



Tti Testing Laboratories

OVER 30 YEARS OF EXCELLENCE IN QUALITY ASSURANCE



DIVISION 07 • PAPER & PACKAGING MATERIAL

Paper & packaging **testing**

From tissue paper to the shipping carton.

Tti Labs tests paper, cartons, polybags, and food and pharma packaging. It also checks packed goods before shipment. ISO/IEC 17025 accredited testing and compliance solutions enable faster market access.



- 01 About Tti Labs
- 02 Food contact
- 03 EU food-contact rules

- 04 PPWR
- 05 Pharma packaging
- 06 Cartons

- 07 Packing checks
- 08 Which test, which pack

111 786 001
www.ttilabs.net



ACCREDITED SCOPE

**544 accredited methods and
378 accredited parameters.**

Tti Labs' PNAC-accredited testing scope (Lab 022, ISO/IEC 17025).

IN SERVICE SINCE 1995

Do you test this? In almost every case, yes.

Tti Labs operates across 17 product divisions. Each division has its own team, instruments and specialised standards. Division 07 covers paper and packaging material.

From a 25,000 sq ft headquarters in Lahore, Tti Labs runs more than 1,500 tests and processes 600+ samples a day. The turnaround is 3 days, and 1,500+ global brands trust Tti Labs.

- ISO/IEC 17025 accredited testing laboratory (PNAC Lab 022)
- ISO/IEC 17020 accredited inspection body (PNAC IB-006, Tti Inspections Pvt Ltd)
- U.S. IAC certified microbiology laboratory · PSQCA approved
- Head office and laboratories in Lahore; offices in Karachi, Faisalabad and Sialkot

DIVISION 07 COVERS

- Tissue papers
- Papers
- Cartons
- Polybags
- Corrugated cartons
- Packaging material
- Food packaging material



Testing



Inspection

Compliance
support



FOOD PACKAGING SAFETY · FOOD & AGRICULTURE LAB

Keep the packaging out of the food.

Tti Labs assesses food packaging to make sure it does not release harmful substances into the food.



01 Overall migration testing of heavy metals

02 Specific migration testing

Aromatic amines, formaldehyde, phthalates

03 Extractables & leachables testing

PACKAGING

FOOD OR FOOD SIMULANT



PACKAGING

FOOD OR FOOD SIMULANT



Overall migration: the total of non-volatile substances released from a material into food simulants.

Specific migration: the amount of one given substance released into food or food simulants.

After the overall and specific migration limit definitions, Reg. (EU) No 10/2011, Art. 3. Illustration, not to scale.



Approved by all provincial food authorities of Pakistan for a wide range of test parameters.



Reports accepted by global retailers and brands.

WHAT EU LAW ASKS OF FOOD-CONTACT PACKAGING

Five rules, one export market.

Each summary below comes from the official EU text. Three of the rules started or tightened in 2026: bisphenol A, PPWR and PFHxA.



RULE	WHAT IT ASKS
Reg. (EC) No 1935/2004, Art. 3	Materials must not transfer constituents to food in quantities that could endanger health, change the food's composition unacceptably, or spoil its taste, smell or texture.
Reg. (EU) No 10/2011 - plastics	Overall migration limit: 10 mg per dm ² of food-contact surface (Art. 12). Generic specific migration limit: 60 mg/kg where none is set (Art. 11).
Reg. (EU) 2024/3190 - bisphenol A	Bans BPA in making food-contact adhesives, rubbers, ion-exchange resins, plastics, printing inks, silicones, varnishes and coatings (Art. 3). For most single-use BPA articles, first placing on the market ended on 20 July 2026 (Art. 11).
Reg. (EU) 2025/40 - PFAS	Food-contact packaging, since 12 August 2026: under 25 ppb for any PFAS and 250 ppb for the PFAS sum (targeted analysis); under 50 ppm including polymeric PFAS (Art. 5(5)). The other PPWR rules: 04.
Reg. (EU) 2024/2462 - PFHxA	Food-contact paper and cardboard, since 10 October 2026: under 25 ppb for the sum of PFHxA and its salts; under 1,000 ppb for the sum of related substances.

BISPHENOL A - THE TRANSITION

Single-use articles first placed on the market by 20 July 2026 may be filled and sealed for 12 more months. The packed food may be sold until stocks run out (Art. 11(3)).

Some single-use exceptions run to 20 January 2028 (Art. 11(2)). Repeat-use articles may stay on the market until 20 July 2027 (Art. 12(1) articles) or 20 January 2029 (Art. 12(2) articles), under Art. 12(3).

As corrected by Reg. (EU) 2026/250.

WHERE TTI LABS FITS

Food packaging tests: overall and specific migration, extractables and leachables (02).

PPWR testing for heavy metals, PFAS, total fluorine and material identity (04).

Accredited on PNAC Lab 022: cadmium extractability in plastics, BS EN 1122:2001. The method measures total cadmium from 10 to 3,000 mg/kg by flame AAS.

Ask Tti Labs which tests apply to your material.

Summaries of the official texts on EUR-Lex and the EU Publications Office, read 1 October 2026. The texts are Regulations (EC) No 1935/2004, (EU) No 10/2011, (EU) 2024/2462, (EU) 2024/3190 (as corrected by (EU) 2026/250) and (EU) 2025/40. Other limits, exemptions and transitional dates apply. Orientation only, not legal advice.

PPWR • REGULATION (EU) 2025/40

One regulation for all packaging.

The PPWR applies to all packaging, whatever the material (Art. 2). It entered into force on 11 February 2025. It has applied since 12 August 2026 (Art. 71).

Packaging placed on the EU market must meet it, wherever it was made.



Since 12 Aug 2026 • Art. 5(4)

Heavy metals

Lead, cadmium, mercury and hexavalent chromium together: 100 mg/kg at most. The limit covers all packaging and its components.

Since 12 Aug 2026 • Art. 5(5)

PFAS in food-contact packaging

Under 25 ppb for any PFAS and 250 ppb for the sum; under 50 ppm including polymeric PFAS. Details: 03.

Since 12 Aug 2026 • Arts. 15, 38–39

Technical file and declaration

There is no PPWR certificate. The manufacturer keeps a technical file with the test reports and signs a declaration of conformity.

12 Aug 2028 or later • Art. 12

Sorting labels

Packaging must carry a harmonised sorting label. On 13 October 2026, the label's design was not yet adopted.

1 Jan 2030 or later • Art. 6

Recyclability grades

Grade A is 95% or more, B 80% or more, C 70% or more. Grades A–C only from 2030; A and B only from 2038.

1 Jan 2030 or later • Art. 24

Empty space

At most 50% in grouped, transport and e-commerce packaging. Fillers such as paper, air cushions and foam count as empty.



For paper and board

Recycled board gets no exemption from the PFAS limits.

A paper-based pack with 5% plastic or more counts as plastic under the bans on single-use formats.

Cardboard boxes, corrugated included, are exempt from the reuse targets. Interlayers are not.

Export cartons need their own conformity assessment. Whoever orders a custom-made, unbranded carton is its manufacturer.

Regulation (EU) 2025/40, Arts. 2, 5, 6, 12, 15, 24, 29, 38, 39 and 71; Commission guidance notice C/2026/3084 and PPWR FAQ, 2nd ed. (3 Aug 2026). Status checked 13 Oct 2026: no adopted act amends or delays Art. 5(5). Other limits, dates and exemptions apply. Summary, not legal advice.



PPWR TESTING AT TTI LABS

Tests for the PPWR limits.

Tti Testing Laboratories assists manufacturers and exporters by providing reliable laboratory testing and technical support for packaging compliance.



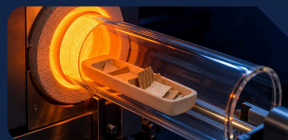
Heavy metals testing

Pb, Cd, Hg, Cr(VI)



PFAS analysis

Food-contact packaging



Total fluorine screening

Combustion ion chromatography



FTIR analysis

Material identification

Available

Packaging weight · dimensional verification · food contact testing · chemical testing by combustion ion chromatography

Partner labs

Recycled plastic content verification, through approved partner laboratories

Technical support

Recyclability assessment and technical documentation

Total fluorine first. For PFAS, the Commission's guidance starts with a total fluorine test. Below 50 mg/kg, the sample can be considered compliant.

Results, not certificates. Tti Labs reports results for the samples it tests. It does not sign declarations or issue a PPWR certificate.

LABORATORY CAPABILITIES

ICP-OES / ICP-MS · GC-MS · LC-MS/MS · FTIR spectroscopy · combustion ion chromatography · precision weighing · dimensional measurements · packaging evaluation

PACKAGING MATERIALS

Plastic · paper & paperboard · wood · metal · glass · textile · composite

INDUSTRIES

Textiles & apparel · packaging manufacturers · retail brands · food packaging · consumer products · industrial packaging

For packaging, these services are available, not accredited. On PNAC Lab 022, the PFAS and bisphenol methods are accredited for textiles, leather and chemicals, and total fluorine for textiles. Services: Tti Labs PPWR poster. Test route: Commission guidance notice C/2026/3084, sec. 5.

PHARMA-GRADE PACKAGING SYSTEMS

From vial to carton.

Tti Labs runs specialised extractables and leachables (E&L) studies and container closure integrity testing (CCIT) to verify primary packaging compatibility. The service covers pharma-grade packaging systems and surgical and medical devices.

PHARMACEUTICAL TESTING • PACKAGING & CONTAINER COMPATIBILITY • 01-05

SURGICAL & MEDICAL DEVICES • 06



Extractables & leachables studies

Compounds that can pass from packaging into the product



Glass delamination testing

Checks the inner glass surface for flaking



Packaging interaction studies

How the product and its pack affect each other



Container closure integrity testing (CCIT)

Checks that the closure keeps the container sealed



Sterile packing test

Checks the seals of sterile packs



Packaging & sterile barrier testing

For surgical and medical devices: sterile packing test and container closure integrity

MARKET PACKAGE

SECONDARY PACKAGING COMPONENT

PRIMARY PACKAGING COMPONENT

DOSAGE FORM

Primary: is or may be in direct contact with the dosage form (vials, ampoules, stoppers).

Secondary: not and will not be in direct contact (cartons, overwraps).

Market package: the container closure system, labelling, associated components such as dosing cups, and external packaging such as cartons.

Definitions: US FDA, Guidance for Industry, Container Closure Systems for Packaging Human Drugs and Biologics (May 1999), sec. II.A. Illustration, not to scale.

INDUSTRY REFERENCE • UN 4G FIBREBOARD BOXES

What a shipping carton must withstand.

Division 07 covers cartons and corrugated cartons. US rules for UN-marked packaging set what a carton for dangerous goods must withstand. The rules, 49 CFR 178.516 and 178.606, call it a UN 4G fibreboard box.

SINGLE-WALL



FACING
FLUTING
GLUE LINE

MULTI-WALL
(DOUBLE-WALL
SHOWN)



"Strong, solid or double-faced corrugated fiberboard (single or multi-wall) must be used ... The fluting of corrugated fiberboard must be firmly glued to the facings." 49 CFR 178.516(b)(1). Illustration, not to scale.



Stacking test, as 49 CFR 178.606 defines it

Illustration • 24 h • 3.0 m minimum stack

■ 155 g/m²

Water resistance. Most mass the outer surface may gain in 30 minutes, Cobb method (ISO 535; current edition ISO 535:2023).

■ 400 kg

Maximum net mass of a UN 4G fibreboard box.

■ 24 h

Stacking test under the weight of identical packages. No leakage, no strength-reducing distortion.

■ 3.0 m

Minimum stack height, including the test sample.

Ask Tti Labs: send the carton specification with the samples, and ask which methods in its current scope apply.

Requirements for UN 4G fibreboard boxes from US eCFR 49 CFR 178.516 and 178.606, read 1 October 2026. They describe the regulation, not Tti Labs test results.

INSPECTION BODY • ISO/IEC 17020 • PNAC IB-006

Checked at the packed stage.

Product labelling compliance. Tti Labs inspectors verify labelling, marking and packaging details against regulatory and buyer requirements. That keeps products compliant and avoids rejection for incorrect or incomplete information.



PFI • pre-final inspection

At ~60-80% production; packaging and labelling review



FRI • final random inspection

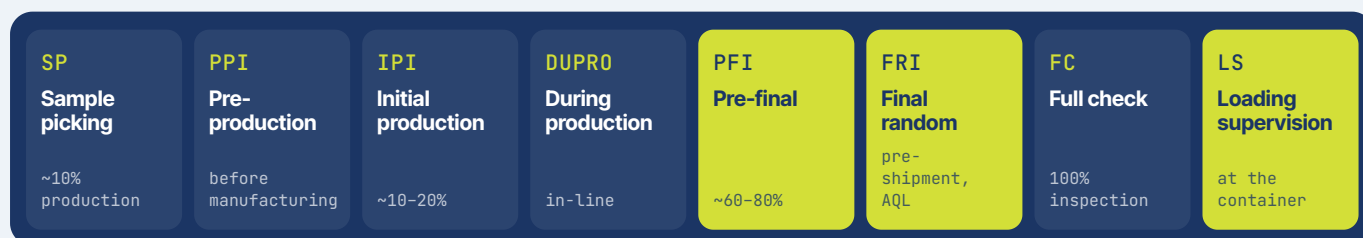
Pre-shipment, at the 100% packed stage; AQL sampling, pass / fail / hold



LS • loading supervision

At the container; marking and labelling checks on cartons as they are stowed; seal at completion

THE FULL INSPECTION CYCLE • THE PACKED-STAGE CHECKS IN LIME



FRI or PSI

Final random inspection is also called pre-shipment inspection (PSI).

Tissue paper

Tissue paper is on Tti Labs' softlines list for inspection.

Labelling errors

Carton labelling errors are among the failure modes that repeat in Pakistan.

Not certification

Inspection does not replace testing. Composition and restricted-substance claims need laboratory evidence.

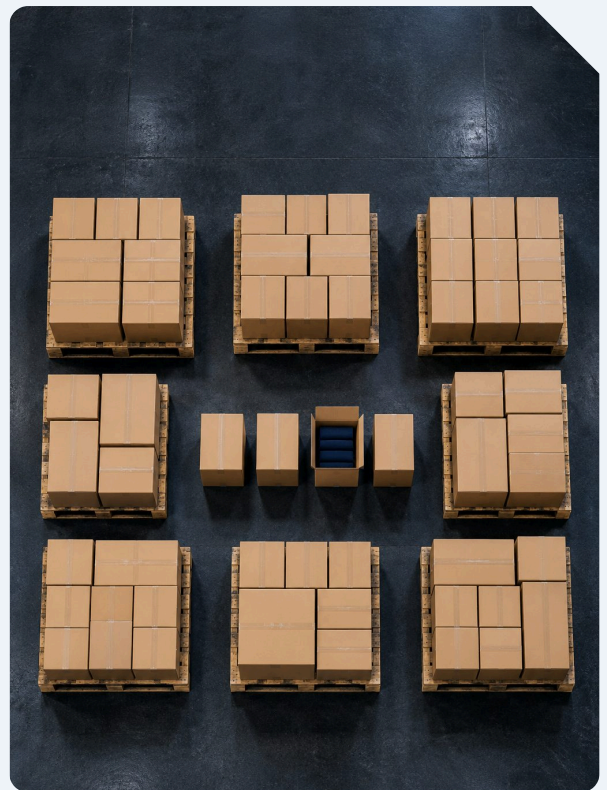
Stages and timings: Tti Labs profile (2026), p. 15, and www.ttilabs.net. Inspections by Tti Inspections Pvt Ltd, ISO/IEC 17020, PNAC IB-006.

RANDOM CARTONS • AQL SAMPLING

Cartons drawn at random.

The lot size comes from the packed cartons or pieces presented, and it sets the sample size.

The sample is judged against the AQL levels of ANSI/ASQ Z1.4-2008.



PARAMETER	WHAT IS CHECKED
Quantity	100% carton-packed per packing list; random carton selection per AQL level
Marking	Labels, shipping marks and barcodes, all verified
Packing	Assortment, placement, dimensions, carton integrity
Report	Packing and carton condition, which predicts transport damage and customs friction

AQL • ANSI/ASQ Z1.4-2008

0

CRITICAL

2.5

MAJOR

4.0

MINOR

General inspection level II.

Z1.4: Sampling Procedures and Tables for Inspection by Attributes.

WORK WITH US

01

Customer portal.

Submit requisitions, track samples and retrieve reports online.

etrft.ttilabs.net

02

Testing.

Papers, cartons, polybags and packaging material.

ISO/IEC 17025 • PNAC
Lab 022

03

Inspection.

Booking within 24 hours. Report within 24 hours after the inspection.

ISO/IEC 17020 • PNAC
IB-006

04

Quotations.

Quotations by email, or call any office.

quotations@ttilabs.net

Parameters and AQL levels: Tti Labs Magazine v2 and www.ttilabs.net pre-shipment inspection guide. Z1.4 title from the standard's listing.

TEST FINDER

Start from the pack, find the check.

PACK OR MATERIAL	QUESTION	TTI LABS SERVICE	PAGE
FOOD CONTACT			
Plastic food packaging	Overall migration, 10 mg/dm ² ; specific migration	Overall and specific migration testing	3, 4
Any food-contact material	Does it release harmful substances into the food?	Migration tests · extractables & leachables	3
Food-contact paper and board	PFAS and PFHxA limits	PFAS analysis · total fluorine screening	4, 6
Plastics	Cadmium	BS EN 1122:2001 · accredited, PNAC Lab 022	4
ALL PACKAGING · PPWR			
Any packaging or component	Pb, Cd, Hg and Cr(VI): 100 mg/kg together	Heavy metals testing	5, 6
Any packaging	What is it made of?	FTIR material identification	6
Grouped, transport, e-commerce packs	Weight and empty space	Packaging weight · dimensional verification	5, 6
Plastic packaging	Recycled content	Verification through approved partner labs	6
Your PPWR technical file	Test reports and documentation	PPWR testing · technical documentation support	5, 6
PHARMA AND MEDICAL			
Vials, ampoules, stoppers	Does the pack interact with the product?	E&L · glass delamination · packaging interaction	7
Sealed containers, sterile packs	Does the closure or seal hold?	CCIT · sterile packing test	7
CARTONS AND SHIPMENTS			
Cartons for dangerous goods	UN 4G requirements	Send the specification; ask which methods apply	8
Packed goods before shipment	Labels, marks, quantity, carton condition	PFI · FRI · LS inspection	9, 10

Each row repeats what the page named says. Of these services, only BS EN 1122:2001 is on the accredited scope; the others are available, not accredited. Summary, not legal advice.



Tti Testing Laboratories

From tissue paper to the shipping carton.

Your trusted quality partner, with the region's largest accredited testing scope, providing end-to-end TIC solutions. Confidence, Verified.

ISO/IEC 17025 · PNAC Lab 022

ISO/IEC 17020 · PNAC IB-006

U.S. IAC certified microbiology laboratory

PSQCA approved

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Images are illustrative and AI-generated; they do not show Tti Labs premises, clients or samples. Regulatory figures summarise official texts; confirm scope and method edition when you order.

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