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A Practical Guide to Fuel Quality,
Testing & Dispute Resolution

BUNKERING101

Bunker Claims & Quality Disputes

A Maritime Professional's Guide to Fuel Quality, Testing & Dispute Resolution

Bunkering101

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Contents

Preface

Bunker Claims & Quality Disputes: A Maritime Professional's Guide to Fuel Quality, Testing & Dispute Resolution is written for the people who deal with fuel quality problems on the ground — chief engineers facing clogged filters at 0200, bunker buyers disputing an off-spec delivery, technical superintendents managing a claims file, and legal teams preparing for arbitration.

This book assumes you understand the fundamentals of marine fuel procurement. If you do not, start with *Bunkering 101: A Commercial Guide to Marine Fuel Procurement*, which covers the full landscape of bunker operations. This book goes deep on one subject: what happens when the fuel is not what was ordered, and how to handle it — from the first sample at the bunker stem to the final award in arbitration.

What this book covers:

- ISO 8217:2024 explained parameter by parameter — what each test measures and why it matters
- Sampling protocols that will stand up in arbitration
- How to read and interpret a fuel analysis report
- The most common fuel quality problems and their operational consequences
- Biofuel-specific quality issues (FAME stability, oxidation, compatibility)
- The complete claims process: notification, time bars, documentation, evidence preservation
- Dispute resolution in the major arbitration venues (London, Singapore, Piraeus)
- Insurance and P&I cover for bunker claims
- Prevention strategies: contracts, testing programs, supplier vetting
- Real-world case studies of claims won and lost

How to use this book:

Chapters 1–3 set the context. Chapters 4–5 are the technical foundation — sampling and testing. Chapters 6–7 cover specific quality problems. Chapters 8–10 are the legal and commercial process. Chapter 11 is prevention. Chapter 12 is case studies — read these early because the lessons are expensive to learn first-hand. The appendices provide quick-reference tables, checklists, and templates designed to be copied and used on the job.

A note on standards: This book references ISO 8217:2024 (the current edition as of 2026). Earlier editions (2010, 2012, 2017) had different parameter limits in some cases. Always verify which edition of ISO 8217 your contract specifies — this matters for claims.

For questions, corrections, or feedback: contact@bunkering101.com

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Chapter 1

The Landscape of Bunker Claims

What this chapter covers: The scale and nature of bunker fuel quality disputes — how often they occur, what they cost, the most common causes, and why most claims fail at arbitration.

Prerequisites: General familiarity with marine fuel procurement (see Bunkering101).

Key takeaway: Bunker claims are common, costly, and most are avoidable. The claims that succeed share common characteristics: proper sampling, timely notification, complete documentation, and a clear causal link between the fuel defect and the damage suffered.

1.1 The Scale of the Problem

Marine bunker fuel is a bulk commodity delivered through a complex supply chain involving refineries, storage terminals, barges, and sometimes multiple intermediaries. At every transfer point, the fuel can be contaminated, commingled, or degraded.

1.1.1 Frequency of Quality Issues

Industry data from major fuel testing services (Viswa Lab, SGS, Intertek, Veritas Petroleum Services) consistently shows:

- **1–3% of all bunker stems** produce fuel that fails one or more ISO 8217 parameters
- **0.5–1% of stems** involve fuel quality serious enough to cause operational problems (engine damage, filter clogging, fuel system fouling)
- **Significant quality claims** (those exceeding USD 50,000 in damages) number in the hundreds annually

These percentages sound small, but given that approximately 300 million tonnes of marine bunker fuel are consumed globally each year across tens of thousands of stems, even 1% represents hundreds of problematic deliveries.

Table 1.1: Estimated Annual Bunker Claim Landscape | Category | Estimated Annual Frequency | Typical Cost Range | |———-|———————|————————-| | Minor off-spec (no operational impact) | 2,000–5,000 stems | USD 0–10,000 | | Moderate off-spec (operational disruption) | 200–500 stems | USD 10,000–100,000 | | Serious off-spec (engine damage) | 50–100 stems | USD 100,000–1,000,000 | | Catastrophic (total engine failure, off-hire) | 5–15 stems | USD 1,000,000–10,000,000+ |

1.2 The Most Common Causes of Quality Claims

Table 1.2: Common Bunker Quality Problems (Ranked by Frequency) | Rank | Problem | Typical Consequence | Detection Method | |——|———-|————————|———————-| | 1 | High cat fines (aluminum + silicon) | Abrasive wear on fuel pumps, cylinder liners, piston rings | ICP-AES laboratory test | | 2 | High total sediment (potential) | Filter clogging, fuel system fouling, engine stoppage | Total sediment by hot filtration (ISO 10307-2) | | 3 | Off-spec viscosity | Incorrect fuel injection temperature, poor atomization, combustion problems | Viscometer test | | 4 | Sulfur content above limit | MARPOL violation, port state control detention, fines | UV fluorescence or X-ray | | 5 | Flash point too low | Safety hazard, SOLAS violation |

Pensky-Martens closed cup | | 6 | Fuel incompatibility (commingling) | Asphaltene precipitation, sludge, filter blockage | Spot test / sediment after mixing | | 7 | Water contamination | Microbial growth, corrosion, fuel system damage | Karl Fischer titration or centrifuge | | 8 | Used lubricating oil (ULO) contamination | Catalyst fines, harmful deposits | IP 501 (aluminum, silicon, calcium, zinc, vanadium) | | 9 | High acid number | Corrosion in fuel system, filter clogging | Titration (ASTM D664) | | 10 | Low pour point / cold flow problems | Fuel gelling in cold weather, pumping difficulty | Pour point test / CFPP |

1.3 Why Most Claims Fail

Industry estimates suggest that **60–70% of bunker quality claims fail at arbitration** or are abandoned before reaching it. The reasons are almost always procedural, not substantive.

Table 1.3: Top 10 Reasons Claims Fail | Rank | Reason | Explanation | |——|———–|————-| | 1 | **Inadequate sampling** | Samples taken incorrectly or not representative — fails to prove the delivered fuel was off-spec | | 2 | **Late notification** | Buyer fails to notify supplier within the contractual time bar (often 7–14 days) | | 3 | **No causal link** | Buyer cannot prove the damage was caused by the fuel, not by poor maintenance or handling | | 4 | **Missing documentation** | BDN, CoA, or samples not retained or properly labeled | | 5 | **Commingling** | Buyer mixed the disputed fuel with other fuel before testing, making it impossible to isolate the defect | | 6 | **Contractual waivers** | Contract terms limit the buyer's remedies or specify a different testing standard | | 7 | **Contributory negligence** | Buyer contributed to the problem (wrong fuel treatment, incorrect heating, poor storage) | | 8 | **Burden of proof not met** | Buyer cannot establish, on the balance of probabilities, that the fuel was off-spec at delivery | | 9 | **Wrong party sued** | Claim filed against the wrong entity in the supply chain | | 10 | **Time bar expired** | Legal limitation period passed before the claim was filed |

The pattern is clear: most claims fail because of what happened (or didn't happen) in the first 48 hours after the bunker stem — not because the fuel was actually fine. The difference between a successful claim and a failed one is usually preparation, not the quality of the legal argument.

1.4 The Cost of Getting It Wrong

1.4.1 Scenario: A Serious Cat Fines Claim

A vessel receives 2,000 MT of VLSFO (RME 180 grade). The fuel contains 80 mg/kg of aluminum + silicon (cat fines) — well above the ISO 8217:2024 limit of 60 mg/kg for this grade. The crew does not discover this until the fuel is consumed and engine damage appears.

Cost Component	Estimated Amount
Cylinder liner replacement (6 units)	USD 300,000–600,000
Piston ring replacement	USD 50,000–100,000
Fuel pump overhaul	USD 100,000–200,000
Off-hire (15–25 days)	USD 150,000–500,000
Survey and classification costs	USD 20,000–50,000
Legal and arbitration costs	USD 50,000–200,000
Total	**USD 670,000–1,650,000**

Table 1.4: Cost breakdown — catastrophic cat fines claim

Now consider the cost of prevention:

Prevention Measure	Cost
Pre-delivery fuel test (screening)	USD 150–300
Proper continuous drip sampling (per stem)	USD 50–100 (equipment)
Onboard fuel test kit	USD 2,000–5,000 (one-time)
Fuel separator optimization	Included in normal operations
Total prevention cost per stem	**USD 200–400**

Table 1.5: Cost of prevention vs. cost of failure

The prevention cost is **0.02–0.06%** of the potential claim value. This is the strongest case for proactive fuel quality management: it is overwhelmingly cheaper than the alternative.

1.5 The Contractual Framework

Bunker quality claims exist within a contractual framework that defines:

1. **What the fuel should be:** The specification (usually ISO 8217, often with additional requirements)
2. **Who is responsible:** The seller's obligations under the contract
3. **How quality is determined:** Sampling and testing procedures
4. **What remedies are available:** Rejection, price adjustment, damages
5. **When claims must be made:** Time bars for notification and legal action

1.5.1 Standard Contract Terms

Most bunker sales use standard terms published by one of:

Terms	Published By	Key Features
BP Terms	BP Marine	Widely used; detailed quality and claims provisions
Shell Terms	Shell Marine	Similar to BP; specific sampling and testing requirements
ExxonMobil Terms	ExxonMobil	Detailed quality warranties; short time bars
BIMCO Bunker Terms	BIMCO	Widely used standard form; balanced terms for buyer and seller
World Fuel Charter (WFC)	Various (industry)	Quality guidelines referenced in many contracts; not a contract itself but a quality benchmark
Custom terms	Various	Buyer-supplier negotiated; quality provisions vary widely

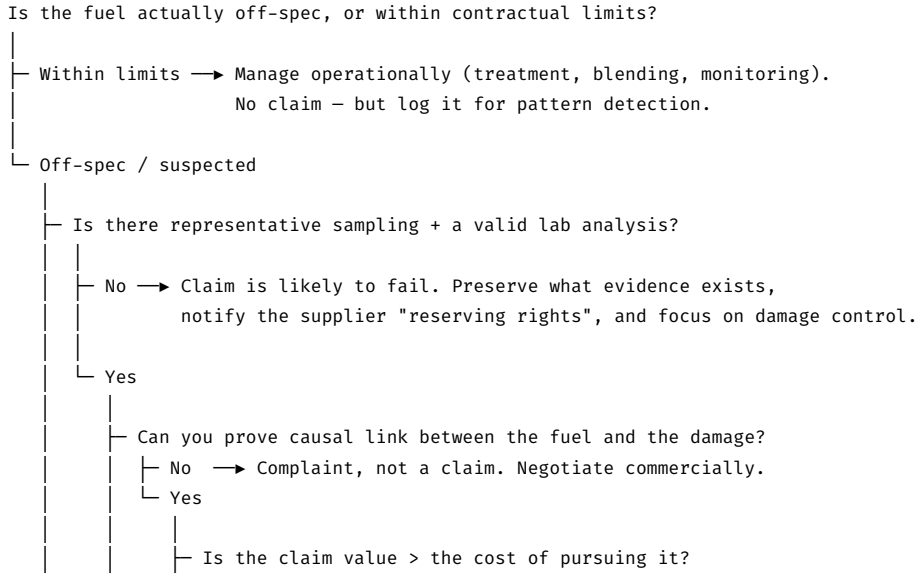
Table 1.6: Common bunker sales contract terms

Critical point: The contract terms govern the quality dispute, not ISO 8217 alone. A fuel may be within ISO 8217 limits but still be "off-spec" if the contract specified tighter parameters. Conversely, a fuel may be outside ISO 8217 for a parameter not included in the contract specification, giving the buyer limited recourse.

Always read the contract terms before ordering fuel. The quality and claims provisions in the fine print determine your rights when something goes wrong.

1.6 Decision Framework: Claim, Complaint, or Just Fix It?

Not every quality problem deserves a claim, and pursuing a weak claim can cost more than it recovers. The first decision after discovering a problem is a triage: is this an operational issue to manage, a commercial complaint worth raising, or a formal claim worth funding?



```
│     │     │   ├─ No  ──► Commercial settlement / relationship management.
│     │     │   └─ Yes ──► Formal claim (Chapter 8), with time bars diarised.
```

Table 1.7: Triage matrix — evidence quality vs. claim value

Evidence quality	Low value (< USD 50k)	High value (> USD 250k)
Strong (representative sample, causal link)	Commercial demand letter	Full claim + arbitration preparation
Weak (poor sampling, no causal link)	Absorb; fix process	Negotiate hard; consider expert evidence
None	Operate and log	Preserve everything; legal advice immediately

The matrix is deliberately blunt: **the strength of the sampling evidence and the ability to prove causation are what separate a recoverable claim from an expensive complaint.**

1.7 The Claim Lifecycle

Every quality claim follows the same arc. Recognising the stage you are in tells you what to do next — and what deadline is approaching.

Table 1.8: The bunker quality claim lifecycle

Stage	Timing	Key action	Common failure
1. Discovery	During/after delivery	Isolate suspect fuel; stop commingling	Mixing the fuel, destroying evidence
2. Sampling	At delivery + on discovery	Take and seal representative samples	Improper drip sampling; unsealed samples

Stage	Timing	Key action	Common failure
3. Testing	3–10 days	Independent accredited lab; retain split	Using a non-accredited lab; no retest option
4. Notification	Within time bar (often 7–14 days)	Written notice to supplier, reserving rights	Late or informal notice
5. Preservation	Immediately	Retain samples, logs, engine records	Samples discarded; logs overwritten
6. Supplier response	2–6 weeks	Supplier analysis / denial	Buyer fails to respond within supplier's deadline
7. Negotiation	1–3 months	Quantify loss; settle or escalate	Inflated, unsupported quantum
8. Arbitration / settlement	6–24 months	Present evidence; settle at the right value	Missing the time bar; weak documentation

The time bar is the hard constraint. Notification deadlines are short (often 7–14 days), and limitation periods for legal action are typically 1–2 years. Everything else can be negotiated; the time bar cannot.

1.8 Worked Example: Quantifying a Bunker Quality Claim

Quantum (the money claimed) is where many otherwise-strong claims are lost — over-claimed and under-supported. A defensible claim is built line by line.

Situation. A vessel receives 2,000 MT VLSFO. Lab analysis shows cat fines (Al+Si) at 82 mg/kg against an ISO 8217:2024 limit of 60 mg/kg. The crew discover accelerated liner wear within two weeks.

Step 1 — Establish the fuel loss (the value of the defective fuel)

```
Fuel value       = 2,000 MT × USD 600/MT        = USD 1,200,000
Debunkering cost = 1,600 MT remaining × USD 45/MT = USD 72,000
```

Step 2 — Add consequential damage (only if causation is provable)

Item	Amount (USD)
Cylinder liners (6 units)	420,000
Piston rings	70,000
Fuel pump overhaul	150,000
Off-hire (18 days)	270,000
Survey / classification	35,000
Consequential subtotal	**945,000**

Step 3 — Apply the contractual and legal filters

- **Liability cap:** many supplier GTCs cap liability (e.g., at the fuel value). If so, the recoverable quantum may be capped at USD 1.2 million regardless of the damage.
- **Contributory factors:** if separators were not operated correctly, recovery may be reduced.
- **Mitigation:** costs reasonably avoidable (e.g., delay in debunkering) are not recoverable.

Step 4 — Produce a supported schedule

```
Claim = fuel loss + debunkering + consequential damage (capped, mitigated)
      = 1,200,000 + 72,000 + (945,000 adjusted for cap/contributory)
```

The lesson: **quantum is a schedule with a source document behind every line**, not a lump sum. Verifiers, arbitrators and insurers all discount unsupported numbers.

1.9 Key Terms in This Chapter

- **Off-spec** — fuel failing a parameter in the applicable specification (contractual or ISO 8217).
- **Time bar** — the contractual (or legal) deadline for notifying a claim or commencing proceedings.
- **Causal link** — proof that the fuel defect caused the damage claimed.
- **Commingling** — mixing fuels, often destroying the ability to test the original delivery.
- **Quantum** — the monetary amount claimed, itemised and supported.
- **Representative sample** — a sample that fairly reflects the fuel as delivered.
- **GTC** — General Terms and Conditions; the supplier's standard contract terms.

1.10 Chapter Summary

- **1–3% of bunker stems** produce off-spec fuel; 0.5–1% cause operational problems.
- **60–70% of claims fail** — usually due to procedural errors (bad sampling, late notification, missing documentation), not because the fuel was fine.
- **Cat fines, sediment, and viscosity** are the most common quality problems.
- **The cost of a serious claim can exceed USD 1 million** — but prevention costs USD 200–400 per stem.
- **Contract terms govern the dispute**, not just ISO 8217. Read the fine print before ordering.
- **The first 48 hours after delivery are critical** — proper sampling and testing during this window determines whether a claim will succeed.

Next: Chapter 2 — Fuel Quality Specifications: ISO 8217:2024 Explained

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Get the Full Guide

This is a **free sample chapter** from *Bunker Claims & Quality Disputes: A Maritime Professional's Guide to Fuel Quality, Testing & Dispute Resolution.*

The full edition includes:

- **12 chapters** covering the claims landscape, ISO 8217 specifications, stem quality, sampling protocols, laboratory testing, common fuel problems, biofuel quality, the claims process, dispute resolution, insurance and prevention, with worked case studies
- **Appendices** with an ISO 8217 reference, sampling checklist, notification templates, test reference and glossary
- Step-by-step procedures for building (and defeating) a bunker quality claim

Get the complete guide: bunkering101.com