

Top 5 Mistakes Before Submitting Samples

What most teams get wrong in the final steps - and how to ensure your submission holds up to scrutiny.



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- RDSO approval checklist
- Startup case study

FIRE SAFETY INSIGHTS

Quarterly Technical Bulletin

EN 45545

CERTIFIED REPORTS

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Featured Story

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Introduction

Sample submission is the final - and most critical - step in any research or testing workflow. Yet it is precisely here that costly, avoidable errors are made. Whether you are preparing biological specimens, material samples for EN 45545-2 fire testing, or analytical assays for RDSO approval, the mistakes outlined in this bulletin consistently derail results, delay reports, and compromise data integrity.

At Prospec Test Hub Pvt. Ltd - India's only dedicated EN 45545-2 fire testing laboratory - our team encounters these errors regularly, and every one of them is preventable. This bulletin documents the five most common pre-submission mistakes, with practical guidance on eliminating each one before your samples leave the building.



Testing, Inspection and Certification services

"A failed test is not the end of the road. But arriving with an incorrectly prepared sample is a delay that the timeline does not reward."

Mistake #1: Incomplete or Incorrect Sample Labelling

It sounds elementary, but **mislabelled samples are among the leading causes of rejected submissions** at accredited testing laboratories. Missing lot numbers, wrong date formats, illegible handwriting, or unstuck labels can render an entire batch unusable.

In regulated environments such as RDSO-governed railway material testing or EN 45545-2 accredited fire testing, a label error is not just an inconvenience - it is a compliance violation. The chain-of-custody documentation traces every specimen from collection through conditioning and test, and any discrepancy between the physical label and the submission form halts the process entirely.

Hidden consequences

- Sample rejection at intake (immediate delay)
- Entire batch quarantined due to traceability gaps
- Testing done on wrong sample → invalid report
- Audit failure during certification (especially under RDSO)

Why this is critical in fire testing

In EN 45545-2 testing, results are tied to specific material compositions and batches. A mislabelled sample can:

- Misrepresent fire performance
- Lead to wrong certification for production material
- Create liability risks in railway applications



A Tag and Labeling System in Inventory Control. Female Chief and Male Warehouse Engineer having a discussion on software labeling de

Mistake #2: Improper Storage Conditions Prior to Submission

Temperature excursions, light exposure, and humidity fluctuations between collection and submission can degrade sample integrity in ways that are undetectable to the eye. Many teams focus on in-transit conditions but neglect the hours - sometimes days - a sample spends in staging areas before dispatch. For EN 45545-2 fire testing, this is particularly critical. All specimens must be conditioned at **23°C (±2°C) and 50% relative humidity (±5%) for a minimum of 72 hours** prior to testing. A sample that has been stored incorrectly - even briefly - may have absorbed moisture or undergone thermal change that alters combustion behaviour, producing results that do not represent the production material.

Why this matters in EN 45545-2

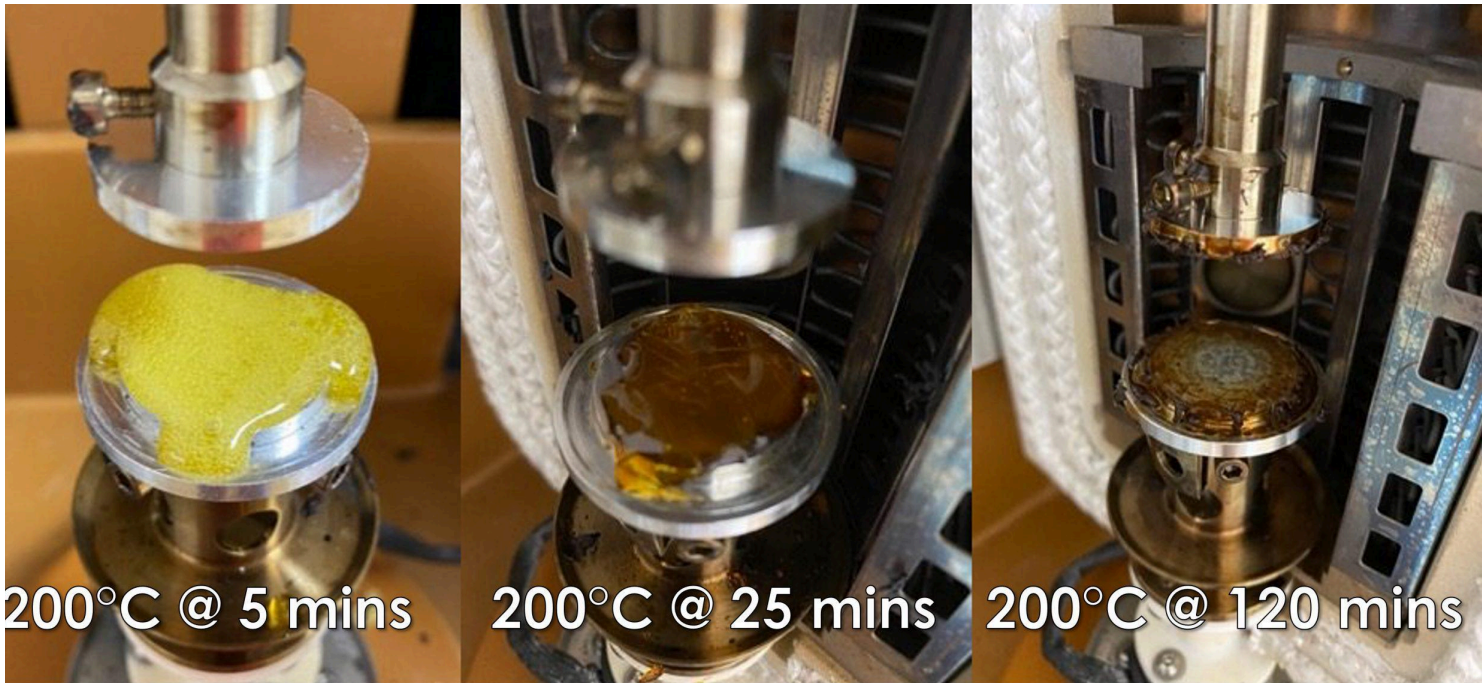
In EN 45545-2 testing, conditioning at 23°C and 50% relative humidity for 72 hours is not a procedural formality- it is essential for ensuring a standardized baseline. This allows results to be consistent and comparable across laboratories while meeting regulatory expectations. It also ensures that the material’s fire performance reflects real, controlled conditions rather than environmental variations. Skipping or compromising this step leads to unreliable, non-reproducible data that cannot be confidently validated.

72 hrs Min. conditioning at 23°C / 50% RH	±2°C Temp tolerance strictly maintained	±5% Humidity tolerance for all EN 45545-2 tests
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What teams assume

“If the sample looks fine, it is fine.”

This is one of the most dangerous assumptions.



Predicting Thermal Degradation of Polymers -



Environmental Sensors | Temperature Sensor

Mistake #3: Submitting Without Complete Chain-of-Custody Documentation

Chain-of-custody (CoC) records are the backbone of sample traceability. Submissions missing signatures, timestamps, or collection details are routinely flagged, held, or returned by laboratories. In legal, forensic, or RDSO-governed testing contexts, an incomplete CoC can invalidate results entirely.

For startups navigating India's railway certification ecosystem, this is a particularly costly error. The Research Design and Standards Organisation processes vendor approval applications through a structured multi-stage review. RDSO requires test reports alongside technical specifications, quality management documentation, manufacturing process records, and a bill of materials confirming the tested product exactly matches the production product. If the CoC does not trace the sample from production to laboratory acceptance, the entire report may be inadmissible.

Common Real Mistakes

One of the most frequent issues in chain-of-custody documentation arises from basic but critical oversights-missing signatures during handovers, incorrect or inconsistent timestamps, gaps between collection and dispatch, and the absence of a clear linkage between the sample and its originating production batch. While these may appear administrative in nature, they directly compromise traceability and weaken the integrity of the entire submission process.

High-Risk Scenario

In situations where a test result is challenged, the importance of a complete chain-of-custody becomes evident. Without proper documentation, there is no verifiable proof that the sample tested is authentic or truly representative of the production material. This makes the test result legally weak and, in many cases, entirely invalid.

Critical in RDSO Ecosystem

Within the RDSO approval framework, maintaining a complete and accurate chain-of-custody is not optional-it is a fundamental requirement. The system demands full traceability from production to testing and ultimately to certification, ensuring that every approved material is fully accountable.

Without CoC

If the chain-of-custody is incomplete or inconsistent, even a technically “pass” test report can be rejected. This not only delays the certification process but also impacts credibility, timelines, and potential business opportunities.

Mistake #4: Submitting Insufficient Sample Volume or Mass

Under-volume is a chronic issue. Teams often **underestimate minimum sample requirements**, particularly when running multiple assays from a single specimen. The result: the laboratory cannot perform the test, repeat analyses become impossible, and the entire collection cycle is wasted.

For EN 45545-2 fire testing, specimen requirements are precisely defined by each test method. The ISO 5660-1 Cone Calorimeter typically requires 9–12 specimens cut to 100mm × 100mm. The ISO 9239-1 Radiant Panel Test requires specimens 1050mm × 230mm. The ISO 11925-2 Single Flame Source Test requires specimens 250mm × 90mm. Arriving at the laboratory with specimens that are undersized, cut with rough edges, or inconsistent in thickness will result in an intake review rejection before a single test run begins.

Test Method	Specimen Size	Min. Count	EN Requirement
ISO 5660-1 Cone Calorimeter	100mm × 100mm	9–12 specimens	Heat release, smoke
ISO 9239-1 Radiant Panel	1050mm × 230mm	3 specimens	Flooring flammability
ISO 11925-2 Single Flame	250mm × 90mm	6 specimens	<u>Ignitability</u>
EN ISO 5659-2 Smoke Chamber	75mm × 75mm	3 per flux	Smoke density

These oversights often lead to significant operational disruptions that go far beyond simple delays. When a laboratory identifies issues such as insufficient sample quantity or improper preparation, testing may be halted midway, rendering any progress unusable. This forces teams to initiate a complete re-sampling process, which can take weeks depending on production timelines and logistics. More critically, samples must undergo the full conditioning cycle again-typically a minimum of 72 hours under controlled conditions-before testing can even restart. What seems like a small oversight at submission ultimately compounds into extended delays, increased costs, and missed certification deadlines, impacting both project timelines and market readiness

Operational Impact of Poor Sample Submission

- Testing may be halted mid-process - no usable data generated
- Re-sampling required - adds weeks to project timelines
- Full conditioning cycle must restart (minimum 72 hours)

Mistake #5: Failing to Communicate Special Handling Requirements

Unique samples - biohazardous material, photosensitive compounds, reactive substances, halogenated polymers - require explicit upfront communication with the receiving laboratory. Assuming the laboratory will infer handling needs from sample type alone is a dangerous shortcut. Mishandled specials do not just produce bad data; they create safety incidents.

For fire testing submissions specifically, materials containing novel flame retardant packages, halogen-free chemistries, or nanocomposite additives may require non-standard test configurations or additional safety protocols during testing. A laboratory that is not briefed on these characteristics cannot plan appropriately, and may decline the submission on receipt - wasting the conditioning period and setting the certification timeline back by weeks.

What Goes Wrong

A lack of clear communication around special handling requirements often leads to critical mistakes during sample intake and preparation. Reactive materials may be handled as standard samples, photosensitive materials can be unintentionally exposed to light, hazardous chemicals may go unflagged, and new or complex material compositions are often not disclosed. These oversights create a disconnect between the sample's actual characteristics and how it is handled in the laboratory.

Real Risks

The consequences of such miscommunication are serious. It can lead to safety incidents within the laboratory, incorrect test setups that compromise results, and immediate rejection during intake inspection. In more severe cases, improper handling can even result in damage to expensive testing equipment, further escalating operational and financial risks.

Fire Testing-Specific Risks

In fire testing environments, the risks are even more pronounced. Advanced materials such as halogen-free flame retardants or nanocomposites may behave unpredictably under heat exposure. These materials often require modified test protocols and pre-analysis before standard testing can begin. Without prior communication, laboratories are unprepared to handle these variations effectively.

Operational Consequence

When such issues are identified, laboratories may decline the sample altogether, forcing the entire process to restart. This results in the loss of the conditioning period and delays timelines by several weeks, significantly impacting project schedules and certification goals.

Pre-Submission Master Checklist

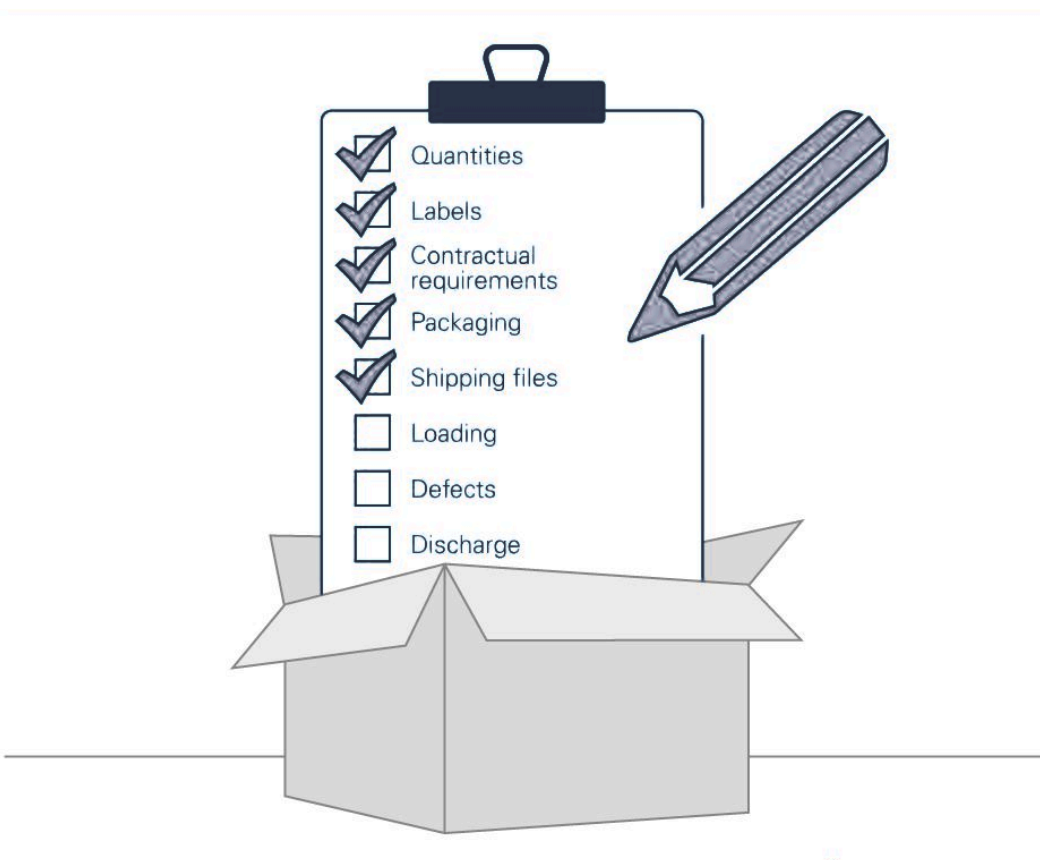
Before dispatching any sample, every critical checkpoint must be verified with precision. This checklist serves as a final quality control step to ensure your submission is complete, compliant, and ready for testing without delays. It applies to all samples submitted to Prospec Labs for EN 45545-2 fire testing and RDSO certification. Even minor gaps at this stage can lead to rejection or extended timelines. Treat this as a mandatory step before every submission.

COMPLETE BEFORE EVERY SUBMISSION	
☒ Labels printed, verified, securely affixed	☒ Submission form complete — no blanks
☒ Sample ID matches submission form exactly	☒ EN 45545-2 requirement numbers specified
☒ Storage temperature logged at each stage	☒ Special handling communicated to lab
☒ 72-hr conditioning period completed	☒ Packaging intact, sealed, tamper-evident
☒ Chain-of-custody fully signed and dated	☒ Material specification document included
☒ All custody transfer timestamps recorded	☒ Supplier documentation attached
☒ Sample volume confirmed against spec sheet	☒ Production batch number recorded
☒ Contingency aliquot retained on-site	☒ Second person verification completed

“If this checklist is not followed, testing delays are not accidental - they are guaranteed.”



Manufacturing worker working with clipboard to do job procedure checklist.



Pre-Shipment Inspection

Conclusion

India's Fire Safety Moment

Fire certification for railway and infrastructure products exists because the consequences of fire in a railway vehicle - a confined space, potentially underground, with limited evacuation options - are catastrophic. India is building 400 Vande Bharat trains, expanding metro networks in 27 cities, and modernising its entire coaching fleet under the Amrit Bharat and Vande Metro programmes.

The existence of a world-class domestic fire testing laboratory is therefore not simply a convenience for Indian manufacturers. It is infrastructure. Prospec Test Hub Pvt. Ltd was founded by the ex-founders of Spectro Analytical Labs, with over 50 years of collective experience in India's testing, inspection, and certification ecosystem. Our reports are recognised by Certifer France and accepted directly by Indian Railways procurement.

"India has the manufacturing ambition. It now has the testing infrastructure to match. The question for every startup in the railway supply chain is whether they will use it."

PROSPEC LABS

India's Only Dedicated EN 45545-2 Fire Testing Laboratory
RDSO Approved | Certifer France Recognised | Built for Rail & Defence

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