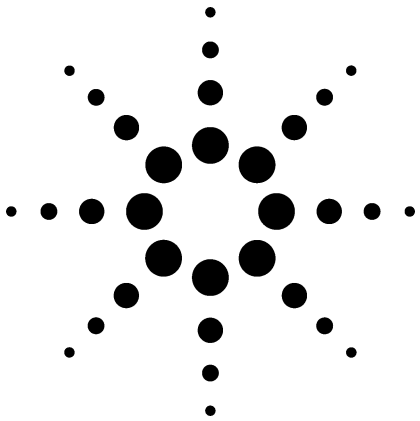
Agilent Eclipse XDB Cartridge Columns

Data Sheet



Care and Use Information

Eclipse XDB-C8 and -C18 are microparticulate packings that use the technologies of eXtra-Dense Bonding (XDB) of organo-silane ligands and double endcapping to protect the ultra-pure (Type B) silica support from dissolution in mobile phases of intermediate pH. Eclipse XDB-C8 and -C18 are especially useful for the separation of acidic, basic, and other highly polar compounds by reversed-phase liquid chromatography. Eclipse XDB-C8 and -C18 are made by first chemically bonding a dense monolayer of dimethyloctyl (or octadecyl) silane stationary phase to a specially prepared, ultra-high purity (99.995% SiO_2), ZORBAX Rx-SIL porous silica support. This special ZORBAX silica support (Type B) is designed to reduce or eliminate strong adsorption of basic and highly polar compounds. The bonded phase packing is then double endcapped using proprietary reagents and procedures to obtain maximum deactivation of the silica surface. Eclipse XDB-C8 and -C18 can be used in the pH range of 2–9, but is best suited for long-term operation at pH 3–8.

The uniform, spherical Eclipse XDB-C8 and -C18 particles are based on ZORBAX Rx-SIL silica support that has a surface area of 180 m^2/g and a controlled pore size of 80Å. Columns are packed to a stable uniform bed density using a proprietary, high-pressure, slurry-packing technique to give maximum column efficiency and longevity.

Unpacking

Inspect the column immediately upon its arrival. If there are any signs of damage, notify your local Agilent representative at once. Record the column type and serial number, purchase date, and operating limits. Keep a record of column usage along with your test chromatogram. This record will be invaluable in diagnosing chromatographic problems. The shipping solvent of ZORBAX and Eclipse columns is water/acetonitrile or water/methanol.

Installation

Before you install the column in your LC system, make sure that the solvent lines are cleaned and filled with HPLC-grade solvent. When the solvent is flowing freely from the capillary outlet, connect the capillary to the column. Attach the column outlet to the detector. Set the solvent flow according to the id of the column. You must wash out the shipping solvent and condition the column with the required mobile phase prior to using it. Flushing with a minimum of 10 column volumes is recommended. Typical wash volumes for these column dimensions are 12.5 mL for 75 mm length, 25 mL for the 150 mm, and 41 mL for the 250-mm length column.

Operation

Use HPLC-grade solvents that have been filtered through a 0.45-µm filter. Filter all buffer solutions before use. Some salt buffers precipitate when mixed with organic solvents. Check this by mixing the buffer and solvent in a beaker. If precipitation occurs, this type of mixture is not recommended as precipitation will block capillaries and column frits. The use of an in-line filter is recommended. Also, the use of a cartridge guard column packed with ZORBAX is recommended (Agilent Technologies, part number 7995118-504).

Pay attention to the limits of operating condition. When operating with a mobile phase, pH >maximum column life will be obtained if column temperature is maintained <40 °C.

Flow direction is marked on the column label.

Maintenance

If the column is to be used daily, it can be left in buffer/organic solvent overnight by flushing the column with a low flow rate. If the column is not going to be used for several days, wash out any buffers with a compatible water-methanol or water-acetonitrile mixture. Remove the column from the system and replace the end-plugs. After the column is used for an extended period of time, the column may show reduced efficiency together with increased backpressure. This may be caused by contamination from impurities in sample or solvents. A column can often be restored by pumping a strong solvent through it. Reversing the direction of flow can also be helpful. If this does not help, the inlet filter might be blocked and needs replacing. If column performance deteriorates, it might be caused by a void at the head of the column. If the packing material at the top of the column is discolored:

1. Remove a small amount of the packing material (0.5 to 1-mm deep) with a spatula, or
2. Form a paste of packing material in acetone and carefully add to the top of the column in a mound, or
3. Insert a new filter.

We recommend that you test the column periodically, either with your own standard or preferably according to the conditions specified in the test chromatogram.

Applications

Eclipse XDB-C8 and -C18 provide better chromatographic performance with basic compounds, using the same buffers and organic modifiers employed in reversed-phase chromatography. For most basic compounds it will normally not be necessary to use basic modifiers, such as triethylamine, to achieve efficient, symmetrical peaks. However, very basic compounds may require the addition of basic modifiers to the mobile phase, such as 10–20 mM dimethyloctylamine or 20–30 mM triethyamine. Basic compounds are often best chromatographed with mobile phases of pH 3. One highly recommended mobile phase for very basic compounds is 0.1% trifluoroacetic acid adjusted to pH3 with triethylamine, and an appropriate concentration of methanol or acetonitrile.

Agilent Ordering Information

For more information on our products and services, visit our Web site at www.agilent.com/chem/supplies.

For technical support in the U.S. and Canada, call 1-800-227-9770 or call your local Agilent sales office.

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