Tti Testing Laboratories

OVER 30 YEARS OF EXCELLENCE IN QUALITY ASSURANCE

ACCREDITED 17025 ISO/IEC

ACCREDITED 17020 ISO/IEC

Tti LABS SUSTAINABILITY CENTER

Sustainability services

Carbon, chemicals, circularity and ESG reporting, backed by an accredited lab.

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

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02 Solutions
03 Audits
04 Climate & emissions
05 Supply chain
06 Chemistry & water
07 ESG reporting
08 Circular economy
09 Science & environment
10 Work with us

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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

A sustainability division inside an accredited 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.

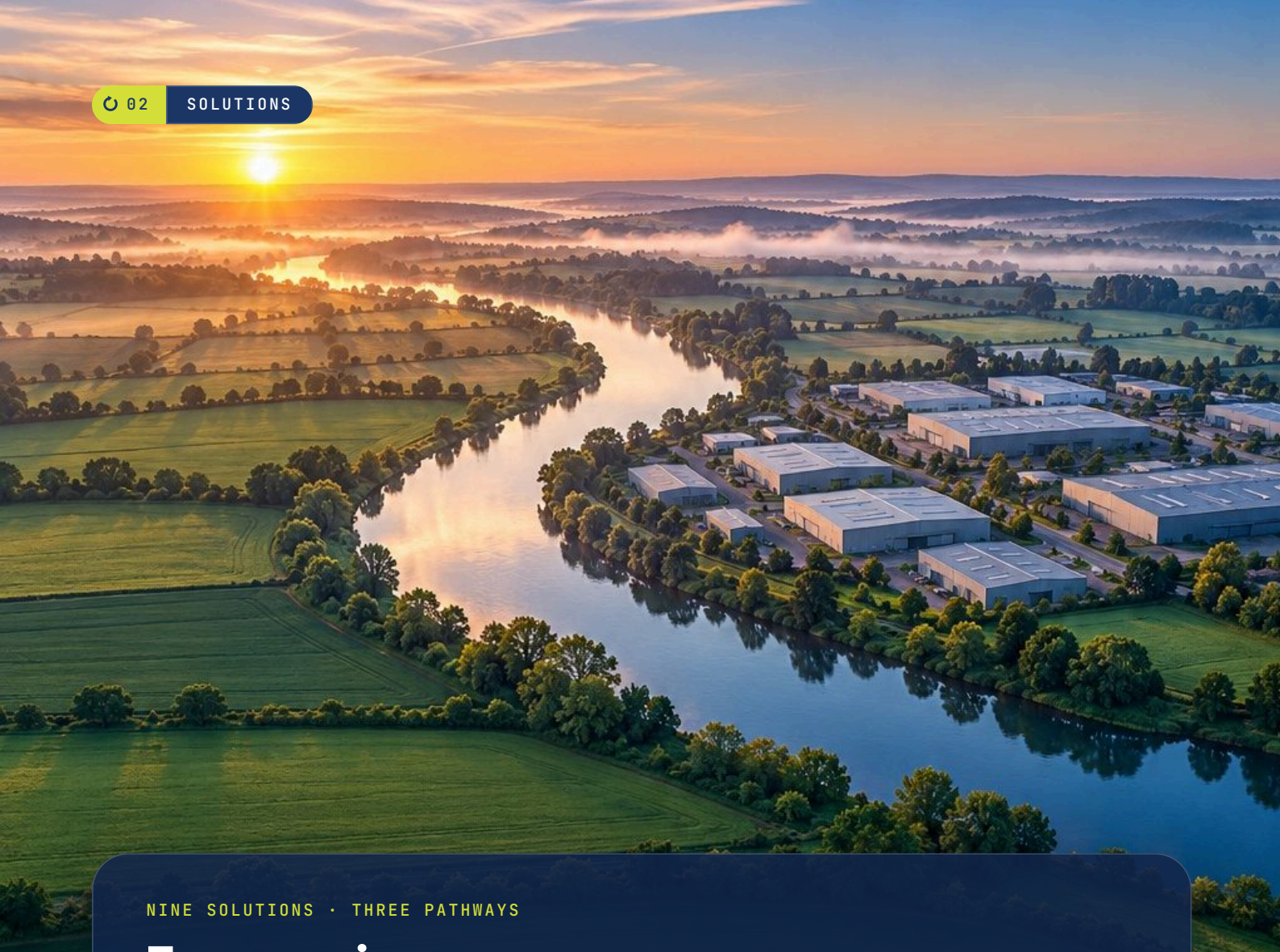
The Center makes meeting these requirements practical, affordable and credible. It draws on Tti Labs' accredited laboratory: founded in 1995, with 544 accredited methods and 1,500+ global brands served.

- 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

Four service areas: climate, supply chain, science and strategy.

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	10	1·2·3	T1–3	2025
AUDIT TYPES	REPORTING FRAMEWORKS	GHG INVENTORY SCOPES	SUPPLIER MAPPING TIERS	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 (Cascale)** 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

A service for each stage, from farm to market.

Tti Labs maps suppliers from Tier 1 to Tier 3 and has a service for each stage. 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

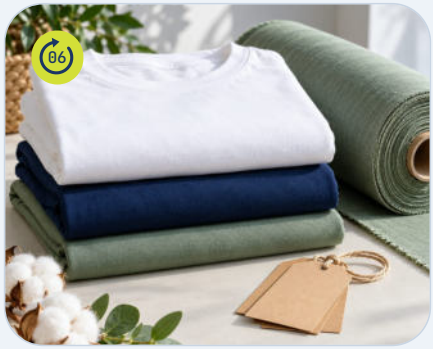
What comes out of it.

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

Chemicals in, wastewater out: tested to ZDHC.

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.

07 ESG REPORTING

GRI · CSRD · ESRS · IFRS S1 & S2

ESG reports aligned to GRI, CSRD and IFRS.

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.

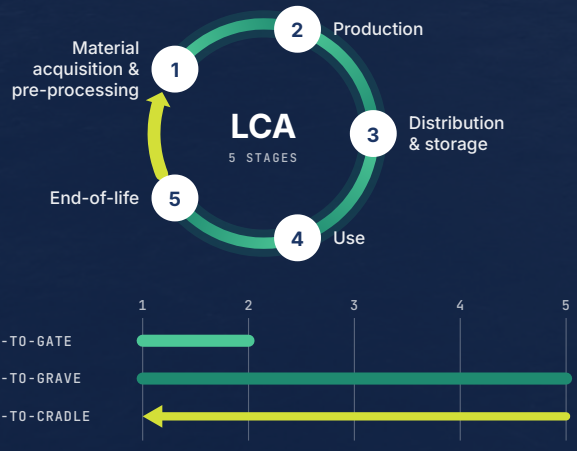
Framework texts as read in Oct 2026; EU thresholds per Directive (EU) 2026/470.

CIRCULAR ECONOMY & PRODUCT SUSTAINABILITY

Recyclability and circularity, proven by test.

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.



Lime arc: recycled or reused into another product life cycle (cradle-to-cradle). GHG Protocol Product Standard, figure 7.1 and glossary. Illustration, not to scale.

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

Air, waste, EIA and EPA NOCs: field and lab science.

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
CO_2 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

From data to disclosure.

01 **Measure**
GHG inventory and lab data

02 **Comply**
ZDHC, audits and EU rules

03 **Improve**
Net Zero and circularity plans

04 **Disclose**
ESG reports investors can verify

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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