95% of programme implementations are located in countries with ZDHC regional representation.

## 4. Key Initiatives/Projects

### Initiative 1: Standardised Regional Events Framework

- Objective: Establish a uniform approach to stakeholder engagement across all regions through ZDHC InConnect and Solutions Roadshow events.
- Impact: Strengthened brand visibility, enhanced supplier engagement and created consistent outreach channels.
- Challenges: Coordinating delivery across regions, languages and time zones.
- Lessons Learned: A modular, adaptable event format increases impact and efficiency.

### Initiative 2: Footwear Sector Engagement Strategy

- Objective: Address the footwear sector's underrepresentation in ZDHC's ecosystem through a focused engagement and implementation roadmap.
- Impact: Sector mapping completed and strategy launched, setting the foundation for 2025 brand and supplier onboarding.
- Challenges: Limited number of signatory footwear brands and low availability of compliant chemical products.
- Lessons Learned: Sector-specific outreach is essential for uptake and should be phased according to infrastructure readiness.

### Initiative 3: Regional Metrics Monitoring and Insights

- Objective: Use platform and implementation data to guide regional strategies and demonstrate programme impact.
- Impact: Enabled more targeted decision-making and communication of regional progress.
- Challenges: Inconsistent data entry across platforms and difficulties aligning regional indicators.
- Lessons Learned: Close collaboration with platform and data teams is essential for reliable reporting.

### Initiative 4: LIFE Cascade Dissemination Partnership

- Objective: Contribute to and disseminate findings from an EU-funded research project focused on wastewater treatment technologies.
- Impact: Strengthened ZDHC's scientific credibility and alignment with policy-driven innovation.
- Challenges: Synchronising with multi-partner project timelines and deliverables.
- Lessons Learned: Participation in long-term research programmes builds influence and fosters technical leadership.

## 5. Future Goals

### Goal 1: Strengthen regional implementation of the Roadmap to Zero Programme

- Objective: Accelerate the adoption of ZDHC tools and guidelines through local engagement and partnerships.
- Planned Actions: Expand regional events, co-develop outreach with associations and increase brand and supplier touchpoints.

### Goal 2: Scale footwear sector adoption

- Objective: Drive implementation in the footwear sector by onboarding relevant brands, suppliers and chemical formulators.
- Planned Actions: Roll out tailored communication, training, and onboarding support for this underrepresented segment.

### Goal 3: Promote proactive engagement across the value chain

- Objective: Shift from reactive participation to self-driven adoption of ZDHC programmes.
- Planned Actions: Highlight early adopters, promote local champions, and introduce recognition schemes to incentivise leadership.

### Goal 4: Improve accessibility through regional partnerships

- Objective: Reduce barriers to entry by working with implementation partners, donor programmes.
- Planned Actions: Support localisation of tools and resources, enable language accessibility and launch pilot initiatives tailored to regional contexts.

## Platforms and Data

### Executive Summary

In 2024, substantial progress was made in advancing ZDHC's digital infrastructure, platform performance and data strategy. These efforts laid the foundation for long-term data integrity, streamlined user experience, and improved organisational efficiency. By enabling better insights and supporting data-informed decisions, this contributed to developing meaningful ZDHC guidelines, tools, and reporting solutions, particularly in the context of evolving sustainability directives such as CSRD, CSDDD, and ESG frameworks.

In addition to supporting internal teams with data, analytics and platform enhancements, the team successfully delivered several key initiatives for external stakeholders, including the pilot for batch-level traceability reporting, a go-to-market strategy for regulatory reporting solutions, and the launch of Zeddy AI—ZDHC's first digital assistant.

## 1. Key Achievements

- Improved the chemical matching mechanism within the ZDHC Gateway's Performance InCheck Report by integrating Product ID-based logic, significantly enhancing accuracy and reliability.
- Achieved system-wide performance and speed optimisations on the ZDHC Gateway, improving user experience across key modules.
- Expanded the Product (Batch) Traceability Strategy and launched a pilot for the Product (Batch) Performance InCheck Report in partnership with ID Factory.
- Developed a go-to-market strategy for data products supporting Corporate Sustainability Reporting Directive (CSRD), Corporate Sustainability Due Diligence Directive (CSDDD), and Environmental, Social, and Governance (ESG ) compliance.
- Launched Zeddy AI, a custom-built chatbot that helps stakeholders navigate the Roadmap to Zero Programme, guidelines and the Knowledge Base.

## 2. Challenges

- Managing an evolving platform and data architecture amid backlog pressure, which impacted delivery timelines.
- Uncertainty surrounding CSRD, CSDDD, and ESG frameworks, including shifting regulatory requirements and implementation timelines.
- Balancing resource allocation between innovation and operational platform support.

## 3. Metrics

- 131,717 ZDHC MRSL-conformant products published on the Gateway.
- 18.2% increase in ZDHC Gateway-registered chemical formulators.
- 12,972 supplier accounts on the ZDHC Gateway.
  - +6.0% usage growth for the Wastewater Module.
  - +20.3% usage growth for the Chemical Module.
- 72 brands and 19 vendors actively using the ZDHC Gateway to engage their supply chains.
- Supplier Platform accounts increased by 36.1% (now >4,900).
- 1,687 valid Supplier to Zero Level 1 certificates (slight decrease); 234 Level 2 certificates (+ significant increase).
- Customer Support resolved over 10,000 support tickets with a satisfaction score of 96.1%.
- ZDHC Knowledge Base accessed 245,589 times.

## 4. Key Initiatives/Projects

### Initiative 1: Pilot – Product (Batch) Performance InCheck Report

- Objective: Test the feasibility and value of a batch-level chemical traceability report to support Digital Product Passport (DPP) compliance.



- Impact: Set the groundwork for verifying chemical compliance at the product level and meeting future traceability demands.
- Challenges: Securing high-quality input data and aligning expectations on reporting and visualisation.
- Lessons Learned: Clearly defining data requirements early and allocating time for pilot onboarding are essential.

### Initiative 2: Go-to-Market Strategy for CSRD/CSDDD/ESG Data Products

- Objective: Build a strategic roadmap for ZDHC's regulatory reporting solutions.
- Impact: Established direction for turning existing data into usable ESG reporting products.
- Challenges: Unclear legislative timelines and evolving technical requirements.
- Lessons Learned: Leverage existing strengths, and focus on immediate value areas while coordinating closely with internal and external experts.

### Initiative 3: Cross-Platform User Journeys

- Objective: Deliver seamless user experiences across all ZDHC digital tools.
- Impact: Improved user satisfaction and tool integration.
- Challenges: The complexity of syncing platforms with distinct data structures.
- Lessons Learned: Middleware architecture and consistent error handling are key to stable interoperability.

### Initiative 4: Unique Facility ID Across apparel alliance Members

- Objective: Standardise facility-level data exchange by matching internal IDs with a shared external unique identifier.
- Impact: Enabled consistent, aggregated impact reporting and simplified collaboration.
- Challenges: Aligning all organisations on a common ID and adapting to upcoming due diligence requirements.

### Project 1: ZDHC Gateway Product Verification Upgrade

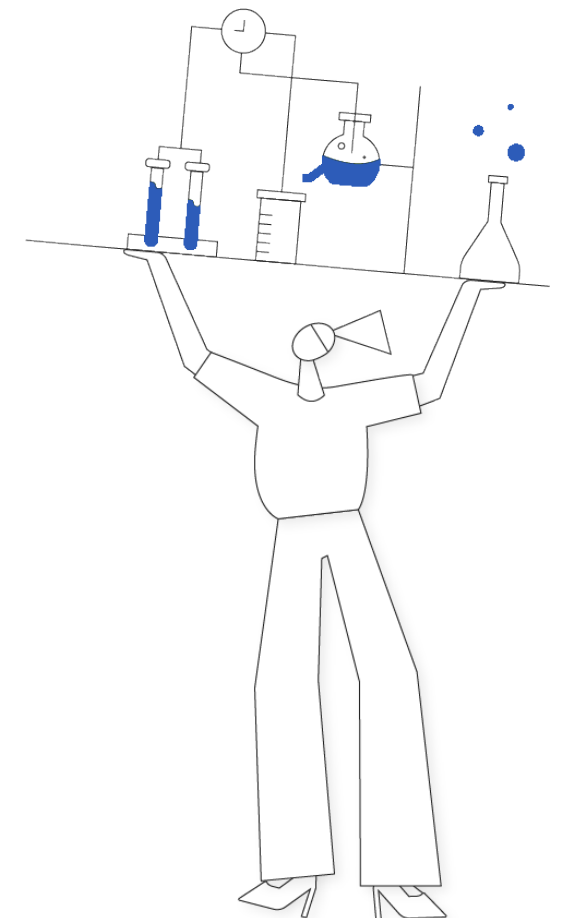
- Objective: Improve automation of MRSL certification integration via API connectivity with ZDHC Approved Certifiers.
- Deliverables:
  - API development for MRSL data transfer.
  - Manual submission option for non-API users.
  - ChemCheck Report will become the ZDHC standard for MRSL conformance.
- Status: Launch scheduled for 1 April 2025.
- Challenges: API adoption remains slow, even among larger certifiers; maintaining both manual and automated channels requires careful balance.
- Lessons Learned: Adoption requires sustained outreach and resourcing. Proactive communication is key.

### Project 2: ZDHC Community Forum

- Objective: Create a public digital community space for users to exchange knowledge, success stories, and technical guidance.
- Deliverables:
  - Minimum Viable Product developed.
  - Integration with existing platforms.
  - Launch planned for mid-2025.
- Challenges: Driving long-term engagement, understanding user needs and managing moderation.
- Lessons Learned: AI-supported moderation and phased rollout are essential to maintaining quality and usability.

## 5. Future Goals:

- Implement a QR code generator for all ZDHC MRSL-conformant products.
- Complete roll-out of product verification processes for ZDHC MRSL Certifiers.
- Integrate data flow across ZDHC platforms to reduce manual handling.
- Improve user experience through UX/UI enhancements and analytics-driven iteration.
- Develop ESG/CSRD/CSDDD-compliant data tools.
- Launch full Product (Batch) Performance InCheck Report to support DPP.
- Expand Zeddy AI to support broader programme implementation queries.
- Launch a public Community Forum to enhance peer-to-peer support.
- Build and execute a data product marketing strategy to improve adoption and visibility.
- Foster a data-literate culture within ZDHC through training and best practices.
- Standardise the product development process via the ZDHC product development funnel.



# Quality Management and Assurance

## Executive Summary

In 2024, the Quality Management and Assurance Team achieved key milestones in strengthening ZDHC's quality systems and digital infrastructure, like the Find Your Expert Platform and Onsite App. Key achievements included the release of ZDHC MRSL Update Principles and Procedures V4.0, a global proficiency test for approved wastewater labs and MRSL certifiers, and improvements to the Solution Provider Platform, On-Site App, and Find Your Expert tool. The team also launched two new approval processes in the Supplier Platform and conducted extensive reports and quality certifications assessments. Despite an increased workload and shifting project priorities, the team maintained its commitment to excellence and is now planning further development of due diligence frameworks for monitoring compliance of suppliers, formulators, and brands implementing the RtZ programme, along with continued improvements in data quality.

## 1. Key Achievements:

- Published the ZDHC MRSL Update Principles and Procedures V4.0.
- Conducted a global Round Robin/Proficiency Test for ZDHC-approved wastewater labs and ZDHC MRSL certifiers.
- Improved quality-related data and functionalities in the Solution Provider Platform, On-Site App, and Find Your Expert tool.
- Launched two new approval processes in the Supplier Platform:
  - ZDHC Supplier to Zero Reviewer V1.0
  - ZDHC MMCF Module Reviewer V1.0
- Conducted quality assessments for over 150 wastewater reports and 1,505 ZDHC MRSL certifications.

## 2. Challenges:

- Unplanned workload due to special investigations related to approval suspensions of specific laboratories and certifiers.

## 3. Metrics:

- 150+ wastewater reports reviewed.
- 1,500+ ZDHC MRSL certifications assessed.
- 80+ investigations conducted.
- 2 new approval processes were launched on the Supplier Platform.
- 2 quality-related services activated on the On-Site App.

## 4. Key Initiatives/Projects:

### Initiative 1: Round Robin/Proficiency Test

- Objective: Evaluate the performance of ZDHC-approved wastewater laboratories and MRSL certifiers in ensuring consistency and reliability in testing against ZDHC guidelines.
- Impact: Improved data quality, enhanced stakeholder trust, strengthened technical credibility.
- Status: Completed; corrective actions scheduled for Q1–Q3 2025.
- Lessons Learned: Periodic Round Robin testing is essential to sustaining a robust system for continuous improvement in laboratory alignment.

### Initiative 2: Quality Framework for Chemicals to Zero – Progressive (CtZ-P)

- Objective: Develop a comprehensive quality framework tailored for the CtZ-P framework.
- Deliverables: A guidance document to be integrated with the CtZ-P implementation process.
- Status: Ongoing; expected completion by Q3 2025.
- Challenges: Balancing practicality and technical thoroughness.
- Lessons Learned: Consider extending the framework to the Chemicals to Zero – Foundational Level to support broader consistency.

### Initiative 3: Supplier Profile Assessment Pilot

- Objective: Assess the feasibility of third-party evaluation of Supplier Profiles on the ZDHC Gateway.
- Deliverables: A validated review process supported by the On-Site App.
- Status: Ongoing.
- Challenges: Engaging solution providers and suppliers in pilot participation.
- Lessons Learned: Early regional involvement is key to securing engagement.

### Initiative 4: Platform Statistics Automation (On-Site App)

- Objective: Develop automated statistical dashboards to track platform usage and data trends.
- Deliverables: Centralised dashboard with shared access.
- Status: Moving into full implementation.
- Challenges: Ensuring data consistency and standardisation.
- Lessons Learned: Incorporating metric definitions early in service design improves usability and accuracy.

## 5. Future Goals:

- Streamline approval processes and improve the journey for Approved Solution Providers through better digital tools.
- Develop a due diligence framework for ZDHC stakeholders, starting with chemical formulators and formulations.
- Contribute to overall improvements in data quality and integrity across platforms.

# Collaborations

## Executive Summary

In 2024, ZDHC strengthened its collaboration to accelerate sustainable transformation in the textile and leather sectors. Key partnerships included formal agreements with the Leather Working Group and Cascale, focusing on harmonising audit standards and aligning environmental strategies.

A collaborative study confirmed the correlation between Total Suspended Solids (TSS) and microfibre release, enabling improved monitoring which led to integrating a fibre fragmentation indicator into the updated ZDHC Wastewater Guidelines. a dedicated TMC fibre fragment training was launched on the ZDHC Academy.

ZDHC guidelines on recycled polyester and dissolved pulp were integrated into Textile Exchange's draft Material Matter Standard.

Alongside the apparel alliance led by Textile Exchange, ZDHC co-launched a Supply Chain Taxonomy to standardise sustainability terminology and data use.

## 1. Key Achievements:

- ZDHC Foundation & Leather Working Group Collaborated to Advance Sustainable chemical management in Leather Manufacturing: The collaboration focuses on harmonising standards between the LWG audit standard and the ZDHC Roadmap to Zero Programme.
- The Microfibre Consortium (TMC) has launched a new course designed to help textile manufacturers reduce the release of microfibres into wastewater during production processes. The e-learning programme will be hosted at the ZDHC Academy.
- ZDHC and Cascale have signed a collaboration for a Sustainable Future. This agreement underscores their shared commitment to aligning and advancing environmental sustainability in the consumer goods industry.
- The ZDHC Wastewater Guidelines: Version 2.2 (WWG V2.2) includes a fibre fragmentation indicator, a joint indicator for The Microfibre Consortium and ZDHC.
- Integration of the Recycled Polyester Guidelines V1.0 and the ZDHC Dissolved Pulp Guidelines V1.0 in the draft Textile Exchange Material Matter Standard.
- Studies completed by Hohenstein, ZDHC and The Microfibre Consortium (TMC) have established a direct correlation between the Total Suspended Solids (TSS) of discharged effluent and the number of microfibres released from a wet processing facility; as determined by Dynamic Image Analysis (DIA). Thus, the TSS parameter can be used as an indicator or measure of fibre fragmentation and monitoring. Reducing the TSS in discharged wastewater can directly reduce the level of microfibre discharge in the wastewater stream.
- At the Textile Exchange Conference, held from October 28 to 31 in Pasadena, California, Scott Echols from ZDHC participated in a panel discussion on fibre fragmentation's impact on the environment.
- Textile Exchange, in collaboration with the apparel alliance — comprising Apparel Impact Institute, Cascale, Textile Exchange, and ZDHC — has launched the Supply Chain Taxonomy for the Textile, Apparel, and Fashion Industry. This standardised framework defines and scopes supply chain

tiers, offering a consistent classification of products and processes from raw material production to finished goods and distribution. By addressing inconsistencies in terminology and measurement, the taxonomy establishes a common language to streamline collaboration, enhance transparency, and foster consistency across the industry. For example, it can help allocate greenhouse gas emissions more consistently across supply chain tiers, supporting more accurate and aligned sustainability efforts. Making this shared point of reference available is a step forward in building a more cohesive and collaborative supply chain landscape.

## 2. Challenges:

- Changes in the sustainability priorities of the several stakeholders.

## 3. Metrics:

- ZDHC has Collaboration agreement with six like-minded organisations including Cascale and LWG which has been signed in 2024
- 1 Requirement from like-minded organisation has been integrated in ZDHC Guidelines
- 3 ZDHC guidelines are integrated in the draft Material Matters Standard from Textile Exchange
- 1 likeminded organisation got their own training section on the Academy

## 4. Key Initiatives/Projects:

### Initiative 1: Fibre Fragmentation (FF) in wastewater

- Objective: Integrating The Microfibre Consortium's (TMC) Fibre Fragments in Wastewater Guidelines into ZDHC aims to reduce fibre fragment (microfibres) release in wastewater and sludge during textile production. By incorporating these efforts, the goal is to establish guidelines and best practices that reduce fibre shedding, promote safer chemical management in textile production, and prevent the release of microfibres into the environment.
- Deliverables:
  - Guidelines for Fibre Fragmentation: Clear guidelines on how to minimise fibre fragmentation during textile production.
  - Integration in the ZDHC Wastewater Guidelines
  - Measurement and Reporting Tools: Development of tools to measure and report fibre shedding across textile production processes, enabling brands and manufacturers to track progress and improve performance.
- Status: Completed



## Initiative 2: Integration of Sustainable chemical management in Textile Exchange's Material Matter Standard

- Objective: Integrating ZDHC Fibre and Material Guidelines in the Material Matter Standard (MMS) to provide a unified framework that helps to create a holistic approach.
- Deliverables:
  - Unified Sustainability Framework: Create Sustainable Chemical Management Fibre and Material Guidelines to integrate in Material Matter Standard. On recycled polyester, dissolved pulp and updated MMCF requirements
  - Industry Collaboration: Stronger collaboration among brands and manufacturers via pilots to ensure the guidelines are realistic yet advancing the industry forward
  - Measurement and reporting tools Development of tools to measure and report fibre shedding across textile production processes, enabling brands and manufacturers to track progress and improve performance.
- Status: The integration of MMS with ZDHC is ongoing, with the initial framework and guidelines already established. Efforts are being made to refine the integration, expand adoption across the industry, and enhance tools for manufacturers to comply with both frameworks.

## 5. Future Goals:

- Seek and create collaborations with selected like-minded organisations using factory tools that are complementary to the scope of ZDHC. The collaboration criteria are based on the potential to accelerate the RtZ Programme at the factory level through the cultivation of meaningful shared value propositions.
- Build and leverage global communities to incorporate, promote and advocate for ZDHC's MRSL SCM Framework.

# Closing Remarks

As we conclude our reflection on 2024, it is clear that this was a year of both consolidation and bold advancement for ZDHC. Across teams, geographies and disciplines, we worked with a shared purpose to deepen the implementation of the Roadmap to Zero Programme, respond to regulatory and market shifts and equip our global community with the tools, knowledge and infrastructure to drive sustainable chemical management forward.

From developing new technical guidelines to expanding regional impact, from collaborative alignment to platform innovation, our progress is rooted in the collective action of our Signatories, stakeholders and partners. Their commitment remains at the heart of everything we do.

Yet we know that challenges remain. With the climate crisis intensifying and the regulatory landscape evolving, our role as a catalyst for systemic change is more urgent than ever. The year ahead will require us to move faster, collaborate more deeply, and lead with agility and integrity.

We thank everyone who has contributed to this year's achievements. Let us carry this momentum forward—together—to build a safer, cleaner, and more responsible future for the textile, leather, apparel and footwear value chains.