GENERAL

api 570 study guide

Published: September 19, 2026 | Index ID: #-

Mastering the API /570 Exam: A Comprehensive Study Guide

For engineers, inspectors, and maintenance professionals working in the oil & gas, petrochemical, and power generation industries, the API 570 certification is more than a credential—it's a passport to career advancement and a testament to expertise in the inspection and maintenance of pressure vessels. Whether you're a seasoned inspector looking to refresh your knowledge or a newcomer preparing for your first API 570 exam, this guide offers a structured, in depth roadmap to success. We'll walk through the exam's core topics, share proven study strategies, and highlight the resources that can turn your preparation into confidence.

What Is API /570?

History and Purpose

API 570, officially titled "Inspection of Pressure Vessels," was first published by the American Petroleum Institute in the early 1990s. It was developed to provide a standardized framework for the inspection, repair, and maintenance of pressure vessels in the petroleum and natural gas industries. The standard covers all aspects of a vessel's life cycle—from design and fabrication to operation and eventual decommissioning—ensuring that facilities meet safety, reliability, and environmental requirements.

Key Components

The API /570 standard is structured around four major sections:

- Scope and Definitions – Clarifies the types of vessels covered and the terminology used.
- Inspection and Repair – Outlines the procedures for visual, non destructive, and destructive inspections.
- Documentation and Records – Sets requirements for record keeping, labeling, and reporting.
- Personnel Qualifications – Defines the knowledge, training, and experience needed for inspectors.

Mastery of these components is essential for both the exam and real world application.

Why Study API /570?

Career Opportunities

Certified API 570 inspectors are in high demand across the globe. They play a pivotal role in ensuring the safety of critical infrastructure, reducing downtime, and extending the lifespan of expensive equipment. Employers value the standard's rigor, and a certification often leads to higher salaries, supervisory roles, and opportunities to work on large, high profile projects.

Industry Demand

With stricter safety regulations and an aging fleet of pressure vessels, companies are actively seeking professionals who can demonstrate compliance with API 570. The certification is frequently listed as a prerequisite in job postings for inspection, maintenance, and quality assurance positions within the energy, chemical, and water treatment sectors.

Overview of the API /570 Exam

Exam Format

The API 570 exam is a multiple choice test administered by the API's testing center. It consists of 120 questions, divided into four sections that mirror the standard's structure:

1. Scope, Definitions, and General Knowledge
2. Inspection and Repair Procedures
3. Documentation and Records Management
4. Personnel Qualifications and Competency

Exam takers have 3 hours to complete the test, and a passing score is 70 %. The exam is offered year round at testing centers worldwide.

Topics Covered

Below is a concise breakdown of the main subjects you'll encounter:

- Materials and Corrosion – Understanding alloy selection, corrosion mechanisms, and protective measures.
- Welding and Fabrication – Welding codes, joint design, and inspection of welds.
- Inspection Techniques – Visual inspection, ultrasonic testing (UT), radiographic testing (RT), magnetic particle testing (MT), and dye penetrant testing (DT).
- Documentation Practices – Inspection reports, labeling, and record retention.
- Safety and Regulatory Compliance – OSHA, NFPA, and local regulations that intersect with API /570.

Eligibility & Registration

To register, you must have a minimum of one year of experience in pressure vessel inspection or maintenance, or hold a related engineering degree. The API requires a background check and a fee that varies by region. After registration, you'll receive an exam invitation and study materials.

Study Guide Structure

Core Topics

Understanding the science behind material selection and degradation is foundational. Review the corrosion classification system, stress corrosion cracking (SCC) prevention, and the role of alloying elements in enhancing durability.

Welding quality directly impacts vessel integrity. Study the various welding processes (MIG, TIG, Stick), welding codes (ASME Section IX), and the inspection criteria for weld defects such as porosity, cracks, and incomplete fusion.

Non destructive testing (NDT) is the heart of the API 570 exam. Dive into the principles behind UT, RT, MT, and DT, including setup, calibration, interpretation of results, and common pitfalls.

Accurate record keeping ensures traceability and compliance. Focus on the required documentation for each inspection phase, labeling standards, and the retention schedule stipulated by the API.

Supplementary Materials

Simulated exams help you gauge readiness, identify weak areas, and build test taking stamina. Aim to complete at least 10 full length practice exams before the actual test.

Flashcards are ideal for memorizing definitions, codes, and key formulas. Use spaced repetition to reinforce learning.

Visual and auditory learners benefit from video tutorials that break down complex concepts, such as NDT procedures or welding defect identification.

Effective Study Strategies

Time Management

Allocate study time based on difficulty and importance. Create a weekly schedule that dedicates more hours to high yield topics like NDT and welding, while reviewing foundational concepts regularly.

Active Learning

Engage with the material by summarizing chapters in your own words, teaching concepts to a peer, or creating mind maps. Active recall reinforces memory more effectively than passive reading.

Group Study

Form a study group with peers preparing for the same exam. Discuss challenging questions, share resources, and quiz each other. Collaborative learning often uncovers insights that solitary study may miss.

Using Mnemonics

Mnemonics help remember sequences such as the steps of a visual inspection or the order of NDT methods. For example, “V U M D” (Visual, Ultrasonic, Magnetic, Dye) can aid recall during the exam.

Sample Study Plan

Week 1–2: Foundations

- Read the API /570 scope, definitions, and general knowledge sections.
- Create flashcards for key terms and standards.
- Watch introductory videos on pressure vessel fundamentals.

Week 3–4: Materials & Welding

- Deep dive into corrosion mechanisms and alloy selection.
- Study welding codes, joint design, and defect criteria.
- Practice identifying weld defects using sample images.

Week 5–6: Inspection Techniques

- Master NDT principles: UT, RT, MT, DT.
- Complete practice questions for each NDT method.
- Review real world case studies of inspection failures.

Final Review

- Take full length practice exams under timed conditions.
- Review incorrect answers, focusing on reasoning.
- Refine flashcards and revisit weak areas.

Resources & Tools

Books & Manuals

Top picks include the official **API /570 Manual**, “The NDT Handbook” by J. G. K. Jones, and “Welding Engineering” by J. A. K. Lee. These texts provide comprehensive coverage and practice questions.

Online Courses

Platforms such as Udemy, Coursera, and the API's own e learning portal offer structured courses that align with the exam syllabus. Look for courses that include video lectures, quizzes, and downloadable study guides.

Forums & Communities

Engage with peers on forums like the **API Community Forum**or subreddits such as r/Engineering. These communities are excellent for clarifying doubts, sharing study resources, and staying updated on exam changes.

Common Mistakes & How to Avoid Them

Overlooking Standards

Failing to cross reference the API 570 standard with related codes (e.g., ASME Boiler & Pressure Vessel Code) can lead to misinterpretation of requirements. Keep a consolidated reference sheet handy.

Skipping Practice

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