



Tti Testing Laboratories

OVER 30 YEARS OF EXCELLENCE IN QUALITY ASSURANCE



TTI LABS SUSTAINABILITY CENTER

Sustainability **services**

From data to disclosure.

Your partner in green transformation. Tti Labs helps organizations build sustainability into their operations through data-driven insights, credible reporting and alignment with global frameworks.



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- 05 Supply chain
- 06 Chemistry & water
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- 08 Circular economy

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www.ttilabs.net



ZDHC APPROVED

Tti Labs is a ZDHC MRSL V3.1 approved certifier (Level 1) and a ZDHC approved wastewater lab.

Wastewater testing covers every discharge category on the ZDHC list, Zero Liquid Discharge included.

A PROJECT OF TTI TESTING LABORATORIES

The same scientific rigour as the testing lab.

The Tti Labs Sustainability Center is a dedicated division of Tti Testing Laboratories. It advances sustainability through global regulations, environmental compliance and corporate responsibility.

The Center makes meeting these requirements practical, affordable and credible. It draws on Tti Labs' accredited laboratory: founded in 1995, with 544 accredited methods and 1,500+ global brands served.

- ISO/IEC 17025 accredited laboratory, PNAC LAB 022
- ISO/IEC 17020 accredited inspection body, PNAC IB-006 (Tti Inspections Pvt Ltd)
- Punjab EPA-recognized laboratory, with the largest scope for environmental testing
- EPA-approved Emission Monitoring Truck
- Signatory to The Microfibre Consortium 2030 Commitment
- OCA-recognized GM cotton screening



Climate, carbon & ESG



Supply chain & compliance



Scientific & environmental

NINE SOLUTIONS · THREE PATHWAYS

One partner for every sustainability pathway.

Tti Labs offers end-to-end sustainability solutions, from emission quantification and circular material testing to ESG reporting and regulatory compliance.



Climate, carbon & ESG strategy

- Climate & emission services
- Circular economy & product sustainability
- ESG reporting & disclosure



Responsible supply chain & compliance

- Sustainable supply chains & governance
- Sustainable chemistry & safer materials
- ZDHC & water testing



Scientific & environmental

- Sustainable agriculture & textile inputs
- Industrial & environmental services
- R&D & advanced analytical testing

Strategy & consultation across all three pathways: baseline assessments · Net Zero strategy · sustainability training & capacity building. Water footprint is also offered as a service.

8

AUDIT TYPES

10

REPORTING FRAMEWORKS

1-2-3

GHG INVENTORY SCOPES

T1-3

SUPPLIER MAPPING
TIERS

2025

GHG/ESG FACILITY
LAUNCHED



8-POINT AUDIT PORTFOLIO

Eight audits, one partner.

A garment exporter can get a social compliance audit and a carbon footprint assessment from a single Tti Labs engagement.

NO.	AUDIT	SCHEME	WHAT TTI LABS COVERS
01	Environmental audit	ISO 14001:2026 Environmental management systems	Environmental management system assessment
02	Higg FEM verification	Higg Index (Cascade) Energy, GHG, water, wastewater, air, waste, chemicals	Facility Environmental Module, 3rd-party verification
03	Circular economy audit	RCS / GRS (Textile Exchange) Recycled content and chain of custody	Recycling, waste management, circular model
04	GHG inventory audit	ISO 14064-1:2018 and 14064-3:2019 Quantify, then verify	Greenhouse gas inventory verification
05	Carbon footprint assessment	GHG Protocol Scope 1/2/3	Full lifecycle carbon footprint calculation
06	Chemical management audit	ZDHC MRSL No listed substance above its limit	Chemical inventories, MRSL adherence
07	Organic audit	GOTS · OEKO-TEX ORGANIC COTTON 95% organic grade (GOTS) · farm to product (OEKO-TEX)	Organic integrity verification for textiles
08	Social compliance audit	SA8000:2026 (SAI) Decent-work management system	Labour standards, health & safety, business ethics



Tti Labs audits, assesses and reports what it finds. Certificates for SA8000, GOTS, OEKO-TEX, GRS and ISO standards come from each scheme owner and its accredited certification bodies. Factory and supplier audits run through Tti Labs' inspection company, Tti Inspections Pvt Ltd, ISO/IEC 17020 accredited under PNAC IB-006.



Environmental audit

ISO 14001



Higg FEM

Facility energy



Chemical management

ZDHC MRSL



Social compliance

SA8000

GHG PROTOCOL • ISO 14064 • SBTi

Measure the baseline. Plot the path to Net Zero.

Tti Labs builds GHG inventories, Net Zero strategies and carbon credit roadmaps. They help you quantify, verify and reduce emissions. Pathways align with the Paris Agreement and UNFCCC Article 6 mechanisms.



- Scope 1**
Direct emissions from sources the company owns or controls
- Scope 2**
Purchased electricity
- Scope 3**
The value chain, upstream and downstream

Read clockwise from the gap. GHG Protocol Corporate Standard and Scope 3 Standard. Illustration, not to scale.

CLIMATE & EMISSION SERVICES

- GHG inventory management Scope 1, 2 & 3 • ISO 14064
- Net Zero strategy SBTi FLAG & non-FLAG
- Carbon credits: assessment, PDD & MRV, roadmaps UNFCCC Art. 6
- Carbon footprint: hotspots and reduction guidance Scope 1/2/3
- Customized dashboards: data sets, real-time view
- Scope 3 mapping & GHG tools, built for Pakistan's major export sectors



STACK EMISSION MONITORING

SUSTAINABLE SUPPLY CHAINS & GOVERNANCE

From farm to finished product.

Tti Labs maps suppliers from Tier 1 to Tier 3 and has a service for each stage below. That reduces non-compliance risk and builds readiness for EU Digital Product Passport (DPP) requirements.



Farm

Sustainable agriculture to EU and other organic regulations.

GMO testing · soil carbon check · pesticide residues · OCA-recognized GM cotton screening



Fibre & materials

Organic and recycled claims, and the trail behind them.

Organic audit (GOTS & OEKO-TEX) · recycling (RCS/GRS) · material & process traceability



Chemical inputs

What goes into the dye house.

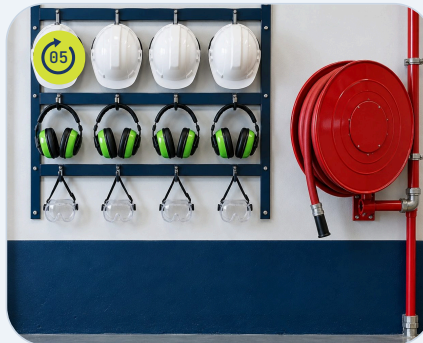
ZDHC MRSL V3.1 certification · RSL/MRSL screening · chemical management audits



Wet processing & effluent

What comes out of it.

ZDHC Wastewater V2.2 · effluent & sludge analysis · ETP/CETP performance · ZLD verification



Factory & workforce

Systems, people and the workplace.

Social compliance (SA8000) · environmental (ISO 14001) · Higg FEM verification · industrial hygiene



Finished product & market

Claims a buyer can rely on.

Life Cycle Assessment · carbon footprint · EU DPP readiness · ESG reporting



Supply chain governance. Due diligence and risk assessment, by country and sector · supplier ESG audits and corrective action plans · responsible sourcing and procurement controls · supplier capacity building and performance monitoring · sustainability and sustainable manufacturing training.

The outcome: empowered suppliers that meet international brand requirements and show continuous improvement.

REACH • AFIRM • ZDHC • PROP 65

What goes in, and what comes out.

Tti Labs tests dyes, coatings, plastics and textiles for restricted substances. Its ZDHC approved wastewater lab tests effluent and sludge. Stay compliant, reduce liability and keep your ZDHC Gateway credibility.



Sustainable chemistry

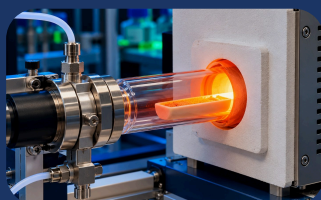
ITEM	DETAIL
Materials	Dyes, coatings, plastics, textiles
Restricted substances	Heavy metals, APEOs, PFAS, phthalates, VOCs
Frameworks	REACH, AFIRM, OEKO-TEX, GOTS, ZDHC, CPSC, Prop 65, POPs regulations
PFAS & Total Organic Fluorine (TOF)	LC-MS/MS and CIC, for targeted and hidden fluorinated compounds
ZDHC MRSL V3.1 certification	For formulators and chemical manufacturers: analytical testing, screening, SDS review
MRSL certification scope	Safe use across textiles, leather, polymers and synthetics

ZDHC water testing

TEST	SCOPE
Wastewater testing	ZDHC Wastewater Guidelines V2.2
Effluent & sludge analysis	ZDHC approved wastewater lab
Microplastic & PFAS detection	Trace-level detection of hazardous substances
Zero Liquid Discharge verification	ZLD is one of the discharge categories in scope
ETP/CETP performance testing	Helps manage chemical loads to meet Guidelines V2.2
Goal	ZDHC Roadmap to Zero: water reuse, recycling and traceability



Restricted substances
RSL/MRSL screening



PFAS & TOF
CIC



Wastewater
ZDHC V2.2



ETP/CETP
Performance

The Tti Labs Dyes & Chemical Auxiliaries profile covers MRSL groups and wastewater limits.



GRI · CSRD · ESRS · IFRS S1 & S2

Disclosure your investors can verify.

Tti Labs aligns your ESG reporting with GRI, CSRD, IFRS S1/S2 and ESRS. Its assurance-ready approach gives investors, regulators and customers verifiable, consistent ESG data.

Materiality assessments

Double materiality analysis

Stakeholder mapping

Risk assessment

Disclosure & compliance

Real-time dashboards

FRAMEWORK	BASIS	WHAT IT COVERS
GRI	Global Reporting Initiative	Standards for any organization to understand and report its impacts on the economy, environment and people
IFRS S1	ISSB, issued June 2023	Sustainability-related risks and opportunities that could reasonably be expected to affect an entity's prospects
IFRS S2	ISSB, issued June 2023	Climate-related risks and opportunities: governance, strategy, risk management, metrics and targets
CSRD	Directive (EU) 2022/2464	Sustainability information in the management report. Directive (EU) 2026/470 limits it to undertakings above EUR 450m net turnover and 1,000 employees.
ESRS	Delegated Regulation (EU) 2023/2772	The standards for CSRD reporting, simplified by Delegated Regulation (EU) 2026/1563
CSDDD	Directive (EU) 2024/1760	Due diligence on human rights and environmental impacts. Directive (EU) 2026/470 raises its thresholds to 5,000 employees and EUR 1.5bn turnover.

REPORTING FRAMEWORKS SUPPORTED

GRI

CSRD

CSDDD

IFRS S1

IFRS S2

SBTi

UNFCCC Art. 6

ZDHC MRSL

HIGG FEM

LCA

Also aligned with: ISO 14064 · UN SDGs · the Paris Agreement · Directive (EU) 2024/825 on empowering consumers · US FTC Green Guides · the proposed EU Green Claims Directive.

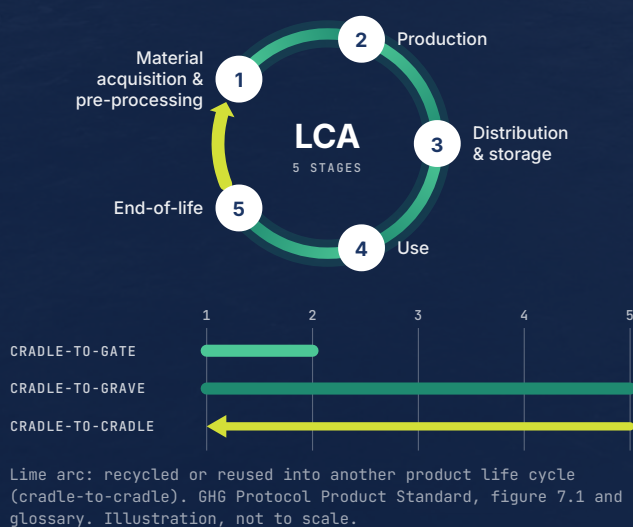
Framework texts as read in Oct 2026; EU thresholds per Directive (EU) 2026/470.

CIRCULAR ECONOMY & PRODUCT SUSTAINABILITY

Give materials a second life, and prove it.

Demonstrate recyclability and product circularity, a key requirement for global exports and environmental labelling.

Tti Labs helps you move from a take-make-waste approach to a regenerative model. That model reuses and recovers materials and gives them new life.



Waste recovery & recycling assessments

Waste categorisation and management, recycling, circular business models.



Product durability & material testing

Durability, accelerated ageing and UV resistance. Advanced polymer and textile testing in ISO/IEC 17025 accredited labs.



Recycling: RCS / GRS

GRS applies to products with 20% or more recycled content. Product-specific GRS labelling needs at least 50% (Textile Exchange).



Life Cycle Assessment

Cradle-to-grave, cradle-to-gate, cradle-to-cradle and comparative LCA. Aligned with the EU Circular Economy Action Plan and the proposed Green Claims Directive.



SCIENTIFIC & ENVIRONMENTAL SERVICES

Science behind every claim.

Tti Labs' ISO/IEC 17025 accredited labs support innovation, circular product design and eco-material verification. Its industrial and environmental services help factories maintain compliance under Pakistan EPA regulations.



Sustainable agriculture

GMO testing · soil carbon check · pesticide residue testing · microbial soil quality audits



Air quality monitoring

Ambient, stack and indoor air, under Pakistan EPA regulations



Waste, sludge & pollution control

Waste & sludge testing · ETP and scrubbers



EIA & EPA NOCs

EIA support · EPA NOCs for construction and operational phases



R&D & advanced testing

Product & material durability · polymer & textile testing · microbiological & chemical R&D · accelerated ageing & UV resistance



Industrial hygiene

Workplace air quality · chemical exposure assessment · OSHA/IHC aligned · occupational health & safety audits



Ensure factory compliance, safeguard worker health and meet national environmental standards. R&D work follows ISO/IEC 17025 and ASTM/ISO standards.

WHY CHOOSE THE TTI LABS SUSTAINABILITY CENTER

Testing and strategy, from **one partner**.

01

Tailored solutions

Customized sustainability strategies aligned with your goals.

02

Independent assurance

Verified, transparent and globally credible data.

03

Long-term support

Retainer-based partnerships for ongoing ESG and compliance needs.

04

Direct client handling

Seamless coordination across corporate and supply chain levels.

05

Integrated expertise

One partner for technical testing and strategic consulting.

MILESTONES



2023–25

Dedicated division started



2023–25

TMC 2030 Commitment signatory



2025

GHG/ESG reporting facility launched



Jul 2025

CO₂ Talks 2025, CEO keynote



Dec 2025

Inspiring Change 2025, Gold sponsor



Dec 2025

OCA Stakeholders Event, Platinum sponsor

WORK WITH US

01

Sustainability enquiries.

One partner for technical testing and strategic consulting.

sustainability@ttilabs.net

02

Quotations.

Quotations for testing, audits and consulting, by email.

quotations@ttilabs.net

03

Measure and verify.

Accredited testing, audits and data collection.

ISO/IEC 17025 • 17020

04

Report and support.

Assurance-ready reports and dashboards, with retainer support.

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Tti Testing Laboratories

Your partner in green transformation.

Targeted lab analysis or complete assurance solution. We promise clarity, control & confidence.

ISO/IEC 17025 · PNAC LAB 022

ISO/IEC 17020 · PNAC IB-006

ZDHC MRSL V3.1 approved certifier (Level 1)

ZDHC approved wastewater lab

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Images are illustrative and AI-generated; they do not show Tti Labs premises, clients or their sites. Scheme and regulation details as read in Oct 2026.

