Tti Testing Laboratories

OVER 30 YEARS OF EXCELLENCE IN QUALITY ASSURANCE

ACCREDITED 17025 ISO/IEC

ACCREDITED 17020 ISO/IEC

LEATHER ACCESSORIES & PRODUCTS · FOOTWEAR

Leather & footwear testing

Leather and footwear, tested to EN, ISO and EU rules.

End-to-end compliance solutions for leather manufacturers and exporters. Tti Labs checks product quality, safety and performance against strict regulatory requirements.

Leather apparel & accessories | Commercial leather furnishings | Casual & fashion footwear

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09 Inspection & CE
10 Sustainability

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www.ttilabs.net

PAKISTAN'S FIRST · 2012

Tti Labs set up Pakistan's first accredited leather and leather products testing laboratory in 2012.

It offers physical, chemical and performance testing to manufacturers who serve international brands and retailers.

SERVING PAKISTAN'S LEATHER INDUSTRY SINCE 2012

From tanned leather to the finished shoe.

Tti Labs has supported Pakistan's leather industry since 2012. The goal is to lift its capabilities and hold it to the quality benchmarks of global markets.

An ISO/IEC 17025 accredited laboratory and technical experts deliver complete testing, inspection and certification (TIC) services. You get an uncompromising sample chain-of-custody and direct access to those experts.

- ISO/IEC 17025 accredited testing laboratory, PNAC LAB 022
- ISO/IEC 17020 accredited inspection body, PNAC IB-006
- U.S. CPSC accepted: Pakistan's first third-party laboratory accepted for lead and flammability testing
- Pakistan's first PSQCA-registered inspection body with an ISO/IEC 17020 accredited scope
- Accredited by PNAC, a signatory to the ILAC Mutual Recognition Arrangement
- ZDHC MRSL V3.1 certifier (Level 1) and ZDHC approved wastewater laboratory
- EPA Punjab approved water, wastewater & environmental testing laboratory

544 ACCREDITED METHODS	**378** ACCREDITED PARAMETERS	**1,500+** TESTS A DAY
600+ SAMPLES A DAY	**3-day** STANDARD TURNAROUND	**1,500+** GLOBAL BRANDS

Testing · Inspection · Certification · Sustainability

Fourteen product lines →

Bags to boots: fourteen product lines.

Pakistan exported US$881 million of leather, leather products and footwear in July 2025 – June 2026. Tti Labs tests seven leather product lines and seven footwear lines.

$881m

Leather, leather products & footwear exports, July 2025 – June 2026

8.65m

pairs of leather footwear

Strap length to scale; one punched hole = US$50 million. Source: Pakistan Bureau of Statistics, Exports of Selected Commodities, FY2025-26. US$881m is the sum of PBS groups 32 (leather tanned), 33 (leather manufactures) and 34 (footwear). Other leather manufactures, canvas and other footwear make up the remaining US$60.0m.

DIVISION 02 · LEATHER PRODUCTS

Leather apparel & accessories

Leather bags · Belts · Casualwear

Commercial leather furnishings

Upholstery

Leather materials

Natural leather · Synthetic leather · Leather swatches

DIVISION 04 · FOOTWEAR

Casual & fashion footwear

Formal shoes · Casual shoes

School, sports & medical footwear

School shoes · Sports shoes · Medical shoes/slippers

Safety & motorcycle footwear

Safety footwear · Protective shoes for motorcycle riders

Manufacturers Exporters

LEATHER & FOOTWEAR TESTING

Four signature tests for leather.

Tti Labs evaluates leather, footwear and related products in full. Its standards-aligned data helps you meet international regulations, buyer specifications and market access requirements.

EN | ISO | AATCC | ASTM | SATRA | IULTCS | CE Mark | ZDHC | AFIRM RSL

Signature analyses

TECHNIQUE · METHOD

Chromium VI

- IC → ISO 17075-2 (chromatographic)
- Colorimetric → ISO 17075-1:2017

Formaldehyde

- HPLC → ISO 17226-1:2021
- Colorimetric → ISO 17226-2:2018

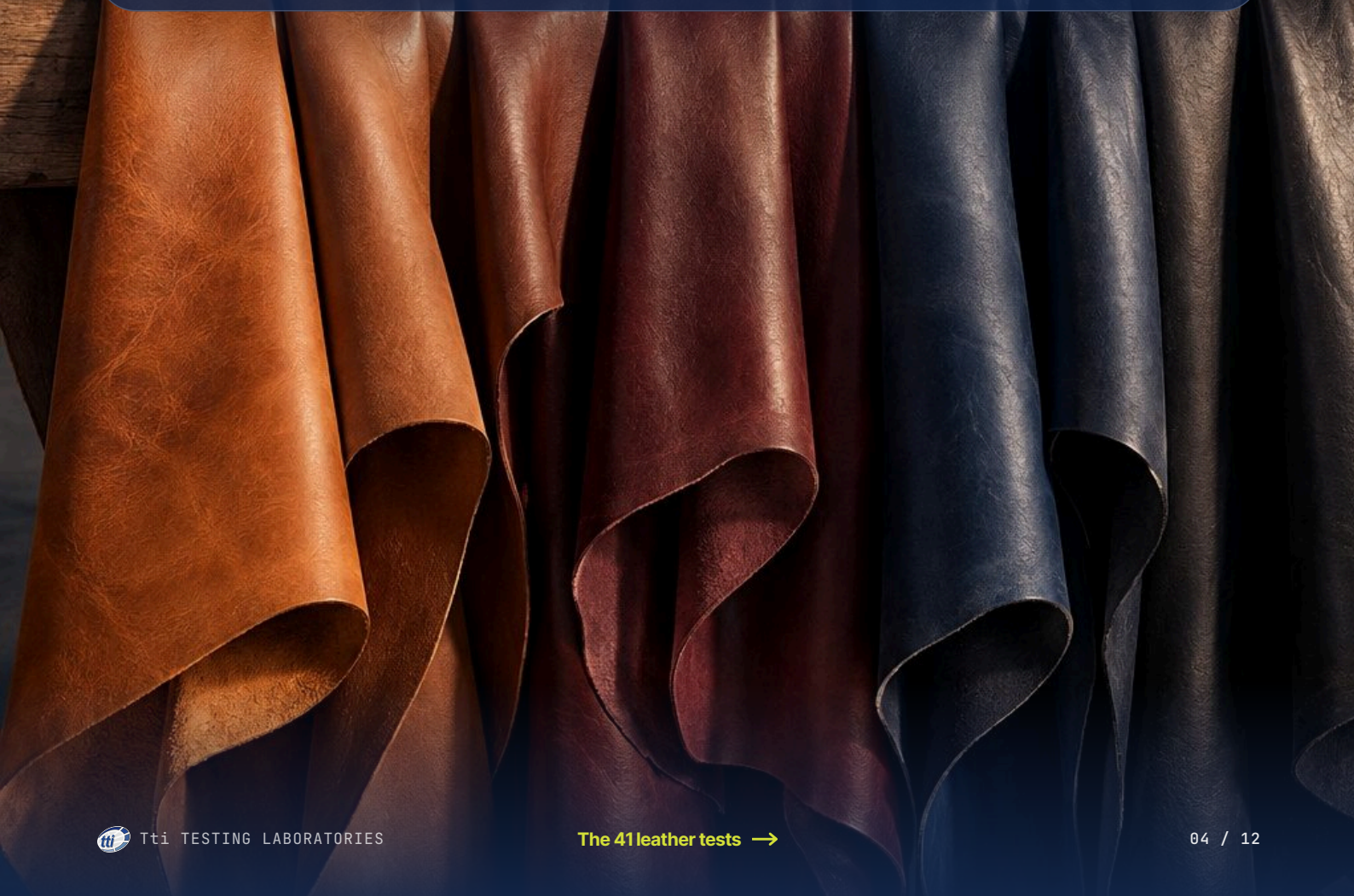
Genuine leather verification

- FTIR → Chemical identification
- Microscopy → Microscopic & structural analysis

Metals

- ICP · FAAS → ISO 17072-1:2019, extractable
- ICP · FAAS → ISO 17072-2:2022, total

Genuine leather verification tells natural leather from synthetic, coated or bonded materials. The chromium VI, formaldehyde and metals methods are on PNAC scope LAB 022.



PNAC LAB 022 · REV. 09 · ACCREDITED METHODS

41 leather tests on the accredited scope.

Four families cover a leather's strength, colour and chemistry. Physical tests check strength and durability in use. Colour fastness tests check dye stability. Chemical tests detect restricted substances.

TEST	METHOD
01 Physical & mechanical	
Thickness	ISO 2589:2016
Tensile strength & elongation	ISO 3376:2020
Single-edge tear	ISO 3377-1:2011
Double-edge tear	ISO 3377-2:2025
Ball burst	ISO 3379:2024
Softness	ISO 17235:2015
Flex, flexometer	ISO 5402-1:2022
Water resistance	ISO 5403-1:2025
Water vapour permeability	ISO 14268:2023
Abrasion, rotating drum	ISO 4649
02 Colour fastness	
Light, xenon arc	ISO 105-B02:2014
To-and-fro rubbing	ISO 11640:2018
Perspiration	ISO 11641:2025
Water	ISO 11642:2025
Solvents	ISO 11643:2009
Water spotting	ISO 15700:1998
Migration into polymer	ISO 15701:2022
Machine washing	ISO 15702:1998
Mild washing	ISO 15703:1998
Crocking	ISO 20433:2024
Petri-dish method	SATRA TM 335:2018

TEST	METHOD
03 Chemical	
pH	EN ISO 4045:2018
Chromic oxide	ISO 5398-1 & -3:2018
Chromium VI	ISO 17075-1:2017 · -2
Formaldehyde	ISO 17226-1:2021 · -2:2018
Amines from azo dyes	ISO 17234-1:2024 · -2:2011
Extractable metals	ISO 17072-1:2019
Total metals	ISO 17072-2:2022
Organotin compounds	ISO 16179:2025
Dimethyl formamide	EN 16778:2016
Chlorinated phenols	ISO 17070:2015
Fat content	ISO 4048:2018
04 Restricted substances	
AP & APEO	EN ISO 18218-1:2023 · EN ISO 18254-1:2016
PAH	ISO 16190:2021
Chlorobenzenes	EN 17137:2024
PFAS	ISO 23702-1:2023
Bisphenols A, B, S, F	ISO 11936:2023
Flame retardants	EN ISO 17881-1 & -2
Preservatives	ISO 13365-1:2020
Dimethyl fumarate	ISO 16186:2021
SCCP & MCCP	ISO 18219-1 & -2:2021 · ISO 22818:2021

A selection of the accredited rows on PNAC scope LAB 022, Rev. 09 (signed 03-08-2026; valid until 08-08-2027). Method years as listed on the scope. The scope groups Leather / Footwear / Gloves and Leather & PPEs hold 77 accredited rows.

REACH ANNEX XVII · ENTRY 47 · EN ISO 17075-2

Chromium VI, measured by ion chromatography.

3 MG/KG · EU LIMIT FOR CHROMIUM VI IN LEATHER

Why chromium VI

Some tanning processes add chromium III compounds to cross-link the collagen in leather. Chromium VI can form when chromium III oxidises.

What the rule says

Leather that touches the skin may not go on the EU market at 3 mg/kg chromium VI or more. The rule covers leather articles and the leather parts of other articles. The limit equals 0.0003% by weight of the total dry leather. It applies from 1 May 2015.

Regulation (EU) No 301/2014: recital 3; Annex XVII entry 47, paragraphs 5 and 6.

First accredited in Pakistan.
Tti Labs commissioned accredited chromium VI (Part 2) testing with its CIC laboratory in 2025.

Ion chromatography (IC).
IC-based detection gives interference-free confirmation in high-risk materials, to EN ISO 17075-2.

Accredited routes on PNAC LAB 022.
ISO 17075-1:2017 colorimetric and ISO 17075-2 chromatographic. ISO 10195:2018 adds thermal pre-ageing before the chromium VI test.

Then footwear →

FOOTWEAR & PROTECTIVE EQUIPMENT LABORATORY · SINCE 2016

From school shoes to safety boots.

Tti Labs set up its Footwear and Protective Equipment Testing Laboratory in 2016. It tests tactical footwear, industrial safety footwear, gloves and other PPE to international standards. In 2025 Tti Labs expanded its PPE testing facilities, with accredited testing for motorcycle protective equipment, workwear, footwear and gloves.

EN 13634:2017
Protective footwear for motorcycle riders

ISO 20344:2021/ Amd 1:2024
Test methods for footwear

ISO 20345:2021/ Amd 1:2024
Safety footwear

ISO 13287:2019
Slip resistance of the outsole

SATRA TM 92
Whole-shoe flexing

Regulation (EU) 2016/425
CE / UKCA certification support

The shoe, part by part →

EN 13634:2017 · ISO 20344 · ISO 20345 · SATRA

Six parts of a shoe, each with its own tests.

Each accredited footwear test examines one part of the shoe. Clause numbers are from EN 13634:2017.

Upper

EN 13634 4.2.1 · 4.4

- Height of upper
- Vamp flex, ISO 5402-2:2015 · SATRA TM 25
- Upper material: pH, Cr VI, colour fastness

Toe cap & impact

ISO 20344 · EN 13634

- Toe cap impact resistance
- Impact abrasion, EN 13595-2:2002
- Impact cut, EN 13595-4:2002

Insole & insock

EN 13634 4.5 · 4.9 · 4.10

- Insole construction
- Insole abrasion and thickness
- Water absorption & desorption

Bond

EN 13634 4.3.1 · ISO 20344

- Upper/outsole and sole interlayer bond strength
- Adhesion, rapid sole, BS 5131:1990 · SATRA 404:2020

Outsole

EN 13634 4.6 · ISO 20344

- Slip resistance, ISO 13287:2019
- Flex resistance, ISO 17707:2005
- Cleats, thickness, fuel oil

Whole shoe

EN 13634 4.8 · SATRA

- Whole-shoe flexing, SATRA TM 92
- Water penetration
- Transverse rigidity
- Electrical resistance

Every test shown is on PNAC scope LAB 022, Rev. 09. The scope lists most of them under EN 13634:2017 or ISO 20344 and ISO 20345:2021/Amd 1:2024.

REACH ANNEX XVII · EU DEFORESTATION REGULATION (EUDR) · REGULATION (EU) 2016/425

Four EU rules for leather.

Limits and scope notes follow the regulation texts on EUR-Lex (October 2026). A test report shows the result for the sample and method; it does not by itself establish market compliance.

RULE	WHAT IT RESTRICTS	LEGAL SOURCE
ENTRY 47 **Chromium VI in leather**	Leather that touches the skin may not go on the market at 3 mg/kg chromium VI or more. This covers leather articles and the leather parts of other articles. The limit equals 0.0003% by weight of the total dry leather.	Regulation (EU) No 301/2014 · applies from 1 May 2015
ENTRY 43 **Azo colourants**	Textile and leather articles in direct, prolonged contact with the skin or mouth may not use certain azo dyes. The ban covers dyes that release listed aromatic amines above 30 mg/kg (0.003% by weight).	Annex XVII as replaced by Regulation (EC) No 552/2009
ENTRY 72 **CMR substances in footwear**	Entry 72 restricts listed CMR substances in consumer clothing, textiles and footwear. It excludes items made exclusively of natural leather, fur or hide. It also excludes footwear within the PPE Regulation (EU) 2016/425.	Regulation (EU) 2018/1513
EUDR **Leather taken out of scope**	The delegated act deletes cattle hides, skins and leather (ex 4101, ex 4104, ex 4107) from Annex I of Regulation (EU) 2023/1115. The Official Journal published it on 17 September 2026; it entered into force the next day. Live cattle stay in scope.	Delegated Regulation (EU) 2026/2102 of 13 July 2026

Tti Labs tests and inspects material and reports what it finds. It does not decide whether a product falls inside or outside a regulation.

Chromium VI
Entry 47 · 3 mg/kg

Azo colourants
Entry 43 · 30 mg/kg

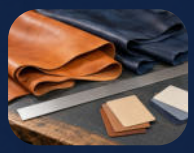
CMR substances
Entry 72 · footwear

Cattle hides
EUDR · out of scope

AQL-BASED SAMPLING · CUSTOM QC PROTOCOLS

From raw material to the loaded container.

Tti Labs is an ISO/IEC 17020 accredited inspection body. Its inspectors check four stages, from production readiness to container loading.



PPI

Pre-Production Inspection

Raw material and production readiness evaluation

DUPRO

During Production Inspection

In-line quality control during manufacturing

FRI

Final Random Inspection

Pre-shipment inspection based on AQL standards

CLS

Container Loading Supervision

Correct loading, quantity and handling

Specialised inspection services

- Sample evaluation & product review
- Defect analysis & root cause investigation
- Post-delivery inspection support
- Product labelling compliance
- Supplier assessment, social compliance & technical audits
- Technical capability and factory assessments

AQL sampling

ANSI/ASQ Z1.4-2008 · LEVEL II

0	2.5	4.0
CRITICAL	MAJOR	MINOR

Booking within 24 hours; report in the next 24 hours after the inspection.

CE CERTIFICATION SUPPORT · THIRD-PARTY FACILITATION VIA GLOBAL PARTNERS

Protective footwear placed on the EU market falls under Regulation (EU) 2016/425. Tti Labs provides accredited testing, technical file preparation and coordination with Notified Bodies. The Notified Body carries out the EU type examination and issues the certificate.

1. **Standards identification**
2. **ISO/IEC 17025 testing**
3. **Technical file preparation**
4. **Notified Body coordination**
5. **EU type examination (Module B)**
6. **CE marking**
7. **Annual renewal**

Tti Labs tests and coordinates; the Notified Body issues the certificate.

ZDHC and milestones →

ZDHC MRSL V3.1 · ZDHC WASTEWATER GUIDELINES V2.2 · REACH

From chemical inputs to wastewater outputs.

ZDHC MRSL V3.1 certifier
Level 1, on analytical testing, screening and SDS review. Tanning, finishing, waterproofing and coating chemicals.

ZDHC Wastewater laboratory
ZDHC approved. Tests tannery wastewater to the Guidelines V2.2, for every discharge category on the ZDHC list, ZLD included.

REACH compliance
Restricted-substance testing on the accredited scope: Cr VI, azo amines, formaldehyde, metals, PFAS.

Supply-chain traceability
Readiness for the EU Digital Product Passport (DPP). Supplier mapping, Tier 1 to Tier 3.

MILESTONES IN LEATHER & FOOTWEAR

2012
Leather testing laboratory
Pakistan's first accredited leather and leather products laboratory

2012
CPC Laboratories, Sialkot
Acquired in partnership with PGMEA

2016
Footwear & PPE laboratory
Tactical and industrial safety footwear, gloves

2017
APLF Hong Kong
First testing facility from Pakistan to exhibit

2024
Pakistan Mega Leather Show
Participated at Expo Centre Lahore

2025
CIC laboratory
First accredited Cr VI (Part 2) and TOF testing in Pakistan

WORK WITH US

01
Request a quotation.
Tell us the product, the market and the standard it must meet.

quotations@ttilabs.net

02
Send samples.
Book through the eTRF portal, then send your samples to Tti Labs.

etrf.ttilabs.net

03
Accredited testing.
ISO, EN, IULTCS and SATRA methods on PNAC LAB 022.

ISO/IEC 17025

04
Report.
Results for each sample and method, on a 3-day standard turnaround.

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Tti Testing Laboratories

From tanned leather to the finished shoe.

01 **Leather**
41 accredited tests

02 **Chemistry**
chromium VI, azo dyes, formaldehyde

03 **Footwear**
EN 13634 and ISO 20345, part by part

04 **EU rules**
REACH limits for leather

05 **Inspection**
four stages, to container loading

ISO/IEC 17025 · PNAC LAB 022 | ISO/IEC 17020 · PNAC IB-006 | Liaison office in Sialkot | 31 years of excellence

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Images are illustrative and AI-generated; they do not show Tti Labs premises, clients or samples. Test methods appear as PNAC scope LAB 022, Rev. 09 lists them; confirm the scope and method edition when you order.

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