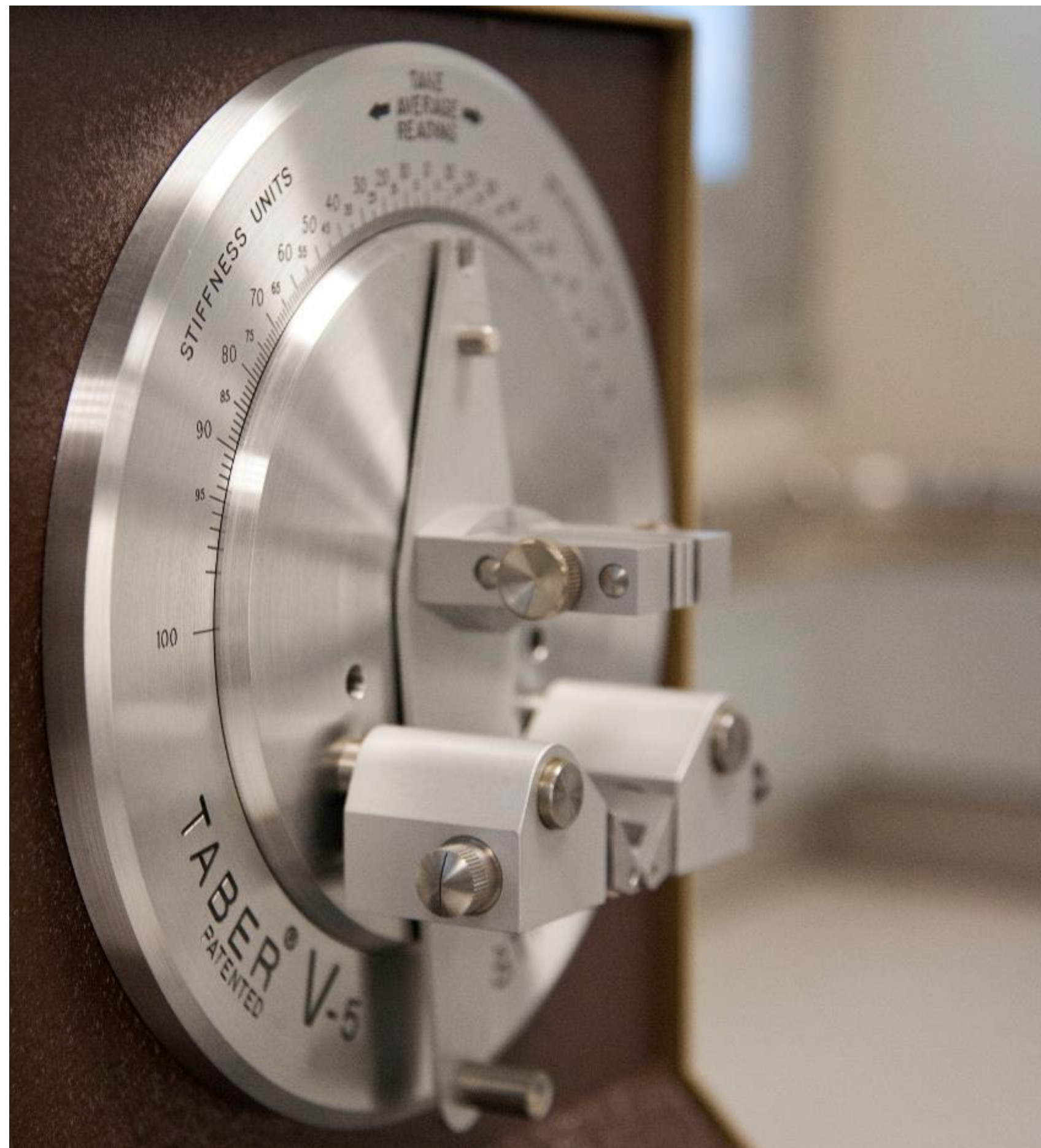


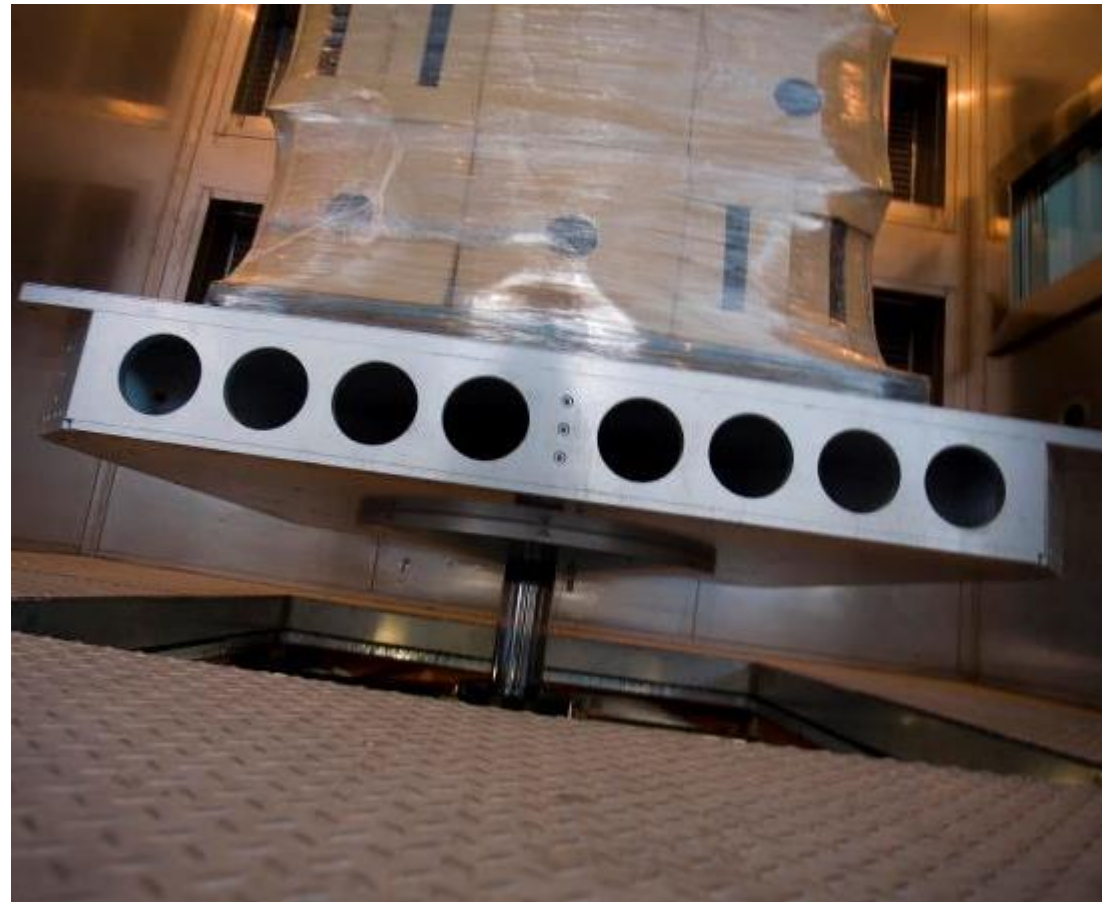
Testing catalogue

We test your packaging,
transport and logistics solutions



Contents

- 1/ About ITENE
- 2/ Tests offer
- 3/ Contact us



1/ About ITENE

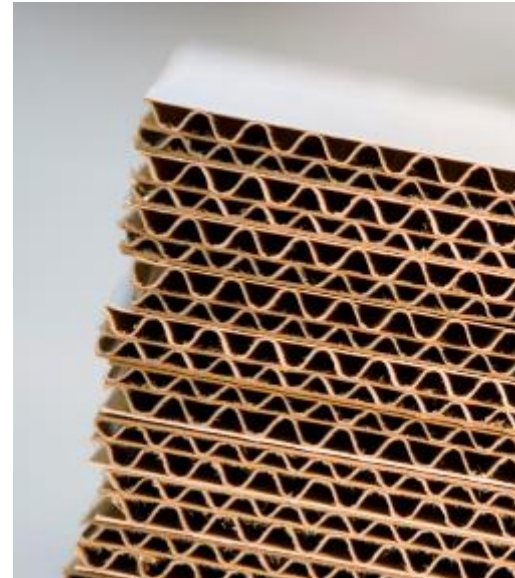
Tests, facilities, accreditations
and experience

1/ Who do we work with?

We add value to all sectors across the board through innovation.



Raw manufacturers



Packaging materials



Packaging manufacturers



Food & beverages



Cosmetics & hygiene



Pharmaceutical industry



Transports & logistics



Distribution & consumer goods



Waste management

1 / What do we work with?

Specific tests for different types of materials and applications

Materials:

- Paper and board
- Corrugated board
- Plastics (flexible, multilayer complexes, etc.)
- Coatings, inks, adhesives
- Wood
- Metal
- Glass

Packaging:

- Pallets and box pallets (wood, plastic, cardboard)
- Corrugated board packaging
- Plastic packaging (bottles, bags, trays)
- Palletised goods and complete, filled transport packages

1 / Our facilities



PILOT PLANT

- Packaging
- New materials and processing
- Packaging production
- Modification and synthesis of additives
- Compostability Assessment of packaging materials

CENTRES

- Transportation simulation

LABORATORIES

- Chemical characterisation of materials
- Physical-mechanical characterisation of materials
- Microbiological analysis
- Nano-security
- Packaging assessment
- Approval of dangerous goods packaging

1 / Facts and figures

2019 Data



150 Professionals.
16% PhD

+500 Types of tests
based on recognised standards
(UNE, ISO, ASTM, etc.)

7,150 m² of facilities

116 Accredited tests

25 Years of
experience

We provide all the tests required in the
areas of packaging, transport and logistics

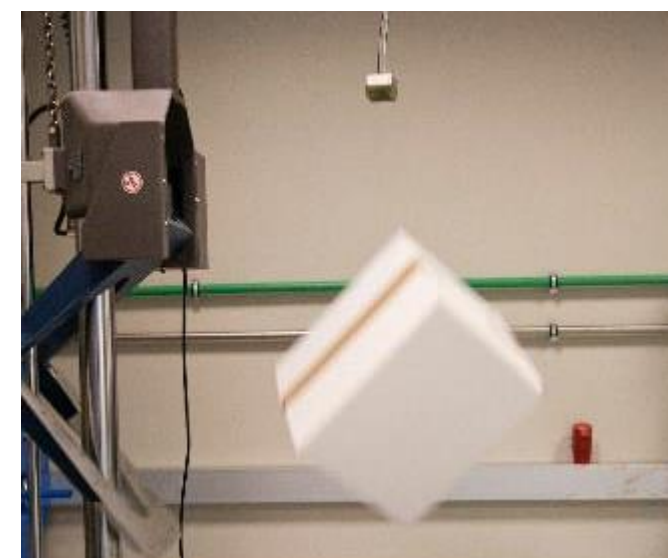
1 / Testing services



Material characterisation



Packaging safety and ergonomics



Packaging assessment



Approval of packaging and containers for dangerous goods transport



Transportation simulation



Safety for packaging in contact with foodstuffs



Compostability



Safety in working environments

1/ Certifications, accreditations and approvals

Certified laboratories



Our laboratories are certified according to the ISO 17025:2005 international quality standard, which sets out the requirements to be met by testing and calibration laboratories and guarantees the quality of the results.

Tests accreditations



97 packaging tests accredited by ENAC and ILAC-MRA.



19 transport and distribution tests certificated by ISTA (International Safe Transit Association).

Laboratory recognised by DIN CERTCO, TUV AUSTRIA and BPI for compostability tests.

Approvals

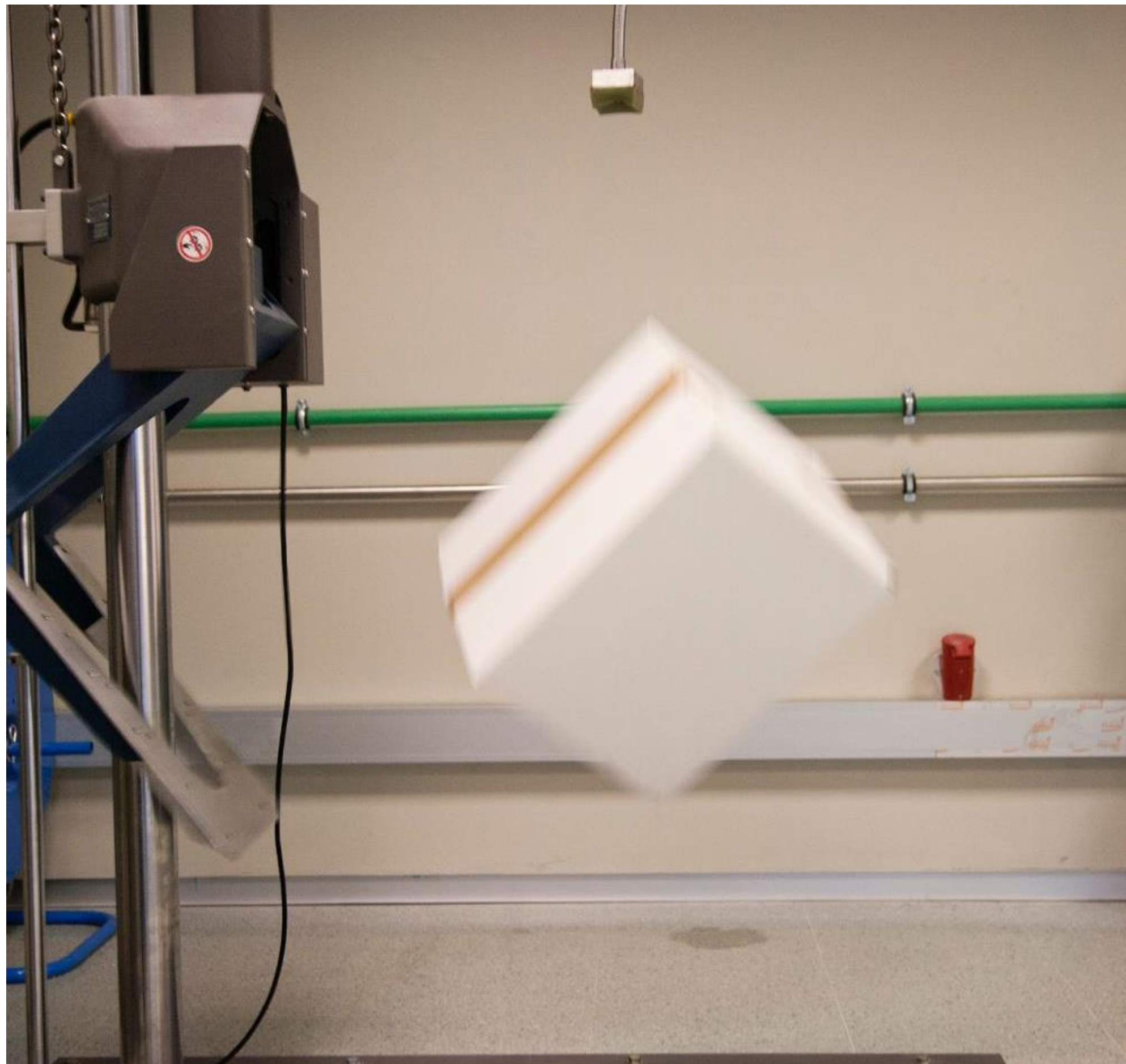


ITENE is the **first Spanish laboratory designated by Amazon as an APASS** (Amazon Packaging Support and Supplier Network) member and is authorised to conduct tests according to the ISTA6 Amazon SIOC and ISTA6 Amazon Overboxing protocols.

1/ Specialised technical assessment

- **Our experience allows us to guide our clients to find the right test and offer a fast answer to your needs.**
- **We carry out tests, propose customised packaging solutions and provide assessment for:**
 - Comply with the legislation
 - Reduce packaging costs
 - Preventing transport incidences or damage costs





2/ Tests offer

2 / Materials characterisation

Paper, board and corrugated board

- **Physical properties:** thickness, grammage, Gurley air permeability test, etc.
- **Surface properties:** water absorption, contact angle, opacity, roughness, etc.
- **Mechanical properties:** tensile strength, burst strength, CMT, RCT, SCT, CCT, FCT, ECT, bending, etc.

Films and plastics

- **Physical-mechanical properties:** tensile strength, hardness, friction coefficient, tearing, thickness, grammage, etc.
- **Barrier properties:** oxygen transmission rate (OTR), water vapour transmission rate (WVTR), carbon dioxide transmission rate (CO₂TR).
- **Thermal and rheological properties:** thermogravimetric analysis (TGA), dynamic mechanical analysis (DMA), differential scanning calorimetry (DSC), melt flow index (MFI), rheological analysis, etc.
- **Structural properties:** infrared spectroscopy (IR and FTIR), optical microscopy, etc.

Adhesives and adhesive tapes

- **Physical-mechanical properties:** adhesion and pull-off tests, evaluation of the effect of storage times, flexibility, contact angle and surface tension, etc.



2 / Packaging safety and ergonomics



Characterisation of packaging and opening systems using standardised methods and test protocols

- Mechanical tests (press and turn, squeeze and turn, snap caps, thread system...) for the evaluation of child-proof packaging systems.
- Tests to assess packaging functionality in sectors with special needs.
- Evaluation of ergonomic aspects and identification of areas of improvement.
- Working groups to validate new packaging designs.

2/ Packaging assessment

Corrugated cardboard packaging for fruit and vegetables

Evaluation of material properties (grammage, water absorption, moisture content, ECT) and structural properties (compression resistance, vibration at fixed low frequency, bottom bending resistance, fatigue).

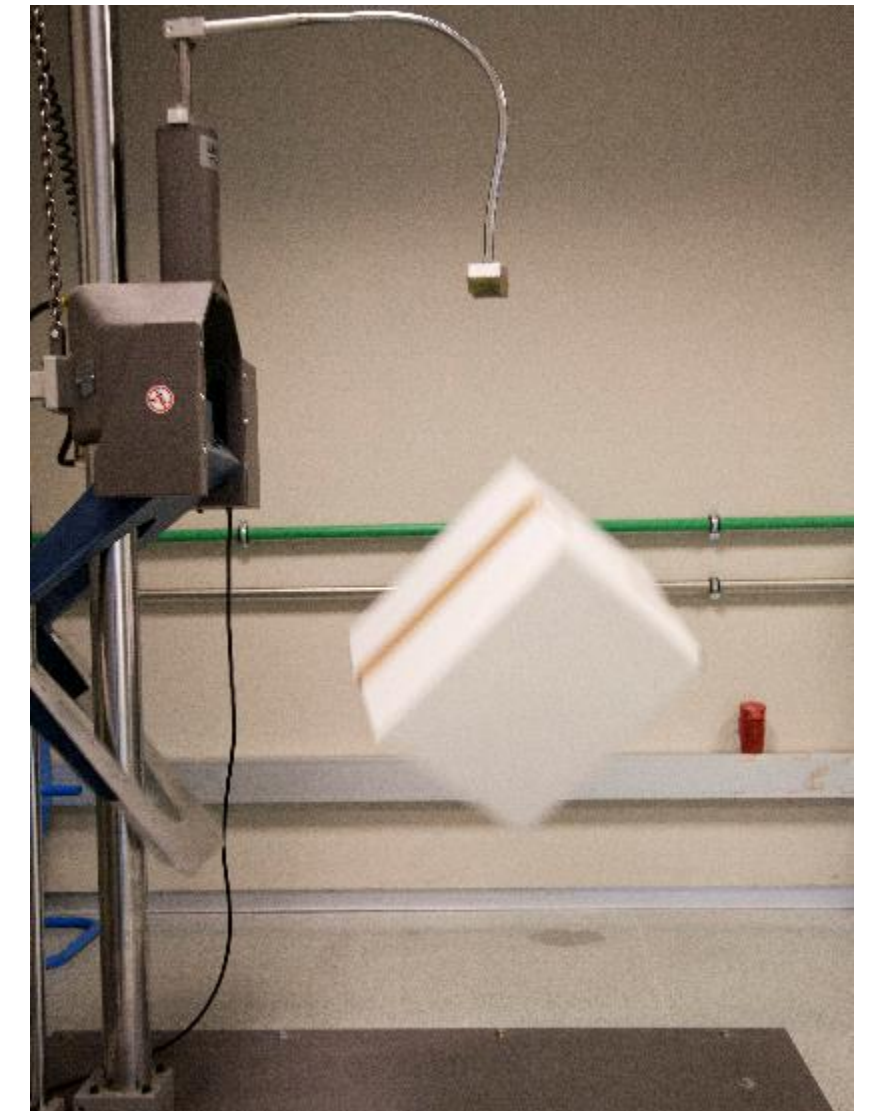
Compliance with quality standards and quality marks.

Pallets and box pallets

Assessment of pallets for goods handling:

- **Tests with nominal load:** bending, fork lifting, compression, stacking, etc.
- **Maximum load tests in use:** bending, lifting, stacking, etc.
- **Durability tests:** shear, fall, impact, friction coefficient, etc.

Assessment of box pallets: stacking tests, vertical impact by dropping, local impact, base deflection and static coefficient of friction.



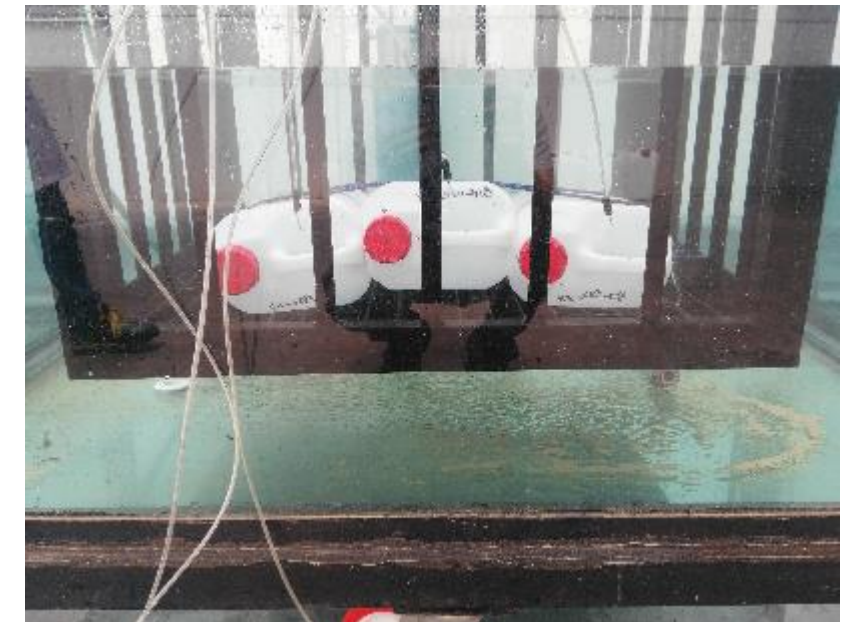
2 / Packaging assessment

Packaging and containers for dangerous goods transport

Containers and packages, large bulk containers and large packaging for the transport of dangerous goods and infectious substances by road, rail, sea and air (ADR, RID, IMDG, ICAO and IATA).

- **Drop and topple** tests
- **Watertightness** and **internal pressure** tests
- **Stacking** test

- **Chemical compatibility** (white spirit, surfactant solution, nitric acid, butyl acetate, acetic acid and water) and **permeability** test.
- **Puncture** test on packaging used with infectious substances
- **Lift** test from below and above
- **Vibration** test
- **Tearing and righting** test



2/ Transportation simulation



Complete, filled transport packages and palletised unit loads.

- Static and dynamic **compression resistance** tests.
- **Sinusoidal vibration** test using a variable frequency.
- **Vertical random vibration**.
- **Simulation of transport vibrations** (including **pitch & roll**).
- **Toppling and rolling** tests.
- **Rotational drop and drop test by free fall**.
- **Study of packaging behaviour under constant top load (Creep test)**.
- **Acceleration tests** on palletised unit loads.
- **Monitoring of transport and distribution conditions.**
Development of adhoc simulation protocols.



2/ Transportation simulation

ISTA certified laboratory

19 Certified ISTA protocols (International Safe Transit Association)



- **Procedure 1A:** Packaged-Products weighing 150 lb (68 kg) or less.
- **Procedure 1B:** Packaged-Products weighing Over 150 lb (68 kg).
- **Procedure 1C:** Extended Testing for Individual Packaged-Products weighing 68 kg or less.
- **Procedure 1D:** Extended Testing for Individual Packaged-Products weighing Over 68 kg.
- **Procedure 1E:** Unitized Loads.
- **Procedure 1G:** Packaged-Products weighing 150 lb (68 kg) or less (Random Vibration).
- **Procedure 1H:** Packaged-Products weighing Over 150 lb (68 kg) (Random Vibration).
- **Procedure 2A:** Packaged-Products weighing 150 lb (68 kg) or less.
- **Procedure 2B:** Packaged-Products weighing over 150 lb (68 kg).
- **Procedure 2C:** Furniture Packages.
- **Procedure 3A:** Packaged-Products for Parcel Delivery System Shipments 70kg (150 lb) or less.
- **Procedure 3E:** Unitized Loads of Same Product .
- **Procedure 3F:** Packaged Products for Distribution Center to Retail Outlet Shipment 100 lb (45 kg).
- **Procedure 3H:** Performance Test for Products in Mechanically Handled Bulk Transport Containers.
- **Project 6-AMAZON.COM-SIOC:** Ships in Own Container (SIOC) for Amazon.com Distribution System Shipment (Type A, B, C, D, E, F, G and H).
- **Project 6-AMAZON.COM-Over Boxing:** e-commerce fulfillment for parcel delivery shipment.
- **6-FEDEX-A:** FedEx Procedures for Testing Packaged Products Weighing Up to 150 lbs.
- **6-FEDEX-B:** FedEx Procedures for Testing Packaged **Products Weighing Over 150 lbs.**
- **Procedure 7D:** Temperature Test for Transport Packaging.

2/ Food safety: materials in contact with foodstuffs

- **Overall migration into aqueous food, olive oil and fat substitute simulants** by immersion, filling and cell.
- **Specific migration of substances** included in Plastics Regulation 10/2011.
- **Compliance with CEPI Food Contact Guidelines and BfR XXXVI** recommendation for paper and board.
- **Evaluation and quantification of NIAs** (Non-intentionally added substances).
- **Determination of the quantity of substance in the material (QM) and the residual content (QMA).**
- **Determination of extractables** according to FDA regulations.
- **Fine-tuning of new methods** at the customer's request.



2/ Compostability assessment by testing

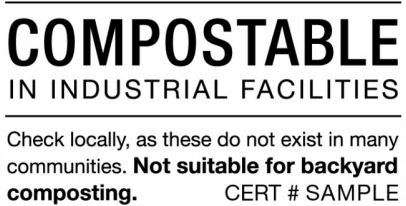
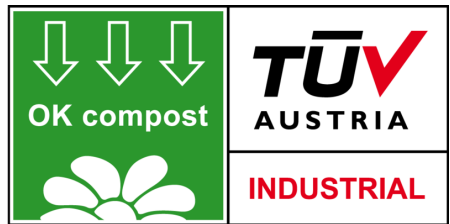
ITENE is the **only laboratory in Spain accredited by ENAC** to perform compostability tests based on the UNE-EN 13432 standard:

- Material characterization
- Biodegradation
- Disintegration
- Compost quality



Through our test reports, companies can obtain the **main certification seals**.

INDUSTRIAL COMPOSTABILITY



Recognised laboratory for TÜV AUSTRIA, DIN CERTCO & BPI.



ITENE is the **only laboratory in Spain recognised by DIN CERTCO and BPI** to carry out these tests.

HOME COMPOSTABILITY





2 / Compostability

Recognised laboratory for compostability testing according to UNE-EN 13432

Requirements for packaging recoverable through **composting** and **biodegradation**. Test scheme and evaluation criteria for the final acceptance of packaging according to **UNE-EN 13432** and **ISO 18606**.

▪ Biodegradation laboratory

- Determination of the ultimate **aerobic biodegradability** under controlled composting conditions - Method by analysis of evolved carbon dioxide according to **ISO 14855-1**.

▪ Disintegration pilot plant

- Determination of the degree of **disintegration** under defined composting conditions in a **pilot-scale** test according to **ISO 16929**.
- Determination of the degree of **disintegration** under simulated composting conditions in a **laboratory-scale** test according to **UNE-EN ISO 20200**.

▪ Ecotoxicity laboratory

- **Terrestrial plant test:** Seedling Emergence and Seedling Growth Test according to **OECD Guideline 208** as established in Annex D of **UNE-EN 13432** and Annex B of **ISO 18606**.

2/ Safety in working environments



Personal Protective Equipment (PPE)

- Respiratory protection masks and filters
- Chemical protective clothing

Toxicology, industrial hygiene and nanosafety

Toxicological and ecotoxicological evaluation tests for nanomaterials and chemical substances: characterisation of cytotoxicity and genotoxicity, assessment of dermal and ocular irritation, and characterisation of acute toxicity in the aquatic environment.



3/

Contact us

Contact us to offer specialised
technical assessment

3 / Contact

We support all of our clients during the process

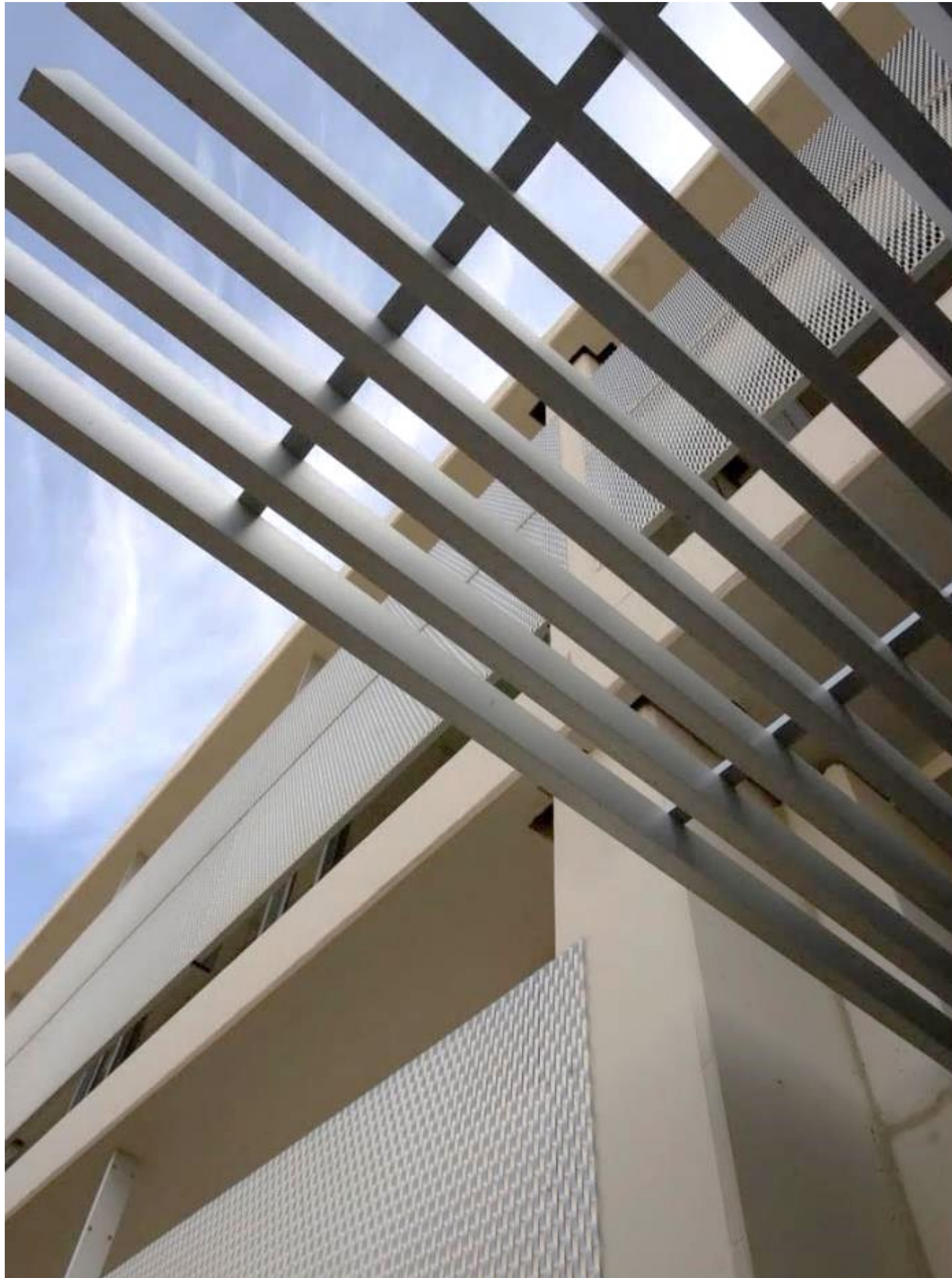
- **Personalised service**
- **Fast answer**
- **Direct line with our experts**

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