API 510 exam study checklist

Built from the API 510 Body of Knowledge, the September 2026, January 2027 and May 2027 exam windows (read 17 Oct 2026 on API's site).
170 questions (140 scored, 30 pretest) in 390 minutes: 110 closed-book, then 60 open-book. In person at a Prometric test center.

One line per thing to be able to do, grouped under the five sections API lists for the API 510 exam. API publishes no section weights, so give every section a pass. Tick a line when you can do it without notes, and practice section I with the book shut.

I. Thickness measurements, inspection intervals and vessel integrity (calculations)

- ☐ Work a long-term and a short-term corrosion rate from a set of thickness readings.
- ☐ Work remaining life from the metal available and a corrosion rate, and say which rate you used and why.
- ☐ Set an internal or on-stream interval from remaining life and the maximum for the equipment.
- ☐ Find the required thickness and the maximum allowable working pressure of a shell or head for internal pressure, and explain the external pressure rules for shells and tubes (no external pressure calculation is asked).
- ☐ Adjust the numbers for corrosion allowance, joint efficiency and static head.
- ☐ Work a test pressure corrected for temperature, and say what precautions hydrostatic and pneumatic tests need.
- ☐ Find the lowest metal temperature at which a material is exempt from impact testing, and describe how an impact test is done.
- ☐ Check the size of an attachment weld at an opening, converting fillet throat to leg, and explain the key ideas of nozzle reinforcement.

II. Welding procedure and qualification evaluation (ASME IX, RP 577)

- ☐ Say what a welding procedure specification and a procedure qualification record each hold.
- ☐ Tell an essential variable from a non-essential one, and say when a change needs requalification.
- ☐ Check a procedure against its qualification record for a stated job.
- ☐ Say what a welder performance qualification covers and when it lapses.
- ☐ Describe the welding inspection steps before, during and after welding.

III. Nondestructive examination (ASME V, VIII-1, API 510)

- ☐ Name the examination methods and what each one finds: visual, liquid penetrant, magnetic particle, radiographic, ultrasonic.
- ☐ Choose a method for a stated flaw type and location.
- ☐ Say what examination a repair or alteration needs and who may judge the result.
- ☐ Describe thickness measurement methods and what limits each one.
- ☐ Find where acceptance requirements are set out in your own books.

IV. Practical knowledge - general

- ☐ Lay out an inspection plan from the equipment's service, history and damage risks.
- ☐ Tell a repair from an alteration from a rerating, and say what each needs before work starts.
- ☐ Describe the steps and records of a pressure test.
- ☐ Say what a pressure relief device inspection covers and how often it comes round.
- ☐ Say who holds which duties: owner-user, inspector, engineer and repair organization.

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V. Practical knowledge - specific (RP 571 listed mechanisms, RP 572, RP 576, RP 578, PCC-2 listed articles)

- ☐ Name each damage mechanism on the current list and the service conditions where it tends to appear.
- ☐ Say where each mechanism usually forms in a vessel and how it is commonly found.
- ☐ Describe the inspection practices for vessels, from external checks to internal entry.
- ☐ Describe how relief devices are inspected and tested.
- ☐ Say how material verification works for new and existing parts.
- ☐ Name the listed repair articles and what each one is for.

Formulas to work by hand

Thickness in inches and time in years. Use one location for every reading and one unit system throughout.

Corrosion rate

long term = (first thickness - current thickness) / years between those two readings
short term = (previous thickness - current thickness) / years between the last two readings

Remaining life

metal available = current thickness - required thickness
remaining life = metal available / corrosion rate

Formulas as worked in our remaining life and short-term vs long-term corrosion rate guides. Required thickness comes from your own code copy. Remaining life is a projection, not the inspection interval.

Check your numbers

Corrosion rate calculator: longseam.com/tools/corrosion-rate-calculator
Remaining life calculator: longseam.com/tools/remaining-life-calculator
Inspection interval calculator: longseam.com/tools/inspection-interval-calculator
MAWP and thickness calculator: longseam.com/tools/mawp-thickness-calculator
Open-book lookup drill: longseam.com/tools/api-510-lookup-drill

Read next

API 510 Body of Knowledge by section: longseam.com/guides/api-510-body-of-knowledge
API 510 calculations guide: longseam.com/guides/api-510-calculations
API 510 formula sheet: longseam.com/guides/api-510-formula-sheet
Closed-book exam guide: longseam.com/guides/api-510-closed-book-exam
Open-book strategy: longseam.com/guides/api-510-open-book-strategy

How to use this checklist

- Take the free 10-question check first and start with the section it shows as weakest.
- Work each formula by hand with fresh numbers, then check the answer with the matching calculator.
- For the open-book part, practice finding each line in the publications listed for your exam window.

Ready to test yourself? 10 free API 510 questions

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