

Packed Columns

(2.0 mm through 3.2mm ID)

Important Notes:

1. Even though the packing materials used in packed columns are preconditioned prior to packing, your packed column will still need conditioning following the steps in the Installation Instructions section below.
2. Occasionally, to minimize static charge, a small volume of a proprietary solvent may be used to aid in the packing of the column. This will not affect column performance; however, care should be taken when installing the column for the first time as a small volume of liquid may be expelled from the column.
3. All molecular sieve columns are end-capped to prevent moisture diffusion.
4. Packed columns which are manufactured for on-column injections have a two inch void at the inlet (unless otherwise noted). A column specified as “packed full” does not contain this void.
5. For gas chromatographs designed for capillary columns, an adaptor or pigtail set-up will be needed to install a column. Contact Restek or your instrument manufacturer for details.
6. Never cut or trim either end of a packed column.
6. Program the GC oven from 40 °C to the maximum temperature limit for the packing material at a ramp rate of 5 °C/min. Once the column's maximum temperature is reached, hold this temperature for 1 to 2 hours for porous polymers and liquid phase coated solid supports, and for 3 hours for molecular sieves. Do not exceed the maximum temperature for any packing. Do not condition overnight.
7. With the carrier gas still flowing, cool the GC oven and attach the column to the detector. Set the appropriate detector temperature and allow it to stabilize. The column should now be ready to use.

Installation Instructions:

1. Remove the column end caps (and silicone ferrule, if present) and attach an appropriate column nut and ferrule (if necessary, consult with your instrument manufacturer for the appropriate nut and ferrule recommendations).
2. Connect the column to the injection port (do not connect to the detector at this time). **Slowly*** increase the column head pressure just until the carrier gas flow begins exiting the column. Please note that a small amount of solvent vapor may also exit the column (see #2 under Important Notes).
* Increasing the head pressure too quickly may compact the packing and plug the column. Do not increase at a rate exceeding 10 psi/minute.
3. Attach a flow meter to the outlet end of the column and **slowly** increase the head pressure until the desired flow rate is obtained. Typical carrier gas flow rates for 2.0 mm ID packed columns are 12 to 25 mL/min and for 3.2 mm ID columns, 18 to 35 mL/min. Do not rely on the GC displayed flow rate; measure the flow exiting the column using a bubble flowmeter or an electronic flowmeter.
4. Set the GC oven temperature to 40 °C and purge the column for 10 minutes with clean, dry carrier gas (carrier gas purifiers for oxygen, hydrocarbon and moisture are highly recommended).
5. Set the injection port temperature to 150 °C (but do not exceed the maximum temperature for any packing) and verify the GC oven temperature is 40 °C.
6. Always turn off the carrier gas and allow the column pressure to reach zero (atmospheric pressure) before performing any routine maintenance, such as changing septa, or removing the packed column. Failure to do so may expel the packing material from the column.
2. Never exceed the recommended maximum temperature of the packing.
3. Occasionally, 5A and 13X molecular sieve columns need to be dried to remove moisture. To dry, we recommend using clean, dry nitrogen. With 25 mL/min nitrogen flowing through the column, set the GC oven temperature to 300 °C, and bake the column for 3 hours.
4. Please note that the carrier gas head pressure will differ for packed columns, even among those with the same mesh size. This is due to differences in particle shapes and sizes. Irregular shaped particles will pack more densely than spherical particles. In addition, because mesh size is actually a range of particle sizes and not simply a single size, each column will have a unique pressure-drop. Therefore, carrier gas head pressure may need to be adjusted for each packed column, even for those columns which contain the same packing.
5. If you experience irregular peak shapes or tailing peaks, verify that the column is not overloaded by injecting less sample or standard.
6. Always **leak check** every connection/fitting and around the injection port using an electronic leak detector.

Helpful Hints:

See additional information, such as column/packing temperature limits on Restek.com under ChromBLOGraphy (Packed Columns) and Packed/Micropacked Column FAQs