Corrosion rate and remaining life formula sheet

Built from our remaining life and short-term vs long-term corrosion rate guides. Every number in the checks is invented for practice.

Our own one-page summary of the wall loss arithmetic in two of our guides. Work each check by hand, then use the calculator beside it.

- Use one location for every reading and one unit system throughout (inches and years, or millimetres and years).
- Required thickness is what the component needs for its pressure and loads, from your own code copy. It is not the nominal or original thickness.
- Remaining life is a projection, not the inspection interval and not the time to a leak. The shortest life among all locations governs.

Wall loss

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

Check: 0.500, 0.440 (7.0 years later), 0.367 in. (5.0 years after that): long term (0.500 - 0.367) / 12.0 = about 0.0111 in./yr; short term (0.440 - 0.367) / 5.0 = 0.0146 in./yr

Open in calculator: longseam.com/tools/corrosion-rate-calculator

Remaining life

metal available = current thickness - required thickness

remaining life = metal available / corrosion rate

Check: 0.412 in. read, 0.300 in. required: 0.112 in. available; at 0.009 in./yr about 12.4 years; at 0.014 in./yr 8.0 years

Open in calculator: longseam.com/tools/remaining-life-calculator

Remaining life at each rate

work the same metal available against the short-term and the long-term rate, and compare

Check: 0.367 - 0.300 = 0.067 in.: 0.067 / 0.0146 = about 4.6 years; 0.067 / 0.0111 = about 6.0 years

Open in calculator: longseam.com/tools/remaining-life-calculator

Sources

API 510 Body of Knowledge, September 2026, January 2027 and May 2027, API. API 510 section 7 is named by number only; read it in your own copy. Worked arithmetic is ours.

Read next

Remaining life guide, with the worked example: longseam.com/guides/remaining-life

Short-term vs long-term corrosion rate: longseam.com/guides/short-term-vs-long-term-corrosion-rate

API 510 formula sheet: longseam.com/guides/api-510-formula-sheet

Find your weakest topic with the free 10-question check, explained as you answer it, no signup:
longseam.com/api-510

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