

What are the temperature and pressure specifications for stainless steel tubing - FAQ

It is very hard to claim any particular pressure or temperature rating for stainless steel tubing used in HPLC applications without knowing the specifics of use as there are many types of SS tubing used in the laboratories.

Seamless welded, double welded and annealed tubing have different specs making this a difficult question to answer. The way the tubing is used (straight or coiled, type of solvent or gas etc.) also has a major impact on the answer.

As a general rule of thumb, the following pressure specifications apply to the MicroSolv stainless steel tubing used for HPLC, in short non-coiled lengths:

- 1/16"OD x 0.020" ID – 15,800 psi
- 1/8" OD x 0.080" ID – 7,600 psi
- This is a recommended maximum working pressure for each tube.
- The working pressure rating reflects a safety margin before the tubing reaches its "yield pressure" – the pressure at which the material begins to yield and expand slightly.
- The yield pressure is much lower than the "burst pressure" – the pressure at which the tubing bursts / ruptures. This is due to the fact that stainless steel "work hardens", causing it to become stronger as it "yields".

The temperature range of the tubing should be not more than approximately 400 °C but typically other factors will limit the temperature below this value. For example, adverse interaction of some solvents with the stainless steel at elevated temperatures as suggested above, boiling points of the solvents, etc. could all contribute to a lower workable temperature limit.

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