

API 510: Authorised Pressure Vessel Inspector



TRAINING METHODOLOGY

This interactive training workshop includes the following training methodologies as a percentage of total tuition hours:-

50%	Lectures
30%	Workshops, Group Work & Practical Exercises
20%	Videos & Software

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COURSE DURATION— 5 Day Course

WHO SHOULD ATTEND

The course is intended for inspection engineers who are seeking API 510 certification. Other engineers, managers or technical staff who are dealing with pressure vessels will also benefit.

COURSE ACCREDITATION

This API preparation training course complies with the API (American Petroleum Institute) regulations and is designed to prepare participants for API 510 exam that qualifies successful participants to the “API 510 Pressure Vessel Inspector Certification”.



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Course Objectives

This course is designed to train individuals who are interested in obtaining the API 510 Pressure Vessel Inspector Certification, as well as those who are seeking a better understanding of ASME Section VIII and IX code requirements. Included with the course is a pre-study guide and student classroom workbook. The student receives instruction regarding how to take the test, as well as insight into the intricacies of “real world” situations. Daily tests are designed to gauge students’ proficiency and understanding of the material.

Topics include:

- **Head and Shell Calculations**
- **Hydrostatic Test Pressure Calculations**
- **Reinforcements Calculations**
- **Shell external Pressure Calculations**
- **Impact Test Requirements and Determination**
- **Development and Review of Welding Document**
- **NDE requirements.**

You are advised to bring copies of the following Codes, a laptop computer and a calculator to the course as a minimum.

Publications Effectivity Sheet For API 510 Exam Administration:

Listed below are the effective editions of the publications required for the API 510, Pressure Vessel Inspector Certification Examination.

- API Standard 510, Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration, 9th Edition, June 2006. IHS Product Code API CERT 510
- API Recommended Practice 571, Damage Mechanisms Affecting Fixed Equipment in the Refining Industry, 1st Edition, December 2003.
IHS product code: API CERT 510_571 (includes only the portions listed below)

Note: API and ASME publications are copyrighted material. Photocopies of API and ASME publications are not permitted. CD-ROM versions of the API documents are issued quarterly by Information Handling Services and are allowed. Be sure to check your CD-ROM against the editions noted on this sheet.



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ATTENTION: Only the following mechanisms to be included:

Par. 4.2.3	Temper Embrittlement
4.2.7	Brittle Fracture
4.2.9	Thermal Fatigue
4.2.14	Erosion/Erosion-Corrosion
4.2.16	Mechanical Failure
4.3.2	Atmospheric Corrosion
4.3.3	Corrosion Under Insulation (CUI)
4.3.4	Cooling Water Corrosion
4.3.5	Boiler Water Condensate Corrosion
4.3.10	Caustic Corrosion
4.4.2	Sulfidation
4.5.1	Chloride Stress Corrosion Cracking (Cl-SCC)
4.5.2	Corrosion Fatigue
4.5.3	Caustic Stress Corrosion Cracking (Caustic Embrittlement)
5.1.2.3	Wet H ₂ S Damage (Blistering/HIC/SOHIC/SCC)
5.1.3.1	High Temperature Hydrogen Attack (HTHA) documents.

- API Recommended Practice 572, *Inspection of Pressure Vessels*, 3rd Edition, November 2009. IHS Product Code API CERT 572
- API Recommended Practice 576, *Inspection of Pressure-Relieving Devices*, 3rd Edition, November 2009. IHS Product Code API CERT 576
- API Recommended Practice 577 – *Welding Inspection and Metallurgy*, 1st Edition, October 2004. IHS Product Code API CERT 577
- American Society of Mechanical Engineers (ASME), *Boiler and Pressure Vessel Code*, 2007 Edition with 2008 Addenda and 2009 Addenda.
 - i. Section V, *Nondestructive Examination, Articles 1, 2, 6, 7, 9 and 23 (section SE-797 only)*
 - ii. Section VIII, *Rules for Construction of Pressure Vessels, Division 1; Introduction (U), UG, UW, UCS, UHT, Appendices 1-4, 6, 8 and 12*
 - iii. Section IX, *Welding and Brazing Qualifications, Welding only*

IHS Product Code for the ASME package API CERT 510 ASME. Package includes only the above excerpts necessary for the exam.

API and ASME publications may be ordered through IHS (formerly IHS Documents) at 303-397-7956 or 800-854-7179. Product codes are listed above.

More information is available at <http://www.ihs.com>. API members are eligible for a 30% discount on all API documents; exam WORLDWIDE TANK SERVICES SPECIALIST INSPECTION LIFTING AND RELOCATION OF BULK STORAGE TANKS 1, FORBES ROAD MANDURAH WESTERN AUSTRALIA TEL. (61) 8 9535 8176 MOB 0439 913313 candidates are eligible for a 20% discount on all API documents. When calling to order, please identify yourself as an exam candidate and/or API member. Prices quoted will reflect the applicable discounts. No discounts will be made for ASME documents.



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The following topics will be covered over the 5 day course:

Overview of Codes and Standards API and ASME

Introduction to RBI
Overview of API 510/ASME-
Definitions and Acronyms

Overview of Examination
Service Restrictions, Joint Efficiencies,
Radiography

Shell & Head Calculations
MAWP

Hydrostatic Head Pressures
Hydrostatic and Pneumatic
Testing & Gauges
Post weld Heat Treatment
External Pressure
Calculations

Charpy Impact Testing Requirements
Repairs Alterations and
Re-Rating of Piping Systems
Corrosion Calculations
ASME IX Overview
Writing a WPS, PQR, WPQR

Welder Qualifications
WPS & PQR Requirements
ASME V NDT Requirements
V NDT Requirements
V NDT
Requirements-Exam

API RP 577
API RP 574 Piping Inspection
ASME B 31.3, 16.5, 16.47

AP 571 Damage Mechanisms
Pressure Testing & Welding

Pressure Vessel Inspection
API 570 Overview

Pressure Relieving Devices
Recap of API 510

Mock API 510 Exam A
Mock API 510 Exam B
Course Conclusion

Dress Code:

Smart casual wear is suggested along with a sweater or jacket in case the conference room is cool.